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Foreword

Structural and institutional strengths, a strong crisis response and a high level of digitalisation have helped the Netherlands to weather the COVID-19 crisis with so far limited economic damage compared to many OECD countries. Several long-standing challenges are set to affect the strength of the recovery and its long-term sustainability. Non-standard employment is high, driven to a large extent by lower labour costs for the self-employed and other non-standard workers than for regular employees. Women are overrepresented among non-standard workers and typically work shorter hours. Households' balance sheets, inflated by tax-subsidised housing debt and mandatory pension savings, create macroeconomic vulnerabilities and underpin inequality of assets. Landmark court rulings limiting nitrogen and greenhouse gas emissions are set to speed up a necessary green transition and led to earlier than planned closures of polluting economic activities, but have slowed down investments in infrastructure, buildings and agriculture. Embracing digitalisation is key to raise living standards further, but the social costs of skill-biased structural change, in many cases accelerated by COVID-19, must be handled firmly, notably by boosting skills and ensuring equal access to social protection.

Table of contents

Foreword 3

Executive summary 9

1 Key policy insights 14
The COVID-19 pandemic has dragged down the economy 15
Investments for sustainable growth 28
Skills and labour market reforms to build social capital 43
References 62

2 Productivity and digitalisation for a stronger recovery after COVID-19 67
Supporting an inclusive and efficient digital transformation 69
Boosting skills to realise digital complementarities 87
References 98

FIGURES

Figure 1. The economy contracted less than elsewhere 10
Figure 2. The budget deficit and public debt have increased substantially 11
Figure 3. Emission reduction targets call for additional policies 11
Figure 4. Women spend less time in paid work than men 12
Figure 5. Employment in some hard-hit sectors is vulnerable to automation 12
Figure 6. Small firms lag behind in adopting digital technologies 12
Figure 1.1. Recent COVID-19 developments in the Netherlands 16
Figure 1.2. The economy contracted less than elsewhere 17
Figure 1.3. Investment is recovering, reflecting improving confidence 19
Figure 1.4. Unemployment has fallen back somewhat after the first COVID-19 wave 20
Figure 1.5. House prices continue to rise 20
Figure 1.6. Exports of goods by commodity and destination 21
Figure 1.7. The budget deficit and public debt have increased substantially 23
Figure 1.8. Future expenditure increases will be driven by population ageing 24
Figure 1.9. Illustrative public debt trajectories 25
Figure 1.10. Financial stability indicators are in the mid-range of other OECD countries 27
Figure 1.11. Weak investments have contributed to lacklustre labour productivity growth 28
Figure 1.12. Maximum grant under the Recovery and Resilience Facility 31
Figure 1.13. Dutch households hold high assets and high debt on average 33
Figure 1.14. Home-ownership tax bias continues after housing tax reform 34
Figure 1.15. The home-ownership gap between high and low income households is large 35
Figure 1.16. The private rental market is underdeveloped 36
Figure 1.17. Air quality only improved temporarily during the pandemic 38
Figure 1.18. The Netherlands is not yet on track to meet its medium term emission targets 41
Figure 1.19. Environmental taxes are high and resource efficiency has improved 43

Figure 1.20. Trust in people and government are high 44
Figure 1.21. Corruption is low 45
Figure 1.22. Regular workers are highly protected, while temporary workers are not 46
Figure 1.23. The share of flexible workers has increased over the past decade 46
Figure 1.24. The self-employed pay less pension and social security contributions 47
Figure 1.25. Old-age poverty is low 50
Figure 1.26. Some hard-hit sectors are also exposed to automation pressures 52
Figure 1.27. PISA performance is high but declining, and the weakest fall further behind 54
Figure 1.28. School closures and reduced activity can hold back human capital accumulation 55
Figure 1.29. Unequal sharing of family work lead to gender gaps in pensions and income 56
Figure 1.30. Relatively short maternity leave is set to increase 57
Figure 2.1. Labour productivity is high while productivity growth is slow 68
Figure 2.2. The Netherlands is more digitalised than the OECD average 70
Figure 2.3. A range of policies can support productivity through digital adoption in the Netherlands 71
Figure 2.4. Teleworking was common already before COVID-19 72
Figure 2.5. Most firms have a broadband connection but the uptake of high-speed internet is low 73
Figure 2.6. Streamlining regulations could boost digital technology adoption and productivity 75
Figure 2.7. Administrative burden on start-ups was high before the COVID-19 crisis 76
Figure 2.8. A large share of employment and value added come from small and medium firms 78
Figure 2.9. Adoption of digital technologies is increasing but small firms lag behind 79
Figure 2.10. The productivity gap has widened in the Netherlands 80
Figure 2.11. Digital adoption and intangibles lead to higher labour productivity growth 81
Figure 2.12. Few Dutch small and medium enterprises make use of equity finance 82
Figure 2.13. Reliance on venture capital is relatively low 84
Figure 2.14. Investment in ICT and software is high, but R&D investment remains low 86
Figure 2.15. Small firms receive less direct R&D funding, but R&D tax incentives are generous 87
Figure 2.16. The Dutch labour market shows signs of polarisation 89
Figure 2.17. Labour market policy spending is relatively high, while spending on training is relatively low 90
Figure 2.18. Adults' skills for the digital economy are high 92
Figure 2.19. Small firms provide less ICT training than larger ones 93
Figure 2.20. Shortages of ICT specialists are pressing 94
Figure 2.21. The Netherlands is experiencing a shortage of ICT graduates 95

TABLES

Table 1. The economy will slowly recover 10
Table 1.1. Macroeconomic indicators and projections 22
Table 1.2. Events that could lead to major changes in the outlook 23
Table 1.3. Past recommendations on fiscal policy 25
Table 1.4. Past recommendations on financial stability 27
Table 1.5. Past recommendations on housing 37
Table 1.6. Past recommendations on environment 43
Table 1.7. Past recommendations on inequalities 49
Table 1.8. Past recommendations on pensions 50
Table 1.9. Past recommendations on skills 55
Table 1.10. Illustrative GDP impact of selected recommendations 58
Table 1.11. Illustrative fiscal impact of recommended reforms 58
Table 1.12. Past recommendations on gender equality 59
Table 1.13. Findings and recommendations 60
Table 2.1. Policy recommendations from this chapter 97

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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 the Netherlands were reviewed by the Committee on 19 April 2021. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 27 May 2021.

The Secretariat's draft report was prepared for the Committee by Jon Pareliussen, Daniela Glocker and Martin Borowiecki under the supervision of Isabelle Joumard. Statistical research assistance was provided by Steven Cassimon and Eun Jung Kim, and editorial assistance by Karimatou Diallo.

The previous *Survey* of the Netherlands was issued in July 2018.

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

Basic statistics of the Netherlands, 2019

(Numbers in parentheses refer to the OECD average) [1]

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	17.3		Population density per km² (2018)	511.8	(38.1)
Under 15 (%)	15.9	(17.9)	Life expectancy at birth (years, 2018)	81.8	(80.1)
Over 65 (%)	19.6	(17.1)	Men (2018)	80.3	(77.5)
International migrant stock (% of population)	13.4	(13.2)	Women (2018)	83.4	(82.8)
Latest 5-year average growth (%)	0.5	(0.6)	Latest general election	March-2021	
ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	907.0		Agriculture, forestry and fishing	1.8	(2.7)
In current prices (billion EUR)	810.2		Industry including construction	19.9	(26.6)
Latest 5-year average real growth (%)	2.2	(2.2)	Services	78.3	(70.8)
Per capita (000 USD PPP)	59.5	(47.6)			
GENERAL GOVERNMENT Per cent of GDP					
Expenditure	42.0	(40.6)	Gross financial debt (OECD: 2018)	62.5	(107.6)
Revenue	43.7	(37.5)	Net financial debt (OECD: 2018)	30.6	(67.9)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.89		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	0.79		Machinery and transport equipment	29.9	
In per cent of GDP			Chemicals and related products, n.e.s.	16.6	
Exports of goods and services	83.3	(53.6)	Food and live animals	12.9	
Imports of goods and services	72.9	(50.1)	Main imports (% of total merchandise imports)		
Current account balance	9.9	(0.3)	Machinery and transport equipment	32.8	
Net international investment position	90.3		Mineral fuels, lubricants and related materials	14.1	
			Miscellaneous manufactured articles	13.6	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %)	62.6	(57.5)	Unemployment rate, Labour Force Survey (aged 15 and over, %)	3.4	(5.4)
Men	67.5	(65.6)	Youth (aged 15-24, %)	6.8	(11.8)
Women	57.8	(49.9)	Long-term unemployed (1 year and over, %)	1.0	(1.4)
Participation rate (aged 15 and over, %)	64.8	(61.1)	Tertiary educational attainment (aged 25-64, %)	40.4	(38.0)
Average hours worked per year	1,434	(1,726)	Gross domestic expenditure on R&D (% of GDP, 2018)	2.2	(2.6)
ENVIRONMENT					
Total primary energy supply per capita (toe)	4.1	(3.9)	CO2 emissions from fuel combustion per capita (tonnes)	8.2	(8.3)
Renewables (%)	7.2	(10.8)	Water abstractions per capita (1 000 m³, 2018)	0.5	
Exposure to air pollution (more than 10 µg/m³ of PM 2.5, % of population)	98.6	(61.7)	Municipal waste per capita (tonnes)	0.5	(0.5)
SOCIETY					
Income inequality (Gini coefficient, 2016)	0.285	(0.315)	Education outcomes (PISA score, 2018)		
Relative poverty rate (%, 2016)	8.3	(11.7)	Reading	485	(487)
Median disposable household income (000 USD PPP, 2016)	30.0	(22.8)	Mathematics	519	(489)
Public and private spending (% of GDP)			Science	503	(489)
Health care	10.0	(8.8)	Share of women in parliament (%)	31.3	(30.7)
Pensions (2017)	6.0	(8.6)	Net official development assistance (% of GNI, 2017)	0.6	(0.4)
Education (% of GNI, 2018)	5.0	(4.5)			

1. The year is indicated in parenthesis if it deviates from the year in the main title of this table.
Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 80% of member countries.
Source: Calculations based on data extracted from databases of the following organisations: OECD, IAE, ILO, IMF, United Nations, World Bank.

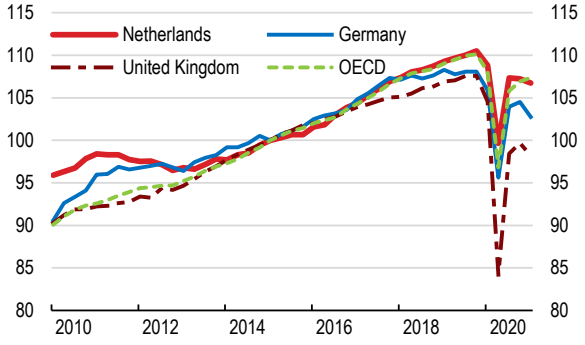
Executive summary

The COVID-19 pandemic drags down the economy

The Dutch economy experienced a severe contraction in 2020, reversing six years of strong growth. The spring COVID-19 outbreak was brought under control while still allowing for most economic activity to continue subject to social distancing and hygiene measures. This led to a less pronounced contraction than in other countries (Figure 1). Effective support policies and a high degree of digitalisation and teleworking already before the pandemic further dampened the blow. Resurgence of the virus in the autumn led to stricter measures but the economic downturn was limited as businesses and workers were able to adapt.

Figure 1. The economy contracted less than elsewhere

Real GDP, Index Q1 2015=100



Source: OECD Economic Outlook: Statistics and Projections (database).

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Unemployment increased only slightly, aided by quickly implemented policy support measures for firms. The measures included wage subsidies and the coverage of fixed costs, loan guarantees and deferred tax payments. These measures have so far prevented a wave of bankruptcies, but can hinder necessary structural change if kept in place too long.

The recovery will be gradual and subject to risks

Output is projected to gradually improve in 2021 and 2022 (Table 1), although it remains contingent on developments of the health situation and the distribution of vaccines. Following high saving in 2020, pent-up demand will drive the initial pick-up. However, increased pension premiums and rising unemployment as support measures are phased out, will hold back private consumption growth. Business investment will improve, but continues to be held back by reflecting lingering uncertainty. Increased leverage over the crisis is a further risk to private investment.

Table 1. The economy will slowly recover

(Annual growth rates, % unless specified)

	2020	2021	2022
Gross domestic product	**-3.7**	**2.7**	**3.7**
Private consumption	-6.4	-0.4	6.1
Government consumption	0.6	2.1	1.4
Gross fixed capital formation	-3.6	6.3	3.8
Exports	-4.3	4.7	3.8
Imports	-4.3	4.0	4.2
Unemployment rate (%)	3.8	4.1	4.7
Consumer price index	1.1	1.8	1.5
Current account balance (% of GDP)	7.8	8.8	8.9
General government fiscal balance (% of GDP)	-4.3	-6.1	-2.5
General government gross debt (% of GDP, Maastricht definition)	54.5	58.5	58.8

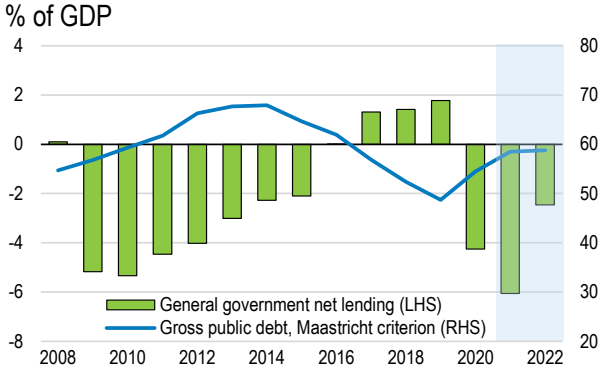
Source: OECD Economic Outlook: Statistics and Projections (database).

Fiscal prudence up to the crisis provided room for a strong government response. Automatic stabilisers were allowed to operate and generous discretionary support measures were swiftly introduced, resulting in a hike in public debt (Figure 2). There is room to maintain accommodative fiscal policy until the recovery is self-sustained, but ageing pressures call for structural reform and consolidation in the long run.

The financial sector has shown few signs of stress so far and banks have continued to provide credit throughout the pandemic. Pension funds funding ratios have long been under pressure from persistently low interest rates. High household debt is a source of macroeconomic vulnerability. Both first-time buyers and existing homeowners are borrowing more relative to their income than before as house prices have continued to increase, but the share of non-performing loans has remained low. Macroprudential regulations and a mortgage guarantee fund have reduced housing-related

financial risks, but a loan to value limit of 100% remains high in international comparison.

Figure 2. The budget deficit and public debt have increased substantially



Source: OECD Economic Outlook: Statistics and Projections.

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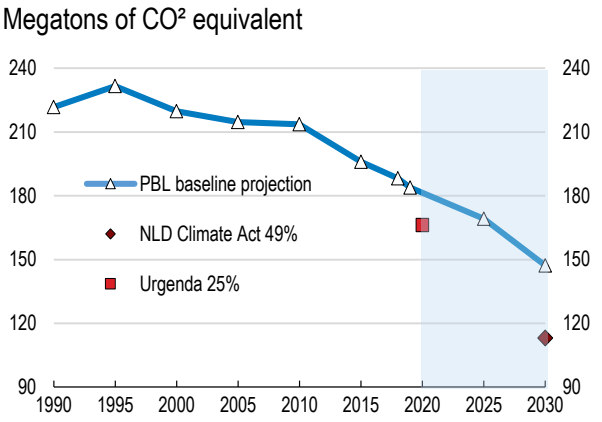
Investments are needed for sustainable growth

More could be done to improve the business climate. Regulations are in general lean, and insolvency proceedings have recently been reformed. Increased teleworking and the Internet of Things require increased bandwidth both in fixed and mobile connections.

Policies support demand for social and owner-occupied housing but supply constraints result in rising prices and rationing. Most public and private rental housing is subject to rent controls and rationing. Around half of the population is eligible for social housing, which is mostly supplied by housing corporations on state guarantees. Owner-occupied housing enjoys favourable tax treatment driving up prices. As a result, low- and middle-income households, notably single persons, that do not qualify for social housing and at the same time cannot access sufficient mortgage and equity to buy, are left with few housing options. Proposed legislation to allow municipalities to ban buy-to-let investments is counterproductive.

The Netherlands is set to fall short of its national target to reduce greenhouse gas emissions (Figure 3). A High Court ruling (the Urgenda ruling) mandated a 25% reduction of greenhouse gas emissions compared to 1990 levels by the end of 2020. This target was just met, owing to the COVID-19-related economic crisis, the reduction of coal power capacity and other measures. For sectors not covered by the EU emission trading system, CO_2 prices vary by emission sources and fuels.

Figure 3. Emission reduction targets call for additional policies



Note: The targets are percentage cuts compared to 1990 values.
Source: PBL Netherlands and RIVM.

StatLink https://stat.link/kyxlfc

Excessive nitrogen deposits in natural preservation areas limit the available nitrogen space for new developments, slowing down new investment projects. Another High Court ruling in 2019 resulted in the re-evaluation of permits for a range of nitrogen emitting activities, notably for construction and agriculture projects near natural preservation areas. To allow important infrastructure projects to resume, short-term measures such as reducing speed limits and paying farmers to reduce livestock were introduced. Multiple instruments are being put in place, and transfer of emission permits is allowed.

The dual labour market and skill needs should be addressed

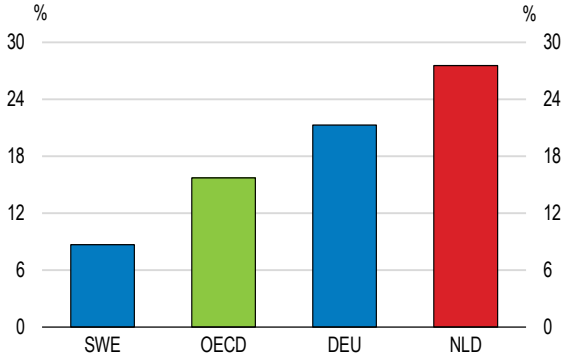
Self-employed and other flexible workers have been particularly affected by the COVID-19 crisis. These workers tend to earn less, save less, have less social protection, are less likely to engage in training and to own a house. Self-employed pay lower rates of income tax and social security, while permanent employees enjoy among the highest employment protection in the OECD. Temporary contracts are used more in sectors

affected by the COVID-19 crisis, in lower skilled occupations and by young workers.

Women's labour participation is high, but nearly 60% of women work part-time. This is roughly three times the rate for men (Figure 4). This represents an inefficient use of human capital and leads to large gender gaps in earnings, wealth and pensions. A relatively short parental leave period for partners and a relatively high out-of-pocket price of centre-based childcare likely play a role.

Figure 4. Women spend less time in paid work than men

Gap between women's and men's working hours



Note: Average usual weekly hours worked on the main job.
Source: OECD Labour Force Statistics (database).

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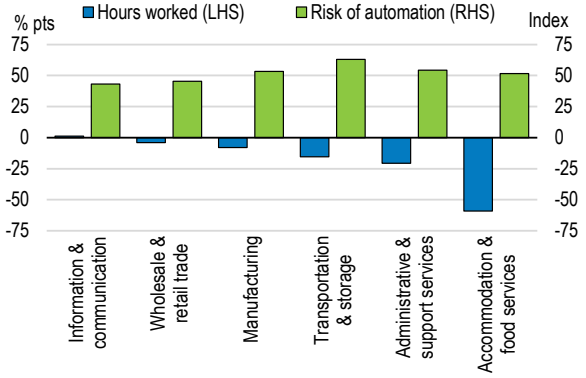
Continuing structural change may increase skill mismatches and thus reduce the value of some workers' skills. The COVID-19 crisis has likely accelerated this development, notably in some hard-hit sectors (Figure 5).

Digitalisation can boost productivity

The Netherlands has a strong ICT infrastructure and well-educated workforce, which put it in a good position to adopt digital technologies. Digitalisation is essential to boost productivity and support the recovery from the COVID-19 crisis. For this to happen, digital tools will need to be taken up more broadly.

Small- and medium-sized enterprises (SMEs) lag behind in digital adoption (Figure 6), while they account for a relatively large share of employment and value added. A lack of awareness and the fixed cost nature of investment in digital technologies weigh on the digitalisation process. A lack of finance is a further barrier to growth, and R&D expenditure is low.

Figure 5. Employment in some hard-hit sectors is vulnerable to automation



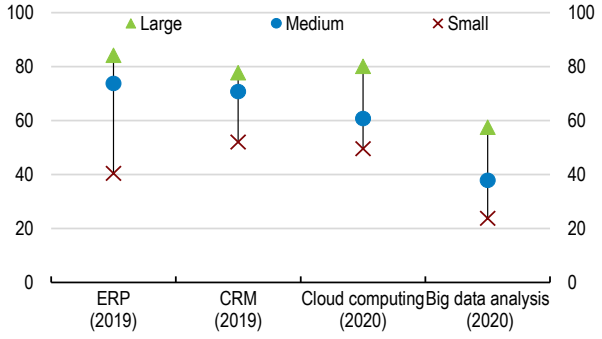
Note: Data on hours worked refer to the percentage change between 2019Q2 and 2020Q2.
Source: Author's calculations based on Nedelkoska and Quintini (2018) and Eurostat (2021), Short-term business statistics.

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Shortages of ICT professionals put a brake on digitalisation. A considerable share of students, especially those in vocational training, lack essential digital skills. Declining performance and increasing between-school differences in the latest PISA vintages are concerns.

Figure 6. Small firms lag behind in adopting digital technologies

% of adopting firms



Note: ERP = Enterprise Resource Planning software, CRM = Customer Relationship Management software. Small: 10-49 employees, Medium: 50-249, Large: 250 or more.
Source: OECD (2021), ICT Access and Usage (database).

StatLink https://stat.link/0a5chm

MAIN FINDINGS	KEY RECOMMENDATIONS
Supporting the economy through COVID-19	
Fiscal policy is highly expansionary and a too quick fiscal consolidation could derail the economic recovery. COVID-19 support policies have helped businesses to stay afloat during the height of the crisis, but constrain reallocation and productivity growth. Ageing- and health-related expenditure pressures are set to rise in the longer term. Debt accumulated today will need to be repaid by future generations.	Provide targeted fiscal support until the economic recovery is well underway. Phase out policies aimed at preserving existing companies and jobs when the health crisis is brought under control. Design in advance a multi-year plan for fiscal adjustment once the recovery is self-sustained.
COVID-19 and automation increase the need for re-skilling and up-skilling.	Increase training subsidies to jobseekers and workers with high up-skilling and re-skilling needs.
A tri-partite pension agreement is set to increase sustainability and intergenerational fairness of occupational pensions.	Fully implement the tri-partite occupational pension agreement moving to defined contributions.
Reducing household leverage and re-balancing the housing market	
Housing construction has not kept up with population growth and changing family formation patterns. Population density is high and land faces competing uses and coordination challenges.	Increase the supply of housing by speeding up land use planning and building procedures, designating housing construction locations, and making binding agreements with all parties involved.
The Dutch housing sector consists of a large part of owner-occupied housing, which enjoys a favourable tax treatment compared to alternative investments and rental housing.	Gradually reduce favourable tax treatment of owner-occupied housing beyond current plans.
Reasonably-priced rental housing is only available after a period of queuing due to price controls on one third of the housing stock.	Gradually limit rent controls to a narrower part of the market.
Housing corporations with state guaranteed debt dominate the rental market.	Evaluate how housing corporations affect the overall housing market and ensure that enough space is left for a private rental market.
Investing in the environment for growth and well-being	
Greenhouse gas emissions reduction targets will not be met under current policies. CO_2 prices vary by emission sources and for different fuels.	Make emission pricing more consistent across sectors and fuels not covered by the EU emissions trading scheme.
Nitrogen emissions need to be reduced to comply with national and European Union law. Multiple instruments are being put in place. The transfer of emission permits is allowed.	Consolidate instruments to manage transferable nitrogen emission rights to further facilitate standardisation and transfer of rights. Further enhance cross-border cooperation to tackle the nitrogen problem.
Reducing labour market duality and inequalities, boosting trust	
Employment protections for regular employed are strict. Self-employed workers earn less, save less, pay less income tax and social security contributions, incentivising their use while leaving them less protected. The Commission for the Regulation of Work has proposed a comprehensive reform package to reduce labour market duality and boost life-long learning.	Implement the Commission for the Regulation of Work recommendations, including: Allow employers to adapt jobs, workplace and working hours of regular employees in line with the needs of the economy. Align tax rates and social security contributions between contract types for workers doing similar jobs.
Nearly 60% of women work part-time, roughly three times the rate for men and the OECD average for women. The large gap in part-time work widens when partners become parents.	Go further than current plans in reserving leave entitlements following childbirth for partners. Increase leave replacement rates after the birth of a child for partners to the level available to mothers.
Enrolment in centre-based childcare is well above the OECD average, but time spent in childcare is low.	Reduce user prices for childcare.
Boosting productivity with digitalisation, skills and leaner regulations	
Small and medium enterprises account for a relatively large share of employment and value added. A lack of awareness and the fixed cost nature of investment in digital technologies weigh on the digitalisation process.	Increase direct support to SMEs to facilitate the adoption of digital tools, including business advisory services and testing facilities.
A large share of businesses are either unaware of, or passive towards, IT security issues, notably SMEs.	Encourage enterprises to implement existing digital security standards.

1 Key policy insights

The Netherlands has weathered the economic shock from COVID-19 relatively well thanks to structural strengths and emergency policies put in place. Continued fiscal support is needed to support the recovery, but it should become more targeted to allow structural change. Policy reforms to the labour and housing markets and investments in the green and digital transitions can contribute to make the economic rebound stronger, fairer and more sustainable.

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.

The Netherlands is emerging from an economic contraction without precedent in modern peace-time, and is set for a gradual recovery as people are vaccinated, restrictions are gradually lifted and confidence returns. Even though the virus outbreak was a major shock to people and the economy, the Netherlands has escaped the COVID-19 crisis with limited economic damage compared to most OECD countries, partly thanks to structural and institutional strengths and a high level of digitalisation.

In the short term, containing the virus and a successful vaccination campaign are essential to safeguard activity, people's incomes and well-being as well as public finances. Still, the virus will also leave a lasting legacy, by lost time in education and long-term joblessness, as well as a reduction in the quality of life for those who find that their skills are no longer in demand.

Several long-standing challenges are set to affect the strength of the recovery and its long-term sustainability: i) Non-standard employment is high, driven to a large extent by lower labour costs for the self-employed and other non-standard workers than for regular employed. Women are overrepresented among non-standard workers and typically work shorter hours. ii) Households' balance sheets, inflated by tax-subsidised housing debt and mandatory pension savings, create macroeconomic vulnerabilities and underpin inequality of assets (Box 1.4). iii) Landmark court rulings limiting nitrogen and greenhouse gas emissions (Box 1.5) have slowed down investments in infrastructure, buildings and agriculture and led to earlier than planned closures of polluting economic activities.

The first chapter of this Survey argues that these challenges and measures to address them will set the premises for long-term inclusive and sustainable growth in the Netherlands. Illustrative quantifications of the fiscal cost and GDP effects of selected recommendations are included in (Box 1.7), at the end of the chapter. The second chapter, based on an in-depth analysis of productivity with a special focus on digitalisation, concludes that embracing digitalisation is key to raise living standards further, but the social costs of skill-biased structural change, in many cases accelerated by COVID-19, must be handled firmly, notably by boosting skills and ensuring equal access to social protection. Against this background, this Survey conveys three main policy messages:

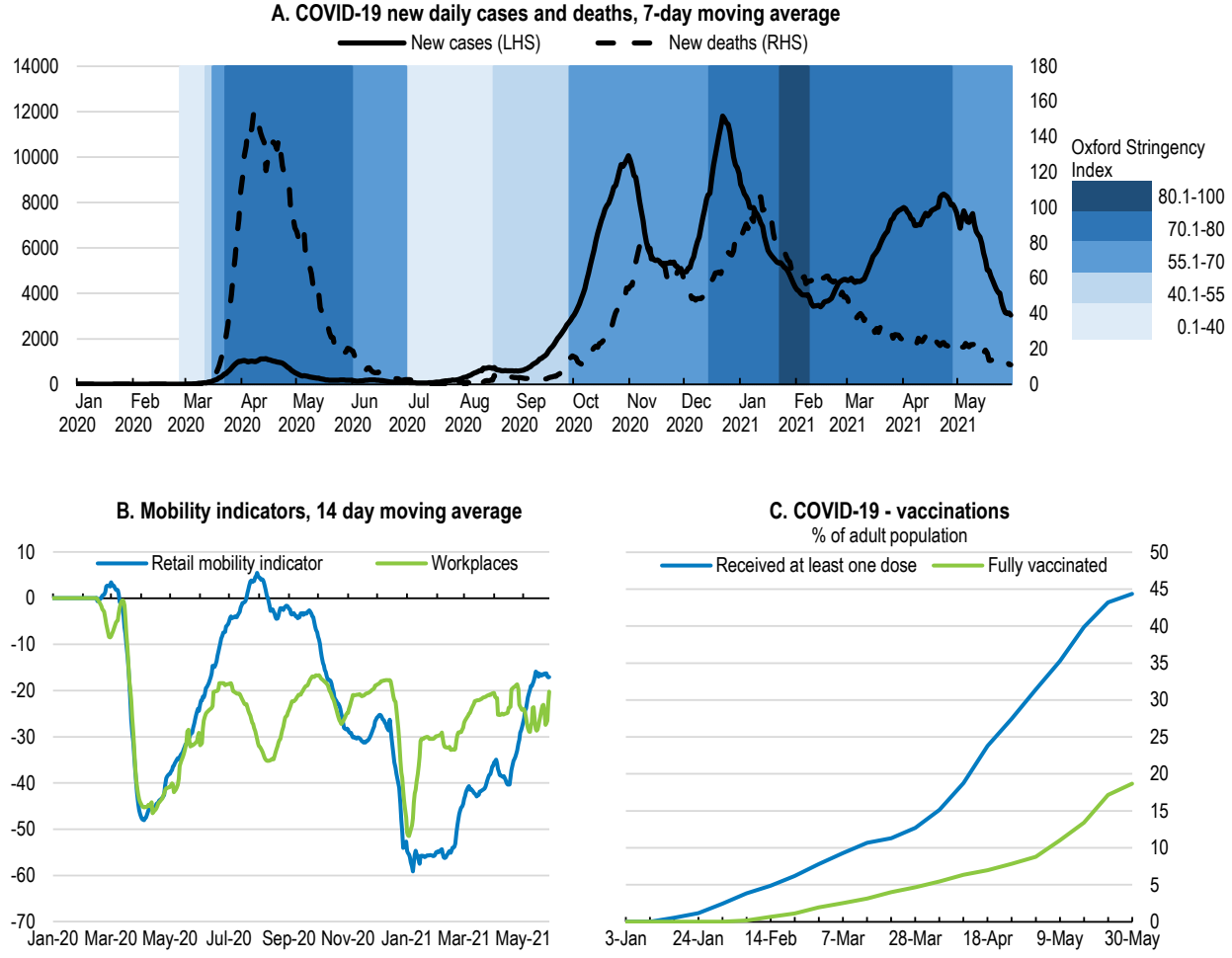
- Continued targeted fiscal support is appropriate in the short term. Fiscal adjustment needed for long-term sustainability should wait until the recovery is well under way. Long-term priorities include boosting skills and education, environmental sustainable activities, digitalisation, and addressing cost pressures from ageing.
- Reducing labour market duality and reforming the housing market would boost growth, increase macroeconomic and financial resilience and reduce inequalities.
- Reducing air pollution and greenhouse gas emissions are prerequisites for prosperity and well-being, calling for national action, as well as enhanced regional and international cooperation.

The COVID-19 pandemic has dragged down the economy

The Netherlands recorded its first wave of COVID-19 between March and June 2020. The second wave of COVID-19 infections surged in September 2020. Daily new confirmed cases during the second wave outpaced cases during the first wave, but the daily death rate has been lower (Figure 1.1, Panel A). During both waves, the Netherlands closed schools and restaurants and restricted public gatherings. International travel controls were in place and it was advised to limit travel as far as possible. Many economic activities, such as construction and retail trade, could continue during the first wave, subject to distancing and hygiene measures. Restrictions on group sizes and mask wearing were tightened during the second wave. Moreover, public places and non-essential businesses were closed and a night-time curfew was introduced, which is also reflected in lower mobility towards these places from mid-December until end-April (Figure 1.1, Panel B). Vaccination of the population started in January 2021, prioritising nursing home and frontline workers in hospitals, gradually extending to younger age-cohorts and people with pre-existing

specific serious conditions. By end-May, about 45% of the adult population had received at least one dose of the vaccine (Figure 1.1, Panel C).

Figure 1.1. Recent COVID-19 developments in the Netherlands



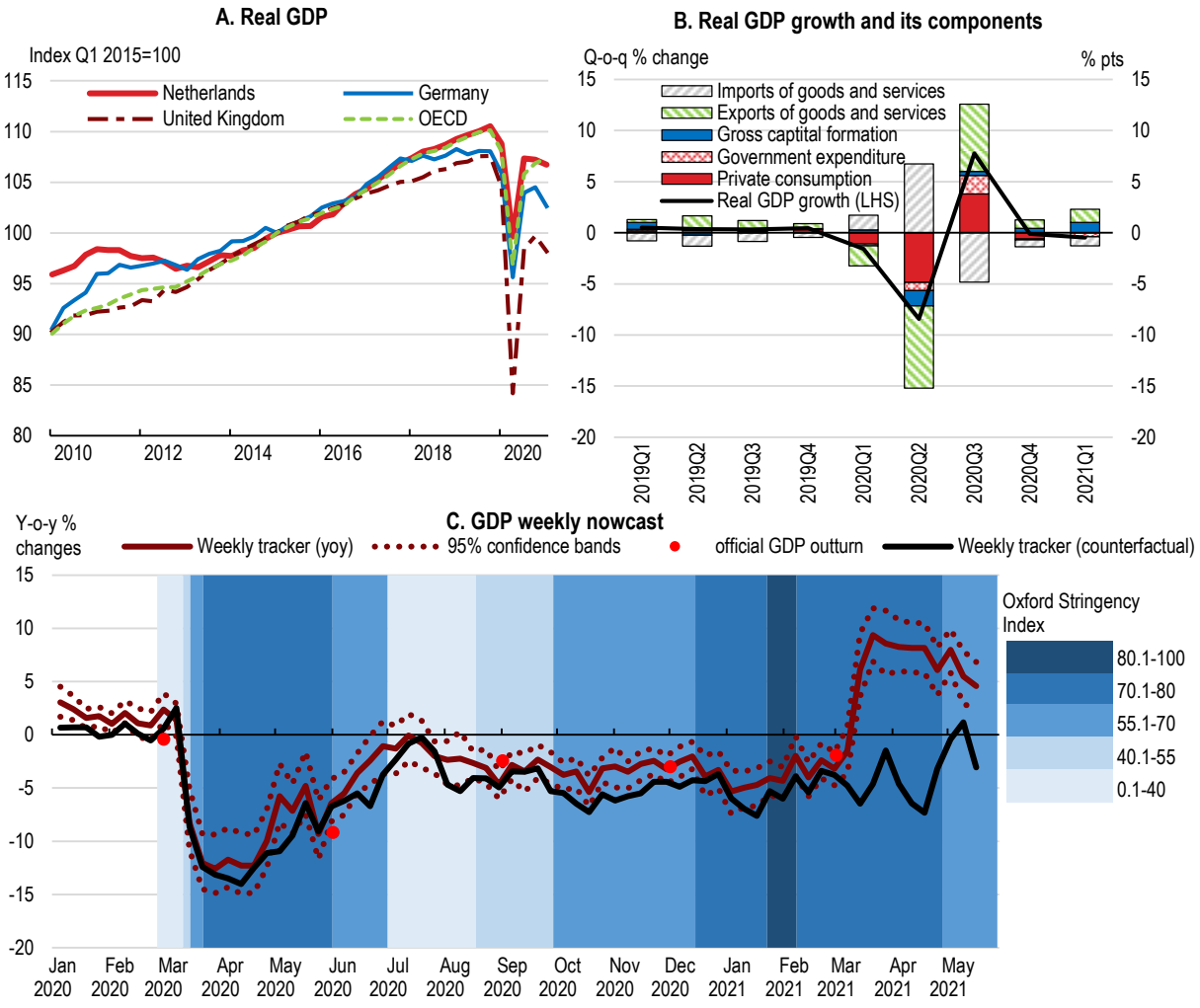
Note: Panel A: The colour scale of the background reflects confinement stringency based on the Oxford Stringency Index. Panel C: Adult population consists of all people that are older than 18 years of age.
Source: Hale et al., (2021). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government; Google LLC, Google COVID-19 Community Mobility Reports; and Roser et al (2021), "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org; and CBS.

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Economic output contracted by 3.7% in 2020, ending a six year period of strong growth and recording the largest post-war quarterly decline of 8.5% as the virus and containment measures took hold in the second quarter (Figure 1.2, Panel A). Household consumption and exports collapsed (Figure 1.2, Panel B). Still, the contraction was less pronounced than in most EU countries, where GDP dropped on average by 11.4% in the second quarter (Eurostat, 2021[1]). The decline in Dutch GDP was not as pronounced as in neighbouring countries due to less stringent restrictions on economic activity. A high degree of digitalisation and teleworking already before the pandemic further dampened the blow (see Chapter 2). After a strong rebound in the third quarter, quickly rising COVID-19 infections in the autumn outpaced available resources to test, track, trace and isolate and prompted the government to react. Even though measures were stricter

than during the first wave, the economic downturn was less pronounced in the fourth quarter, as businesses and workers were able to adapt swiftly by relying more on alternative work and sales modes, including teleworking, click-and-collect and home delivery (Figure 1.2, Panel C).

Figure 1.2. The economy contracted less than elsewhere



Note: Panel C: The Counterfactual Tracker represent the % difference in GDP level between a week and the same week a year earlier under the assumption that there wouldn't have been a pandemic a year ago and based on the December 2019 OECD Economic Outlook forecasts. The colour scale of the background reflects confinement stringency based on the Oxford Stringency Index.
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database), OECD Quarterly National Accounts; OECD Weekly Tracker: http://www.oecd.org/economy/weekly-tracker-of-gdp-growth/; Woloszko, N. (2021), "Tracking activity in real time with Google Trends", OECD Economics Department Working Papers; and Hale et al., (2021). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government.

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The government quickly implemented a comprehensive support package to protect jobs and firms during the two waves, allowing a quick restart in most sectors (Box 1.1). The main policy instruments for firms included financial support in the form of wage subsidies and coverage of fixed costs, as well as loan guarantees and deferred tax payments preventing a wave of bankruptcies. The total number of businesses and institutions filing for bankruptcy in 2020 stood at the lowest level in two decades (CBS, 2021[2]),

suggesting that measures have also prevented the exit of firms that were not viable even before the pandemic. Bankruptcies are set to increase when measures are phased out. This is necessary, as the business structure has to adapt to post-pandemic demand. However, support measures to firms should only be phased out as the health situation is brought under control, and should be accompanied by a supportive fiscal policy stance to secure sufficient demand to allow viable businesses to thrive.

Box 1.1. Measures to support the economy during the COVID-19 pandemic

The government put a comprehensive recovery and support package in place for businesses and employees in March, which was extended multiple times, with the latest extension running until end September 2021. Eligibility thresholds and support parameters were adjusted reflecting economic circumstances. The current package includes:

- Temporary emergency scheme for job retention (NOW): a grant, which compensates at most 85% of an employer's wage costs (rate applicable for the first half of 2021), conditional on at least 20% fall in turnover. Employers commit to retaining current jobs and paying 100% of the wages of the employees involved.
- Self-employment income support and loan scheme (TOZO): a temporary support scheme for self-employed workers (without employees) hit by the COVID-19 crisis. They are to receive a EUR 1 050 monthly allowance, up to EUR 1 500 in the case of married couples or couples with children. Moreover, municipalities provide extra services to the self-employed, including retraining, and help upgrading existing skills and exploring new careers.
- Fixed Costs Grant scheme (TVL): Businesses that have suffered a turnover loss of more than 30% are eligible. The scheme allows for a compensation of up to 85% of their costs, depending on the turnover loss. The maximum grant amount is EUR 330 000 for SMEs and EUR 400 000 for larger firms.
- Further measures include tax measures and support for specific sectors particularly hard hit by the pandemic and the extension of existing state guarantee schemes for business loans: the Business loan guarantee scheme (GO-C); the Small Credits Corona Guarantee Scheme (KKC); and the Credit Guarantee scheme for Agriculture (BL-C).
- The Dutch support package is scheduled to expire in autumn 2021. Further support in some form is likely.
- To aid the recovery, a social package was developed allocating EUR 1.4 billion to help mitigate job-losses, increase training and retraining efforts, combat youth unemployment and to support poverty and debt reduction efforts.

Macroprudential measures:

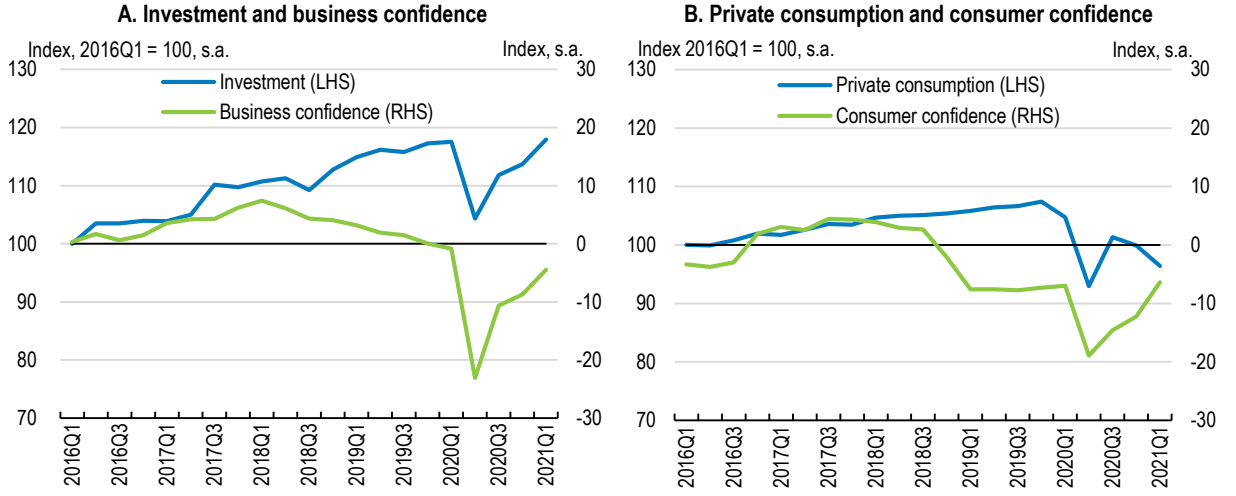
- De Nederlandsche Bank (DNB) allowed temporary relief by lowering the systemic buffers of the three major banks.

Source: Government of the Netherlands (2020, 2021), https://www.government.nl/topics/coronavirus-covid-19/news/

High uncertainty following the COVID-19 outbreak, reflected in plummeting producer confidence, contributed to low investment in 2020 (Figure 1.3, Panel A). Business investment fell sharply, and although it will be held back by lingering uncertainty, it is set to slowly recover as the economy re-opens. Private consumption has dropped during the pandemic, due to the restrictions on mobility and the rise in precautionary savings related to economic uncertainties of households (Figure 1.3, Panel B). These developments, in addition to structural drivers supporting household and corporate savings, contribute to a strong, albeit declining, current account surplus. Thus, in recent years high household savings in pension funds have been increasingly invested abroad and the non-financial corporate sector only partially matched higher profits by higher profit distribution (OECD, 2018[3]), a trend that is likely to resume once the economy

recovers. Although government investment increased substantially during the COVID-19 crisis, the downward pressure on the current account balance was limited (Table 1.1). Boosting private and public investment (see below), for example as done through the National Growth Fund, has the potential to increase the growth rate, strengthen domestic demand and thus lead to a more sustained reduction in the current account surplus.

Figure 1.3. Investment is recovering, reflecting improving confidence



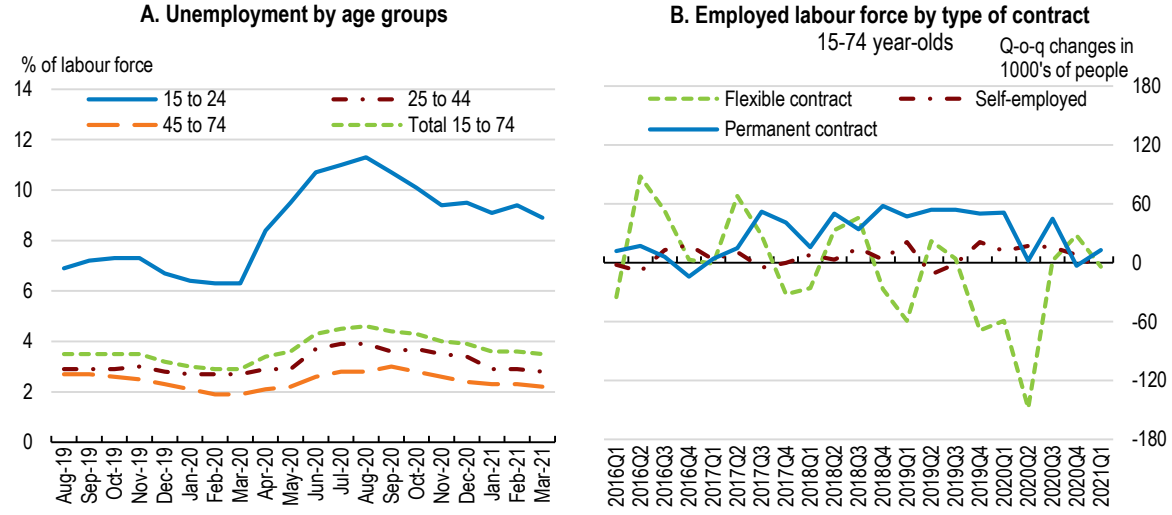
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database); and OECD (2021), OECD Main Economic Indicators (database).

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Unemployment rose steadily from 3% at the start of 2020 peaking at 4.6% in August before falling to 3.5% by March 2021 (Figure 1.4, Panel A). The job retention scheme (NOW), which provides a wage cost subsidy for employers (Box 1.1), helped to cushion the increase in unemployment. During the first round of the NOW (March-May), almost 140 000 companies made use of the scheme, benefiting 2.6 million employees (28% of the labour force). During the second round of the NOW (June-September), usage fell by half and the scheme still provided a wage cost subsidy for approximately 1.3 million employees. By comparison, during the financial crisis of 2009, the special short-time working scheme supported 37 000 employees and the subsequent part-time unemployment benefit up to 77 000 employees (DNB, 2020[4]).

The number of workers on freelance or on-call contracts declined sharply during the second quarter (Figure 1.4, Panel B). These workers are less protected against job loss than permanent employees who enjoy among the highest employment protection in the OECD (OECD, 2018[3]; OECD, 2020[5]). Flexible contracts are highly prominent in sectors affected by the COVID-19 crisis, such as hospitality, arts, entertainment and recreation. These contracts are also more frequent for individuals in low-skilled occupations and young workers (OECD, 2018[3]). Employers can get support for flexible workers through NOW, but cancelling or not renewing contracts is a low-cost option. This is reflected by a sharp increase in unemployment among the young during the pandemic (Figure 1.4, Panel A). Labour market duality has a range of negative effects, as discussed below.

Figure 1.4. Unemployment has fallen back somewhat after the first COVID-19 wave

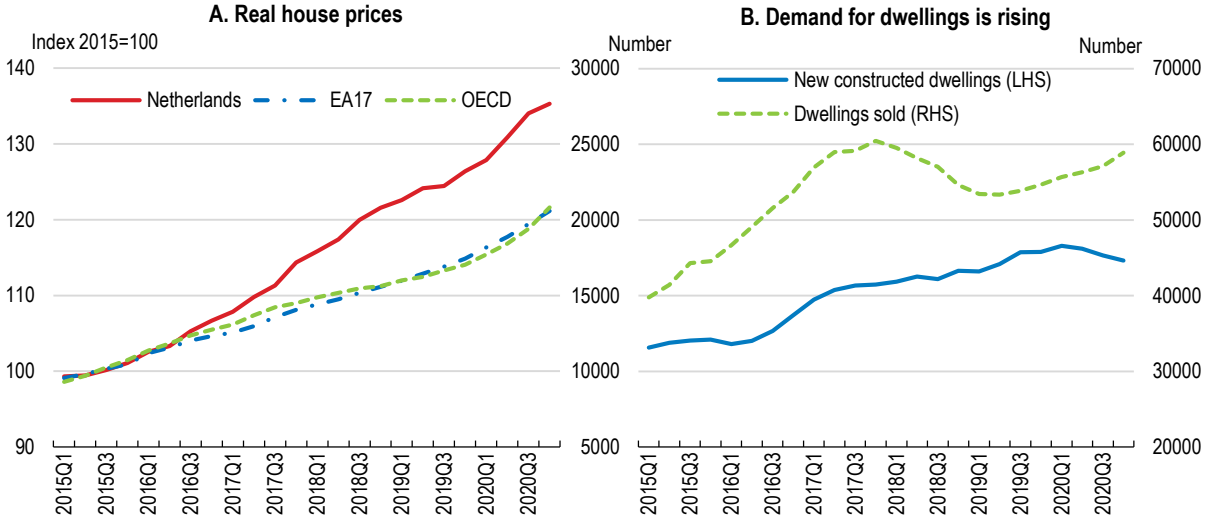


Source: CBS (2021), Monthly labour participation and unemployment (database); CPB (2020), Economic Outlook – November 2020.

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House prices have continued to increase, outpacing price developments in the Euro Area and the OECD (Figure 1.5, Panel A). The COVID-19 crisis aggravated the already existing housing shortage in part connected to a recent environmental ruling on nitrogen emissions that slowed down the permitting process (see below). Hygiene measures and a decline in available labour, as many foreign workers in the construction industry returned home, led to delays in the construction chain. Despite income uncertainties following the COVID-19 crisis, households' demand for owner-occupied dwellings in 2020 was high, supported by low mortgage interest rates. Additions to the housing stock have not kept pace with the formation of new households (OECD, 2018[3]), and the excess demand (Figure 1.5, Panel B) pushed up prices in 2020 by 7.8% on average relative to the previous year (CBS, 2021[6]).

Figure 1.5. House prices continue to rise



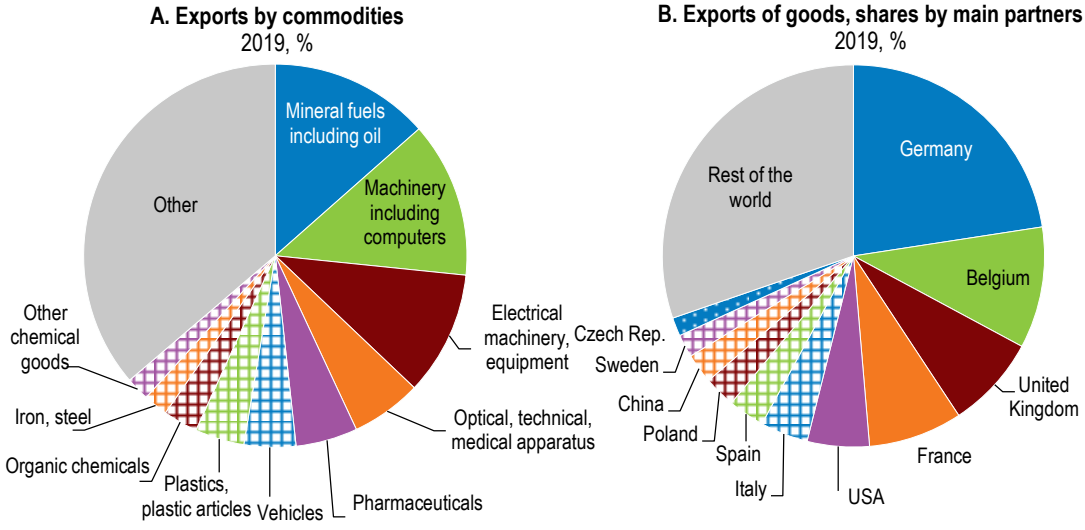
Note: A four-quarter moving average is applied to the series of dwellings sold and new constructed dwellings.
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database); CBS (2021), House Prices: new and existing dwellings price index (database), CBS (2021), Dwellings and non-residential stock; changes, utility function, regions (database).

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As a small open economy, the recovery is sensitive to global trade developments. A decline in global demand reduced Dutch exports by 4.3% in 2020 (Table 1.1). The Netherlands is still one of the largest gas producers in Europe (Figure 1.6, Panel A); however, gas exports are rapidly declining as production from Groningen is being phased out by mid-2022. European countries account for the majority of exports (Figure 1.6, Panel B). Health developments in major trading partners affected demand and lowered exports.

The Netherlands has important trade and investment linkages with the United Kingdom. In 2019, about 9% of goods and services exports went to the United Kingdom, and imports from the United Kingdom accounted for about 8% of the total. As the United Kingdom exited the EU single market, new administrative procedures, rules and additional checks at the border came into effect at the beginning of 2021. Exports of food and livestock have been particularly affected as quick customs clearances and fast transportation are essential for fresh deliveries. There might be some positive effects of Brexit for the Netherlands, such as firms relocating to facilitate trade with the EU. Recent examples include some financial services migrating to Amsterdam, but the effects of such dynamics on growth and tax revenues are so far small, and are likely to remain limited compared to the cost to the Netherlands of a hard border with the United Kingdom. The negative medium-term impact of Brexit for the Netherlands is estimated to around 0.5% of GDP (Arriola et al., 2020[7]).

Figure 1.6. Exports of goods by commodity and destination



Note: Panel A is based on the two-digit Harmonized System 2012.
Source: OECD (2021), OECD International Trade by Commodity Statistics (database).

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The recovery will be gradual and subject to risks

The economic recovery will be gradual and continue to depend on developments of the health situation and measures implemented to contain further outbreaks. The distribution of vaccines, which is crucial for the recovery, started in January 2021, and aims to have the wider population vaccinated by the end of 2021. Under the assumption that vaccines will be effective against virus mutations in circulation and further outbreaks can be avoided, output is projected to gradually improve in 2021 and 2022 (Table 1.1). Spending of forced and precautionary savings will boost consumption and drive the pick-up. However, rising unemployment, as the job retention scheme is phased out, and increasing pension premiums will hold

back private consumption growth over 2021-22. Wage growth is expected to fall sharply due to labour market slack, and apart from a temporary increase due to higher oil prices, inflation pressures will be weak in 2021-22. Inflated household balance sheets pose a further risk to the recovery of consumption.

Business investment will recover somewhat as financing costs are low and earnings expectations improve, but the increase will be moderate due to continued uncertainty and considerable spare capacity. Increasing business leverage over the crisis poses an additional risk to private investment going forward. Government investment is projected to grow, reflecting higher construction and infrastructure investment and additional capital spending from the National Growth Fund, a new publicly funded investment set to disburse EUR 20 billion over five years, and from the EU Next Generation Fund. The economic outlook is particularly sensitive to further outbreaks that could be caused by vaccine-resistant virus strains (Table 1.2).

Table 1.1. Macroeconomic indicators and projections

Annual percentage change, volume (2015 prices)						
	2017	2018	2019	2020	Projections	
	Current prices (EUR billion)				2021	2022
Gross domestic product (GDP)	**738.8**	**2.3**	**1.6**	**-3.7**	**2.7**	**3.7**
Private consumption	327.3	2.1	1.5	-6.4	-0.4	6.1
Government consumption	179.6	1.7	1.6	0.6	2.1	1.4
Gross fixed capital formation	148.8	3.5	4.5	-3.6	6.3	3.8
Housing	33.0	9.3	1.6	-2.7	9.5	3.3
Business	90.5	1.8	6.7	-4.7	1.9	4.1
Government	25.4	2.3	1.0	-0.9	5.4	3.5
Final domestic demand	655.6	2.3	2.2	-3.8	1.9	4.1
Stockbuilding[1]	3.5	0.1	-0.2	0.1	0.0	0.0
Total domestic demand	659.3	2.4	1.9	-3.7	1.9	4.1
Exports of goods and services	616.3	4.2	2.6	-4.3	4.7	3.8
Imports of goods and services	536.8	4.6	3.1	-4.3	4.0	4.2
Net exports[1]	79.5	0.2	-0.1	-0.4	1.0	0.1
Other indicators (growth rates, unless specified)						
Potential GDP		1.5	1.5	1.4	1.3	1.2
Output gap[2]		0.7	0.8	-4.3	-3.1	-0.7
Employment		2.3	2.0	0.0	0.2	0.3
Unemployment rate		3.8	3.4	3.8	4.1	4.7
GDP deflator		2.4	2.9	2.4	2.3	1.6
Consumer price index (harmonised)		1.6	2.7	1.1	1.8	1.5
Core consumer prices (harmonised)		1.0	1.9	1.9	1.9	1.5
Household saving ratio, net[3]		9.1	10.0	17.2	17.7	12.2
Current account balance[4]		10.8	9.9	7.8	8.8	8.9
General government fiscal balance[4]		1.4	1.8	-4.3	-6.1	-2.5
Underlying general government fiscal balance[2]		1.1	1.3	-1.4	-4.1	-2.1
Underlying government primary fiscal balance[2]		1.8	1.9	-0.9	-3.7	-1.8
General government gross debt (Maastricht)[4]		52.4	48.7	54.5	58.5	58.8
General government net debt[4]		34.3	30.6	35.8	40.1	40.5
Three-month money market rate, average		-0.3	-0.4	-0.4	-0.5	-0.5
Ten-year government bond yield, average		0.6	-0.1	-0.4	-0.3	-0.3

1. Contribution to changes in real GDP.
2. As a percentage of potential GDP.
3. As a percentage of household disposable income.
4. As a percentage of GDP.
Source: OECD (2021), OECD Economic Outlook 109: Statistics and Projections (database)

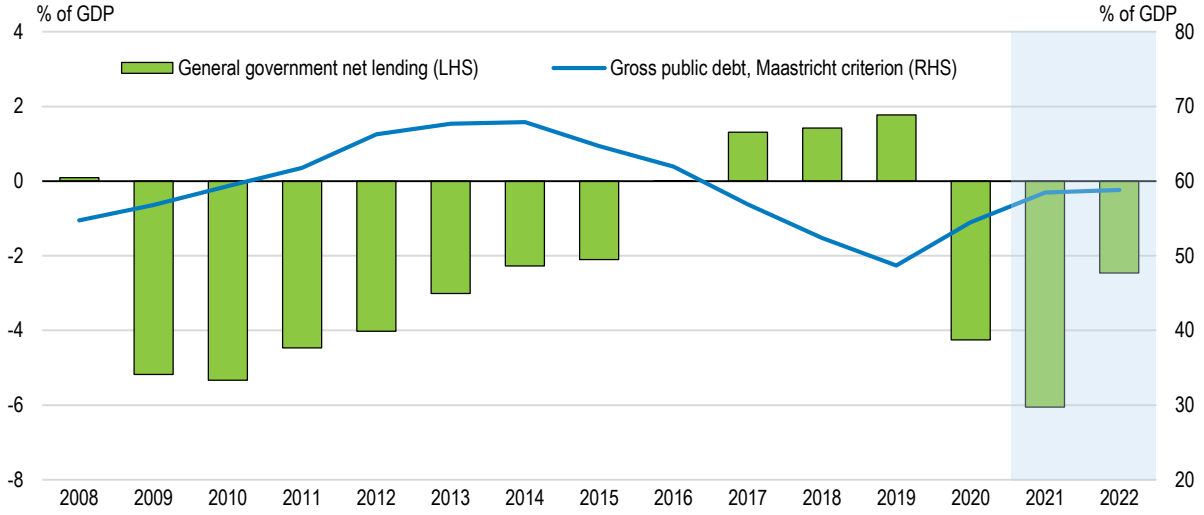
Table 1.2. Events that could lead to major changes in the outlook

Uncertainty	Possible outcomes
Multiple COVID-19 outbreaks over several years	Reduction of activities where distancing is a concern could lead to firm failures and increased unemployment. Consumer and business uncertainty could hold back consumption and investment, while depressed global demand weighs on exports.
Financial amplification of COVID-19 crisis	Declines in commercial real estate prices could deteriorate pension funds financing, leading to pension cuts and rises in premiums. Increases in bankruptcies and unemployment could lead to a significant increase in non-performing loans, putting pressure on financial stability.
Intensification of global trade tensions	Prolonged weakness in external demand and disruptions in supply chains would limit exports and investment.
Pent-up demand	Excess savings and pent-up demand could boost consumption more than expected.

Solid public finances allow continued fiscal support in the medium term

The country entered the COVID-19 pandemic with strong public finances, allowing the free operation of automatic stabilisers and generous discretionary support measures. As a result, a fiscal surplus of 1.8% of GDP in 2019 turned into a deficit of 4.3% of GDP in 2020 (Figure 1.7). The current fiscal stance is strongly expansionary, with around EUR 31.5 billion (4.2% of 2019 GDP) of discretionary spending and tax cuts in 2020 and another EUR 20.6 billion in 2021 (2.7% of 2019 GDP), which is broadly in line with countries such as France, Sweden and the United Kingdom. Most of the spending is allocated to wage subsidies under the NOW scheme, income support for self-employed entrepreneurs (TOZO) and compensation of companies' fixed costs (TVL). An additional EUR 25 billion in liquidity support is estimated to be provided through deferred tax payments. Consequently, the debt-to-GDP ratio (Maastricht definition) increased by 5.8 percentage points from 48.7% in 2019 to 54.5% in 2020, and is expected to rise further to 58.8% of GDP by 2022. Given the available fiscal space, the government should maintain fiscal support until the recovery is well established.

Figure 1.7. The budget deficit and public debt have increased substantially



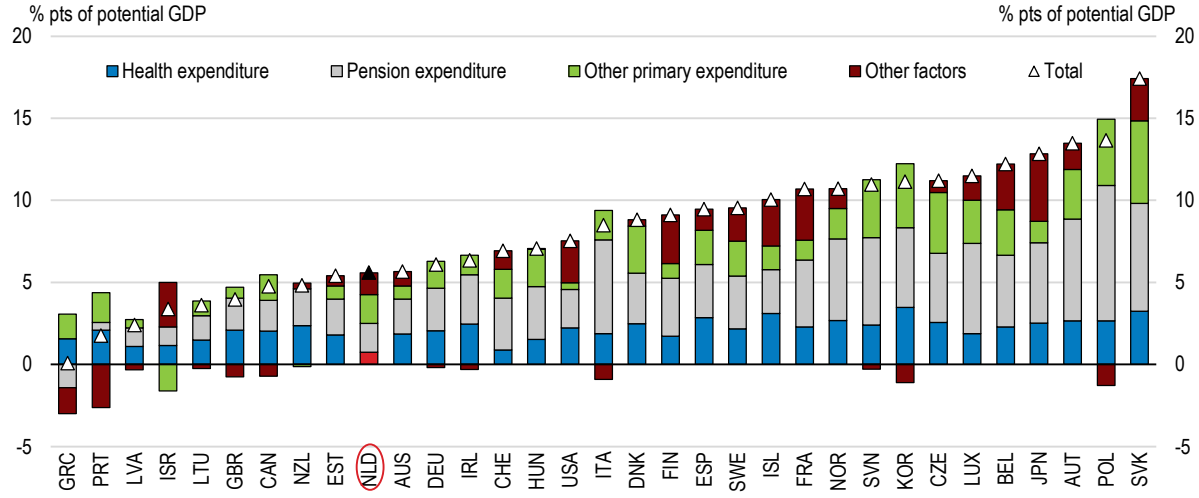
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database), June.

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In the longer run, the Netherlands faces rising fiscal pressures mostly driven by ageing, including health and pension expenditures. Given the recent pension agreement linking the retirement age to life expectancy and the fully funded pillar two pensions, these pressures are relatively mild in a cross-country comparison (Figure 1.8). Still, in order to maintain the current debt-to-GDP ratio constant, subject to the assumptions of the OECD long-term model (Guillemette, 2021[8]), the structural primary revenue would have to increase by 5.8% of GDP, or corresponding savings would need to be implemented in the longer term. Long-term fiscal sustainability will depend on prudent policies and the implementation of reforms. Under a baseline scenario where fiscal consolidation of one percentage point of GDP in the years 2023 to 2025 is assumed and no further reforms are implemented, ageing related costs are projected to push the public debt ratio to the 130% (Figure 1.9). To preserve intergenerational equity and put public debt on a downward path once the recovery is self-sustained, the government should prepare a multi-year fiscal strategy. Implementing labour market reforms that increase the employment rate, such as increasing spending on active labour market policies and improving the availability of early childcare (see below), would significantly reduce the public debt ratio in the long term. Future fiscal consolidation will likely need to entail expenditure cuts. There is also room to increase the efficiency of the tax system by improving tax neutrality between owner-occupied housing, rental housing and other capital. The recently introduced differentiation of the transfer tax between first-time buyers under the age of 35, owner-occupiers and landlords is an additional tax incentive for home-ownership, and should be reconsidered.

Figure 1.8. Future expenditure increases will be driven by population ageing

Revenue increases needed to maintain a constant debt to GDP ratio from 2021 to 2060, by spending category



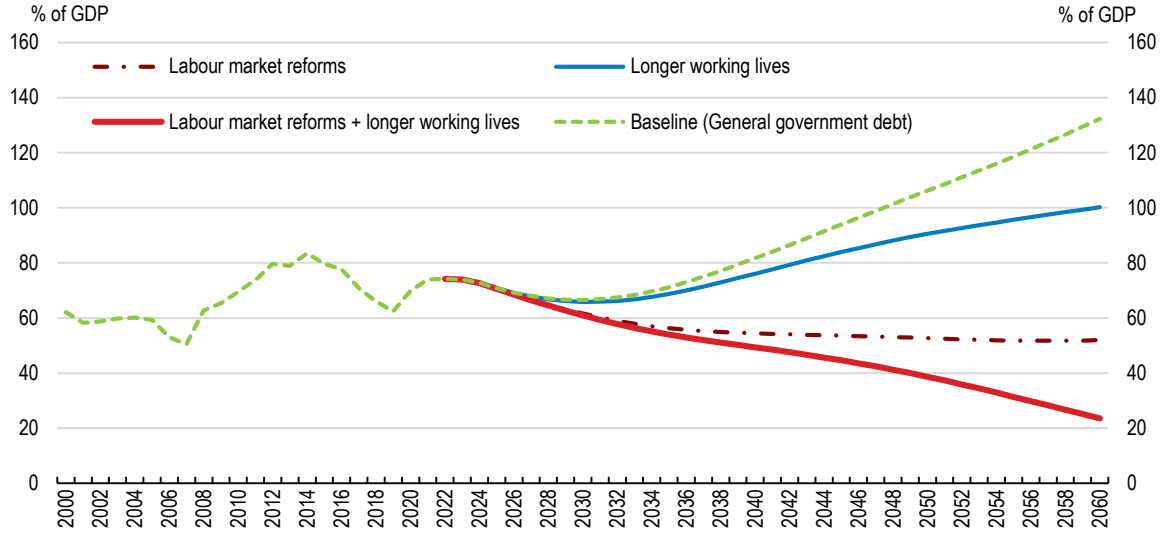
Note: The chart shows how the ratio of structural primary revenue to GDP must evolve between 2021 and 2060 to keep the gross debt-to-GDP ratio stable near its current value over the projection period (which also implies a stable net debt-to-GDP ratio given the assumption that government financial assets remain stable as a share of GDP). The underlying projected growth rates, interest rates, etc., are from the baseline long-term scenario. Expenditure on temporary support programmes related to the COVID-19 pandemic is assumed to taper off quickly. The necessary change in structural primary revenue is decomposed into specific spending categories and 'other factors'. This latter component captures anything that affects debt dynamics other than the explicit expenditure components (it mostly reflects the correction of any disequilibrium between the initial primary balance and the one that would stabilise the debt ratio).
Source: Simulations using the OECD Economics Department Long-term Model.

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The government has introduced a number of measures to counter the use of the Netherlands as a conduit jurisdiction for base erosion and profit shifting (BEPS). The country is an important jurisdiction for

multinational corporations, which in the past was supported by leniency towards BEPS by multinationals creating a reputational issue linked to aggressive tax planning. Dutch tax rules, designed for avoiding double taxation, were used by companies that engage in tax planning, as suggested by high levels of dividend, royalty and interest payments made via the Netherlands (Suyker and Wagteveld, 2019[9]; European Commission, 2018[10]). In recent years, the Netherlands has been a strong supporter of the OECD BEPS project, and is active in its implementation (OECD, 2018[3]). A withholding tax on interest and royalty payments to low-tax jurisdictions took effect from 2021.

Figure 1.9. Illustrative public debt trajectories



Note: The baseline scenario assumes a fiscal consolidation allowing to reach a zero primary balance (which for simplification of the model includes interest receipts) by 2025 followed by a deterioration because of ageing costs. The baseline scenario takes into account future increases in statutory retirement ages that have already been stated in the pension agreement legislated starting from 2024 with an annual increase of 8 month maximum. The reform scenarios keep the same amount of consolidation but add the positive employment effects from the reforms. The reforms to increase the effective retirement age scenario refers to policies aiming to close any initial shortfall between average effective and statutory retirement ages for both men and women, and keep average effective retirement ages rising in the future at a rate equal to two thirds of projected gains in life expectancy. Such reforms could e.g. include tightening or eliminating pathways into early retirement available in unemployment or disability programmes, or allowing people to combine income from part-time work with a retirement pension. The labour market reforms scenario reflects a reform package that implies the following changes over the 2023-to-2030 period: spending on active labour market policies (ALMP) per unemployed worker rises by 8.7 percentage points of GDP per capita, public spending on family benefits in kind rises by 0.7 percentage points of GDP, maternity leave increases by 12 weeks, and tax wedges for both single earners and couples decline by about 9.7 and 11.6 percentage points of labour costs, respectively. Further general assumptions of the model are outlined in Guillemette (2021).
Source: Simulations based on the OECD Economics Department Long-term Model.

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Table 1.3. Past recommendations on fiscal policy

Recommendations in previous Surveys	Action taken since the previous 2018 Survey
Reduce the number of exemptions and other tax expenditures	The deduction of maintenance costs for listed buildings was abolished in 2019. From 2020 onwards, the self-employed allowance will be reduced in eight steps of EUR 250 and one step of EUR 280 to EUR 5 000 in 2028.
Phase out the dual rates for the VAT by raising the lower rate	In 2019, the lower VAT rate was raised from 6% to 9%.
Ratify the BEPS multilateral instrument and impose a withholding tax on dividend, interest and royalty earnings transferred to low-tax and non-cooperative jurisdictions.	The BEPS multilateral instrument is ratified, and the 2021 Withholding Tax Bill introduces a conditional withholding tax as of 2021 on interest and royalty payments to low-tax jurisdictions and in misuse situations.

The COVID-19 crisis has exacerbated some macro-financial vulnerabilities

The capitalisation of the banking sector has improved significantly in recent years, providing space to absorb the effects of the pandemic and continue to provide credit. While banks are still highly leveraged in gross terms, risk-weighted capital is well above the OECD average (Figure 1.10, Panel A and B). Profitability falls in the middle of the OECD range (Figure 1.10, Panel C), but is under pressure from persistently low interest rates. The share of non-performing loans was low as of mid-2020 (Figure 1.10, Panel D), even though the probability of default is expected to increase in some segments as a result of the COVID-19 crisis once government emergency measures are phased out. Banks have increased their provisions to compensate deteriorating asset quality (DNB, 2020[11]). The pandemic stress test of De Nederlandsche Bank (DNB) suggests that banks are sufficiently shock-resistant and can continue to fulfil their lending role. To prevent the economic crisis from spreading to the financial sector, DNB and ECB have allowed banks to use capital buffers to keep lending to firms and households. This is a welcome step. Banks should eventually be required to tighten capital ratios, but only when the economy is solidly on a path to recovery. However, the longer the pandemic lasts the greater will be the potential impact on financial institutions. With structurally low profitability, it will be more difficult to set aside provisions or, when necessary, restore buffers in the future.

The COVID-19 crisis also affects financial stability through its impact on the commercial real estate market. Prices of retail real estate fell by around 14% in the second quarter of 2020 compared to the previous quarter, and office prices by around 2% (DNB, 2020[11]). As people are more likely to shop and work from home in the future, expectations for future rental income and future commercial real estate values have fallen. In a recent stress test, DNB (2020[12]) shows that banks are able to absorb even a severe commercial real estate shock, while this is not the case for pension funds with large exposure to commercial real estate. Losses on commercial real estate investments will have a direct impact on pension funds' balance sheets, which have been under pressure from low interest rates for a long time. This could force pension funds to increase contributions or reduce pensions. The pension reform will help when fully phased in in 2026 by re-defining pension promises as defined contribution, as discussed later in this chapter.

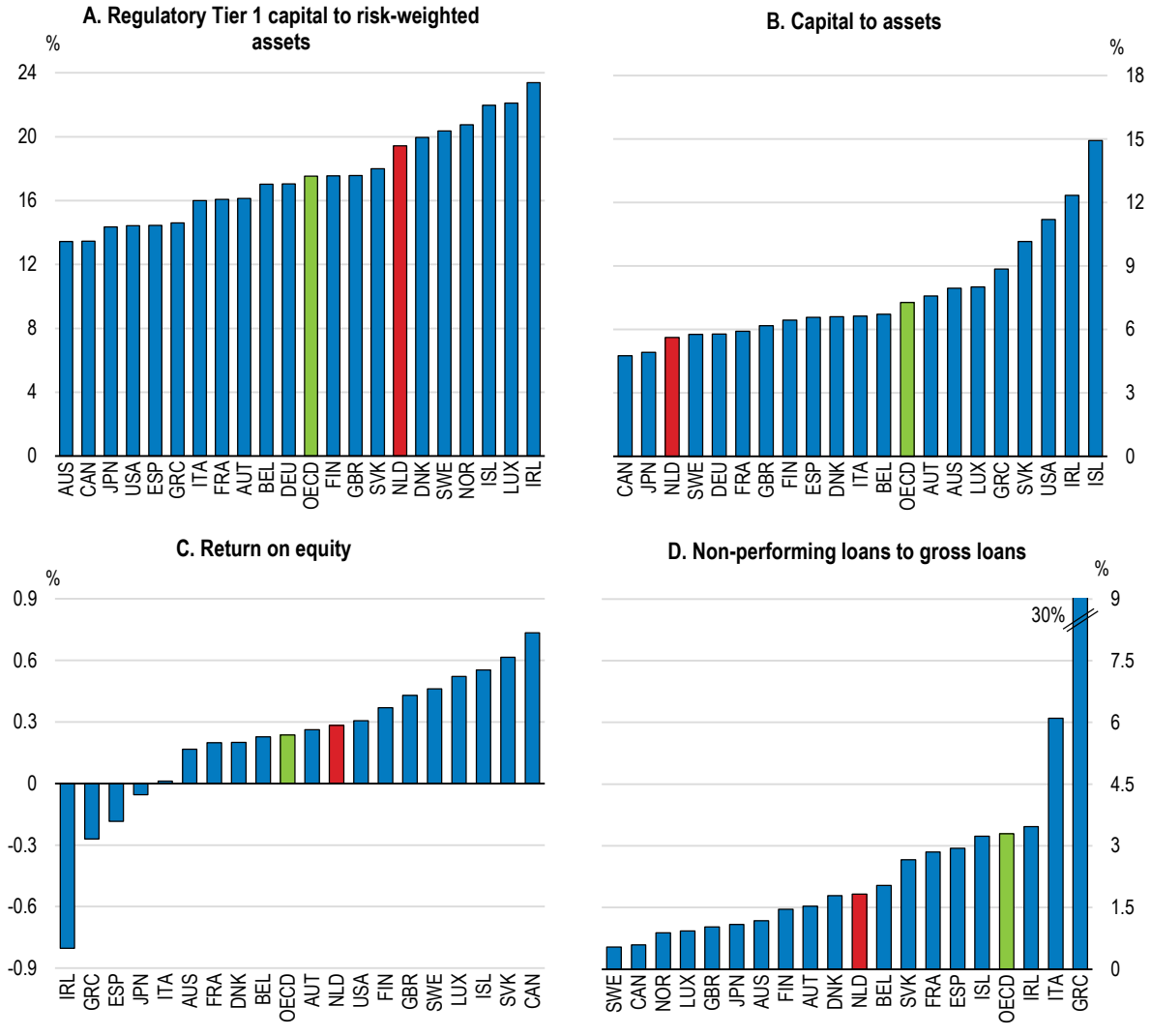
Households have high mortgage debt on average. Assets are also high on average, but to a large extent consist of housing and illiquid pension savings (see below). Highly indebted households primarily pose a macroeconomic risk through the consumption channel. Both first-time buyers and existing homeowners are borrowing more relative to their income than before. The emergency support scheme allowing to suspend monthly mortgage payments has been used particularly by the self-employed and flexible workers who have seen their income fall as a result of the COVID-19 crisis (DNB, 2020[11]). Making up for arrears might not be possible for everyone. A continued increase in house prices bears the risk of a rapid credit expansion, although so far, mortgage growth has remained subdued. Current loan-to-value ratios for mortgage loans are lower than during the 2008 financial crisis, but a maximum loan-to-value on new mortgages of 100% is still high in an international context. Continuing to gradually tighten the maximum loan-to-value ratio could further support financial stability. A national mortgage guarantee scheme put in place after the global financial crisis insuring households against selling their house at a loss following unemployment, divorce or disability also reduces the macroeconomic risk. A floor for mortgage risk weights announced in October 2020 is a further welcome step to improve banks' resilience.

Dealing with environmental priorities and risks provides investment opportunities, but may also put additional pressures on financial institutions, notably in the transition phase. The rapid closure of coal plants following the December 2019 ruling could lead to losses on banks' asset positions. A stress test developed by the DNB (DNB, 2018[13]) showed that climate change policy, technological developments and changing consumer preferences could lead initially to significant losses for the financial sector. Climate change increases the scale and frequency of natural disasters such as floods and storms, raising the claims burden for insurers and re-insurers, even though this will be reflected in premiums over time. DNB

has mainstreamed stress testing of the financial system to include these types of risks, which is a timely innovation.

Figure 1.10. Financial stability indicators are in the mid-range of other OECD countries

2020Q3 or latest quarter



Source: IMF (2021), IMF Financial Soundness Indicators Database.

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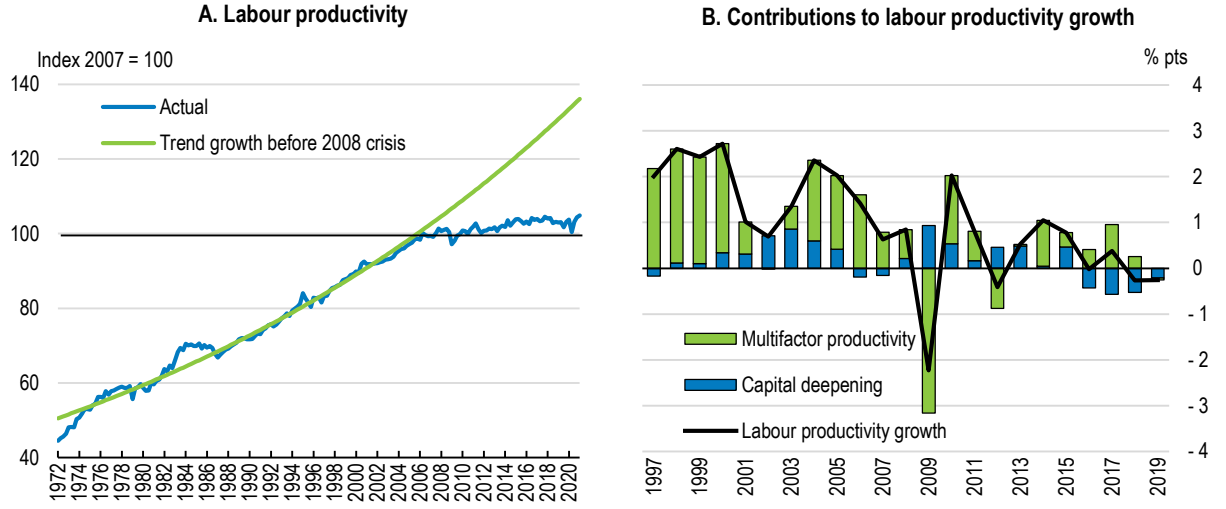
Table 1.4. Past recommendations on financial stability

Recommendations in previous Surveys	Action taken since the previous 2018 Survey
Continue the gradual phasing out of mortgage interest deductibility.	The gradual phasing out of the mortgage interest deduction is continued.
Continue to gradually reduce the maximum loan-to-value on new mortgages from 100% in 2018 to 90% in 2028.	No action taken.

Investments for sustainable growth

Weak private investment has contributed to lacklustre productivity gains since the Global Financial Crisis (Figure 1.11). This is a pattern shared with many OECD countries. Slow productivity may reflect both cyclical weakness in capital accumulation and long-term trends, notably demographics. Product market regulations in the Netherlands are lean and favourable to productivity growth, but procedures to set up companies are somewhat cumbersome and ICT specialist skills complementary to digital investments are in short supply (Chapter 2).

Figure 1.11. Weak investments have contributed to lacklustre labour productivity growth



Note: Labour productivity refers to real GDP divided per total hours worked. Pre-crisis labour productivity trend growth is calculated between 1972 Q1 and 2007 Q4, and is projected from 2008 onwards. Contributions to labour productivity growth are calculated using a weight of 0.67 for total hours worked and 0.33 for productive capital. Multifactor productivity is calculated as a residual. Productive capital excludes investment in housing.
Source: OECD (2021), OECD Economic Outlook: Statistics and Projections (database).

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The recent economic downturn has further dampened investment activity, and COVID-19-related support programmes are set to affect the quality of investment going forward. The job retention scheme protects workers, and generous loan schemes and grants have helped businesses to stay afloat during the height of the crisis (Box 1.1). Keeping these programmes in place until COVID-19-related restrictions are largely lifted and the recovery is well under way is an insurance against wiping out otherwise healthy companies and thus reduces unnecessary scrapping of productive capital. In the process, these policies also temporarily keep low-productivity firms afloat, thereby constraining the effective reallocation of resources to most productive firms.

As the immediate health crisis is brought under control over the course of 2021, polices aimed at preserving existing companies and jobs need to be phased out. These policies should be replaced by more general demand support and policies targeted at easing structural change to facilitate that viable businesses absorb workers and capital. Temporarily higher unemployment and bankruptcies should be expected as part of this necessary process of reallocation. Ensuring sufficient capacity for swift in-court and out-of-court insolvency procedures and settlements, along with well-resourced career services and the possibility to participate in well-tailored training activities for the unemployed, can help speed up the reallocation process, and reduce the economic and human cost (OECD, 2020[14]).

Meeting public investment needs

Public investment as a share of GDP has fallen, despite considerable investment needs. In general, the Netherlands has excellent transport infrastructure. More than 33 000 kilometres of dedicated cycling lanes facilitate sustainable living and well-being. Efficiency of train services, seaport services, air transport services and the quality of roads all score highest among EU countries and top global performers. Electricity and water infrastructures are also ranked highly (WEF, 2019[15]). The Netherlands is in a good position to reap the potential of digitalisation, but should continue to invest in digital infrastructure, skills and services complementary to the adoption of digital technologies. Further deployment and take-up of even faster fibre networks and next generation 5G wireless networks is a prerequisite for the adaptation of the latest digital technologies such as cloud computing (Sorbe et al., 2019[16]), self-driving vehicles and the Internet of Things (OECD, 2019[17]; OECD, 2019[18]). The private sector will provide much of these investments, but there is a role for the public sector to regulate in order to maximise private sector efforts and to invest directly in cases where private incentives to invest are too weak (Chapter 2). Bold greenhouse gas emission reduction targets and environmental rulings (Box 1.5) call for increased investments in energy efficiency, renewable energy and reduced emissions from agriculture and industry, as discussed below.

The recently launched EUR 20 billion National Growth Fund subsidises projects in the areas of knowledge development, research and development, innovation and infrastructure. Projects should be complementary to private investment and existing public support policies. To be eligible, they should also have a positive effect on GDP and social returns. An independent committee of experts assesses the proposals and gives their recommendations before the government makes the final decision. The first EUR 4 billion tranche of the National Growth Fund was allocated in April 2021, fully in accordance with the recommendations from the fund's independent advisory committee. EUR 650 million was freed directly, while the rest of the tranche was allocated conditional on further substantiation of the projects. Around EUR 2.5 billion was reserved for low-carbon public transit infrastructure projects, EUR 600 million for quantum computing, EUR 300 million for artificial intelligence, and EUR 300 million to promote innovation in production and application of hydrogen (Box 1.2) (Government of the Netherlands, 2021[19]). The National Growth Fund, and to a lesser extent the Next Generation EU Funds, are important answers to the needs to invest in the environment and digitalisation. The quality of advice from the committee of experts, their continued independence and the transparency of the selection process are key to select projects beneficial to society. The Next Generation EU Fund will also provide funding to speed up the transition towards a green and digital economy (Box 1.3).

Box 1.2. The Dutch Hydrogen Strategy

The Netherlands aims for low-carbon hydrogen to play a major role in supporting the achievement of emission reduction targets and has taken measures to promote low-carbon hydrogen through the Hydrogen Strategy. Under this strategy, the government is developing a broad policy framework to scale up low-carbon hydrogen production, infrastructure and demand.

The Netherlands has numerous assets that could be leveraged to support rapid progress on low-carbon hydrogen. Already, there is significant hydrogen production (from natural gas) linked to strong hydrogen demand in the Dutch chemical, petrochemical and refining sectors. The government plans to rapidly scale up low-carbon hydrogen production in industrial clusters via carbon capture and storage (CCS) and electrolysis powered by renewable energy. The Netherlands is also taking an integrated approach with electricity and gas infrastructure development, with a clear intention to support the production, transport and storage of hydrogen, including by leveraging existing natural gas infrastructure. The country's central location in Europe, extensive cross-border energy infrastructure and large port facilities also support the potential for the country to play a role in developing a robust regional and global market for low-carbon hydrogen.

Source: IEA (2020[20]).

Box 1.3. National and EU funds for a sustainable recovery and growth

The Dutch National Growth Fund

In September 2020, the Dutch government launched the National Growth Fund, making available EUR 20 billion as a grant over the next 5 years.

- The fund is intended for investments that contribute to economic growth, such as knowledge development, infrastructure, research and innovation.
- The fund has its own budget and an independent committee of experts who will assess the project proposals.
- Details about investment plans were announced in April 2021: EUR 650 million was freed directly, while the rest of the tranche was allocated conditional on further substantiation of the projects. Around EUR 2.5 billion was reserved for low-carbon public transit infrastructure projects, EUR 600 million for quantum computing, EUR 300 million for artificial intelligence, and EUR 300 million to promote innovation in production and application of hydrogen

The Next Generation EU Fund

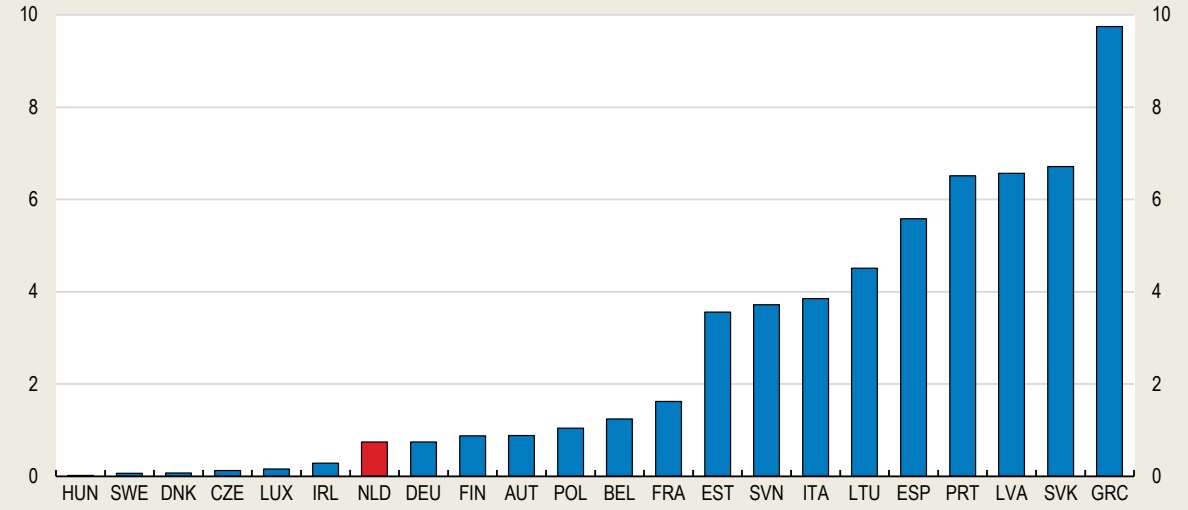
The Next Generation EU Fund is a EUR 750 billion temporary recovery instrument to help repair the immediate economic and social damage brought by the coronavirus pandemic (Figure 1.12). It consists of following programmes:

- The Recovery and Resilience Facility is the centrepiece with EUR 672.5 billion in loans and grants available to support reforms and investments undertaken by EU countries. The aim is to mitigate the economic and social impact of the COVID-19 pandemic and make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transition. To speed up the green and digital transition, each national recovery and resilience plan will have to include at least 37% of expenditure on climate investment and reforms, and at least 20% of expenditure to foster the digital transition.

- The maximum grant available for the Netherlands is EUR 6 billion (0.7% of 2019 GDP).
- Next Generation EU also includes EUR 47.5 billion for REACT-EU - a new initiative that continues and extends the crisis response and crisis repair measures delivered through the COVID-19 Response Investment Initiative and the Coronavirus Response Investment Initiative Plus. It will contribute to a green, digital and resilient recovery of the economy.
- The Netherlands' allocation from React EU amounts to EUR 443 million (0.1% of 2019 GDP).
- Next Generation EU will also bring additional money to other European programmes and funds such as Horizon 2020 (EUR 5 billion), Invest EU (EUR 5.6 billion), rural development (EUR 7.5 billion of which EUR 15.5 million (2021) and EUR 36.9 million (2022) are allocated to the Netherlands) and the Just Transition Fund (EUR 10 billion of which EUR 324 million (2018 prices) will be allocated to the Netherlands).

Figure 1.12. Maximum grant under the Recovery and Resilience Facility

% of 2019 GDP



Note: The current maximum financial allocation is indicative based on the Commission's Autumn 2020 Economic Forecast for real GDP growth in 2020 and 2021.
Source: Ministry of Finance (2020), Budget Memorandum 2021; European Commission (2021), Recovery Plan for Europe, https://ec.europa.eu/info/strategy/recovery-plan-europe_en.

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Promoting a better functioning housing market

Housing policies contribute to high housing prices, inflated household balance sheets and misallocation of capital (Box 1.4) (OECD, 2018[3]). Housing supply has not kept pace with demand since the Global financial crisis. The private rental sector is small, squeezed by a considerable tax-favoured owner-occupied housing stock and rent controls for housing defined as social housing scoring below a threshold in a points-based system. Households with limited savings and ability to obtain a sufficient mortgage and that do not qualify for social housing are left with limited housing options. The current system may hinder labour mobility, slow down the post-COVID-19 recovery and hamper productivity. The structure of the housing market is also a barrier to the inflow of foreign workers who could alleviate skill shortages, as foreign workers and internal migrants typically prefer renting housing on arrival.

The need for new homes is estimated to 845 000 from 2020 to 2030, driven by population growth, changing family patterns and slow construction in the aftermath of the Global financial crisis. More than 80 000 homes were built in 2019 (including conversions of existing buildings), but supply is expected to have been set back to approximately 50 000 units a year in 2020 and 2021 as construction permits were held back by the nitrogen ruling and a shortage of workers (see above). The nitrogen issue is now partly resolved, as nitrogen emissions during the construction phase of a project are exempt from the obligation to obtain an emission permit. Emissions generated during the use phase still need to be offset. Competing spatial uses and local opposition continue to complicate the planning process. Uncertainty caused by the COVID-19 crisis may to continue to weigh on housing investment. Labour shortages in the construction sector before the crisis could also be aggravated by reduced labour mobility due to COVID-19.

Improving the decision-making process for land use is needed, not only for housing, but also for infrastructure, agriculture, energy production and nature. Better coordination between municipalities, provinces and the central government and with the industry could help provide necessary infrastructure and the timely release of land and construction permits (Government of The Netherlands, 2020[21]). Reducing the favourable tax treatment of owner-occupied housing could reduce excess demand for housing and thus help ease supply constraints over time. Allowing rents to be set more in line with the market would also release housing supply by making better use of the existing housing stock, since rent controls strongly discourage tenants from moving out of their existing housing even if it no longer fits their needs. Loosening rent controls would also increase incentives to build rental housing.

Box 1.4. Assets and liabilities of households

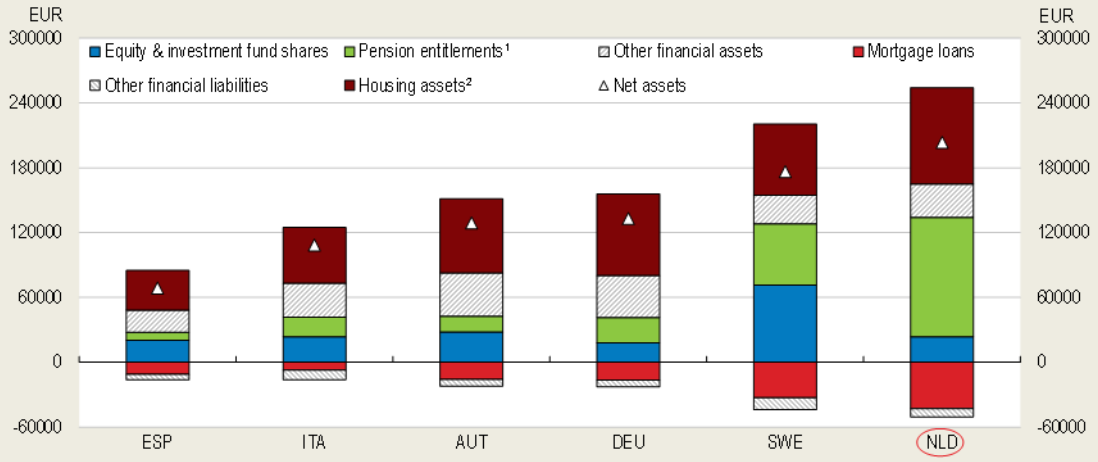
Household debt is, at more than 200% of disposable income, among the highest in the OECD, and mostly consists of mortgages. Rising mortgage debt over the past decades has been more than outweighed by increasing assets, so that households hold a strong net asset position on average (Figure 1.13). Assets mostly consist of tax-subsidised owner-occupied housing and second-pillar pension fund savings that are mandatory for around 90% of regular employees through collective agreement and are only accessible after retirement. Both are relatively illiquid asset classes. Inflated balance sheets with illiquid assets have created some vulnerabilities:

- High debt and relatively illiquid assets create **macroeconomic and financial vulnerabilities:** fluctuations in interest rates and asset prices have a large impact on households' wealth, thereby increasing financial risks and amplifying business cycles through the consumption channel. Low interest rates increase the value of pension liabilities, forcing pension funds to increase premiums.
- Tax subsidies and rent regulations distort capital allocation by making saving in owner-occupied housing more profitable than investments with higher pre-tax returns.
- Tax subsidies on housing entail a fiscal cost. Postponed taxation of second-pillar pension savings along with their exemption from imputed capital income taxation create a bias in favour of pension savings.

The current system underpins considerable **inequalities in wealth and savings**, where owner-occupiers, who are also typically in regular employment and members of pension funds tend to over-save. To benefit from the mortgage tax reduction, mortgages have to be fully amortised over a 30-year horizon, contributing to over-saving. Those who rent their dwelling and fall outside mandatory pillar 2 pensions, notably flexible workers, tend to under-save for retirement.

Figure 1.13. Dutch households hold high assets and high debt on average

Household assets and liabilities per capita, 2018 or 2019



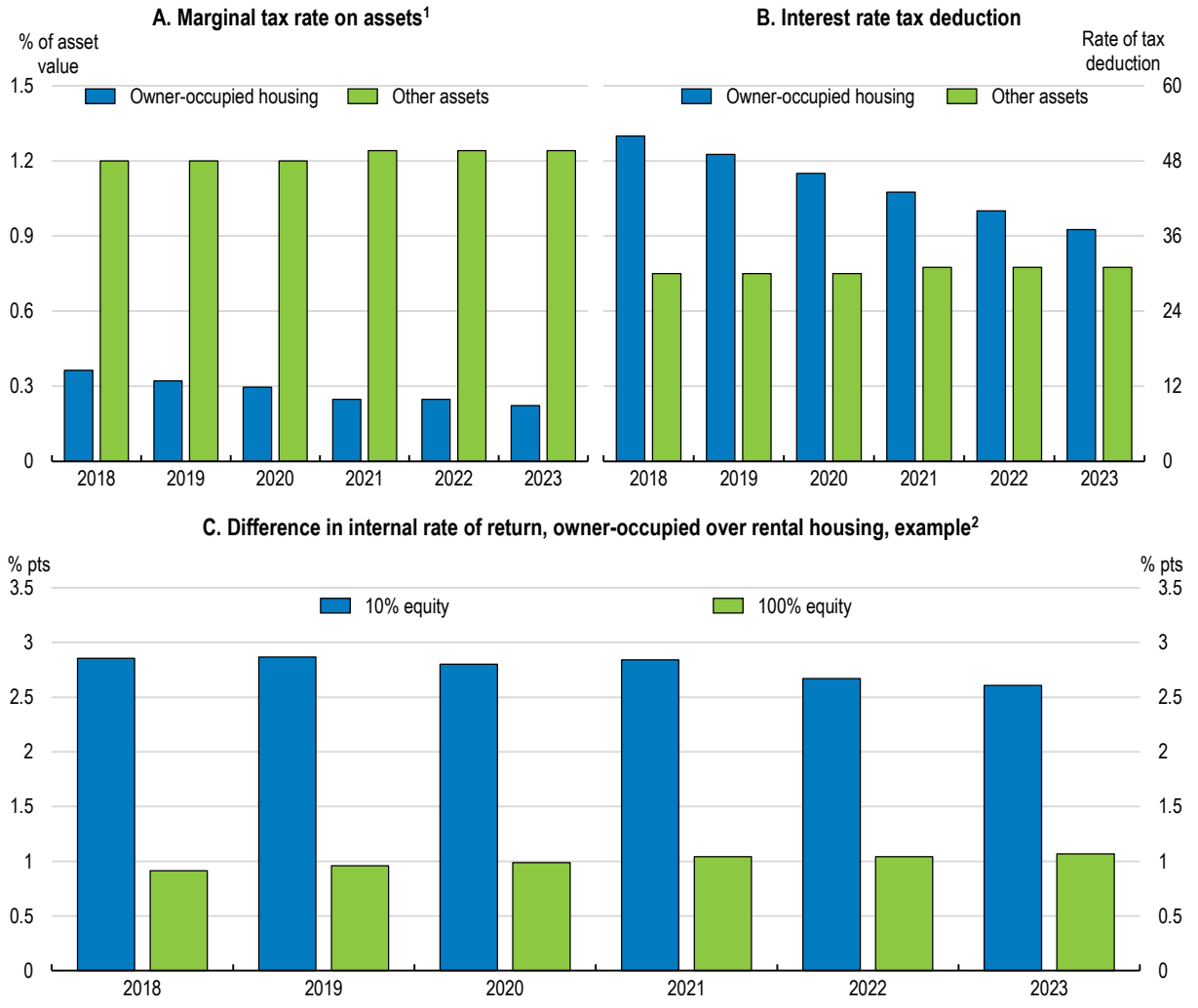
Note: 1. Including life insurance and annuity entitlements. 2. Gross housing assets is proxied by the sum of net housing assets and mortgage loans.

Source: OECD (2021), "Financial Balance Sheets", "Households' financial assets and liabilities", "Population and employment by main activity", and "PPPs and exchange rates" in the OECD National Accounts Statistics (database) and Eurostat, Balance sheets for non-financial assets.

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The housing sector consists to a large extent of owner-occupied housing, which enjoys a significant tax subsidy compared to non-housing investments and rental housing. Individuals who live in their own housing pay income tax ("Box 1" of the Dutch tax code) on imputed rents (0.5% of the market value), amounting to a maximum 0.25% marginal tax on housing wealth, significantly lower than (imputed) capital income taxation on other savings and investments ("Box 3"), which in practice amounts to a 1.24% tax on net wealth in the highest tax bracket (Figure 1.14, Panel A). Municipal property taxes and service charges of 0.1-0.3% do not depend on whether the accommodation is rented or owner-occupied. Capital gains on owner-occupied housing are also not taxed. In addition, home-owners can deduct mortgage interest payments from their personal income tax liabilities at a rate of 43% in 2021 (Figure 1.14, Panel B) (Tax and Customs Administration, 2021[22]; Jansen, 2019[23]). The on-going gradual reduction of the mortgage rate deductibility, from 52% in 2018 to 37% in 2023, is welcome, but affects the tax subsidy only marginally when a parallel reduction of imputed rents, from 0.7% of the housing value in 2018 to 0.45% in 2023, is taken into account. The reduction in imputed rents partly reflects that housing prices have increased more than rents lately. The reform marginally reduces the profitability wedge between debt-financed homeownership and debt-financed buy-to-let investments, while increasing it for cash-financed investments (Figure 1.14, Panel C).

Figure 1.14. Home-ownership tax bias continues after housing tax reform



Note: 1. Assuming that the home-owner is taxed in the top income tax bracket, and that "Other assets" exceed the capital income tax allowance (EUR 50 000 for singles and EUR 100 000 for couples in 2021). 2. Example, where the purchase price is assumed to EUR 200 000, 90% loan financed at a 2% real effective interest rate with linear amortisation over 30 years (blue bars) and 100% equity financed (green bars). The annual rental value is assumed to be EUR 8 000. The house is re-sold after 20 years, and the real capital gains are assumed to be zero. Tax rules are for illustrative purposes assumed to stay constant from the year of purchase to the year of sale to isolate the effect of changing tax rules for home-ownership.
Source: Author's calculations based on Jansen (2019[23]) and Tax and Customs Authority (2021[22]).

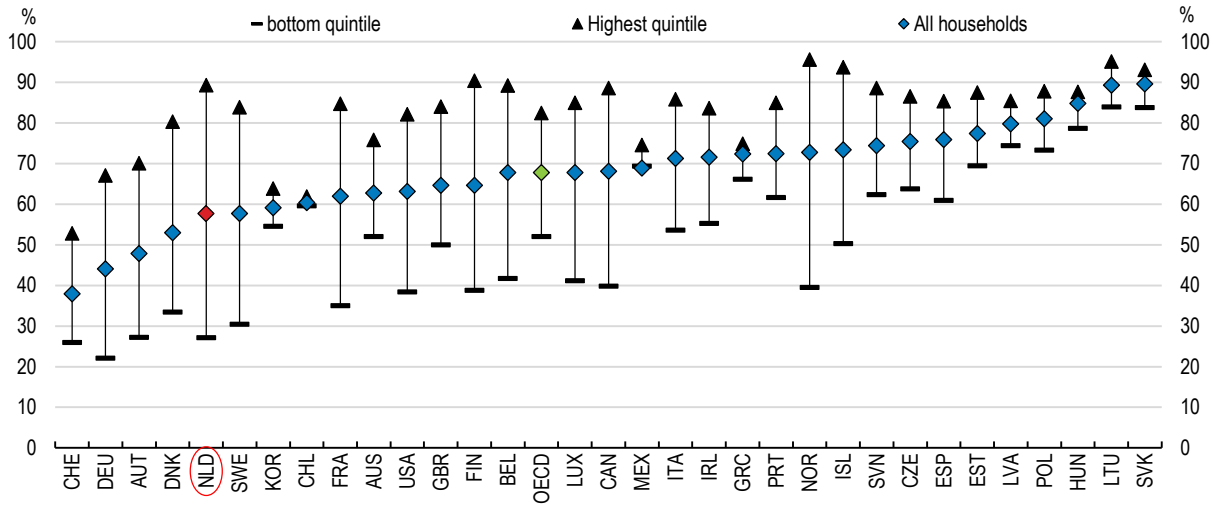
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Putting investments in housing on a more equal footing with other investments would bring several benefits. It would free resources to more productive uses, help curb housing price growth and boost supply in the free rental segment, as the value of a house purchase or housing investment would be less dependent of its planned use. It would increase fairness between home-owners and renters, who are more likely to be young, of immigrant background and self-employed, and typically have lower incomes (Figure 1.15). Taxing owner-occupied housing in line with other wealth would imply a simpler and more efficient capital taxation regime, and it would allow lowering distortive taxes on labour and capital.

The weak economy and strong vested interest of current home-owners call for phasing in tax adjustments over time, and for offsetting part of the increased taxation on owner-occupied housing. One targeted way to compensate home-owners for taxing imputed housing income like other imputed capital income (in Box 3 of the tax code) would be to use the additional revenue to significantly raise the capital income tax allowance. This would shield home-owners with low to modest overall wealth from tax increases from the reform. Reducing the current capital income tax rate of 30% to the 25% tax rate on income from substantial business interests, which are taxed in a separate regime today (Box 2 of the tax code), could further soften the impact of the reform, and lay the ground to merge the two capital taxation regimes. Reducing the mortgage rate deductibility beyond current plans, seizing the opportunity of low interest rates and buoyant housing prices would be less beneficial than increasing imputed rent taxation from both an efficiency and fairness point of view. However, it would be a considerable improvement over the current situation, and could be a politically more palatable option (DNB, 2019[24]).

Figure 1.15. The home-ownership gap between high and low income households is large

Percentage of owner households by income quintile



Note: Low-income households are households with equivalised disposable in the bottom quintile of the net income distribution. In Chile, Mexico, Korea and the United States gross income is used due to data limitations. Unweighted average of shown data for the OECD aggregate.
Source: Calculations based on data from OECD, OECD Affordable Housing Database.

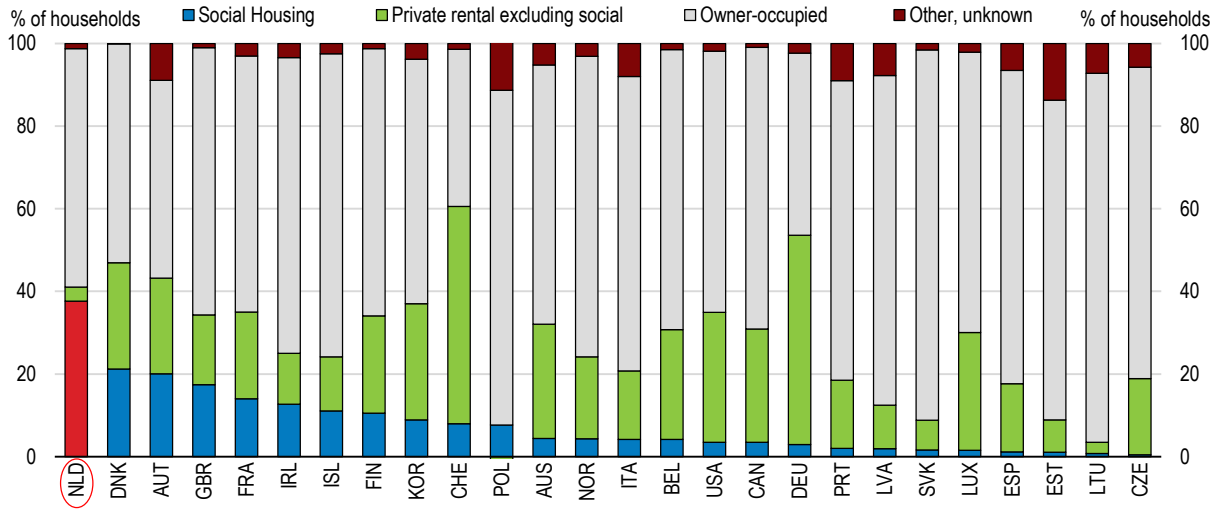
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Private rental investment is also held back by the large rent-controlled social housing segment. At 36%, the share of social housing is by far the highest in the OECD (Figure 1.16). Only Sweden has a rent-controlled housing sector of comparable size, although not officially defined as social housing (OECD, 2020[25]). As in the Netherlands, rent controls in Sweden lead to a number of inefficiencies, including rationing (OECD, 2019[26]). In the Netherlands, rental dwellings, regardless of ownership, are subject to rent regulations if they score below a pre-defined threshold in a points based system, taking into account size, quality and the tax valuation of housing in the area. Regulations limit the maximum rent and annual rent increases. The cap on annual rent increases during tenancy is inflation plus one percentage point, which can be increased in cases where the income of a tenant has risen above the social housing income threshold. Stringent tenant protection in the regulated rent segment ensures that a dwelling once rented at, or below, the regulated rent stays in the regulated rent sector until the tenant voluntarily moves out, regardless of its score in the points system (OECD, 2016[27]). This system holds back private investment

as returns for landlords are low, in particular in single-person housing, as most of it will fall below the rent control threshold given its size.

Figure 1.16. The private rental market is underdeveloped

Share of households, by tenure type



Note: Social housing is defined as a share of the housing stock. Private rental excluding social is defined as the total share of households in rented housing minus social housing's share of the housing stock. For the United States, the social housing stock includes public housing, subsidised units developed through specific programmes targeting the elderly (section 202) and disabled people (section 811), as well as income-restricted units created through the Low-Income Housing Tax Credit (LIHTC) programme; the number of public housing units as well as section 202 and 811 dwellings financed through the LIHTC programme have been adjusted to avoid double-counting, following OECD correspondence with the U.S. Department of Housing and Urban Development. For Canada, social housing data exclude units managed by the Société d'habitation du Québec (SHQ) for the Province of Quebec. For Spain, the social housing data may also contain other types of reduced rent housing, e.g. employer-provided dwellings. For the Czech Republic, Italy, Luxembourg, Portugal, the Slovak Republic and Switzerland, no social housing data are available for 2018, data for 2010 were used instead.
Source: Calculations based on data from OECD, OECD Affordable Housing Database.

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Non-profit housing corporations own approximately 75% of regulated rentals. Their strong capabilities, non-profit nature and public service mandate make them important providers in different rental segments such as elderly and student housing. They are obliged to contribute to green, safe and diverse neighbourhoods, they are overseen by a supervisory agency to ensure that public funds are allocated in an equitable and efficient manner and they pay a tax ("landlord levy") related to their regulated rental activities. However, housing corporations are supported by a state guarantee for their investments in the rent-controlled sector, municipalities can sell them land below market level and prioritise them in land-use decisions. In combination with regulated rents, this undermines private supply in the rent-controlled sector.

Social housing does not always benefit those most in needs. The corporations allocate regulated dwellings to households below an income threshold following the queuing principle. The state guarantee enables them to charge below-market rents even for housing units scoring above the rent-regulation threshold (OECD, 2016[27]). Municipalities can allocate a proportion of the corporations' housing units based on specific needs. Since 2017, corporations have been obliged to separate non-commercial activities in social housing from their commercial activities. However, a high household income threshold, under which housing supply is defined as "Services of General Economic Interest" under EU law, makes about half of

the Dutch population eligible for social housing (OECD, 2020[25]). A share of existing tenants surpass income limits, and corporations can let 10% of their annual available housing stock to households not qualifying for social housing. Considerable barriers to entry thus remain in a market segment that would not be defined as social housing in any other OECD country.

Several steps should be gradually phased in to create a better balance between supply of and demand for housing, and make rental housing available to people when and where they need it. These policy measures are best understood as a coherent package of mutually reinforcing policies, while measures taken in isolation or in the wrong sequence can be less effective or even counterproductive (OECD, 2019[26]). First steps in a coherent housing reform package should include reducing the favourable tax treatment of owner-occupied housing to create room for private rental investments, and speeding up planning procedures to boost housing supply. These two reforms would contribute to increased supply and lower price pressures on existing housing and market rents, and thus facilitate subsequent reform of rent controls and housing corporations. A comprehensive reform package could also help overcome resistance from vested interests, for example by replacing favourable taxation of housing with lower taxation of assets in general, and by replacing rent controls with sufficient rental supply to maintain reasonable price levels.

To support the supply of market rental housing, the size of the regulated rental housing sector should be reduced by limiting rent controls to a narrower segment of the market and targeting social housing to those most in need. Compensating or protecting existing tenants in a transition period could be part of such a reform. An unconditional cash payment, initially equal to the rent increase and potentially financed by taxing the windfall profits for landlords, would shield tenants from an income shock, while incentivising those who live in too large housing units to move to smaller units and free up housing supply. Alternatively, rent increases in existing rent-controlled contracts could be phased in over time.

Housing corporations could have a more limited public service mission, in order to give room to a wider set of actors and more competition in rental supply. One option would be to lower income thresholds for social housing and municipal allocation based on individual needs, for example tied to social assistance benefit eligibility. The public guarantee and access to public land below market prices should be limited to a new and more narrowly defined public service mission to provide social housing.

The Netherlands has back-tracked on reforming the housing sector since the start of the COVID-19 crisis. Housing corporations received a EUR 1 billion landlord levy reduction to build an additional 80 000 regulated housing units over five years. Rent increases have been temporarily capped in the rental segment without price controls, and evictions halted in agreement with housing corporations. A recent change to the transfer tax, exempting first-time buyers under the age of 35 from the 2% standard rate and increasing the rate to 8% for housing investors, is exacerbating the bias towards home-ownership. In a further bid to ease market entry for first-time buyers, the government is preparing legislation to allow municipalities to ban buy-to-let investments for a five-year period. If implemented, this is likely at best a zero-sum game policy. Potential gains for groups of home-owners purchasing at a lower price and landlords already renting out property in a particular local market would most likely be matched by losses for others, including existing home-owners in the area and those dependent on renting in the already small market-based rental segment.

Table 1.5. Past recommendations on housing

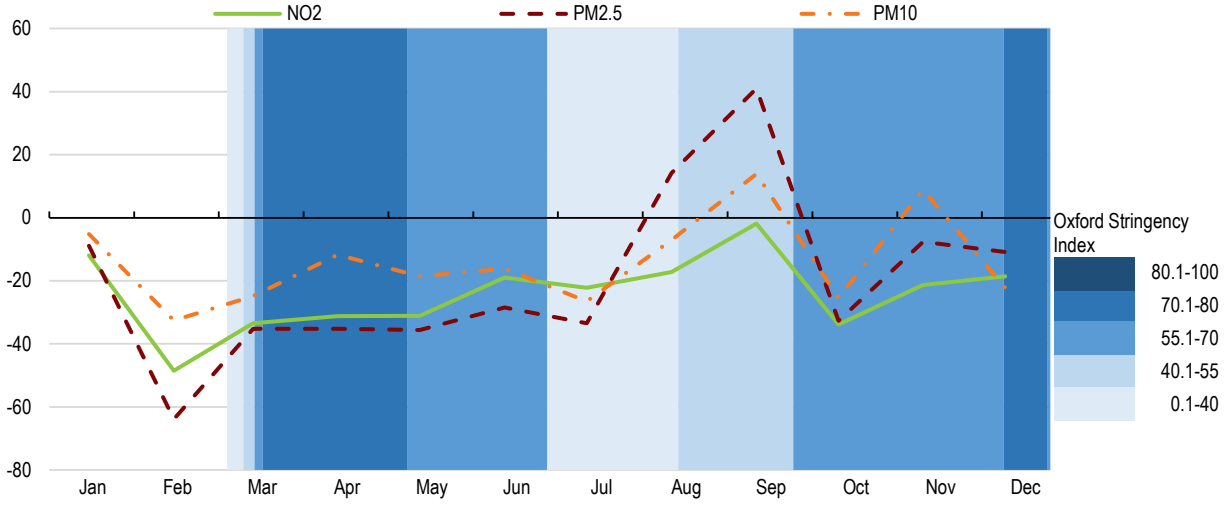
Recommendations in previous *Surveys*	Action taken since the previous 2018 Survey
Support the supply of rental housing by further limiting strict rent regulation in the private market.	The government has back-tracked by implementing new rental regulations and further subsidising housing corporations.

Investments are needed to reduce local pollution and greenhouse gas emissions

Over the past two decades, the Netherlands has made important advances in dealing with environmental pressures, managing to decouple greenhouse gas (GHG) emissions, all major pollutants and waste generation from economic growth (OECD, 2015[28]). Even so, per capita nitrogen and GHG emissions are among the highest in the EU, not least because of the country's dense population, being home to Europe's main seaport and high industrial and agricultural production. The COVID-19 pandemic reduced emissions as mobility and economic activity were depressed (Figure 1.17). These improvements are set to reverse despite a likely permanent increase in teleworking. Environmental court rulings have held back investment projects and will likely lead to early scrapping of capital, notably coal-fired power plants (Box 1.5), and major investments are needed to tackle environmental pressures going forward.

Figure 1.17. Air quality only improved temporarily during the pandemic

% difference in air pollution per month compared to average of 2018 & 2019[1]



Note: Air pollution per month is calculated as monthly average (µg/m3) over all measurement stations (apart from Amsterdam and Haarlem).
1. Calculated as monthly average (µg/m3) over all measurement stations (apart from Amsterdam and Haarlem).
Source: European environment agency; Hale et al. and Oxford COVID-19 Government Response Tracker, Blavatnik School of Government.

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Nitrogen oxide and ammonia from traffic, industry and the agricultural sector are major pollutants of nature, air, soil and water. The Netherlands has 162 Natura 2000 areas, which are special preservation zones covering about 15% of the country and protected by the European Habitat Directive. Of these areas, 129 are sensitive to nitrogen and 118 exceeded the critical limits for nitrogen in 2018 (Remkes Commission, 2020[29]). As such, new nitrogen emitting developments are constrained by the limited nitrogen space available and solutions have to focus on using the existing nitrogen space as efficiently as possible. The 2019 Council of State ruling that the policy in vigour to control nitrogen emissions was in conflict with EU laws halted many housing, infrastructure and agricultural projects to allow for a re-evaluation of permits. In March 2021, the law on Nitrogen reduction and nature improvement was adopted stating that 74% of nitrogen-sensitive hectares in Natura 2000 areas have to be brought back below critical nitrogen deposition loads, which equals a 50% reduction in emissions by 2035 (Box 1.5). The COVID-19 pandemic somewhat reduced the nitrogen emissions from traffic and industry activity compared to previous years (Figure 1.17), though these effects are likely to be temporary.

Box 1.5. Environmental rulings in the Netherlands

May 2019 ruling on nitrogen

Background: In 2015, the government introduced the Programma Aanpak Stikstof (PAS). The PAS aimed at simultaneously cutting back nitrogen deposition in nature, and offering some scope for new economic activities that involve nitrogen emissions. Applicants for nitrogen emitting projects, such as expanding livestock farms or construction projects near vulnerable Natura 2000 areas, received a permit against a promise to implement emission-restricting measures in the future.

The ruling: In May 2019, the Council of State ruled that PAS did not provide the required assurance that the nitrogen deposition would not negatively affect the natural features of the Natura 2000 sites, and was therefore in conflict with EU law. The Council of State also found that many of the programme's measures were not suitable to be used to offset emissions from new economic activities causing nitrogen deposition on the Natura 2000 sites. For one, a large part of the measures were necessary as a minimum requirement to fulfill the goals set out in the Habitats Directive. Second, the effects of many of the measures were still uncertain at the time the permits would be issued.

Implications and subsequent actions: As an immediate result of the ruling, many projects were halted as permits had to be re-evaluated. This affected construction and operating permits for livestock farms, zoning plans for road construction and industrial estates, as well as housing construction and climate projects.

A special committee, the Remkes Commission, advised the government to take several steps to reduce nitrogen emissions and deposits. Subsequently a number of short-term solutions were implemented, such as reducing maximum speed limits during daytime from 130km/h to 100km/h, as well as buy-out schemes for farmers near Natura 2000 areas. Long-term solutions are outlined in a new nitrogen law that was approved by the Senate in March 2021. It comprises: i) a legally binding obligation to ensure that the share of nitrogen-sensitive hectares in Natura 2000 areas below the critical deposition load is brought back to 40% by 2025, to 50% by 2030 and to 74% by 2035, ii) a comprehensive programme with nitrogen reduction measures, iii) a nature improvement programme, and; iv) a system of regular monitoring and adjustment. It further includes a partial exemption from the emission permit requirement for activities during their construction and demolition phase, in which emissions are temporary and limited. A EUR 6 billion package through 2030 for nitrogen reducing measures in agriculture, construction and industry and for nature recovery is planned to give room to issue new permits for construction and infrastructure projects. Since March 2020, it has also been possible to submit permit applications for housing infrastructure projects that wish to make use of deposition space in the nitrogen registration system (SSRS), a system which manages nitrogen space that becomes available due to reduction measures. The government further wants to introduce fiscal incentives for the purchase and use of electric cars, in line with its goals for 2030 when all new cars need to be zero emission.

December 2019 ruling on cutting greenhouse gas emissions

Background: Article 2 of the European Convention on the Protection of Human Rights and Fundamental Freedoms (ECHR) protects the right to life, and Article 8 of the ECHR protects the right to respect for private and family life. The Netherlands is obliged by these provisions to take suitable measures if a real and immediate risk to people's lives or welfare exists, including long-term environmental hazards, and the state is aware of that risk.

The ruling: At the end of 2019, the Dutch Supreme Court ruled in the Urgenda Foundation v the State of the Netherlands case that the government must reduce emissions immediately in line with its human rights obligations. The ruling forced the Netherlands to speed up climate change measures in order to

cut CO_2 emissions by 25% from 1990 levels by the end of 2020. This was the first time a nation has been required by its courts to take action against climate change.

Implications and subsequent actions: Following the ruling, a 65% reduction in capacity at the country's coal-fired power stations was announced for 2020. Further measures include EUR 2 billion for rooftop solar panels and other forms of renewable energy, and about EUR 375 million for household energy saving measures.

Source: National Institute for Public Health and the Environment (2021), https://www.rivm.nl/en/nitrogen; Spier, J. (2020), 'The "Strongest" Climate Ruling Yet': The Dutch Supreme Court's Urgenda Judgment. Netherlands International Law Review, 67(2), pp.319-391.

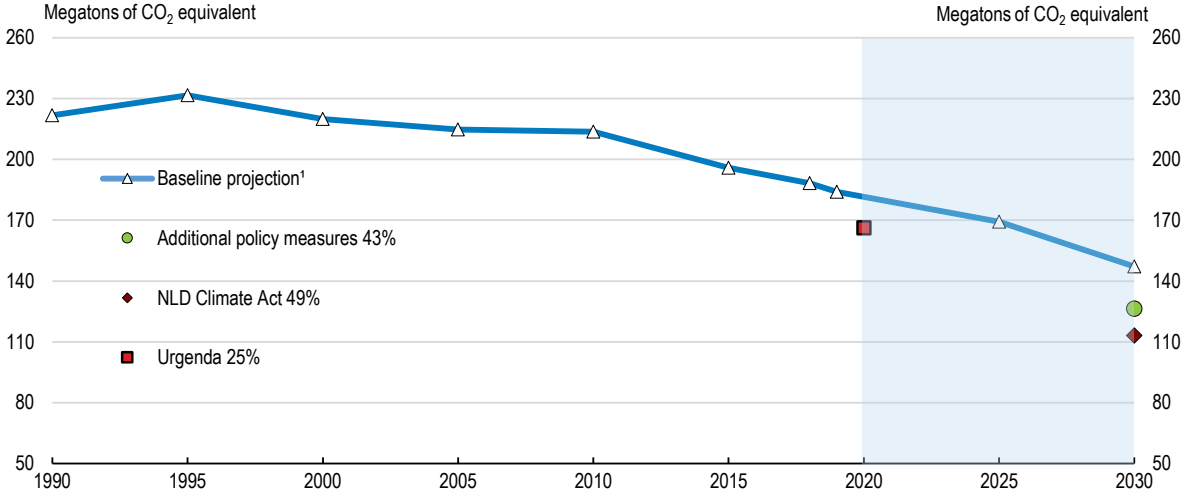
Short-term responses to the ruling included reducing the maximum speed limit during daytime from 130km/h to 100km/h and a buy-out scheme for pig farmers near Natura 2000 areas. These measures freed up some space for nitrogen emitting activities, and the corresponding nitrogen emission rights are managed through the Nitrogen Registration System allowing crucial housing construction and infrastructure projects to resume. Further, the government presented in April 2020 a structural approach to address the nitrogen problem by focusing on preservation and restoration of Natura 2000 areas and habitats. This structural approach is important for the Netherlands to comply with the obligations of the EU Bird and Habitat Directives, but also to gradually allow the permitting of projects enabling social developments and economic growth. This approach also includes a set of measures addressing agricultural sector emissions, such as providing farmers with support to adapt to low-emission or circular farming. For example, stall systems will be redesigned into low-emissions ones and improvements will be made in feed or manure processing. The approach is complemented by the buying up of livestock farms around nature areas. Nitrogen is a regional issue that does not stop at borders. The Netherlands is therefore in dialogue with the Belgium Flanders region and the German states North Rhine-Westphalia and Lower Saxony to establish cross-border cooperation in tackling the common nitrogen problem, which is a welcome step.

The Dutch senate approved a new law in March 2021 anchoring the structural approach to limit nitrogen. It introduces legally binding commitments for the government to gradually reduce nitrogen deposition and emissions in sensitive areas. By 2035, 74% of the nitrogen-sensitive areas should be brought back below critical deposition loads, which is equivalent to halving nitrogen emissions. Several instruments to manage nitrogen emissions are in place. For example, the so-called "external offsetting" allows the transfer of up to 70% of the nitrogen emission rights that become available due to the termination of an activity to the creation or expansion of a new activity. The remaining 30% is withdrawn to reduce environmental pressures. Further, the government is developing several new instruments, such as the regional nitrogen registration system to pool available nitrogen space that becomes available for example as result of external offsetting and (provincial) reduction measures. The steps taken so far are welcome, but there is scope to use the scarcely available nitrogen space more efficiently by further facilitating standardisation and the transfer of rights.

The Netherlands is particularly vulnerable to climate risks, such as rising sea levels and more frequent natural disasters like storms and flooding, since about a fifth of its land is below the sea-level. The Dutch government has played a leadership role in many multilateral settings to raise awareness and advance international initiatives, including on oceanic issues. In 2010, it also became one of the first countries to integrate environment and economic policies in the ministerial structure in what is currently the Ministry of Economic Affairs and Climate Policy. The National Climate Act of 2019 sets targets to reduce greenhouse gas (GHG) emissions by 49% by 2030 compared to 1990 levels and by 95% by 2050. Over 100 stakeholders, from the electricity, industry, construction and housing, transport and logistics, and agriculture and land use sectors, negotiated and agreed to specific emission reductions measures to support the achievement of the 2030 target. Measures include an emission tax for industry, subsidies to stimulate housing insulation, a ban on coal fired power plants and a major push for sustainable sources of energy.

The government intensified its measures to reduce GHG emissions to comply with the 2019 Urgenda judgement mandating a 25% reduction compared to 1990 levels by the end of 2020 (Box 1.5). Coal-fired power was reduced by 65% and several other measures focussing on energy efficiency in industry, construction, buildings and agriculture were introduced. The COVID-19 pandemic supported the reduction in GHG emissions, and initial estimates suggest that overall reductions have been sufficient to meet the Urgenda target (CBS, 2021[30]). Still, simulations by Netherlands Environmental Assessment Agency show that the Netherlands is not yet on track to meet climate targets for 2030 (PBL, 2020[31]). Policies and plans outlined by mid-2020 are expected to reduce GHG emissions by 34% compared to 1990 levels, 15 percentage points short of the target set out in the 2019 Climate Act. In reaction to the report, the government is developing a number of measures that have the potential to further reduce GHG emissions to reach 43% compared to 1990 levels. While this would be a significant improvement, it would still fall short of the 2030 target of 49% (Figure 1.18). The government should quickly adapt its measures to achieve the 2030 target, supported by a green recovery package, the new National Growth Fund and the Next Generation EU Fund.

Figure 1.18. The Netherlands is not yet on track to meet its medium term emission targets



Note: The targets are expressed as percentage cut compared to 1990 values.
1.Baseline projections are from the Netherlands Environmental Assessment Agency and based on policy planned and outlined by May 2020.
Source: PBL Netherlands Environmental Assessment Agency: Netherlands Climate and Energy Outlook 2020 and RIVM/Emission Registration.

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To get back on track towards its transition to a carbon neutral economy by 2050, a change in energy production is essential (OECD, 2021[32]). Energy-related CO_2 emissions accounted for 83% of total GHG emissions in 2018. The Netherlands is heavily reliant on fossil fuels and has a high concentration of energy- and emission- intensive industry (IEA, 2020[20]). The share of renewables in the energy mix has more than doubled between 2008 and 2019, supported by an increase in subsidies awarded through the Stimulation of sustainable energy production scheme (SDE+) and a comprehensive policy framework for offshore wind power deployment. However, a renewable share of 7.2% (in 2019) remains lower than the OECD average of 10.9% and significantly below the national 2020 target of 14% set out under the EU's Renewable Energy Directive (2009/28/EC). In 2020, SDE+ was expanded into the Stimulation of sustainable energy production and climate transition scheme (SDE++), granting subsidies not only to renewable energy production but also to CO_2 reducing projects, which is a welcome step. Funding is available for renewable electricity, renewable heat, renewable gas, low-carbon heat and low-CO_2 production for companies and

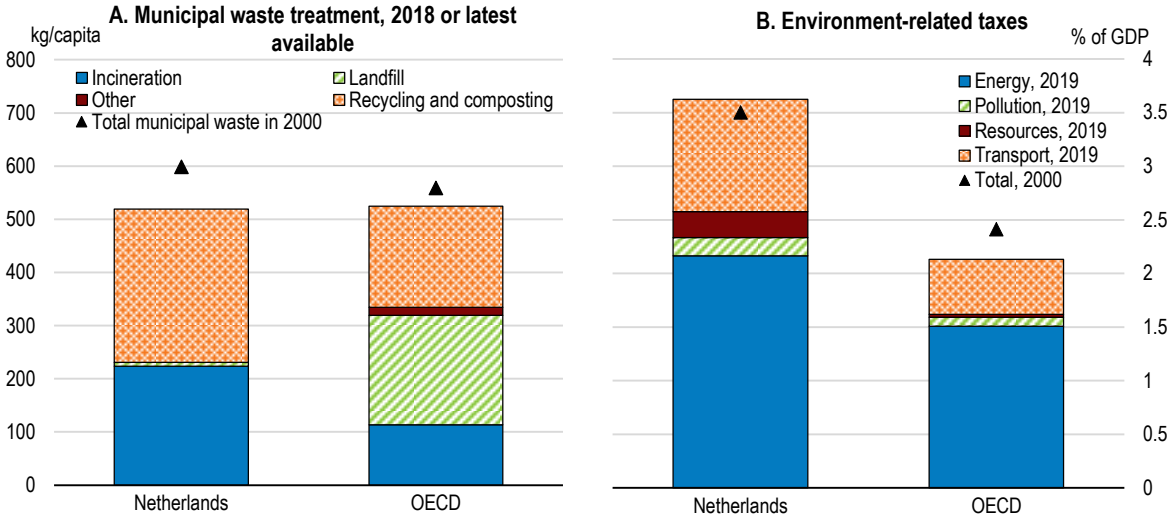
organisations (non-profit and otherwise) in sectors such as manufacturing, transport and logistics, electricity, agriculture and the built environment (Netherlands Enterprise Agency, 2020[33]).

The Netherlands aims to significantly boost its resource efficiency and become a circular economy by 2050 in a bid to reduce material extraction and processing that are behind 71% of global GHG emissions (OECD, 2019[34]). The Netherlands recycles 80% of its municipal waste, which is high in international comparison (Figure 1.19, Panel A). Despite the high municipal recycling rate, 92% of Dutch production is still based on primary materials, with very little progress since 2010. Primary raw materials are often cheaper than recycled materials (PBL, 2021[35]). To boost the transition to a closed system, in which raw materials are reused and waste does not exist, the government should ensure that the environmental damage is reflected in the prices of products, and that legislation and regulations are conducive to circular initiatives. Introducing digital passports for products as part of Ecolabel and Ecodesign regulation could support the development of markets for recycled materials by providing information on a product's origin, composition, and end of life handling, and thereby encourage the recycling, reuse and repair of materials (European Commission, 2019[36]).

Green taxes are relatively high (Figure 1.19, Panel B), but could reduce emissions more at a lower cost if they were better designed. Environmental taxes include a mix of carbon taxes and levies and indirect taxation of emissions through the energy tax and other fiscal measures. The energy tax covers consumption of gas, electricity and district heating. In addition, consumers pay a Surcharge for Sustainable Energy (ODE), which provides funding for the Stimulation of Sustainable Energy Production scheme (SDE+ and SDE++). A carbon levy establishes a direct taxation of industrial emissions. A separate carbon pricing mechanism for electricity sector emissions is also in place and currently acts as a floor price for the Emission Trading System (ETS). No direct taxation of CO_2 emissions exists for the residential, commercial and agricultural sector.

Tax policy can further support the transition towards a carbon neutral economy by encouraging an efficient use of resources and investment in sustainable technology. The price of emissions covered by the EU emissions trading scheme (EU-ETS) is a function of the supply of allowances to the scheme, ultimately decided collectively by EU member states. However, the difference in the implicit tax rate across sectors outside of the EU-ETS does not incentivise emissions reductions where they are the most cost efficient (IEA, 2020[37]). Effective taxes are notably high on gasoline, but also diesel, which together contributed about 16% to CO_2 emissions from energy use (OECD, 2019[38]), while the agricultural sector and industrial emissions not covered by the EU-ETS are subject to lower effective tax rates (OECD, 2021[39]). The government should regularly assess the effectiveness of environmental taxes and levies, broaden the sectoral coverage of carbon and energy pricing and strengthen price signals for non-ETS sectors (OECD, 2021[32]). Recent policy changes in this direction, such as increasing the tax rate on gas and decreasing the tax rate on electricity, are welcome. Additional tax revenue could for example be used to increase investment in infrastructure to protect the country against the rising sea level, increase the childcare tax credit, or to lower income taxes and thus improve work incentives.

Figure 1.19. Environmental taxes are high and resource efficiency has improved



Note: Municipal waste refers to waste collected by or for municipalities and includes household, bulky and commercial waste, and similar waste handled at the same facilities.
Source: OECD (2020), OECD Environment Statistics (database).

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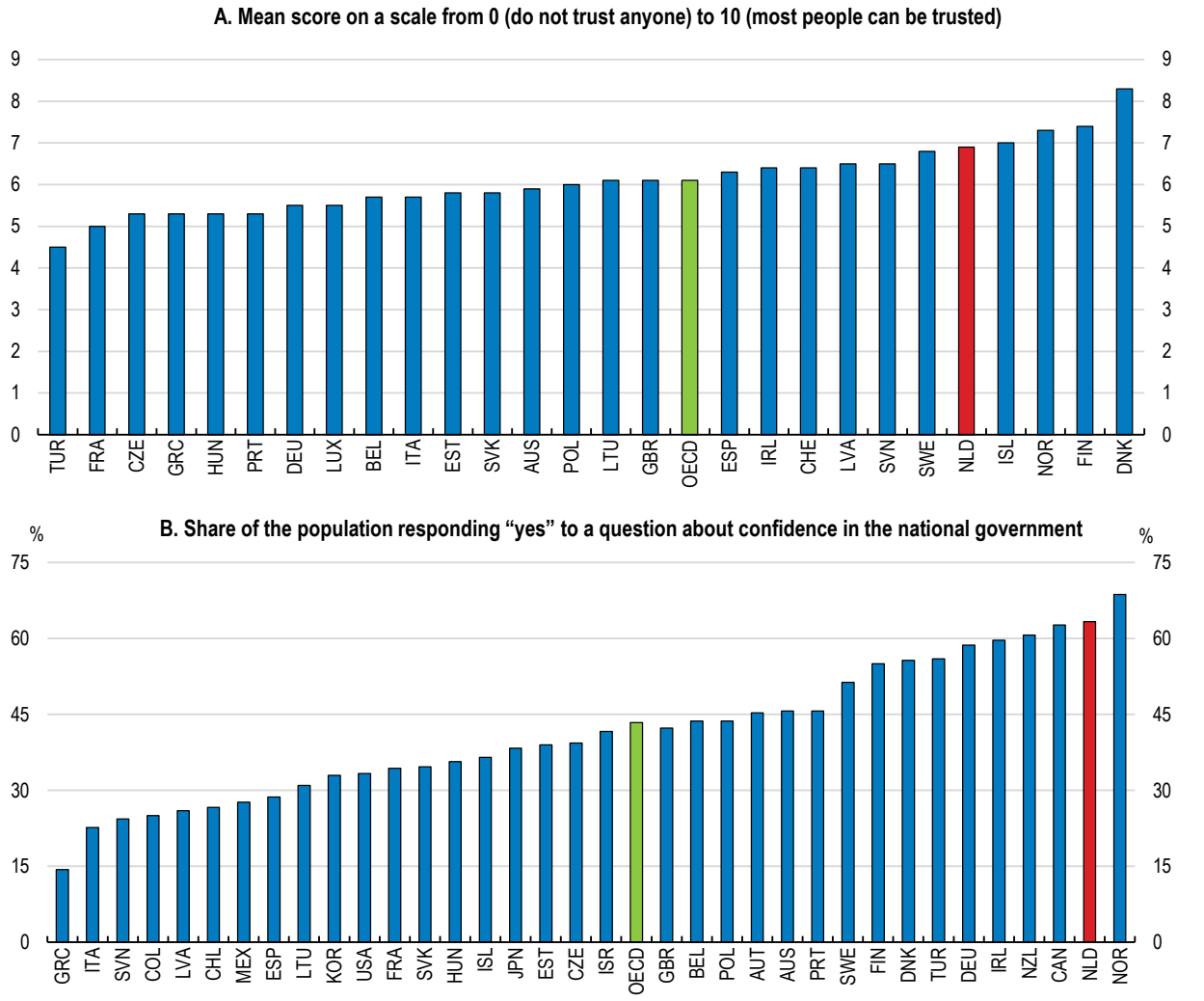
Table 1.6. Past recommendations on environment

Recommendations in previous *Surveys*	Action taken since the previous 2018 Survey
Ensure stronger investment in renewable energy and energy efficiency by improving cost-effectiveness of existing instruments and possibly increasing their scale.	A number of initiatives have been taken to scale up environment policy instruments, for example under the SDE++ framework.

Skills and labour market reforms to build social capital

The Netherlands enjoys a high level of social capital, with people trusting each other and trusting the government (Figure 1.20). Such general trust reduces frictions and transaction costs and acts like a lubricant to the economic engine. Trust is reinforced by fairness of opportunity and outcomes, kept promises, and solid institutions fostering dialogue and negotiation between representative social partners (Blanchard et al., 2013[40]; OECD, 2015[41]). Trust needs to be built and maintained over time. Revelations that thousands of families were wrongly accused of child welfare fraud and had to pay money back were unfortunate. Steps are being taken to compensate those affected, and the government collectively resigned in early 2021 as a consequence of this affair. Tri-partite cooperation between social partners and the government in the consensus-building "Polder model" is of great importance to anchor major economic reforms, such as the on-going pension reform. The Borstlap Commission (Box 1.6), which aims at reducing labour market duality, is also anchored in this model.

Figure 1.20. Trust in people and government are high

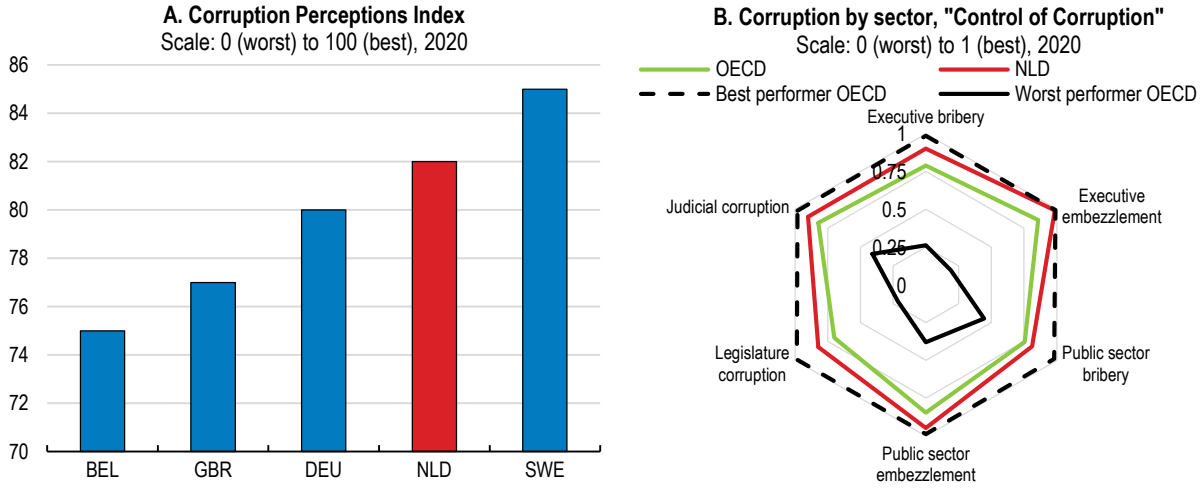


Source: OECD (2020), How's Life? 2020: Measuring Well-being, March and European Union Statistics on Income and Living Conditions (EU-SILC) (database), https://ec.europa.eu/eurostat/web/income-and-living-conditions.

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Perceived corruption is low in the Netherlands (Figure 1.21, Panel A), but some public procurement contracts may have been awarded through exceptional procedures at the height of the health crisis (Beuter, 2020[42]). Transparency of such contract awards and evaluations ex-post is a way to reduce the risk of cronyism or the perceptions thereof. The country scores well above the OECD average in each sector covered by the World Bank Control of Corruption indicator (Figure 1.21, Panel B).

Figure 1.21. Corruption is low



Note: Panel B shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.
Source: Panel A: Transparency International; and Panel B: Varieties of Democracy Institute; University of Gothenburg; and University of Notre Dame.

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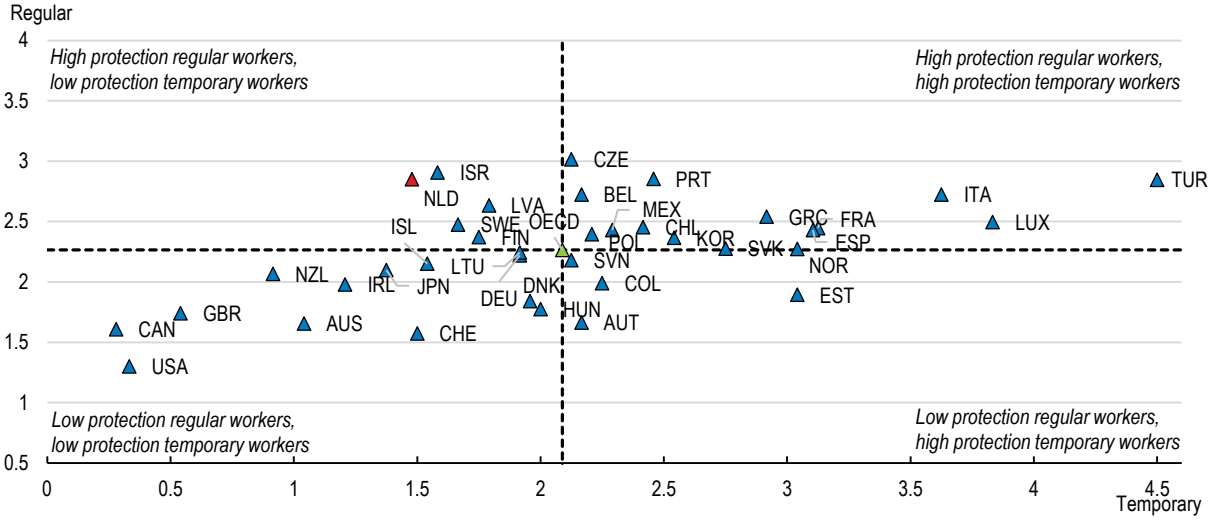
Reducing labour market duality

Income inequality is lower than the OECD average, and has stayed relatively constant since the mid-1990s. The relative poverty rate, measured as the share of households earning less than 50% of median earnings (OECD, 2018[3]), remains low at around 6% and below the OECD average of around 11%. The country further ranks highly in a number of areas of social progress, with teenage pregnancy and early school dropout rates being the lowest in the European Union (OECD, 2018[43]; OECD, 2019[44]). The government support package has to a large extent mitigated the direct impacts of the COVID-19 crisis on households' income. Households' incomes and savings increased on average in 2020, and fewer households had to draw on savings or take on debt to make ends meet in January 2021 than in January 2020 (CBS, 2021[45]). However, some groups including young, low-skilled and ethnic minorities have been more affected by the COVID-19 crisis, and job losses will likely increase going forward, as support aimed at preserving current businesses and jobs is scaled back.

Inequalities in income, assets, access to training and a considerable gender wage-and pension-gap follow the dual structure of the labour market. Workers on regular contracts are highly protected, while protection for workers on non-standard contracts is limited (Figure 1.22). The 1.4 million workers with short-term temporary contracts, temporary agency contracts, on-call contracts or variable hours are at greater risk of losing their jobs and income than workers on regular contracts and other temporary workers (CBS, 2021[45]). These workers earn less, save less, have less social protection, are less likely to engage in training and to own their house than the regular employed.

Figure 1.22. Regular workers are highly protected, while temporary workers are not

Employment protection by contract type (index, 2019)

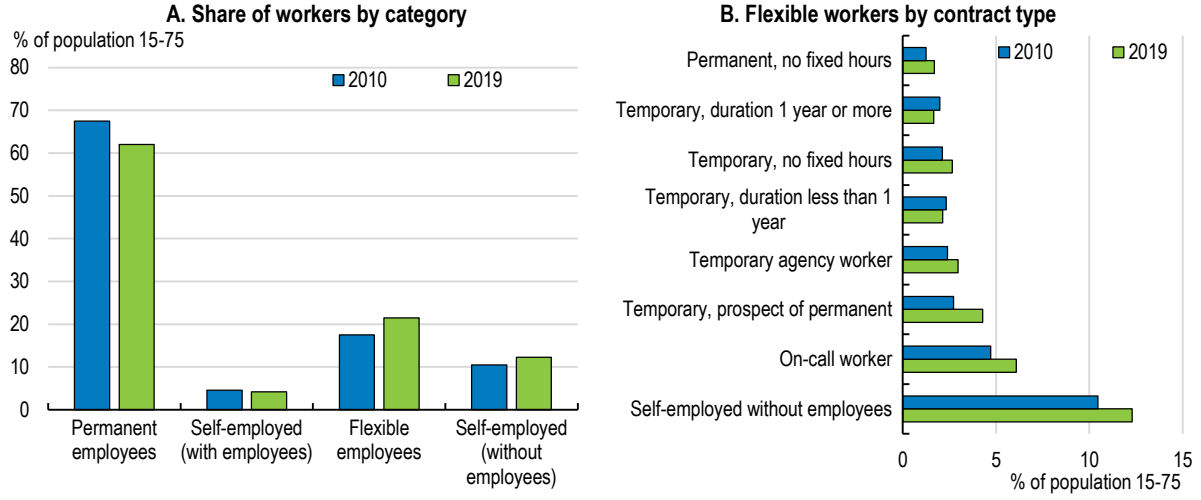


Note: The index ranges from 0 (low regulatory protection) to 6 (high regulatory protection),
Source: OECD (2020), OECD Employment Protection Database.

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The share of the employed in non-standard employment was, at 21.5% in 2018, almost twice as high as the OECD average. In particular, "on call' or "zero hour" contracts have been increasing over recent years (Figure 1.23). Employers have been obliged to give four days prior notice of working hours since 2020. Differences in the tax treatment of work contracts play a key role in this development. Some tax relief is available only for the self-employed, although it will gradually be reduced by 2028. The self-employed do not pay some social security contributions, notably for disability and pillar two pensions (Figure 1.24). This leaves them less protected, and the resulting tax wedge incentivises employers to hire own-account workers (OECD, 2018[3]; OECD, 2020[5]).

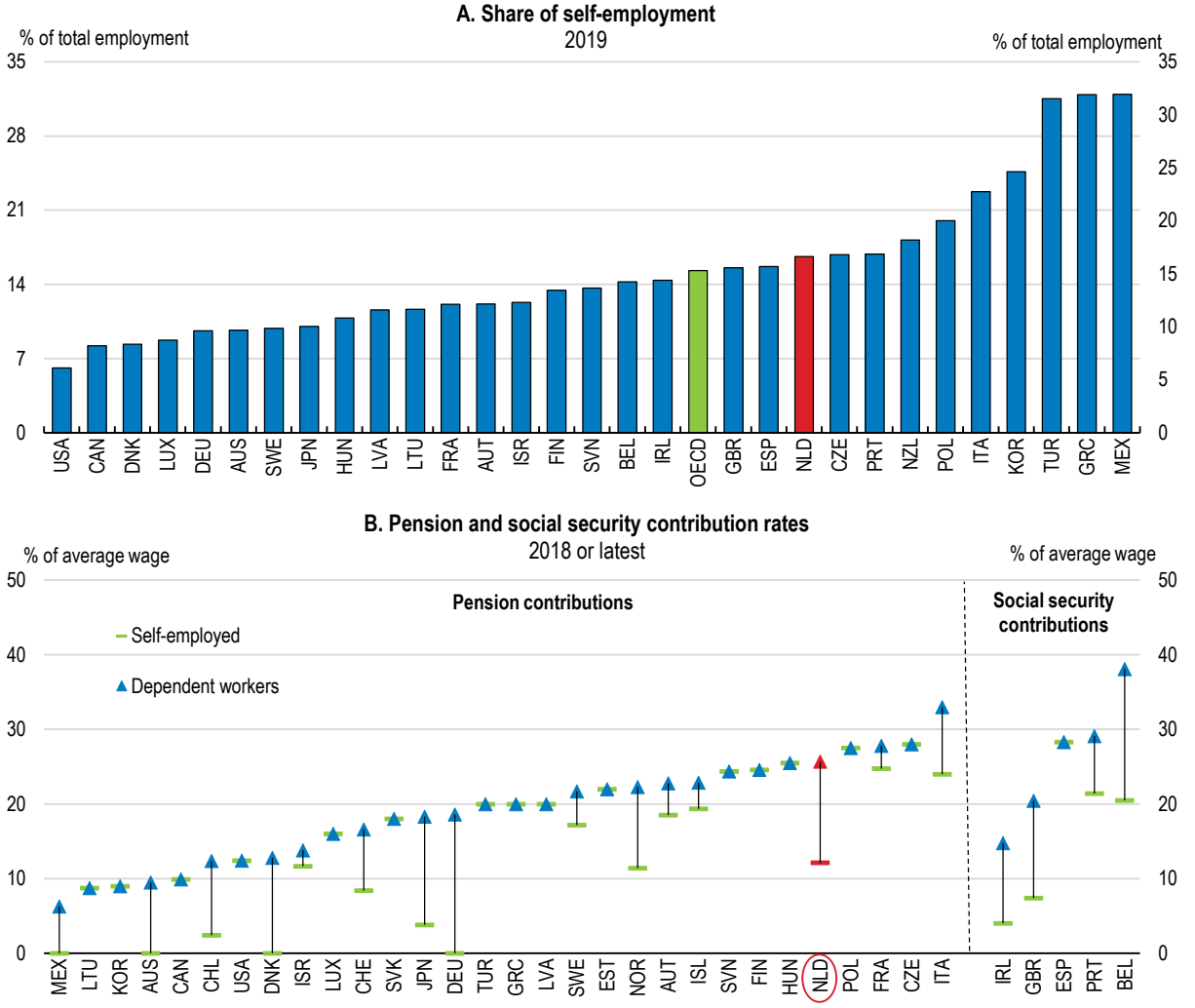
Figure 1.23. The share of flexible workers has increased over the past decade



Source: Statistics Netherlands (CBS): De arbeidsmarkt in cijfers 2019; and CBS open data platform.

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Figure 1.24. The self-employed pay less pension and social security contributions



Note: In panel A, OECD refers to an unweighted average. Panel B refers to mandatory / quasi-mandatory contributions rates. For dependent workers, contribution rates refer to the effective rates for average-wage earners, i.e. total contributions paid divided by average earnings. For the self-employed, contribution rates refer to the rates paid on the mandatory contribution base with taxable income equal to average net wage before taxes, i.e. to mandatory contributions paid divided by mandatory contribution base. See the publication in the source for further information on country specific definition and data.

Source: OECD (2020), OECD Labour Force Statistics database and OECD (2019), Pensions at a Glance 2019: OECD and G20 Indicators.

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Non-standard types of work can reflect new opportunities and individual preferences for more flexibility in working relationships, and they provide a flexible labour margin. However, they can also result in a deteriorating quality of work with weaker job and income security and greater wage inequality. Temporary work relationships in the Dutch labour market are more common for youth, women, people of immigrant background and the low skilled. Flexible workers earn less, have less wealth and are less likely to own a house on average, while they are more exposed to job loss (OECD, 2018[3]). The wide use of non-standard jobs can hold back productivity over the long-term, as non-standard contracts provide little incentive for employers and employees to invest in skill improvement (OECD, 2020[5]).

The Commission for Work Regulation recommended in its 2020 report to reduce labour market duality by increasing flexibility of regular employment contracts, reducing tax and social security incentives favouring flexible workers and encouraging life-long learning (Box 1.6), for consideration by social partners and the government. The Commission's proposals to align incentives between contract types and banning regulatory arbitrage, where de facto employed are defined as independent contractors, would to a large extent ensure that the characteristics of the job determine the type of contract, as opposed to differences in tax treatment and employer responsibility. The proposed loosening of regulations on regular contracts implies that employers would have more leeway to adapt tasks, work hours and location in line with the economic situation, rather than allowing easy dismissals. These proposals address the main weaknesses of the current system in a balanced way, and should be implemented. Mandatory disability insurance for the self-employed, which has been agreed as part of the pension reform, will pull in the same direction. Falling short of recommending pension fund membership for flexible workers will nonetheless leave an incentive for employers to hire flexible workers despite the announced change to actuarially neutral pension accrual.

Box 1.6. Main recommendations of the Commission for Work Regulation

In November 2018, the government established the Commission for Work Regulation (Commissie Regulering van Werk or "Borstlap Commission") to analyse how to make the labour market more inclusive and fit for the digital age. The Commission's final report, supported by inputs from the OECD, provides the following recommendations:

Increase the flexibility of regular employment contracts

- Employers should be able to adapt jobs, workplace and working hours of regular employees in line with the demands of the economy.
- Introduce part-time redundancy up to a certain percentage of working hours if economic conditions warrant it.

Reduce tax and other incentives for hiring flexible workers

- Temporary agency workers, freelance and gig workers should be entitled to the same terms of employment as regular employees, unless companies can prove that they are really self-employed.
- Phase out the tax deduction for the permanent self-employed.
- Introduce minimum disability insurance coverage for all workers regardless of their contract.
- Incentivise employers to hire regular employees by reducing the duration of mandatory sickness pay to one year, from currently two years.
- Introduce a higher minimum wage for employees with flexible employment contracts to compensate the additional risk.

Encourage lifelong learning

- Support all workers with career planning.
- Introduce individual training budgets for all workers, regardless of their employment contract, with monthly contributions by the employer.
- Make retraining accessible for all workers who are made redundant, funded by their individual training budgets.

Source: Commission for the Regulation of Work (2020[46]) and OECD (2019[47]).

Table 1.7. Past recommendations on inequalities

Recommendations in previous *Surveys*	Action taken since the previous 2018 Survey
Phase out the permanent self-employment tax deduction. Introduce minimum coverage for sickness and disability insurance for workers regardless of their contract.	The permanent self-employment tax deduction is gradually reduced from €7030 in 2020 to €3240 in 2036. Plans to introduce minimum disability coverage regardless of contract type are not yet legislated.
Lower social security expenses, for instance by reducing the generosity for sickness insurance.	No action taken.
Reduce severance pay for employees who are dismissed under reasonable grounds	No action taken.

Second-pillar occupational pensions are ripe for reform

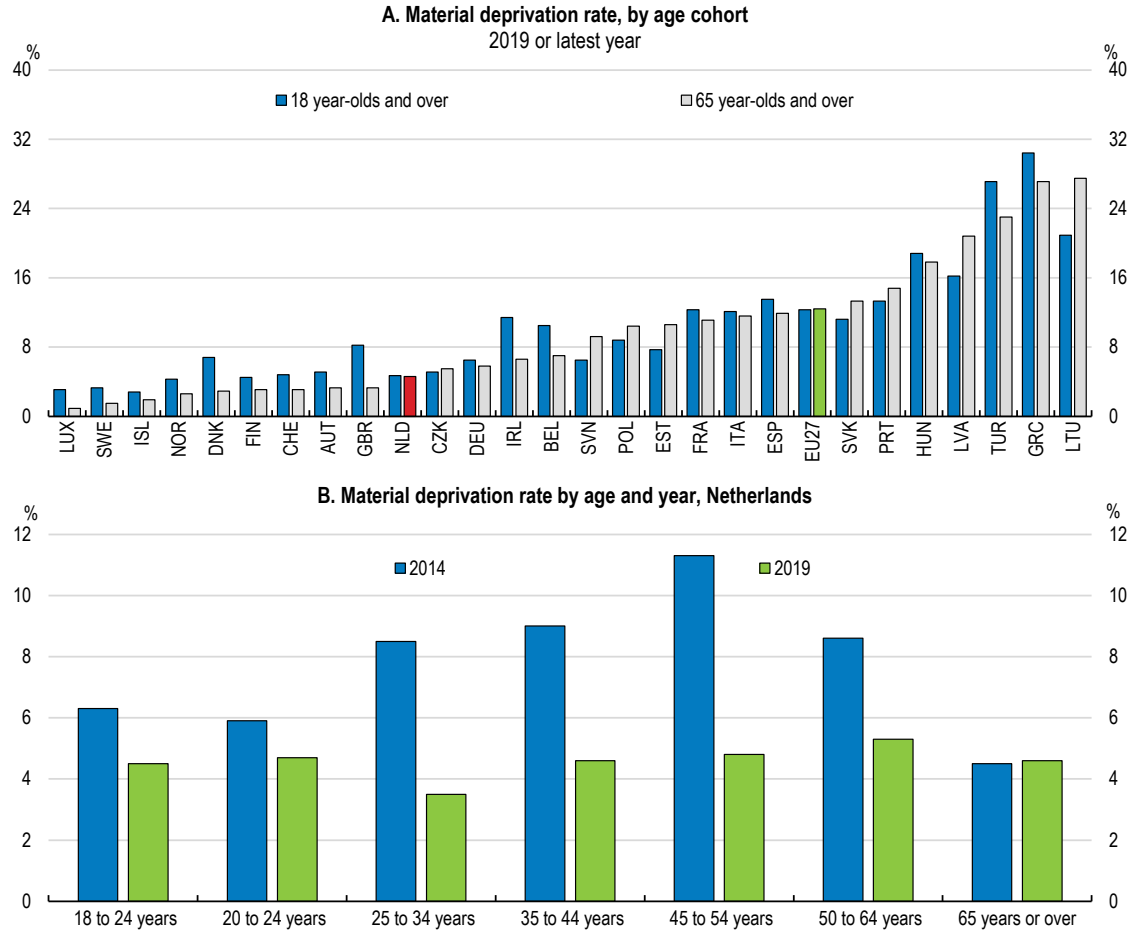
The Dutch three-pillar pension system is renowned internationally for the large population coverage, adequate retirement income, strong capitalisation and long-term sustainability. As a result, old-age poverty is very low and stable over time (Figure 1.25). The first pillar is a public flat-rate pay-as-you-go benefit available to residents above the statutory retirement age. The second pillar occupational pensions provide supplementary pensions, in most cases on a defined-benefit legal basis. Membership is regulated by collective agreements and mandatory for 90% of employees. The third pillar, consisting of voluntary, tax-favoured pension savings contracts, is still limited at about 10% of total pension assets, but is growing (Karpowicz, 2019[48]; Brouwer, 2020[49]).

The government and social partners reached an agreement in 2020 to address a number of weaknesses that had accumulated over time in the second pillar. The move from defined-benefit to defined-contribution pension rights will remove the need for large solvency buffers and allow investment risk profiles adapted on an age-cohort basis. Actuarial pension accrual rates will remove the subsidy from young to old members, thus increasing intergenerational fairness and reducing the incentives to work as self-employed. Legislation is set to take effect from 2023, while the reform will likely be fully phased in by 2027 (Brouwer, 2020[49]).

As a part of the pension compromise, the adjustment of the legal retirement age to life expectancy was frozen for two years and the rate of adjustment slowed. The legal retirement age will reach 67 in 2024, and will increase by eight months for each year of increased life expectancy thereafter. Previous plans to increase the retirement age one to one with rising life expectancy would increase years in work relative to years in retirement, keep average years in retirement constant over time and thereby reduce healthy years in retirement. The reduced pace of longevity adjustment strikes a better balance between fiscal sustainability and welfare over the life cycle. However, making sure the effective retirement age rises in line with the legal retirement age is essential to avoid mounting fiscal pressures going forward.

Some pension funds will need to improve their capitalisation in the short term. Solvency regulations before the reform, based on the principle that annuities are fully guaranteed, called for solvency buffers corresponding to a 125% funding ratio (assets divided by liabilities). New rules applicable for the transition period (2023 to 2026) require a minimum funding ratio of 95% and mandate social partners and the governing boards of pension funds to set a funding ratio allowing a fair and balanced transition towards the new pension contract. Funding ratios have weakened since the financial crisis, as low interest rates pushed up the present value of pension fund liabilities (DNB, 2019[24]). Funds were granted temporary leniency to avoid nominal cuts to annuities when more than half of pension funds had a funding ratio below 105% by the end of 2019, and again when the COVID-19 crisis pushed the average funding ratio below 100% for the first time (DNB, 2021[50]). Pension funds facing a funding shortfall can in principle adjust by reducing pensions or increasing premiums. Increasing premiums is usually the preferred option, and a number of funds are expected to increase premiums going forward. Pension premiums, including employer and employee contributions, are levied on incomes above a threshold, and accounted for approximately 14% of aggregate gross labour income before the COVID-19 crisis (European Commission, 2017[51]).

Figure 1.25. Old-age poverty is low



Note: Material deprivation is defined as the inability to pay for at least three of the following items: rent, mortgage or utility bills; adequate home heating; unexpected expenses; regular meat or protein consumption; holidays; a television set; a washing machine; a car; a telephone. In Panel A, values are for 2018 for Iceland and the United Kingdom.
Source: Eurostat (2021), Income and Living Conditions database.

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Table 1.8. Past recommendations on pensions

Recommendations in previous *Surveys*	Action taken since the previous 2018 Survey
The government should encourage social partners to agree on a new pension contract to ensure pension funds' sustainability and facilitate transfers of pension rights across funds.	The tri-partite pension agreement will ensure funds' sustainability when fully implemented by 2027.

Providing the skills needed to weather the crisis and embrace the future of work

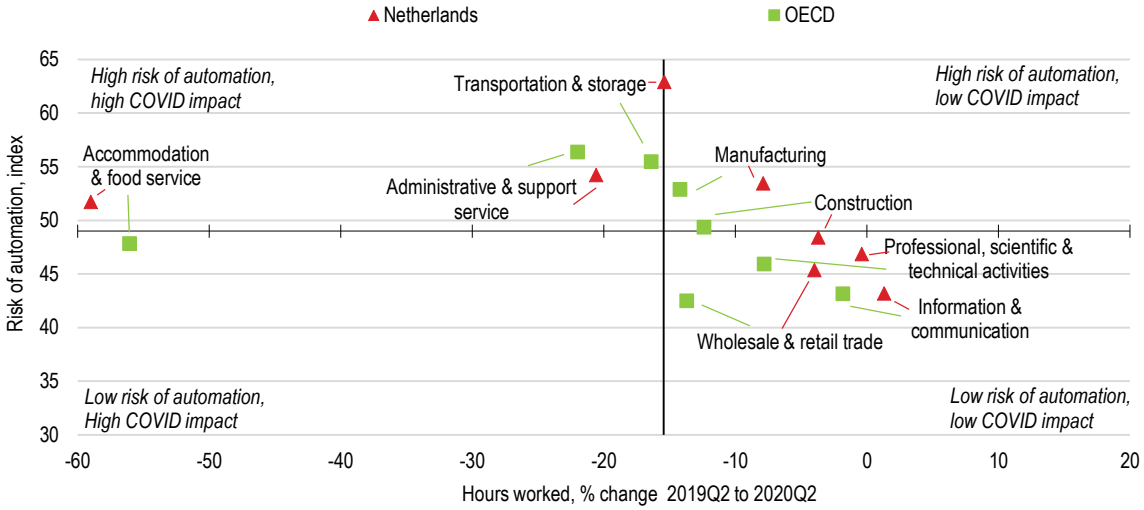
Human capital is high in the Netherlands. The population is highly educated in general but some are left behind. About 40% of the population aged 25 to 64, and 49% of 25-34 year olds has a tertiary degree (OECD, 2020[52]). High educational attainment is coupled with the third highest average adult skills in literacy and numeracy in the OECD after Japan and Finland. Still, one in ten of the adult population has low skills in literacy and numeracy, which are essential for learning new skills and are often required to perform jobs in modern society. People with higher digital skills have 4-6% higher hourly wages and are 10% more likely to be employed (Non, Dinkova and Dahmen, 2021[53]). A third of all adults report having problems using computers (OECD, 2018[43]).

Technological advances and automation shift the Dutch labour market towards higher skilled employment. Jobs that involve many routine tasks are exposed to automation, for example jobs in the transportation and storage sectors and jobs in administrative and support service activities. Continuing structural change will likely increase skill mismatches and thus reduce the value of some workers' skills. The COVID-19 crisis likely accelerated this development in some hard-hit sectors (Figure 1.26). This is notably the case for middle-skilled jobs in administrative and support service activities and in transportation and storage. Accommodation and food services, which are somewhat less vulnerable to automation, have also been very strongly affected by COVID-19. The COVID-19 crisis is also affecting human capital accumulation, as containment measures affect physical and psychological health, the quantity and quality of schooling, opportunities for on-the-job training, and reinforces traditional gender roles (OECD, 2020[5]).

An increased impetus on adult training is needed. The pandemic has seen a renewed interest in online learning (OECD, 2020[54]), but on-the-job training and skill accumulation suffered during the COVID-19 crisis, as working hours dropped by 5% in the second quarter of 2020 compared to the previous year. Policy efforts should be strengthened to provide workers with effective training to facilitate the reallocation of workers from sectors hit hard by the pandemic and automation to new and more promising activities. Thus, active labour market policies should target low-skilled and disadvantaged workers, including individuals already in work, who are less likely to receive training, in cooperation with social partners.

Initiatives are underway to offer employer-provided individual training accounts to all regular employees. The new Personal Learning and Development Budget (STAP) is an innovative approach to fund individual life-long learning activities for any adult, independent of their employment status, thereby complementing individual learning accounts (Box 1.7). The envisaged 2022 budget of EUR 200 million is likely too low to cover currently un-met upskilling needs, but the initiative is open to co-financing by employers and easily scalable if initial experiences are positive. In order to produce the desired outcomes and avoid fraud, the system needs to be accompanied by a strong quality assurance system, including certification of education providers, monitoring quality of activities and making this information available (OECD, 2019[44]).

Figure 1.26. Some hard-hit sectors are also exposed to automation pressures



Note: Horizontal and vertical axes cross in the (unweighted) OECD average. Risk of automation is calculated for each country-sector cell on data from the OECD Survey of Adult Skills, following the methodology of Nedelkoska & Quentini (2018), "Automation, skills use and training", OECD Social, Employment and Migration Working Papers, No. 202. The OECD average is the unweighted average for OECD countries who also participated in the OECD Survey of Adult Skills. *Data was collected in three rounds from 2012 to 2017. Australia, Austria, Belgium (Flanders), Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, Norway, Poland, Russian Federation, Slovak Republic, Spain, Sweden, United Kingdom (England and Northern Ireland) and the United States participated in round 1 (2012). Chile, Greece, Indonesia, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey participated in round 2 (2015). Ecuador, Hungary, Kazakhstan, Mexico, Peru and the United States participated in round 3 (2017).
Source: OECD Survey of Adult Skills (2018) database and Eurostat (2021); Short-term business statistics (database).

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Box 1.7. The Personal learning and development budget (STAP): a new platform for adult learning

The Personal learning and development budget (Stimulering Arbeidsmarkt Positie, STAP) is to be implemented in 2022 with an initial annual funding of EUR 200 million. STAP replaces a former tax deduction scheme, and is part of the 2018 action plan aiming to help and encourage people to take more responsibility in managing their personal working life and career.

Any person between the age of 18 and the statutory retirement is eligible for a maximum training subsidy of EUR 1000 per year. The subsidy is allocated through a registry containing approximately 700 pre-approved educational institutions and 20 000 educational activities, including both formal and non-formal education. Users apply through an on-line application form. Training slots and funding are reserved in real time on a first-come-first-served basis. Funding is allocated directly to the education provider to reduce the risk of misuse and fraud.

The initiative does not separate between groups of people and types of training at the outset, but the infrastructure could allow targeting extra funding to certain groups or specific types of activities in the future, for example within the digital and/or green transition. The system also allows for co-financing, for example by employers.

Alongside the STAP initiative, policies will be in place to help groups that engage less in adult training. Such activities will include targeted communication and campaigns, additional guidance and

counselling services to medium and low skilled workers.

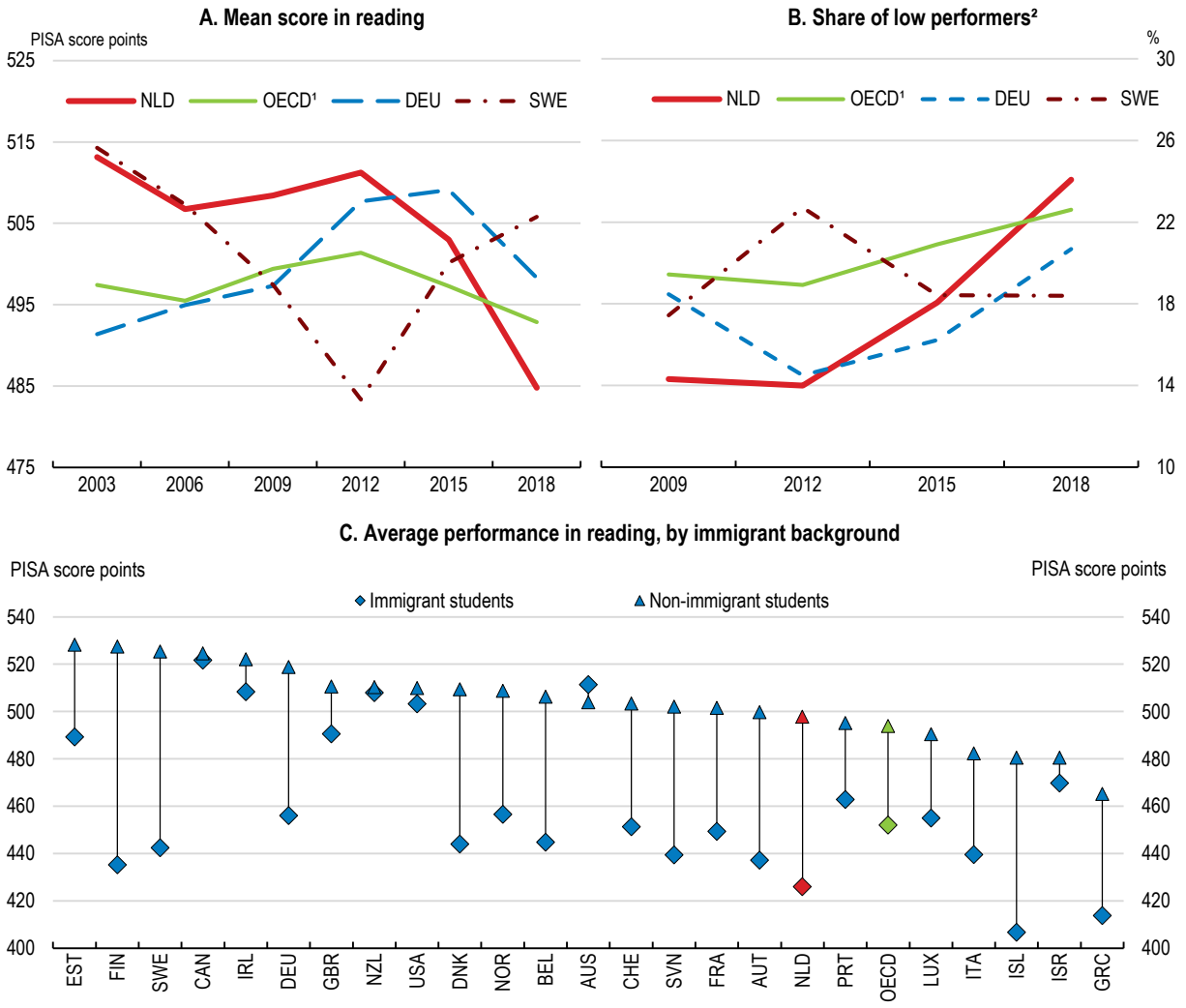
Source: Kingdom of the Netherlands (2020), *An updated EU skills agenda,* Non-paper by The Netherlands Permanent Representation to the EU.

15-year-olds in the Netherlands perform above the OECD average in mathematics and science, according to the OECD's Programme for International Student Assessment (PISA) (OECD, 2020[52]). However, declining performance in the latest PISA vintages is a concern, notably in reading (Figure 1.27, Panel A). Differences in results between schools are high, partially because of early tracking, with pupils in the academic track performing better than those in vocational tracks. However, these differences are rising, as the weakest pupils are falling further behind the average, notably in reading (Figure 1.27, Panel B). Students of immigrant background perform considerably below natives, and immigrant pupils in Dutch schools have the second-lowest absolute performance in the OECD (Figure 1.27, Panel C) (OECD, 2018[43]). Reversing the downward trend and raising the performance of Dutch schools would require investing in teachers, promoting collaboration among school leaders, teachers and school boards and fostering a culture of accountability and continuous improvement (OECD, 2016[55]).

Tweaks to the school choice design could help social integration. The Netherlands has a highly decentralised school system with school choice and a high share of publicly funded schools run by private foundations or associations with a basis in religion, philosophy of life or educational vision. Money follows the pupil, with higher funding for pupils from immigrant and disadvantaged socio-economic backgrounds. Despite such compensatory funding, school choice may contribute to a concentration of pupils according to their social backgrounds. This is not a result of school choice in itself, but has multiple causes, notably income inequality, spatial segregation and information asymmetries for families from different socio-economic status. Sweden, with free school choice, has seen considerable concentration of similar socio-economic backgrounds in schools, as has Finland with very limited choice (OECD, 2019[26]). However, the framework for application and assignment of pupils to schools can contribute to such concentration unless properly designed, as strong pupils with native-born and well-educated parents may self-select away from weak schools.

A unified application system with simultaneous application to all schools on one single platform, as in Amsterdam and the one being developed and piloted in Utrecht, is a way to reduce information asymmetries between families of different backgrounds. Participation should be mandatory to all publicly-funded schools in the relevant area, and be combined with easily and transparently available information on school performance. Oversubscribed schools should assign pupils in ways that, at a minimum, do not discriminate against children from socially disadvantaged backgrounds, including by lottery (as in Amsterdam and Utrecht). Alternatively, assignment could facilitate social mixing by giving priority to pupils from underrepresented socio-economic backgrounds, although such positive discrimination often prove politically controversial.

Figure 1.27. PISA performance is high but declining, and the weakest fall further behind

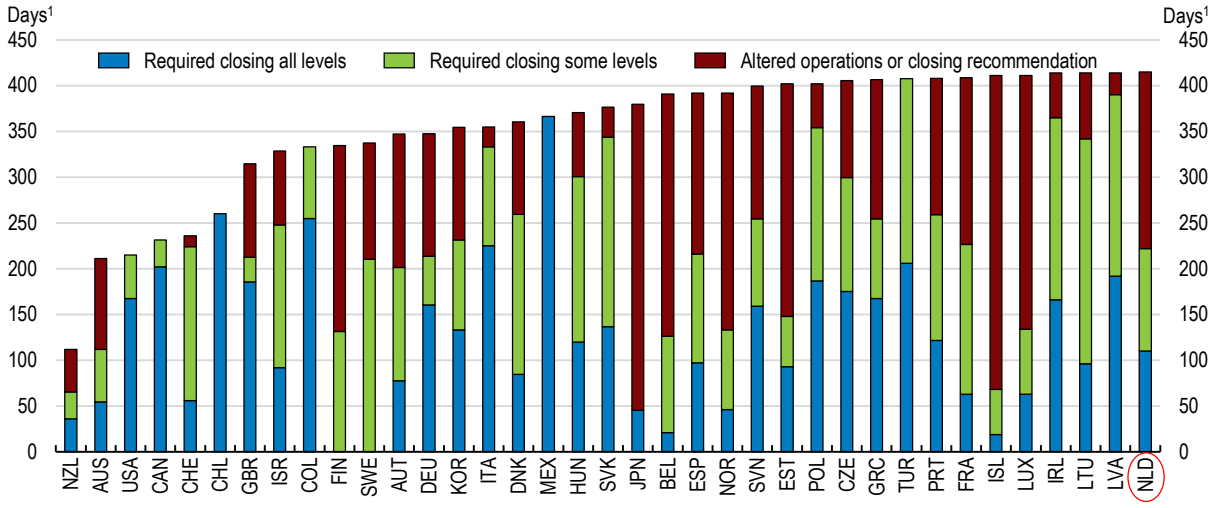


Note: 1. To ensure the comparability across all PISA cycles, the OECD aggregate covers 23 countries for Panel A and 35 countries for Panel B. 2. Low-performing students scored less than 407.47 points (below level 2).
Source: OECD (2019), PISA 2018 Results (Volume I): What Students Know and Can Do and PISA 2018 Results (Volume II) : Where All Students Can Succeed.

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During the COVID-19 crisis, Dutch schools closed and provided classes online 12 weeks in 2020, and closed again in early 2021. Despite a less heavy-handed approach to school closures than many peer countries, with a shorter interval of mandatory school closures (Figure 1.28), along with relatively high capabilities for on-line teaching, the effect of eight weeks of online classes in the Netherlands in the spring was equivalent to missing out on education for these eight weeks on average; the negative impact was up to 60% larger than average among students from less-educated homes (Engzell, Frey and Verhagen, 2021[56]). Unequal facilities of schools and pupils to go digital, including the necessary digital equipment, high-speed internet connections, private space at home and parents who can assist and follow up, tend to disadvantage students from weaker socio-economic backgrounds (OECD, 2020[57]). To reduce the growing learning gaps, the government made EUR 8.5 billion for activities including after-school hours and vacation catch-up classes available.

Figure 1.28. School closures and reduced activity can hold back human capital accumulation



Note: Indicator C1, School closures of the Oxford COVID-19 Government Response Tracker. Complete data labels are as follows: "Altered operations or closing recommendation" - recommend closing or all schools open with alterations resulting in significant differences compared to non-COVID-19 operations; "Required closing some" - require closing (only some levels or categories, e.g. just high school, or just public schools); "Required closing all" - require closing all levels. Data used from January 2020 until April 2021.
1. Days for which the school closure rules are applied country wide are counted as 1 day, while regional closures are counted as half a day.
Source: Hale et al., (2021). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government; and OECD Economic Outlook: Statistics and Projections (database).

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Table 1.9. Past recommendations on skills

Recommendations in previous *Surveys*	Action taken since the previous 2018 Survey
Introduce individual lifelong learning accounts targeted specifically at vulnerable workers.	No action taken, but the planned STAP budget will be an important step to address this issue once implemented.
Improve the targeting of employment support policies to vulnerable groups.	No action taken.
Work towards a more coordinated approach, in implementing activation policies across regions.	No action taken.

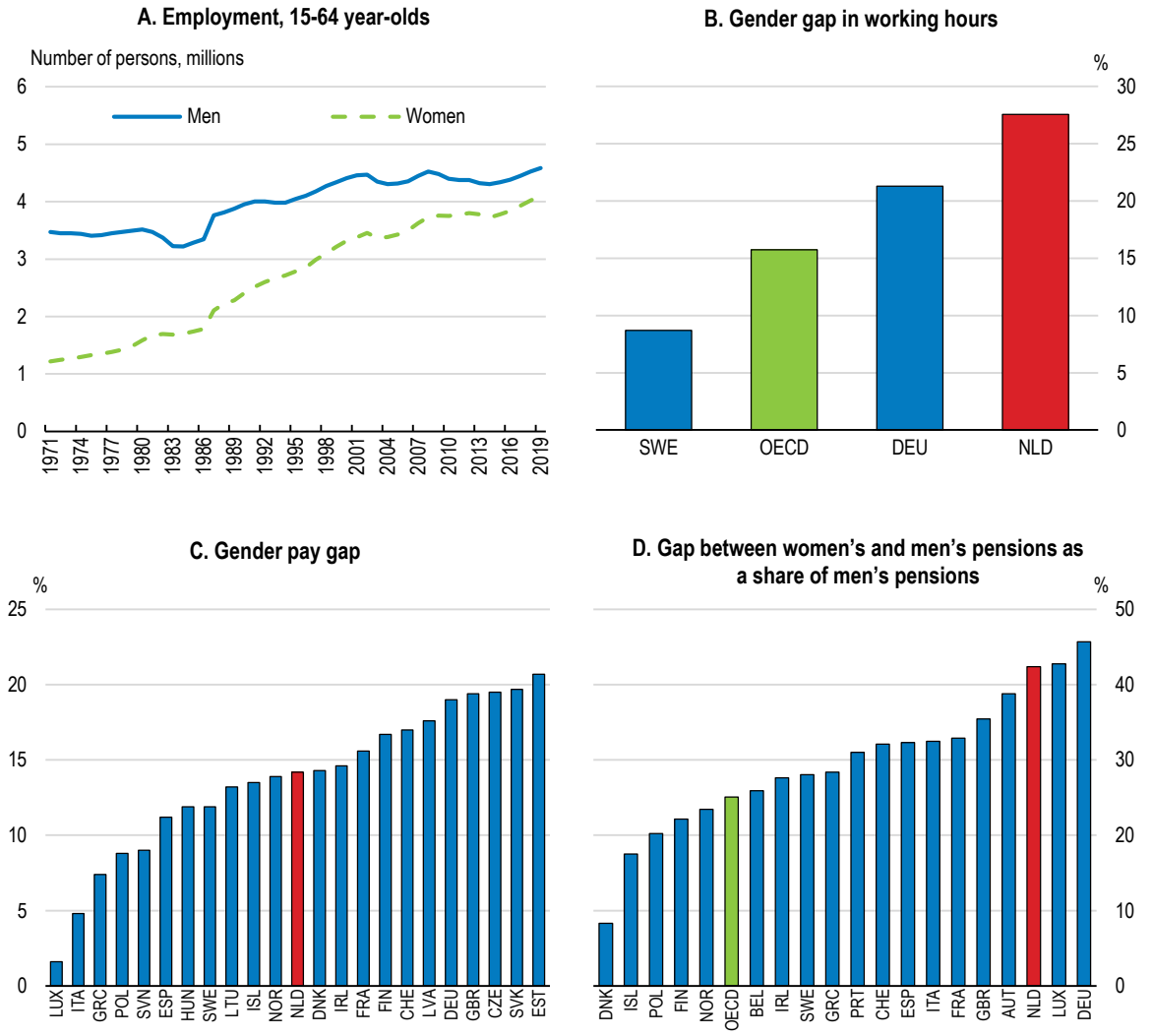
A more equal sharing of paid and unpaid work would allow a better use of human capital

The Netherlands performs well on many, though not all, measures of gender equality. Women's labour market participation has increased spectacularly, from 30% to 70% since the 1970s (Figure 1.29, Panel A), and is today one of the highest in the OECD. However, nearly 60% of women work part-time, roughly three times the rate for men and three times the OECD average for women (Figure 1.29, Panel B). This represents an inefficient use of human capital, as young women are more likely than men to complete both secondary and tertiary education (OECD, 2020[52]) and they enter the labour market at similar rates after graduating.

The gender wage gap is narrow before partners become parents, but widens dramatically thereafter, as women and men tend to transition to more traditional gender roles (OECD, 2019[58]) and the gender gap in part-time work widens. It leads to large gender gaps in earnings, wealth and pensions, slower progression of women into management roles, and it corresponds with unequal division of unpaid work at home (OECD, 2019[58]). The gender wage gap is at the OECD average (Figure 1.29, Panel C). The pension

gap is the third-highest in the OECD, with women aged 65 years and older receiving much lower pension than men (Figure 1.29, Panel D). The large gender gap in part-time work shows little sign of abating. Indeed, the crisis likely amplified gender inequalities, as women picked up much of the additional unpaid work caused by widespread school and childcare facility closures (OECD, 2020[5]).

Figure 1.29. Unequal sharing of family work lead to gender gaps in pensions and income



Note: Panel B refers to the gap between women's and men's average usual weekly working hours on the main job as a share of men's working hours, total declared employment. 15-64 year-olds. Panel C refers to the unadjusted gender pay gap, which is the difference between average gross hourly earnings of male and female paid employees as a percentage of male paid employees' earnings, irrespective of the type of work performed, the number of hours worked and the duration of the contract. Panel D refers to population aged 65 or older. Gender gap in pensions calculated using the following formula: 1 – women's average pension / men's average pension. It includes persons who obtain old-age benefit (public or private), survival pension or disability benefit. 2014 for Iceland.
Source: OECD (2021), OECD Labour Force Statistics (database), OECD (2019), Pensions at a Glance 2019: OECD and G20 Indicators and Eurostat (2021), Gender pay gap in unadjusted form by NACE Rev. 2 activity.

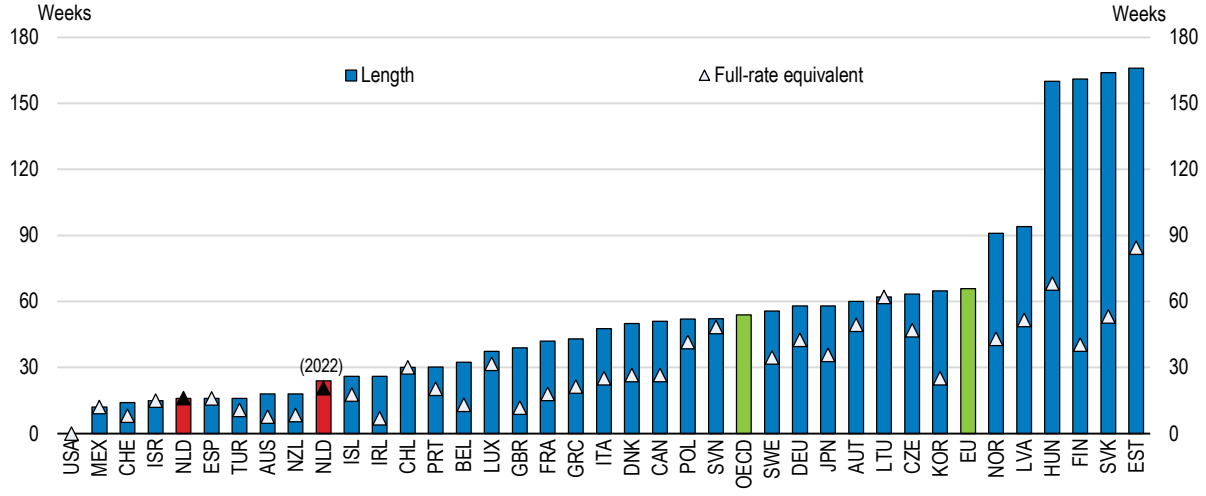
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The choice of what form of care is best for their children ultimately lies with the parents, but the government can do more to ensure that parents have the choice to pursue gender equal sharing of responsibilities at

home and in professional life. Surveys find that the incidence of involuntary part-time work is low in international comparison (OECD, 2018[3]), but people's choices are conditional on institutions, such as parental leave arrangements, access to high-quality flexible childcare, after school care and associated costs and barriers. A majority of mothers and fathers in the Netherlands report wanting an equal distribution of care work, but less than 40% say that this happens in practice (OECD, 2019[58]). Parental leave entitlements and high-quality affordable childcare enable parents to pursue both career and family, while incentives to split parental leave between mothers and fathers help foster a more equitable distribution of paid and unpaid work within a family also after the parental leave period. Incentives for both partners to reduce hours in connection with childbirth, like the "partner bonus" to part-time parental leave in Germany (Eurofound, 2021[59]), should be considered.

Parental leave entitlements will be made more generous but more should be done. Maternity leave is, at 16 weeks, short in OECD comparison. Fathers are entitled to 6 weeks leave at a 75% average replacement rate, lower than the 100% available to mothers. Following up the European directive on work-life balance, the first 9 weeks of an additional 26 weeks unpaid leave entitlement available to each parent will be paid up to 50% from mid-2022 (Government of the Netherlands, 2021[60]) (Figure 1.30). This extension is welcome, and plans to earmark nine weeks paid leave to each partner should incentivise a more gender-balanced sharing of care responsibilities. However, a replacement rate of 50% of wages up to a ceiling might be an insufficient incentive to overcome entrenched gender norms and earnings shortfalls in those families where the father is the main family income earner.

Figure 1.30. Relatively short maternity leave is set to increase



Note: Information refers to paid parental leave and subsequent periods of paid home care leave to care for young children. The graph refers to paid leave entitlements in place as of April 2018. Data for Chile refer to April 2017. The full-rate equivalent is calculated as the average payment rate times the length of the leave. See source for more details.
Source: OECD (2018), OECD Family Database: Public policies for families and children (PF2.1).

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Reforming childcare and after-school care should be a priority. Enrolment in centre-based childcare is well above the OECD average, but total hours spent in childcare is low. Likewise, participation rates in centre-based out-of-school-hours care services are around the OECD average. The quality of centre-based care is typically good, but the cost to parents is relatively high in OECD comparison and social norms dictate that it is better for toddlers to stay at home with their mothers (OECD, 2019[58]).

Facilitating access to high-quality and affordable childcare would likely boost the uptake of childcare and facilitate gender equality directly, and would likely contribute to changing attitudes in the longer term, as take-up increases. Early childhood education and care has a positive effect on children's learning outcomes, notably children with low-educated and/or immigrant parents (OECD, 2020[61]). A legal right to childcare would provide certainty to women combining careers with motherhood. Prioritising childcare provision to parents in work or studies could reduce the net cost of childcare provision and boost work incentives. However, there might also be lock-in effects in segments of non-working women, and adverse effects on learning outcomes for children not participating, notably for children from immigrant families and weaker socio-economic backgrounds.

Box 1.8. Quantifying the impact of selected recommendations

This box summarises potential long-term impacts of selected structural reforms included in this Survey on GDP (Table 1.10) and fiscal balance (Table 1.11). The quantified impacts are merely illustrative. The estimated fiscal effects include only the direct impact and exclude behavioural responses that may occur due to a policy change.

Table 1.10. Illustrative GDP impact of selected recommendations

Policy	Scenario	Impact
Reduce employment protection (EPL) on regular contracts	Reduce EPL by 10%	2.1% increase in GDP per capita after 10 years

Source: OECD calculations using the OECD Economics Department's long-term model; OECD calculations based on the framework in Égert and Gal (2017), "The Quantification of Structural Reforms in OECD Countries: A New Framework", OECD Economics Department Working Papers, No. 1354.

Table 1.11. Illustrative fiscal impact of recommended reforms

Measure	Description	Additional fiscal cost/revenue, percentage points of GDP
Expenditures		
Reduce user prices of childcare	Increase child care available to families by 10% to close the gap with the OECD average.	-0.1
Increase leave replacement rates after the birth of a child for fathers to the level available to mothers	Increase cash benefits for parental leave to reach the OECD average	-0.2
Increased spending on training subsidies	Increase ALMP by 10% to bring up spending on training to the OECD average	-0.1
Taxes		
Reducing favourable tax treatment of owner-occupied housing	The fiscal impact reflects additional tax revenue from scrapping mortgage interest rate deductions.[1]	1.0

Note: Estimations for selected reforms showing only direct budget impact. 1. CPB estimates indicate that mortgage interest deductions result in a budgetary loss of about by EUR 10 billion in 2025 (about 1% of CBP's estimated GDP for 2025) (CPB, 2020b), https://www.cpb.nl/sites/default/files/omnidownload/CPB-Kansrijk-belastingbeleid-2020.pdf and CPB, (2020c), https://www.cpb.nl/sites/default/files/omnidownload/collected-appendices-nov-2020-mlt.xlsx; Source: OECD calculations.

International experience suggest that improved access and reduced cost of childcare can improve women's labour supply. A reform expanding access and reducing the cost of childcare in Norway in the 2000s facilitated the increased uptake of one- and two-year-olds from 40% in 2002 to 80% in 2012. The reform boosted women's employment and earnings and enabled more women living in couples to move into full-time work (Eckhoff Andresen and Havnes, 2019[62]). Attitudes also changed considerably since the

start of the reform, with the share of mothers stating that full-time centre-based childcare is the best type of care for three-year-olds increasing from 41% to 72% from 2002 to 2010 (Kitterød, Nymoen and Lyngstad, 2012[63]). Sweden is another country where expansion of centre-based childcare happened in tandem with both an increase in women's employment and a steady increase in the share of women working full-time. On average, under-2-year-olds in Sweden spend 30 hours per week in childcare, compared to just 16 hours for children of the same age in the Netherlands (OECD, 2019[58]). Increasing childcare subsidies has boosted women's participation and hours worked also in the Netherlands. It is an effective policy instrument to increase labour supply, as women with young children react relatively strongly to economic incentives, but the direct fiscal cost outstrips the additional revenue attributable to the reform, at least when measured in a static short-term framework (de Boer and Jongen, 2020[64]; Bettendorf, Jongen and Muller, 2015[65]). This was also the case in the Norwegian reform (Eckhoff Andresen and Havnes, 2019[62]).

Table 1.12. Past recommendations on gender equality

Recommendations in previous Surveys	Action taken since the previous 2018 Survey
Increase the period of paid paternity leave to encourage greater participation of fathers in childcare responsibilities.	An increase of nine weeks for each parent, paid at 50% (up to a ceiling) is announced to take place in 2022.

Table 1.13. Findings and recommendations

FINDINGS	RECOMMENDATIONS (key recommendations in bold)
Supporting the economy through COVID-19	
Fiscal policy is highly expansionary and a too quick fiscal consolidation could derail the economic recovery. COVID-19-support policies have helped businesses to stay afloat during the height of the crisis, but constrain reallocation and productivity growth. Ageing- and health-related expenditure pressures are set to rise in the longer term. Debt accumulated today will need to be repaid by future generations.	**Provide targeted fiscal support until the economic recovery is well underway.** **Phase out polices aimed at preserving existing companies and jobs when the health crisis is brought under control.** **Design in advance a multi-year plan for fiscal adjustment once the recovery is self-sustained.**
COVID-19 and automation increase the need for re-skilling and up-skilling.	**Increase training subsidies to jobseekers and workers with high up-skilling and re-skilling needs.**
A tri-partite pension agreement is set to increase sustainability and intergenerational fairness of occupational pensions.	**Fully implement the tri-partite occupational pension agreement moving to defined contributions.**
The pandemic stress test of De Nederlandsche Bank suggest that banks are sufficiently shock-resistant and can continue to fulfil their lending role. Banks have been allowed to use capital buffers to keep lending to firms and households.	Tighten regulatory capital buffers only when the economy is solidly on its path of recovery.
Reducing household leverage and re-balancing the housing market	
Housing construction has not kept up with population growth and changing family formation patterns. Population density is high and land faces competing uses and coordination challenges.	**Increase the supply of housing by speeding up land use planning and building procedures, designating housing construction locations, and making binding agreements with all parties involved.**
The Dutch housing sector consists of a large part of owner-occupied housing, which enjoys a favourable tax treatment compared to alternative investments and rental housing.	**Gradually reduce favourable tax treatment of owner-occupied housing beyond current plans.**
Reasonably-priced rental housing is only available after a period of queuing due to price controls on one third of the housing stock.	**Gradually limit rent controls to a narrower part of the market.**
The government is preparing legislation to allow municipalities to ban buy-to-let investments, further limiting rental supply.	Cancel proposed legislation allowing municipalities to ban buy-to-let housing investments.
Housing corporations with state guaranteed debt dominate the rental market.	**Evaluate how housing corporations affect the overall housing market and ensure that enough space is left for a private rental market.**
The Netherlands has capped rent increases, halted evictions and automatically extended temporary leases.	Reverse additional rental regulations implemented since the start of the COVID-19 crisis.
Investing in the environment for growth and well-being	
Greenhouse gas emissions reduction targets will not be met under current policies. CO_2 prices vary by emission sources and for different fuels.	**Make emission pricing more consistent across sectors and fuels not covered by the EU emissions trading scheme.**
A lack of information on used materials and product characteristics holds back the capacity of markets to recycle, reuse and use goods for longer.	Introduce digital passports as part of Ecolabel and Ecodesign regulation to encourage the recycle, reuse, and repair of materials.
Nitrogen emissions need to be reduced to comply with national and European Union law. Multiple instruments are being put in place. The transfer of emission permits is allowed.	**Consolidate instruments to manage transferable nitrogen emission rights to further facilitate standardisation and transfer of rights.** **Further enhance cross-border cooperation to tackle the nitrogen problem.**
Reducing labour market duality and inequalities, boosting trust	
Employment protections for regular employed are strict. Self-employed workers earn less, save less, pay less income tax and social security contributions, incentivising their use while leaving them less protected. The Commission for the Regulation of Work has proposed a comprehensive reform package to reduce labour market duality and boost life-long learning.	**Implement the Commission for the Regulation of Work recommendations, including:** **Allow employers to adapt jobs, workplace and working hours of regular employees in line with the needs of the economy.** **Align tax rates and social security contributions between contract types for workers doing similar jobs.** Clarify the legal distinction between employees and the self-employed.
Nearly 60% of women work part-time, roughly three times the rate for men and the OECD average for women. The large gap in part-time work widens when partners become parents.	**Go further than current plans in reserving leave entitlements following childbirth for partners.** **Increase leave replacement rates after the birth of a child for partners to the level available to mothers.**

Enrolment in centre-based childcare is well above the OECD average in the Netherlands, but time spent in childcare is low.	**Reduce user prices for childcare.**
PISA results have been falling over time. Differences in PISA results between schools are high and rising, as the weakest pupils are falling further behind the average.	Implement simultaneous application to all primary schools within the municipality on one single platform. Strengthen teacher professionalism and further develop their career structure. Promote professional collaboration and a culture of continuous improvement in the school system.

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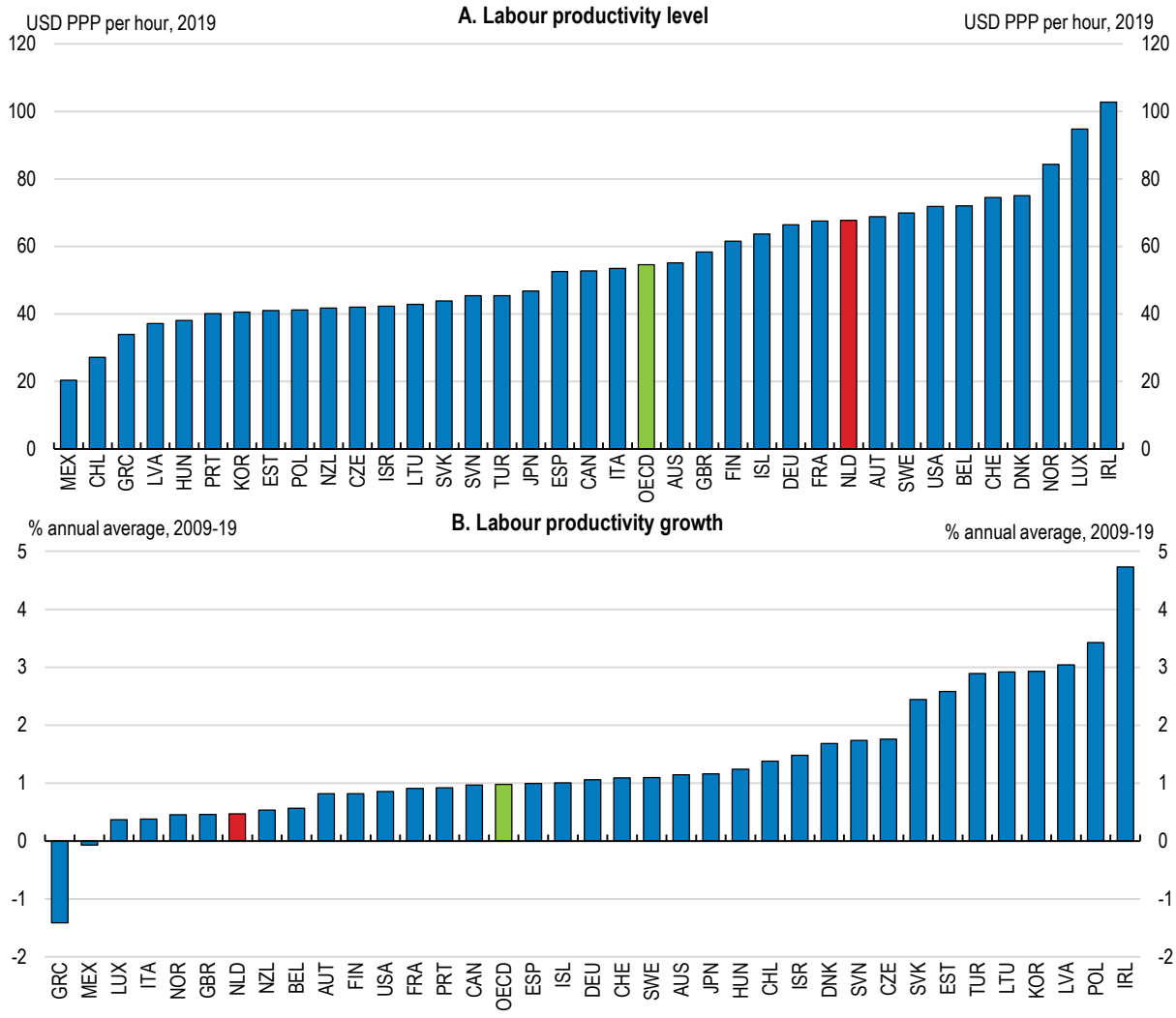
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2 Productivity and digitalisation for a stronger recovery after COVID-19

Slow productivity growth in the decade leading up to the COVID-19 pandemic raises concerns for future living standards. Digital technologies have the potential to boost productivity growth, but their uptake and efficient utilisation depend on a good business climate and access to complementary skills. The COVID-19 crisis has accelerated the digital transformation, but there is scope to further speed up the digital take-up among enterprises that currently lag behind. Encouraging enterprises to implement digital security standards, extending e-government services to businesses, enhancing public-private R&D partnerships, and improving access to equity finance would help the digital transformation and productivity. Skill shortages, notably a lack of ICT professionals, is a concern. More diverse and flexible higher education pathways and a stronger involvement of the private sector in the design of vocational and higher education programmes would boost the supply of skills in high demand on the labour market. Doing more to train job seekers and low-skilled workers, regardless of their employment contract, would be beneficial to productivity and help ensure that its benefits are widely shared.

Productivity performance in the Netherlands has been disappointing since the financial crisis (Figure 2.1). Several factors played into this development. Weak investment in the five years following the Global Financial Crisis has dampened productivity growth. Skill shortages increased on the back of stronger economic growth. Difficulties to find skilled workers constrained labour productivity growth. Furthermore, the adoption of digital technologies with the potential to boost productivity has been concentrated among the largest firms with slow diffusion to the rest of the economy. Smaller firms lack the finance, skills and know-how, which are key to get the most out of the digital transformation. In addition, part of the labour productivity underperformance mirrors a substantial rise in labour force participation, including more own-account workers with lower skills and access to training.

Figure 2.1. Labour productivity is high while productivity growth is slow



Note: Labour productivity is measured as real GDP per hour worked.
Source: OECD (2021), OECD Productivity Statistics (database).

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Digital technologies have the potential to improve productivity, giving room for raised wages and living standards, better public services and greater well-being (OECD, 2019[1]; 2019[2]; Gal et al., 2019[3]). Digital

tools offer governments better ways to interact with citizens, allow firms to design, produce and sell new goods and services, and facilitate social and economic interactions among individuals. Recently, the pandemic may have further accelerated trends towards automation (Chernoff and Warman, 2020[4]) and advanced the digital economy. With a favourable business environment and a highly skilled population, the Netherlands is well positioned to take advantage of the digital transformation to boost productivity for a stronger recovery following the Covid-19 economic crisis. The country is also making efforts to benefit from frontier technologies such as artificial intelligence and quantum computing. Up-skilling and re-skilling efforts should be ramped up to facilitate this process and reduce the associated social cost.

The COVID-19 crisis has created additional challenges for productivity. School closures reduced skill accumulation. Parts of the job losses may become permanent in some sectors due to changed consumer demand and accelerated digitalisation and automation, which are set to increase skill mismatches going forward. Generous grants and deferred tax payment have helped businesses to stay afloat during the height of the crisis, but they risk locking-in resources in low-productivity firms and constrain the effective reallocation of resources to most productive firms. Increasing corporate debt may weigh on investment and productivity. Rising concentration in some sectors, increasing shipping costs, weaker trade flows and the reorganisation of global value chains are further risks to productivity. Going forward, it will be key to pivot towards policies facilitating a reallocation of resources towards highly productive sectors and firms. Temporary higher unemployment and bankruptcies are an integral part of this necessary adjustment to allow sound productivity growth in the longer term.

Digitalisation can boost productivity, and can help make growth greener and more inclusive. It can increase resilience to shocks and be part of the solution to challenges the Dutch society is facing. During the COVID-19 crisis, e-commerce and teleworking proved helpful in cushioning the immediate economic shock as many firms rapidly stepped up their information and communication technology (ICT) capacities and adopted digital technologies to stay in business (OECD, 2020[5]). Digital technologies can also help pave the way out of the crisis, for example in reducing the cost and raising the quality of activities to re-skill people affected by structural change. Artificial Intelligence (AI) systems have been crucial in monitoring the evolution of COVID-19 and in guiding policy responses. The fight against climate change is also pushing the government and the private sector to pay more attention to new technologies to support the transition of the economy towards carbon neutrality increase economic resilience and resource efficiency.

This chapter looks at productivity challenges through the lens of digitalisation and associated policies in the Netherlands. It presents policy recommendations to seize the productive potential of digital technologies and ensure sustainability and inclusiveness in an increasingly digital society. It draws heavily on the OECD's Going Digital Policy framework (OECD, 2019[1]) and previous OECD work on productivity (Gal et al., 2019[3]; Sorbe et al., 2019[6]; Andrews, Nicoletti and Timiliotis, 2018[7]), the OECD Skills Outlook (OECD, 2019[8]) and the OECD Jobs Strategy (OECD, 2018[9]). To take advantage of the productive potential of digitalisation, the Netherlands must facilitate and encourage firms to adopt new technologies, maintain high usage of digital infrastructure, ease financing conditions for young and innovative firms, and better target R&D support. Education and active labour market policies need to address skill shortages and ensure all workers are equipped with the right skills to prosper in the digital age.

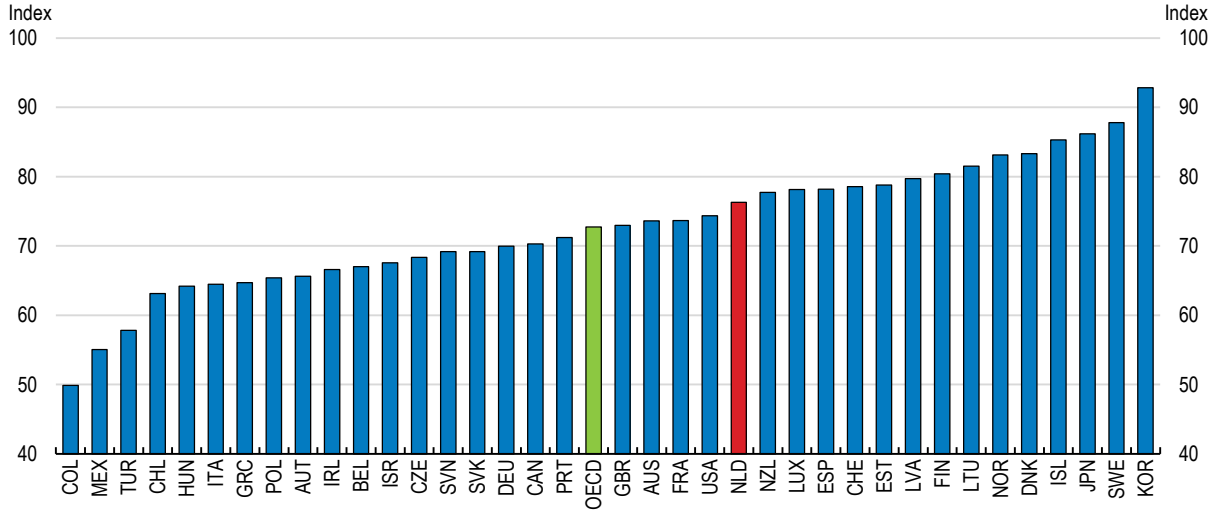
Supporting an inclusive and efficient digital transformation

The Netherlands is among the most digitalised OECD countries (Figure 2.2), with a high share of households having a broadband connection, using digital government services, teleworking regularly and shopping on-line. A high share of businesses have fast broadband connections (>30Mbps) and purchase cloud services compared to the OECD average. Some weaker spots include that the share of small businesses selling on-line is well behind leading countries, although slightly above the OECD average. ICT

patents and the share of young female coders are low. Trust in privacy protection and transaction security on-line are below the OECD average (OECD, 2019[1]).

Figure 2.2. The Netherlands is more digitalised than the OECD average

ICT adoption, composite index, 2019



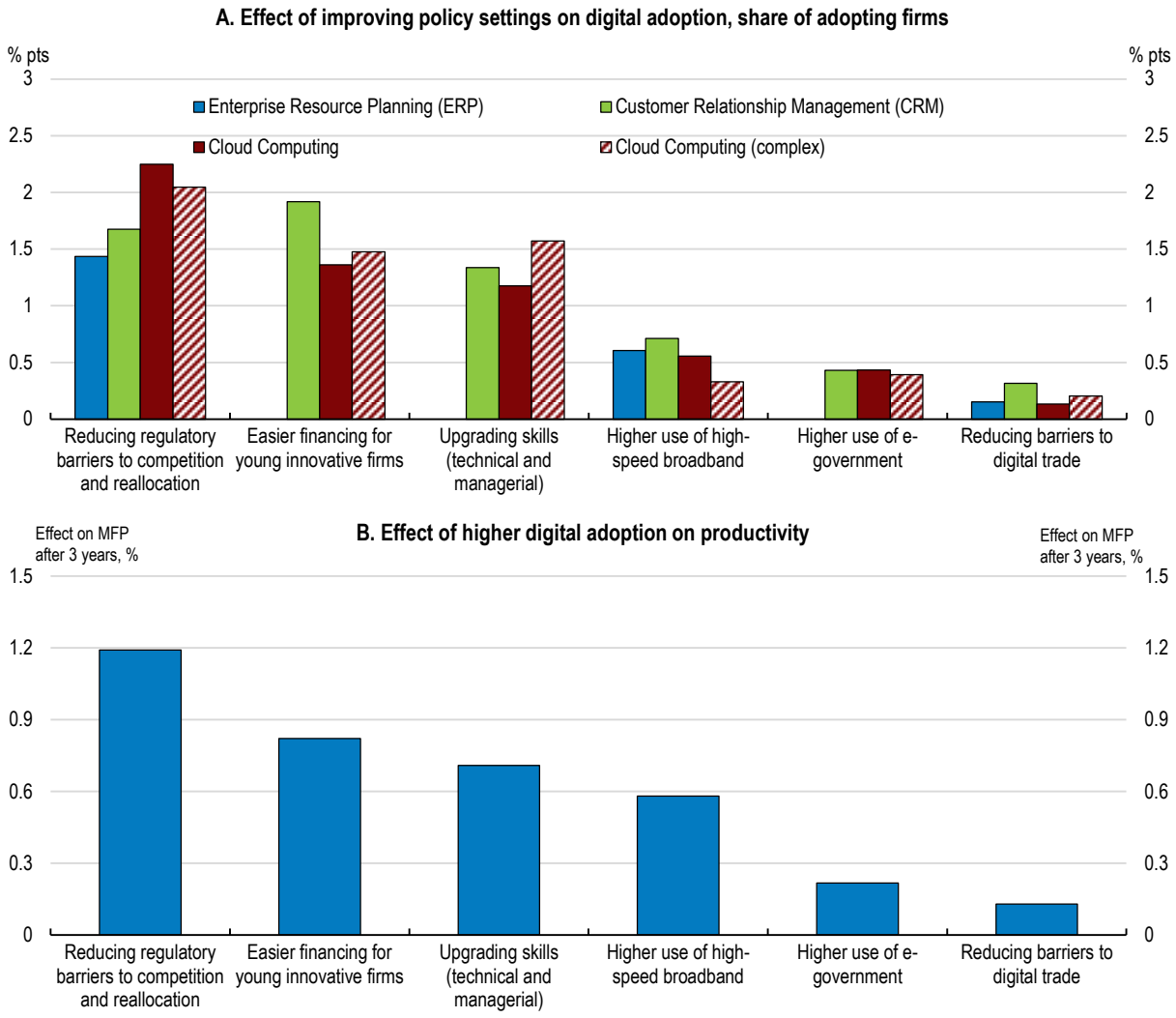
Note: Number of mobile-cellular telephone subscriptions per 100 population; Number of active mobile-broadband subscriptions per 100 population; Number of fixed-broadband internet subscriptions per 100 population; Fibre-to-the-home/building internet subscriptions per 100 population; Percentage of individuals who used the internet from any location and for any purpose, irrespective of the device and network used, in the last three months. Unweighted average for the OECD aggregate.
Source: World Economic Forum (2019), Global Competitiveness Report Pillar 3 ICT Adoption, October.

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Digital technologies are constantly pushing up the technology frontier. The Netherlands is investing considerable resources in frontier digital technologies, notably quantum computing and artificial intelligence, which received substantial funding through the first tranche of the National Growth Fund. Such technologies expand the limits of what is humanly possible, and offer a vast productivity growth potential. However, translating innovations, even those that are already commercially available, such as cloud computing, big data analytics and artificial intelligence into productivity growth requires that a large share of firms adopt available digital technologies to improve their processes and outputs. As an illustration, recent empirical analysis suggests that a 10 percentage point increase in the sector average adoption rate of cloud computing is associated with a 3.5% productivity increase for the average European firm after five years (Gal et al., 2019[3]).

Policy has an important role to play to support the digital uptake. Recent OECD work (Sorbe et al., 2019[6]) shows that digitalisation could be boosted by reducing regulatory barriers to competition, improving reallocating talents and capital, upgrading skills, and easing financing conditions of young and innovative firms (Figure 2.3).

Figure 2.3. A range of policies can support productivity through digital adoption in the Netherlands



Notes: Estimated effect on the average digital adoption rate (Panel A) and multi-factor productivity (MFP) (Panel B) of the average firm from closing one-fourth of the gap to best-performing countries across a range of policy and structural factors (see Box 1 in Sorbe et al., 2019). "Reducing regulatory barriers to competition and reallocation" includes lowering administrative barriers to start-ups, relaxing labour protection on regular contracts and enhancing insolvency regimes. "Easier financing for young innovative firms" covers the development of venture capital markets and the generosity of R&D tax subsidies. "Upgrading skills" covers participation in training, quality of management schools and adoption of High Performance Work Practices. The effect of "Higher use of high-speed broadband" on productivity combines the direct and indirect effects presented in Figure 6 in Sorbe et al. (2019). High-speed broadband refers to broadband connections with least 30 Mbit/sec data transfer speed. "Reducing barriers to digital trade" includes lowering barriers to cross-border data flows and online sales and enhancing regulatory regimes for data privacy and security.
Source: Sorbe et al. (2019), "Digital dividend: policies to harness the productivity potential of digital technologies", OECD Economic Policy Papers, No. 26.

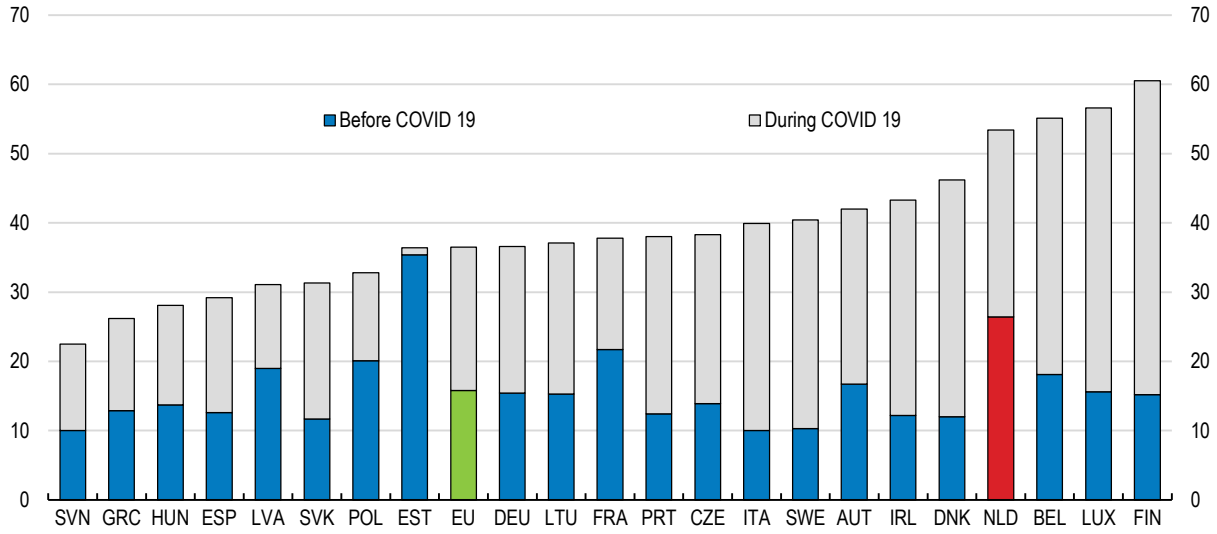
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The COVID-19 pandemic has accelerated the pace of digitalisation by speeding up automation, moving shopping and working online. Teleworking was high among workers already before the onset of the virus outbreak, and the share of workers teleworking has nearly doubled (Figure 2.4). Post-crisis incidence of teleworking is expected to remain above pre-crisis levels, with uncertain effects on productivity. Governments can address potential concerns for workers' productivity by implementing best practices for

teleworking, for example regarding working hours and screen-free breaks (OECD, 2020[10]). Furthermore, the current tax regime puts teleworkers at a disadvantage by allowing deductions for work-related expenses such as commuting, while not allowing deducting costs related to home offices. Aligning the tax treatment of job-related expenses for teleworkers could help creating more equity.

Figure 2.4. Teleworking was common already before COVID-19

Share of respondents working from home



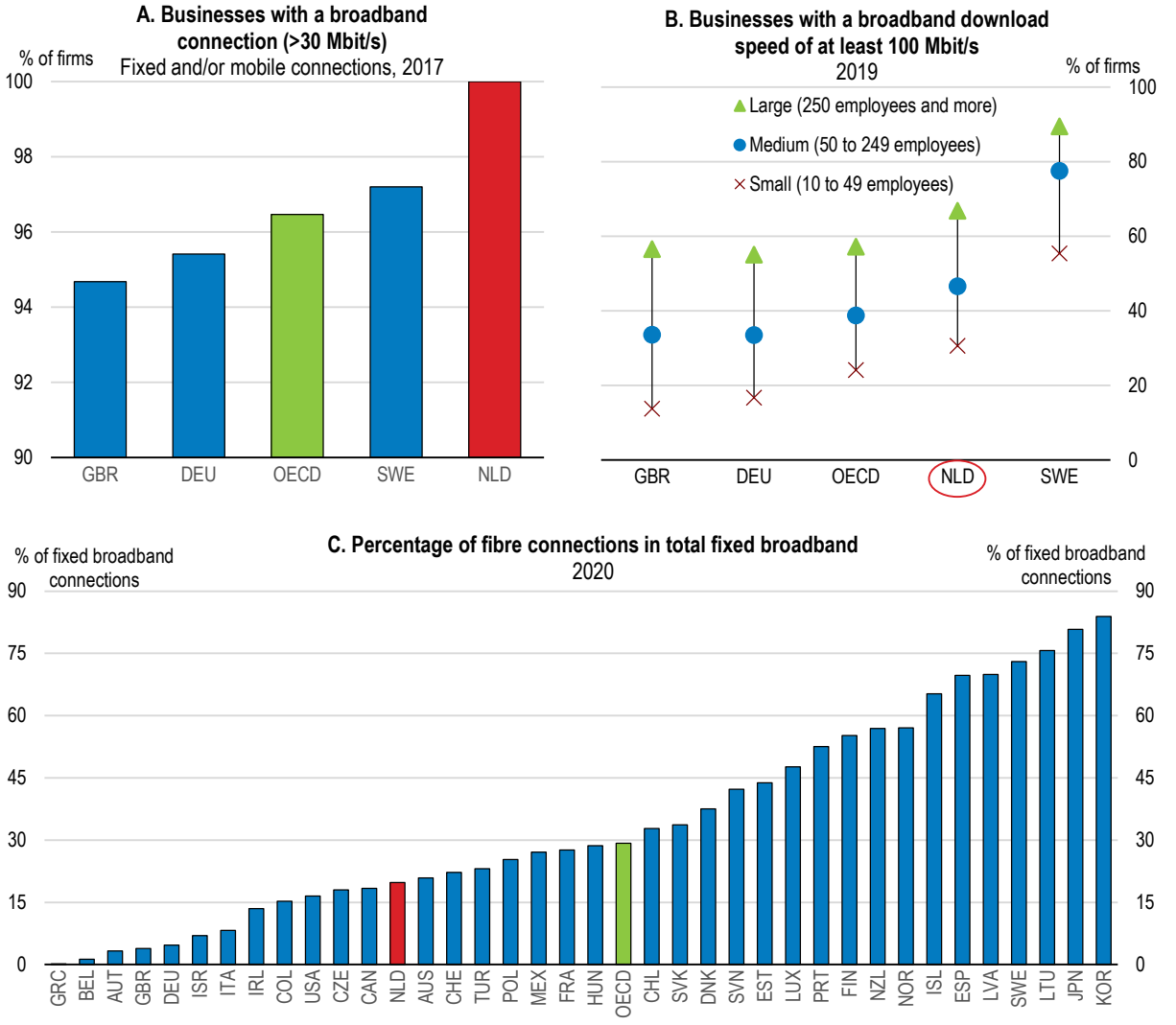
Source: Eurofound (2020), Living, working and COVID-19 dataset.

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Further broadband upgrades will be needed

Most Dutch firms have access to broadband with at least 30Mbit/s (Figure 2.5, Panel A), but there is room to increase the share of firms with higher speed broadband connections, notably among small- and medium-sized enterprises (Figure 2.5, Panel B). The broadband infrastructure, which relies heavily on an extensive cable network, allows sufficient capacity for most uses today. However, further deployment and take-up of high-capacity fixed networks (e.g. fibre networks) (Figure 2.5, Panel C) and 5G among households and businesses will allow to face the increasing data demands of the near future. These demands stem from the digital transformation such as artificial intelligence, self-driving vehicles and the Internet of Things connecting objects over the internet with embedded sensors, software and other technologies (OECD, 2019[1]; 2019[11]).

Figure 2.5. Most firms have a broadband connection but the uptake of high-speed internet is low



Note: Firms with at least 10 employees. Fibre subscriptions include 'Fibre-to-the-Home' (FTTH), 'Fibre-to-the-Premises' (FTTP) and 'Fibre-to-the-Basement' (FTTB) and exclude 'Fibre-to-the-Curb' (FTTC) and 'Fibre-to-the-Node' (FTTN). Unweighted average for the OECD aggregate.
Source: OECD (2020), OECD Broadband Portal and OECD (2020), ICT Access and Usage by Business (database).

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Extending high-capacity fixed networks and building next-generation 5G networks is one of the priorities of the government, as stated in the Digital Strategy and the Dutch Connectivity Action Plan (Ministry of Economic Affairs and Climate Policy, 2019[12]; Ministry of Economic Affairs and Climate Policy, 2018[13]; Ministry of Economic Affairs and Climate Policy, 2018[14]). The penetration of high-speed broadband with at least 1 Gbit/s download speed is projected to increase from currently 37% to 65% by 2023 (Dialogic, 2019[15]). The rollout is progressing swiftly in rural areas, but its deployment in urban areas has slowed recently due to lower-than-expected investment by private operators. The government is examining how to promote private sector investment in high-capacity fixed broadband networks within the telecommunication bill, including guidelines for infrastructure sharing (Ministry of Economic Affairs and Climate Policy, 2019[16]). The first 5G commercial network was launched in the Netherlands in April 2020. The government auctioned 5G-suitable frequency bands in July 2020, and the auction for additional frequency bands is expected to take place in early 2022. Based on national risk analyses three measures

have been announced in July 2019 to ensure the integrity and security of the current and future telecom networks and associated facilities, including technical and organisational requirements for providers of public electronic communications networks or public electronic communications services, and an obligation for providers of a public electronic communications network or service to exclusively use products or services of parties specified by the government in the critical parts of that network or associated facilities. Further, a structural system will be put in in place to monitor technological developments and take the appropriate measures to ensure that networks remain safe and secure.

Strengthen digital security

Digital security ensures that citizens and businesses can trust digital infrastructure, technologies and services, underpinning digital uptake and associated productivity growth. Cybercrime is a continuous threat, as became apparent during the COVID-19 pandemic, which has accelerated the use of internet and the reliance on digital technologies (OECD, 2020[17]; 2020[18]). The government has stepped up its digital security efforts and has established a National Cyber Security Centre. Its Roadmap for Digital Hardware and Software Security outlines measures to improve the digital security of ICT products and services, including connected devices associated with the Internet of Things (Ministry of Economic Affairs and Climate Policy and Ministry of Justice and Security, 2018[19]). The roadmap has been followed up by a new law to fight computer crime and awareness-raising activities amongst others. With the European Cyber Security Act, the government has committed to develop and implement EU-wide cybersecurity certification systems for ICT products and services. In addition, the government encourages public and private organisations to welcome vulnerability reports from security researchers. The Ministry of Justice has created a safe harbour to protect researchers from legal threats and the National Cyber Security Centre's Guidelines on Coordinated Vulnerability Disclosure have become an international reference in this area (OECD, 2021[20]; National Cyber Security Centre, 2018[21]).

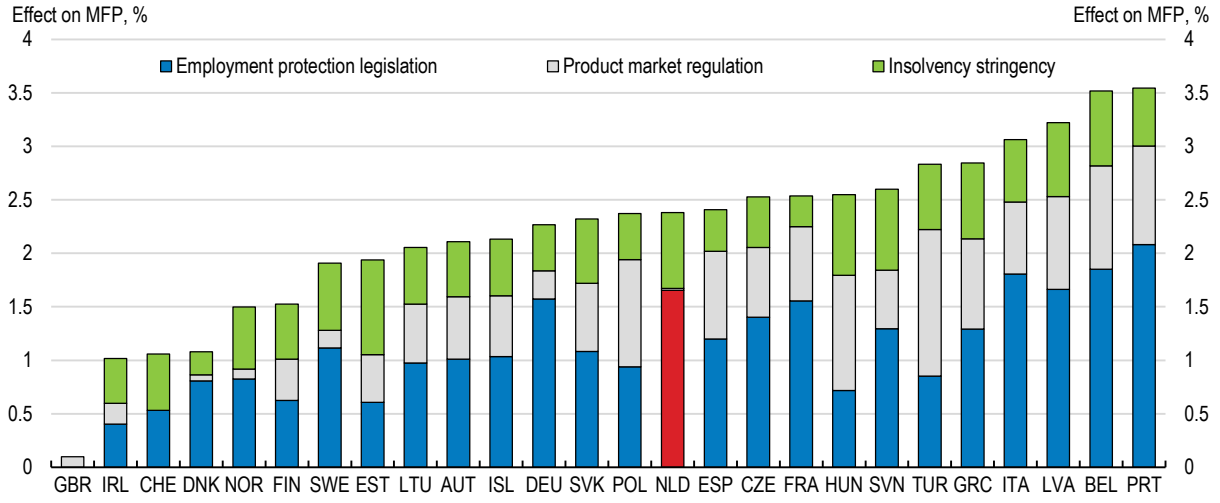
These efforts notwithstanding, only 32% of Dutch enterprises had defined a cybersecurity policy in 2019. This is lower than in peer countries like Denmark (42%), United Kingdom (40%), and Sweden (39%) (Eurostat, 2021[22]). The government made EUR 5 million available in 2019 to raise awareness about digital security among businesses. The Digital Trust Centre (DTC) organise workshops for small and medium enterprises around open source Internet of Things systems and standards. Further, businesses are provided with reliable and independent information on digital vulnerabilities and concrete advice on the actions they should take. In addition to fostering cyber security alliances between businesses, DTC aims to help businesses improve their cyber security arrangements and to increase their resilience to cyber threats. These steps are welcome.

Regulatory barriers are lean, but there is scope for improvement

Lean regulations supporting entrepreneurship and boosting business dynamics can allow innovative and digitally advanced companies to gain a market foothold and can allow the most productive companies to grow even further. A favourable business environment thus provides the foundations for digital diffusion and productivity growth (Sorbe et al., 2019[6]; OECD, 2018[23]). The Netherlands has in general a favourable business environment with business-friendly regulations and low barriers to trade. Regulatory procedures are among the simplest in the OECD and barriers to competition are particularly low for professional services, retail trade and e-communications. Barriers to trade in services are the third-lowest in the OECD. Nonetheless, the country has further scope to improve digital adoption and productivity by easing employment regulations for the regular employed (Figure 2.6). Proposals from an expert commission to reduce labour market duality by reducing regulations on regular employed somewhat, while increasing protections for flexible workers are discussed in Chapter 1.

Figure 2.6. Streamlining regulations could boost digital technology adoption and productivity

Effect on productivity after three years (through digital adoption) of reducing regulatory barriers to reallocation



Note: Estimated effect on multi-factor productivity (MFP) of the average firm from closing one-fourth of the gap to countries with least stringent labour protection on regular contracts, administrative barriers to start-ups and insolvency regimes.
Source: Sorbe et al. (2019), "Digital Dividend: Policies to harness the potential of digital technologies", OECD Economic Policy Papers, No. 26.

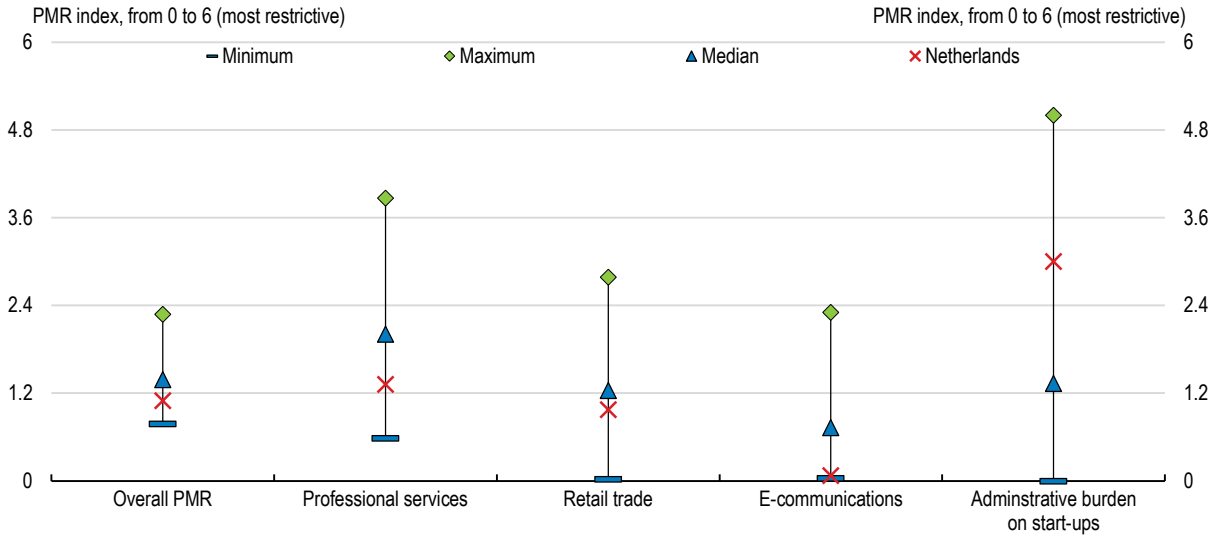
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Insolvency procedures have been eased recently as a new insolvency law has come into effect January 2021. Already in the wake of the COVID-19 crisis, the government established the temporary Insolvency Mediation Foundation to promote temporary out-of-court mediation as an alternative to formal insolvency proceedings. The new law aims to facilitate restructuring, rather than formal in-court bankruptcy procedures, allowing for restructuring deals to become legally binding even in the absence of unanimity among creditors, which is a welcome step.

The Netherlands is among the countries with the lowest barriers to competition and investment in the OECD, according to the OECD product-market regulation (PMR) indicator (Figure 2.7). As a result of the COVID-19 crisis, starting a business has been facilitated further as services shifted to be available fully online. The government has also introduced changes to the Digital Government Act to improve and develop digital identity systems for businesses. Efforts to boost access to e-government services for entrepreneurs should be fully integrated with the already trusted citizen IDs, which is also available for foreign citizens.

Figure 2.7. Administrative burden on start-ups was high before the COVID-19 crisis

Product market regulation indices (PMR), 2018



Note: Administrative burden on start-ups includes licenses and permits, but does not reflect the recent shift to services being available fully online.
Source: OECD (2020), OECD Product Market Regulation Database.

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Digital platforms increasingly link users to service providers on a task-by-task basis in sectors such as personal transport, accommodation, food services, retail trade, finance, entertainment and personal services. Service providers can be either firms or self-employed workers (OECD, 2019[2]). OECD evidence suggests that a strong platform presence can boost productivity, especially in service sectors and for small- and medium enterprises (Pisu and von Rüden, 2021[24]; Bailin Rivares et al., 2019[25]). However, digital markets bring new challenges for regulatory frameworks that were designed for traditional markets, such as the assessment of rising market concentration. Markups, an indirect indicator for market power, are low in the Netherlands (van Heuvelen, Bettendorf and Meijerink, 2019[26]). However, the COVID-19 crisis may have accelerated market concentration trends as online platforms have benefitted from the wider use of digital services during the pandemic, while many local competitors were affected by shutdowns. The productivity gains notwithstanding, there are concerns that acquisitions of smaller competitors cement the dominant market position of leading firms (European Commission, 2019[27]; HM Treasury, 2019[28]).

To address some of the challenges from growing digital markets, the government has proposed a reform of antitrust enforcement in digital markets in line with international expert advice (Authority for Consumers and Markets, Belgian Competition Authority and Conseil de la Concurrence Grand Duché de Luxembourg, 2019[29]; Ministry of Economic Affairs and Climate Policy, 2019[30]; 2019[12]). The proposals include ex-ante measures to prevent anti-competitive behaviour of dominant companies, new provisions of platform access, enforced data sharing and adapting the threshold of merger controls to ensure that they capture certain types of anticompetitive digital mergers. Companies intending relevant mergers and acquisitions would need to notify the European Commission, including those where the target may not yet have a high turnover but where its acquisition could potentially lead to significant market power. Reforms could include stronger merger control, as e.g. specific merger rules for companies defined as having market power as proposed in the United Kingdom (Box 2.1), but potential reforms should be performed at the EU level, since most prominent gatekeeper platforms are active across the entire EU. The support of the Dutch

government in the EU regarding the regulation of big platforms with gatekeeper functions, as currently proposed in the EU Digital Markets Act is welcome.

Digitalisation also raises tax challenges related to base erosion and profit shifting (BEPS) (OECD, 2018[31]). In the past, the Netherlands was considered an important jurisdiction for multinational corporations engaging in aggressive tax planning, creating intellectual property licensing schemes to funnel untaxed profits to non-EU tax havens. Since then, the Netherlands has been a strong supporter of the BEPS project and has introduced a number of measures to counter the use of the Netherlands as a conduit jurisdiction (Chapter 1).

Box 2.1. Main recommendations of the Digital Competition Expert Panel in the United Kingdom

The UK Chancellor established the Digital Competition Expert Panel in September 2018 to provide recommendations on changes to competition policy in digital markets. The panel, chaired by Jason Furman, provides the following recommendations:

Establishment of a "digital markets unit" (DMU)

The DMU would be an independent body with a mandate to support greater competition, innovation and consumer choice in digital markets.

Updating merger control

The panel recommended to update the merger control framework to provide more opportunities to intervene in mergers and acquisitions, including the following:

- Designating companies with significant market power as having "strategic market status" and requiring them to notify "all intended acquisitions" to the competition authority.
- 'Balance of harm' evaluations should be part of the overall economic impact assessment of mergers and acquisitions, taking into account the magnitude as well as likelihood of impacts.

Encourage greater use of interim measures for antitrust enforcement

The expert panel further suggested the Competition and Markets Authority (CMA) to update the antitrust enforcement regime, allowing greater use of interim measures to prevent harm to competition during a pending antitrust investigation.

Source: OECD (2020[32]), OECD Economic Survey of the United Kingdom.

Small firms have been slow to adopt most advanced technologies

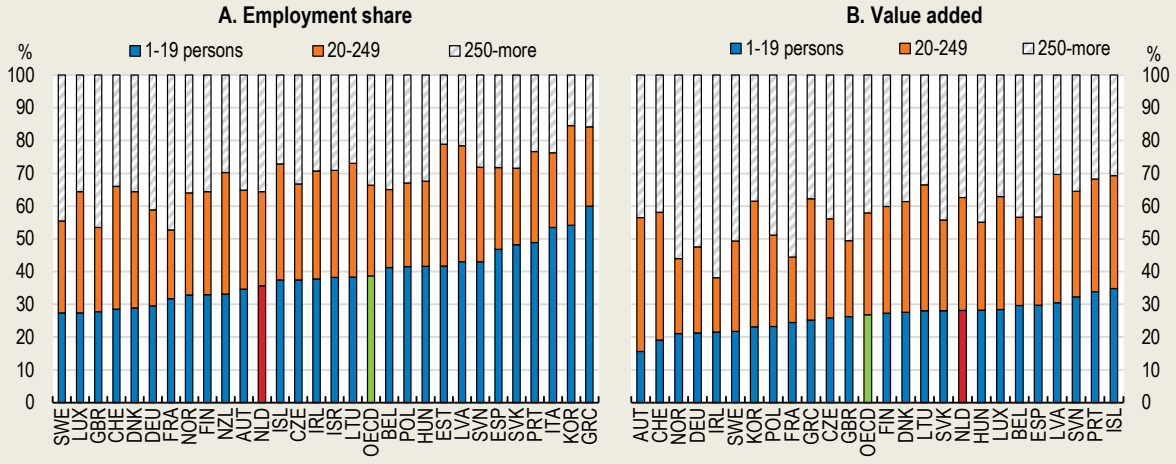
Small and medium-sized firms (SMEs) account for large shares of employment and value added in the Netherlands, as in all OECD countries (Box 2.2). Smaller companies have adopted digital technologies to a lesser extent than larger firms (Figure 2.9). The difference in adoption rates between fast-adopting larger companies and slower small firms is more marked within newer technologies. While the share of large firms using big data analytics increased by 14.5 percentage points between 2016 and 2020, the share of smaller firms increased only by 7 percentage point. To some extent, the lower digital uptake among smaller firms may reflect fixed costs, economies of scale and complementary factors, such as skills. However, a limited awareness and understanding of digital technologies is likely also a major barrier to digital take-up among smaller firms (Pisu and von Rüden, 2021[24]). This is also illustrated by the large adoption gap between large and small firms in cloud computing, a technology facilitating access to a range of computing services at low cost. However, it is worth noting that young firms, for example in the Fintech sector, use digital technologies in sophisticated ways (see below).

Box 2.2. Small and medium enterprises (SMEs) in the Netherlands

In the Netherlands, SMEs, defined as companies with less than 250 employees, account for two thirds of total business economy employment (3.6 million people) and contribute to 62% of value added (Figure 2.8). SMEs account for a particularly large share of employment in a range of manufacturing sectors, such as manufacturing of textiles and wearing apparel, of wood and paper and of basic metal and metal products and in some services sectors including advertising and accommodation and food services. Job creation by start-ups is highest in administrative and support services (23% of all new jobs), followed by high-wage and high productivity sectors like professional, scientific and technical activities as well as ICT services (together 18% of all new jobs). In contrast, start-ups in the manufacturing sector created only 6% of new jobs.

Figure 2.8. A large share of employment and value added come from small and medium firms

Shares in total business economy, 2018 or latest year



Note: Business economy, except financial and insurance activities. Value added at factor cost. Unweighted average for the OECD aggregate.
Source: OECD (2021), OECD Structural and Demographic Business Statistics (database); Eurostat and own calculations.

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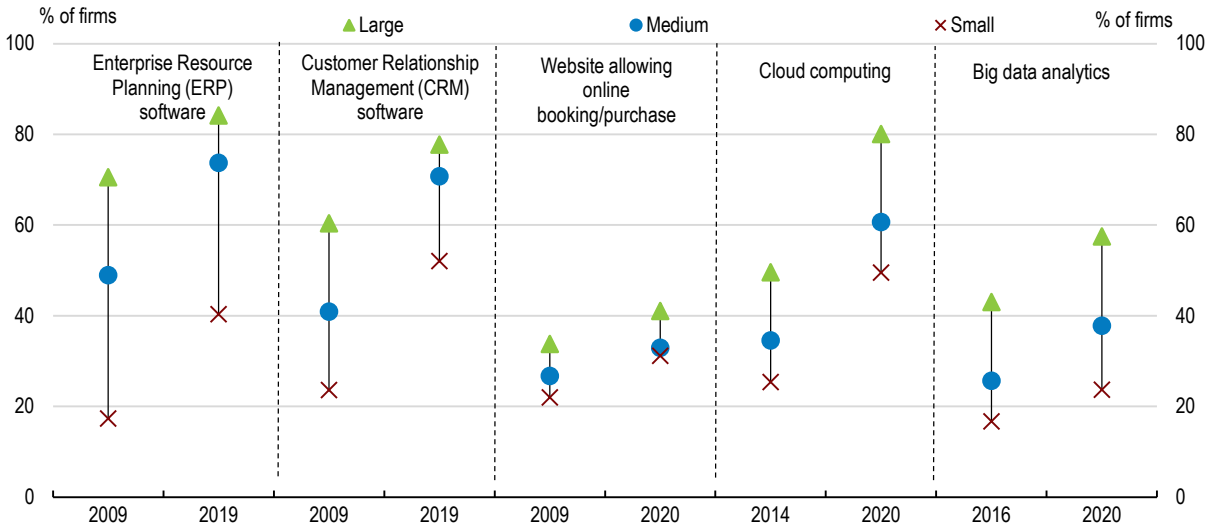
In general, the Netherlands provides a favourable environment for SMEs but challenges remain:

- The cost for starting a business remains comparatively high.
- Access to equity finance remains difficult for small and young firms.
- About a quarter of SMEs experience difficulties in finding qualified people and more than half of enterprises advertising ICT positions struggle hiring experts (data refers to 2016).

Source: OECD (2019[33]), "The Netherlands", in OECD SME and Entrepreneurship Outlook 2019, OECD Publishing, Paris.

Figure 2.9. Adoption of digital technologies is increasing but small firms lag behind

Businesses using selected digital technologies (% of firms), by size class



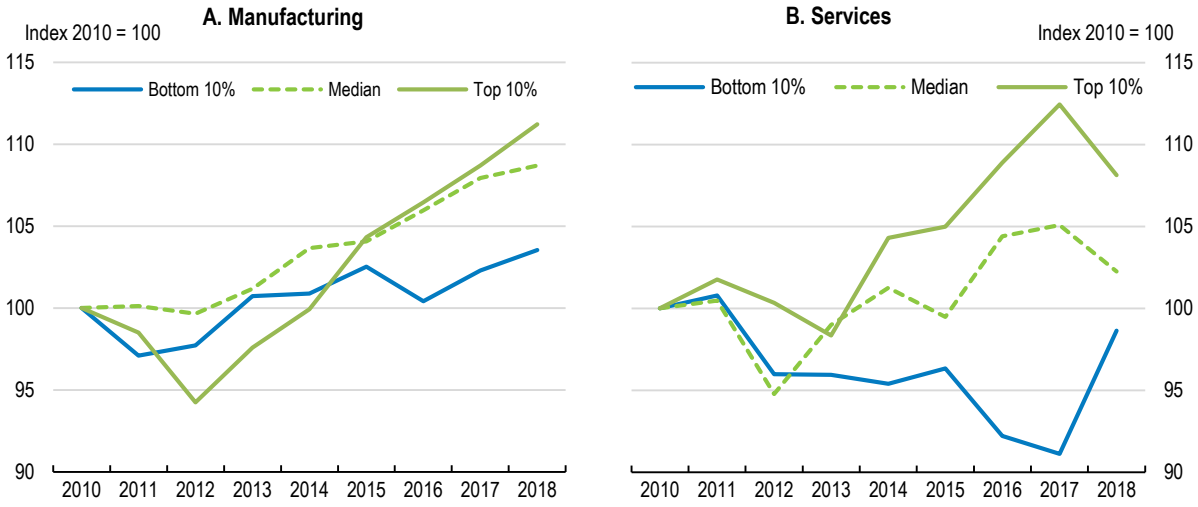
Note: Firms with at least 10 employees. Small firms are those having 10-49 employees, medium-sized firms 50-249 employees, and large firms 250 employees or more. Data is shown for the first and last year available for each technology. For example, information for big data analytics is only available for 2016 and 2018.
Source: OECD (2021), ICT Access and Usage by Business (database).

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Digital technology diffusion from early mover firms on the productivity frontier to other firms is a key mechanism to boost average firm productivity (van Heuvelen, Bettendorf and Meijerink, 2018[34]). However, this technology diffusion has not been sufficient to offset weaker labour productivity growth of low productivity firms, and despite improvements in the service sector, a significant gap between the highest-productivity firms and the others remains, even though the group of firms with high productivity is not constant over time (Figure 2.10). Differences in productivity between firms has also been found to be an important factor behind rising income inequalities in some countries (Pisu and von Rüden, 2021[24]) even though inequality has been stable in the Netherlands since the mid-1990s. New OECD research shows that stepping up adoption of digital technologies and investments in software and skills could translate into significant productivity gains in the Netherlands (Box 2.3). There are sectoral differences, with firms in the service sector and younger firms seeing a notable impact on productivity growth from digital skill use at work. Moreover, productivity benefits from software investment are strong for low productivity firms. This confirms prior country- and sector-level evidence that complementary factors such as software and skills, which are part of a firm's intangible capital, can explain productivity differences across firms (Mohnen, Polder and van Leeuwen, 2018[35]; Haskel and Westlake, 2017[36]; Crouzet and Eberly, 2018[37]).

Figure 2.10. The productivity gap has widened in the Netherlands

Labour productivity levels of 10% most productive firms, median firms and 10% least productive firms, by sector



Note: Changes in average labour productivity levels any given year of the highest tenth percentile of Dutch firms (i.e. Top 10%) with 10 or more employees against that of the fiftieth percentile (i.e. Median) and the lowest tenth percentile of Dutch firms (i.e. Bottom 10%) in the manufacturing and services sectors, respectively. Labour productivity levels are normalised to 2001 = 100. Manufacturing and services are defined according to ISIC Rev.4. Manufacturing includes manufacturing sectors under "Manufacturing" (Divisions 10 to 33). Services include service sectors under "Wholesale and retail trade" (Divisions 45 to 47), "Transportation and storage" (Divisions 49 to 53), "Accommodation and food service activities" (Divisions 55 and 56), "Information and communication" (Divisions 58 to 63), "Professional, scientific, technical, administration and support service activities" (Divisions 69 to 75), and "Administrative and support service activities" (Divisions 77 to 82).
Source: OECD calculations based on MultiProd data.

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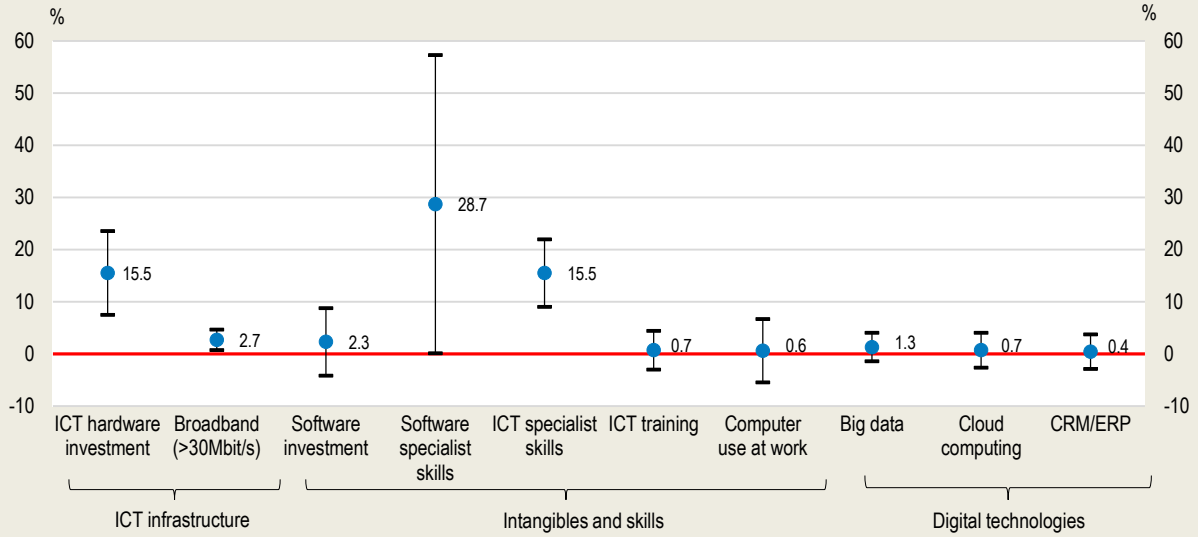
Increasing adoption of software and data-driven innovation among SMEs could help closing the productivity gap between small and large firms. In recent years, the Dutch government has made some progress in this regard, amongst others initiating public-private partnerships to support digitalisation of SMEs (Ministry of Economic Affairs and Climate Policy, 2019[38]). It includes the Smart Industry Field Labs programme, Big Data field labs, and the Accelerating the Digitalisation of SMEs programme. The government also set a special focus on AI, owing to its benefits and potential for increased productivity and societal challenges. The Dutch AI Coalition formed in 2019 includes 400 participating companies, research institutes, government institutions and higher education and universities and substantial funding is being dedicated to it (Ministry of Economic Affairs and Climate Policy, 2021[39]). Despite these efforts, public support for the digitalisation of SMEs under the above-mentioned programmes represents only around 0.8% of public expenditure on innovation by the responsible Ministry of Economic Affairs and Climate Policy. Increasing support to SMEs, through targeted public-private programmes to facilitate the adoption digital tools and to provide business advisory services and testing facilities, could increase awareness and help small firms overcome barriers to the adoption of digital technologies.

Box 2.3. The effects of digitalisation and intangibles on productivity in the Netherlands

The impact of digital adoption, skills and software investment on firm-level productivity has been assessed using a panel of Dutch enterprises (Borowiecki *et al*., 2021 forthcoming). The analysis provides robust evidence on productivity effects using variation across firms in digital adoption, digital skills and software investment in an instrumental variable regression framework. Results show that investment in ICT hardware and the adoption of fast internet both have a positive, sizeable and statistically significant impact on firm-level productivity growth (Figure 2.11). Furthermore, digital skills, such as software specialist skills and ICT specialist skills, lead to sizeable productivity benefits.

Figure 2.11. Digital adoption and intangibles lead to higher labour productivity growth

Annual effect on firm-level productivity growth from an increase in digital and intangible measures



Note: Labour productivity is calculated as value added divided by the number of employees. Software investment is the share of software investment in total fixed assets, ICT hardware investment is the share of ICT hardware investment in total fixed assets, and the adoption of each digital technology is measured through dummy variables indicating whether the firm has adopted the technology or not, including broadband (>30Mbit/s), cloud computing, big data and CRM/ERP front-office software. ICT specialist skills denote the share of ICT specialists in total employees, software specialist skills the share of ICT specialists for software development in total employees, computer use at work the share of employees that use computers for business purposes in total employees, and ICT training is measured through a dummy variables indicating whether the firm has provided ICT training for its employees or not. A fixed effects 2SLS panel model was estimated, where digital and intangible variables were instrumented using firm-level exposure to sector-wide technology advances and intangible intensity - defined from sector-wide averages of digital and intangible variables and lagged firm-level digital and intangible variables. Firm-level productivity growth is regressed on average productivity growth of the frontier, the firm's lagged gap to the productivity frontier, capital per employee, age, size, sector and year fixed effects and the digital and intangible variables shown above. The frontier is defined as the 5 percent firms with highest productivity in each sector-year cell. Vertical spikes correspond to the 95% confidence interval. Data cover the years 2012-2017. Standard errors are clustered at sector levels.
Source: Borowiecki et. al (2021, forthcoming).

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The study shows that productivity effects from software investment and digital skills vary by firm size, age and sector:

- Firms in the service sector benefit more from software specialist skills and ICT specialist skills than firms in the manufacturing sector.
- Younger firms benefit more from software specialist skills and ICT specialist skills than incumbent firms.

- Smaller and medium-sized firms benefit more from investments in ICT hardware and software specialist skills than large firms.
- Software investment supports the productivity catch-up of laggard firms.

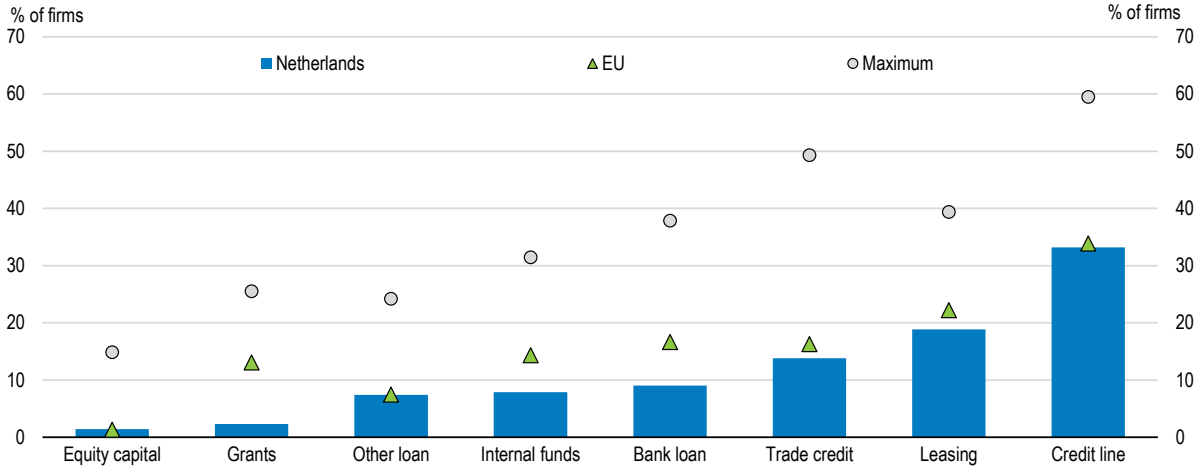
Easing small and young firms' access to finance

Many SMEs in the Netherlands signal a lack of equity finance as a barrier to growth (European Investment Bank, 2019[40]). As bank lending to finance innovative start-ups, young firms and SMEs with growth ambitions often involves high risks, expanding equity financing could support growth (OECD, 2016[41]). In 2020, only one percent of Dutch SMEs used equity finance (Figure 2.12). High admission costs and limited liquidity generally associated with main listing venues, lack of awareness of equity financing alternatives by entrepreneurs, as well as their unwillingness to relinquish control on their company, are some of the potential reasons for the low take up of equity financing (Nassr and Wehinger, 2016[42]). Young companies, especially those that are likely to be more innovative and/or rely on intangible capital, could benefit from better access to equity finance (Demmou, Franco and Stefanescu, 2020[43]).

Making better use of intangible assets may help small and young firms access bank funding. Intangible assets such as intellectual property (IP) and software are not easily used as a collateral to access debt finance because they often do not have a market value, are not easily separable from the firm and often cannot be transferred without a loss. In order to support the digital take-up and ease credit for SMEs, several OECD countries have established new programmes to support IP-backed loan and IP valuations (Box 2.4). In addition, and as highlighted in the last Economic Survey (OECD, 2016[41]), creating a credit register for companies could improve SMEs access to loans. Similarly, a collateral registry could be created. Estimating the creditworthiness of small firms is particularly difficult and costly, and the related uncertainty drives up interest rates and tightens lending conditions. A credit and collateral register for companies would lower these costs by disseminating needed information to all lenders.

Figure 2.12. Few Dutch small and medium enterprises make use of equity finance

Use by enterprises with 1-249 employees, average over 2018, 2019 and 2020



Note: Based on 3 waves of the Survey on the Access to Finance of Enterprises (SAFE), where companies were asked about the situation between September and October 2018, 2019 and 2020. Figures for EU are based on EU28 for 2018 and 2019, but EU27 for 2020 as the United Kingdom left the EU.
Source: European Commission (2020), Survey on the Access to Finance of Enterprises (database).

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The COVID-19 crisis has disproportionately affected smaller firms, and made their access to finance even more difficult (OECD, 2020[44]). In response, the government has extended credit guarantees, its Growth Facility scheme for start-ups, and raised the budget for the SEED Capital scheme that provides funding for high-tech start-ups. Crisis support measures should be phased out once the recovery is well established, to allow reallocation to go ahead and to contain fiscal costs. To reduce the debt burden of SMEs and increase access to capital, governments could consider convertible loans. For example, the United Kingdom government introduced a new GBP 500 million Future Fund that provides convertible loans to eligible start-ups as long as the cash is matched by private investors. If the government loan is not repaid within three years, it is automatically converted into an equity stake at 20% discount to the valuation set in the next funding round.

The reliance on venture capital is lower than in most peer countries (Figure 2.13). Venture funds at the national level remain small, limiting their ability to support growing firms (OECD, 2016[41]). Against this background, the government announced several programmes, such as the Growth Co-Investment Programme, the Future Fund and the Dutch Venture Initiative II. The government's Growth Facility providing a 50% guarantee on investors' risk capital was set to close in 2020, but was prolonged until 2023 in response to the COVID-19 crisis. These efforts have strengthened the supply of venture capital for the early stage of a start-up, but venture capital funds for a company's expansion remain low compared to peer-countries.

Box 2.4. Intellectual property (IP)-backed loans and IP valuation schemes for SMEs across the OECD

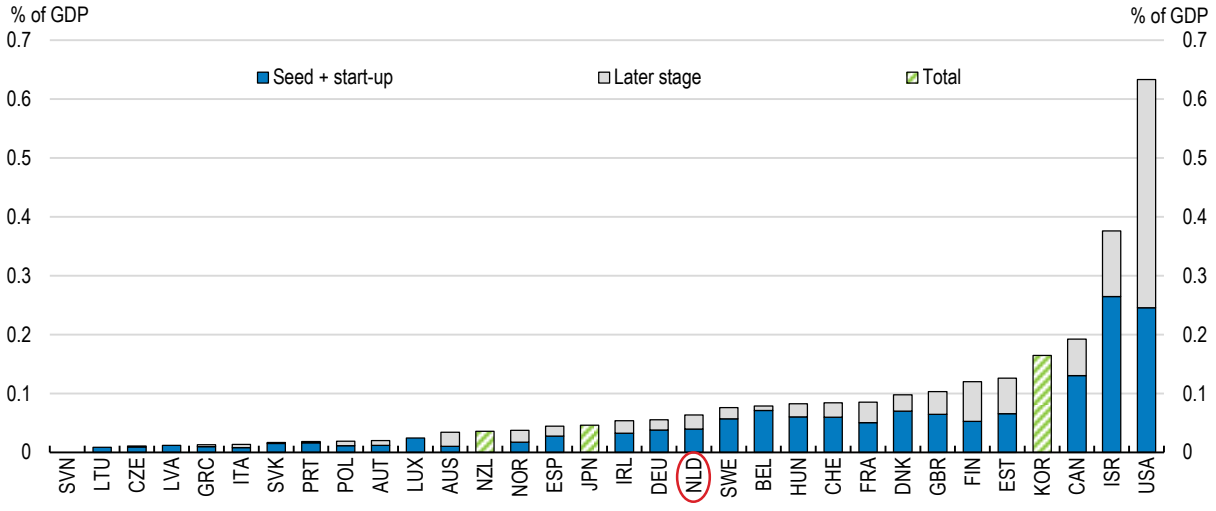
Several countries have implemented programmes supporting intangible-intensive SMEs to get access to bank loans. Below are some selected examples from OECD countries.

- **France** – The French public investment bank Bpifrance provides uncollateralised loans and bank loan guarantees to SMEs to support their digitalisation. Support is available for investment in intangibles, including intellectual property and software.
- **Germany - State of Bavaria** – The Bavaria Digital initiative provides digital SMEs with loans on favourable terms for a total amount of up to EUR 1 million. In order to reach more SMEs, the application process was streamlined to reduce the administrative burden and part of the application cost is covered by a grant from the State of Bavaria.
- **Japan** – The Japan Patent Office and the country's Financial Service Agency assess the value of intellectual property of SMEs. They finance and conduct IP evaluation reports of SMEs, which inform the lending decisions of banks.
- **Korea** – The Korea Development Bank's Techno Banking initiative provides loans to SMEs for purchasing, commercialising and collateralising IP. The Bank also established a collection fund for distressed intellectual property for the disposal of intangible assets. In addition, the public Korea Credit Guarantee Fund provides credit guarantee schemes, some of them supporting intangibles as collateral. As in Japan, the Korean Intellectual Property Office estimates the value of SMEs' IP to facilitate loans by the Korea Development Bank and the Korea Credit Guarantee Fund.

Source: OECD (2019[45]), Financing SMEs and Entrepreneurs 2019: An OECD Scoreboard.

Figure 2.13. Reliance on venture capital is relatively low

Venture capital investments, 2019 or latest year



Note: Venture capital (VC) is private equity capital provided to young enterprises not quoted on a stock market. VC stages are defined according to the OECD VC Harmonised Stages Definition and include support for pre-launch, launch and early stages under "Seed/start-up/early stage", which also includes support provided by angel investors, and support for expansion and growth stages under "Later stage". Data refer to 2019, except for Slovenia (2018), Japan (2018) and Israel (2014).
Source: OECD (2021), OECD Enterprise Statistics (database).

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New digital financing solutions offered by financial technology (FinTech) start-ups may help bridge the funding gap for innovative firms (Box 2.5). FinTech companies expand people's access to existing financial services and markets and create new ones, for example within peer-to-peer lending and venture capital, and can thus improve market efficiency and financial inclusion (UNSGSA FinTech Working Group and CCAF, 2019[46]). FinTech credit is still relatively small in the Netherlands with credit volumes in 2017 accounting for one percent of bank loan volume to SMEs, compared to 27% in the United States and 7% in the United Kingdom (Bank for International Settlements and Financial Stability Board, 2017[47]). However, following the exit of the United Kingdom from the EU, some FinTech firms seeking to shift their operations from London to the EU may choose the Netherlands.

The regulatory burden in the financial sector is generally high and not always flexible enough to allow new business models and technical solutions. At the same time, financial innovation can give rise to new financial stability, consumer and investor protection challenges. Some flexibility to regulation and dialogue between the regulator and companies in the context of sandbox initiatives can help FinTech companies to test new business models in a flexible and safe setting, while allowing the regulator to better understand emerging risks and companies' specific needs (Box 2.5). The Dutch Authority for Financial Markets and the Dutch Central Bank established in 2016 the regulatory sandbox "Innovation Hub". It can provide temporary regulatory waivers for young firms to facilitate market entry on a case-by-case basis. However, uptake has been limited. The central bank, which acts as the regulatory authority, has no mandate to reduce unnecessary restrictions to competition, which dampens entry in the FinTech market. A mandate to promote competition as part of the regulatory sandbox, as is for example the case in the United Kingdom, could help spur market entry. An impact assessment by the UK's Financial Conduct Authority (2019[48]) shows that the number of start-ups in the Fintech sector has increased, although the evidence provided does not allow to directly linking the increase to the regulatory sandbox.

Box 2.5. Regulatory sandboxes for digital technologies in the financial sector

Several countries introduced regulatory sandboxes to ease the regulatory burden for FinTech start-ups. Below are some selected examples from OECD and non-OECD countries, drawing from the 2018 OECD Digitalisation and Finance report.

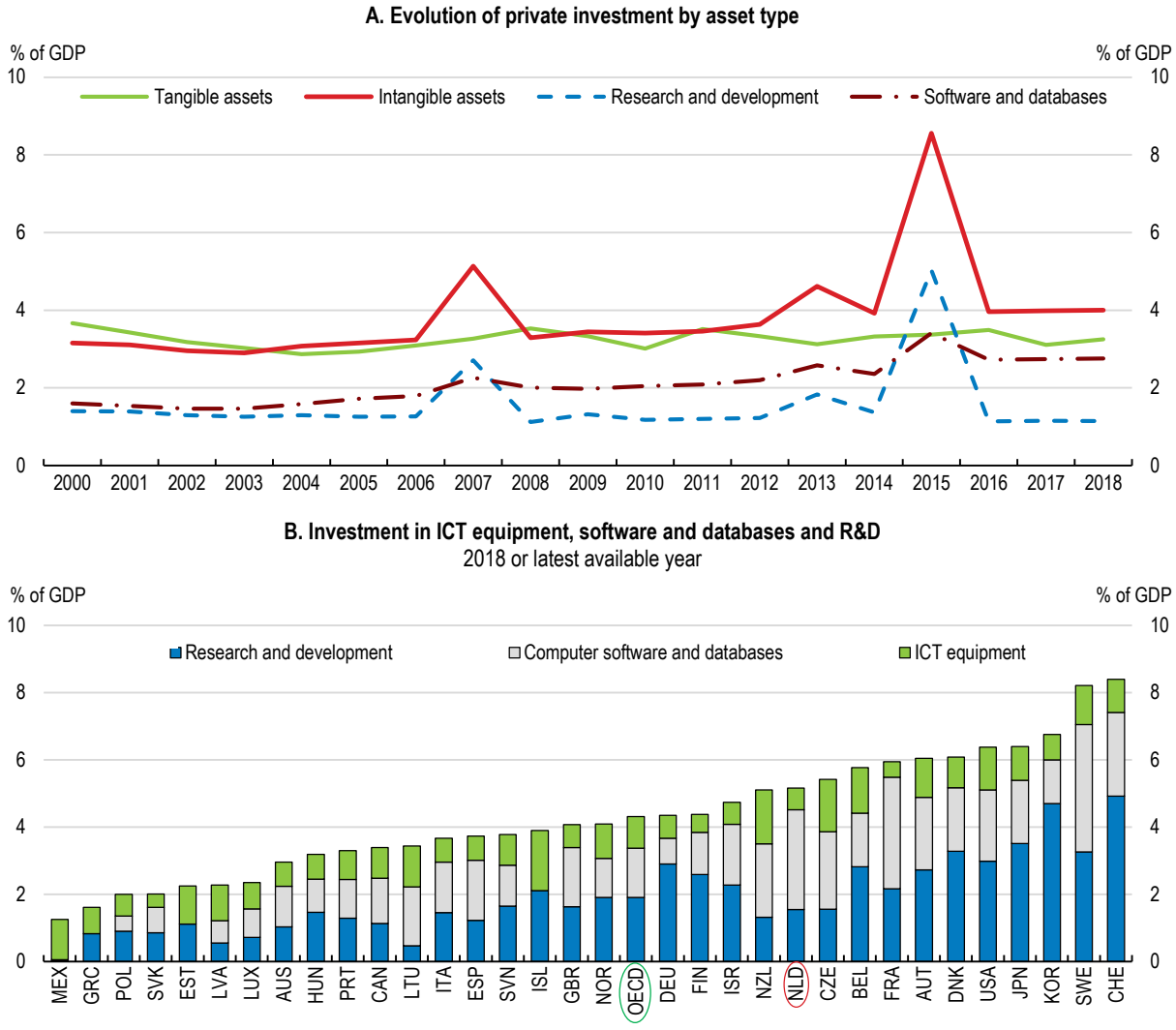
- **Australia** – The Australian Securities and Investment Commission exempts FinTech start-ups from the need to obtain a license for up to two years. In order to be eligible, businesses must have a professional indemnity insurance, join an approved external dispute resolution service, and meet best standards for advice and responsible lending obligations for credit.
- **Canada** – The Ontario Securities Commission (OSC) established the OSC Launchpad in Canada that provides regulatory advice and informal guidance for early-stage Fintech start-ups.
- **Singapore** – The Monetary Authority of Singapore provides regulatory waivers for FinTech businesses, including a temporary relaxation of compliance rules as well as exemptions from licensing fees and minimum asset requirements.
- **United Kingdom** – The UK Financial Conduct Authority's (FCA) FinTech sandbox offers temporary waivers to regulatory and compliance requirements and provides regulatory advice for FinTech start-ups. The FCA was given the power to promote competition in financial markets by issuing new licenses with lower regulatory requirements and it uses this mandate to encourage innovative new entrants into the market.

Source: OECD (2018[49]), Financial Markets, Insurance and Private Pensions: Digitalisation and Finance.

Fine-tuning innovation and R&D policies to foster digitalisation

Digitalisation is altering the way research and development (R&D) is conducted. While investments in R&D remain low, investment in ICT and software has been on the rise as Dutch firms increasingly carry out R&D activity around digital products and services. ICT firms are responsible for a growing share of R&D activity (CBS, 2017[50]) and manufacturing and business service enterprises increasingly integrate software-driven solutions into their innovation activities (Branstetter, Drev and Kwon, 2019[51]). Investment in software and data increased considerably between 2000 and 2018 (Figure 2.14, Panel A), peaking at above 3% of GDP in 2015 due to a 22 billion R&D purchase by a Dutch multinational enterprise (CBS, 2018[52]). Overall, investment in ICT and software as a share of GDP is higher than in most OECD countries (Figure 2.14, Panel B). Recognising the importance of software as a driver to innovation, the government has extended R&D grants and tax incentives to support software development over the past decade.

Figure 2.14. Investment in ICT and software is high, but R&D investment remains low



Note: In Panel A, tangible assets refer to private non-residential gross fixed capital formation and exclude commercial and industrial buildings. Intangible asset refers to gross fixed capital formation of research and development and software and databases. The spike in R&D investment in 2015 is due to a 22 billion R&D purchase by a Dutch multinational enterprise (CBS, 2018). In Panel B, Investment is based on gross fixed capital formation. For a more detailed account of the data in Panel B, see Figure 5.1.2 in OECD (2019b), Measuring the Digital Transformation. Unweighted average for the OECD aggregate.

Source: OECD (2020), OECD National Accounts Statistics (database), OECD (2019b), Measuring the Digital Transformation: A Roadmap for the Future, and CBS (2020), "Investments in fixed assets by sector and type of assets" in National Accounts Statistics (database), Statline Database, Statistics Netherlands.

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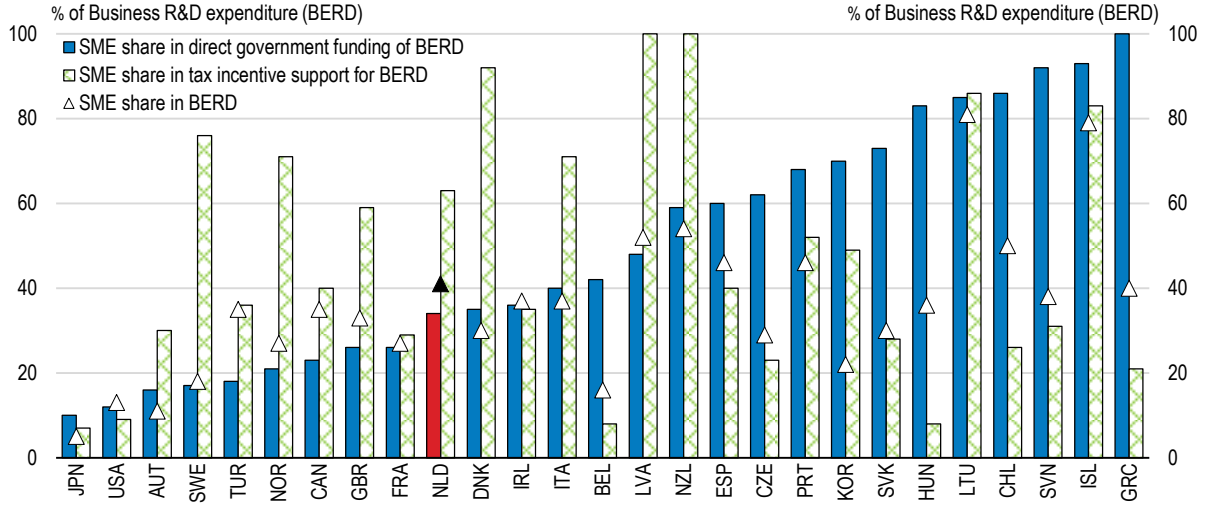
Large firms receive a larger share of direct R&D funding than in most other OECD countries (Figure 2.15). Smaller firms benefit to a higher extent from generous R&D tax incentives, which coupled with a simplified lump sum R&D tax credit since 2016, have helped increase R&D activity among smaller firms (Dialogic, 2019[15]). Increasing the share of R&D grants that goes to SMEs via public-private partnerships could boost overall R&D in line with national targets. The government has concluded a Knowledge and Innovation Covenant 2020-23 with public and private partners. Public organisations contribute EUR 3 billion per year for collaborative research and innovation, matched by private funds of EUR 2 billion. The joint funding

contributes to develop key technologies linked to 25 missions on four societal challenges (climate transition and sustainability; agriculture, water, food; health and care; safety), and to the country's top strategic sectors, notably creative industries, energy, agriculture, water, horticulture, chemicals, high-tech, life sciences, logistics and ICT. In addition, Dutch authorities launched a EUR 20 billion National Growth Fund, which started operating in 2021, to boost productivity through investments in education, infrastructure, and R&D and innovation.

The patent box (Innovation Box) allows companies to reduce their corporate tax on profits from intellectual property from 25% to 9% (2021). In the past, the Innovation Box to a large extent benefitted larger firms, spending on the scheme increased from EUR 605 million in 2011 to EUR 1.6 billion in 2018. In recent years, the government has made significant changes to the patent box by limiting the scheme even more to R&D activities carried out in the Netherlands by adopting the BEPS nexus approach, lowering requirements to participation by SMEs, and gradually increasing the rate of the Innovation box to 9%. The scheme is expected to cost EUR 700 million in 2021. Careful monitoring of the impacts of the reformed patent box should be carried out to make sure benefits are proportional to the scheme's cost.

Figure 2.15. Small firms receive less direct R&D funding, but R&D tax incentives are generous

R&D policy spending (% of business R&D expenditure) by policy type, 2018 or latest



Note: International comparability may be limited, e.g. due to differences in SME definitions for business R&D and R&D tax relief reporting purposes. SMEs figures refer to enterprises with 1-249 employees (i.e. excluding firms with zero employees).
Source: OECD (2021), OECD R&D Tax Incentive Indicators (http://oe.cd/rdtax) and OECD (2021), Research and Development Statistics (database).

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Boosting skills to realise digital complementarities

Skills and digital technologies are complementary (Borowiecki *et al.*, 2021). Several types of skills matter in a digitalised economy: (i) advanced technical skills for digital specialists, (ii) generic digital skills for other workers, and (iii) complementary skills to work in a digitalised environment, including general cognitive skills, social or interpersonal skills as well as managerial and organisational skills (Brynjolfsson, Rock and Syverson, 2021[53]; OECD, 2019[8]; Grundke et al., 2018[54]; Andrews, Nicoletti and Timiliotis, 2018[7]).

In general, skills are high in the Netherlands, including digital user skills such as problem solving in technology-rich environments. Still, some do not have the skills necessary to prosper in an increasingly digital labour market. Furthermore, a share of Dutch children fail to build necessary skills in subjects such as mathematics and reading. Shortages of ICT specialists is a further constraint to make the most out of digitalisation (OECD, 2019[55]).

The COVID-19 outbreak accelerated the digital uptake of enterprises and, with it, the demand for specialised ICT skills, which were already in short supply before the crisis. In general, demand for high-skilled workers is expected to outpace supply going forward, despite high tertiary attainment (OECD, 2018[56]). Vocational and tertiary education thus needs to scale up (OECD, 2018[56]).

Digitalisation and automation can boost living standards, but together with the COVID-19 crisis may also exacerbate income inequalities. Digitalisation offers new opportunities for high-skilled workers. At the same time, it accentuates long-standing trends of automation that displace many low- and middle-skilled jobs and increase labour market polarisation. It will therefore have a profound impact on jobs and inequality. The COVID-19 crisis has created additional challenges for labour market outcomes and education opportunities. It fell hardest on low-skilled workers and young adults with irregular working contracts (Chapter 1), calling for a massive training effort (OECD, 2020[57]). School closures particularly hit vocational training, as work-based learning was more difficult, if not impossible (OECD, 2020[58]).

Lifelong learning remains the most effective tool to increase occupational and social mobility. Online educational platforms and the combined use of computers, software, and educational practice can help increase the quality and availability of education and training, and in several countries, the pandemic has led to an increased interest in online learning (OECD, 2020[59]). However, curricula have been slow to adapt. The provision of modern and up-to-date education that equips students with the right mix of skills for an increasingly digital work environment is crucial.

COVID and automation pose a massive training challenge

Labour market polarisation is one important driver of increasing income inequality in many countries, and it has increased inequality of hourly wages also in the Netherlands. However, equivalised disposable income inequality has been relatively stable in the Netherlands since the mid-1990s, because of compositional effects, notably changing composition of households as two-earner couples has become more common. Polarisation along educational lines happened already before the COVID-19 crisis, and low-educated individuals increasingly struggle to gain employment (Salverda et al., 2013[60]; Goos, Manning and Salomons, 2014[61]). The Covid-19 crisis has hit hard sectors that were already vulnerable to automation, thus exacerbating job polarisation (Chapter 1).

Digitalisation has kept the demand for high-skilled workers stable, while the low-skilled segment of the labour market has expanded on the back of rising flexible non-standard employment and a growing platform economy (SEO, 2018[62]) (Figure 2.16). In the middle-skilled range of the labour market, progress in automation has led to the displacement of many manufacturing jobs as robots can easily replace routine tasks (van den Berge and ter Weel, 2015[63]). As a result, 40% of jobs in the Netherlands are at risk of automation or may undergo significant changes due to automation (Nedelkoska and Quintini, 2018[64]). Young adults with a primary or secondary degree that are now more likely to be employed in low-skilled occupations in service sectors are most affected (OECD, 2020[57]). In addition, the economic fallout from the pandemic is falling hardest on young adults with non-regular jobs ((CBS, 2020[65]), Chapter 1).

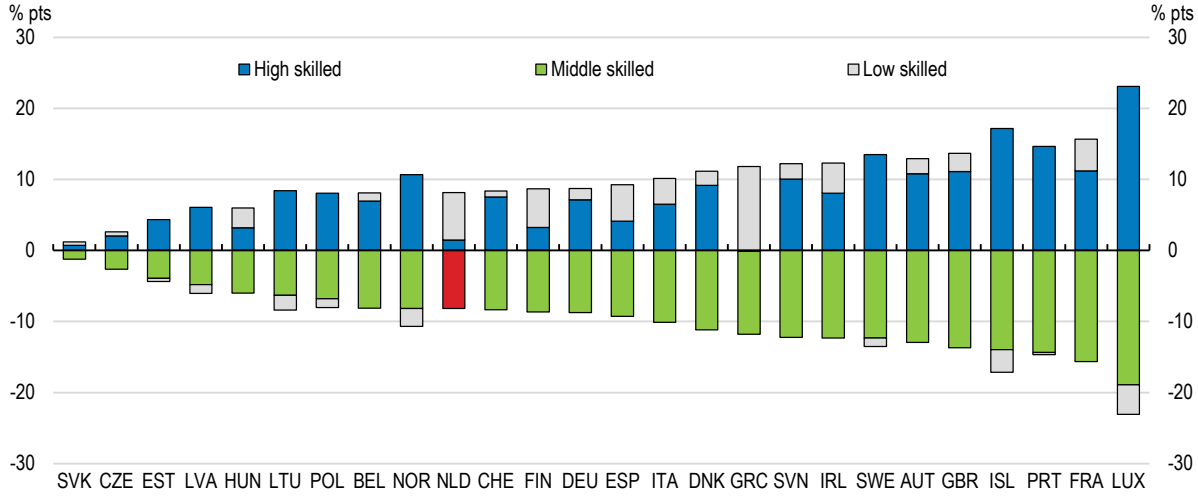
Trends towards automation and the impacts of the COVID-19 crisis call for a massive training effort. An efficient lifelong learning system could reduce the costs of training low- and middle-skilled workers, improve job mobility and make the digital transition more equitable (OECD, 2019[66]; 2019[67]). Participation in lifelong learning is relatively high in the Netherlands, as is workers' participation in on-the-job training (OECD, 2017[68]). Despite the high uptake of lifelong learning, workers at the highest risk of displacement,

notably low-skilled and middle-skilled, train the least in the Netherlands and elsewhere (OECD, 2019[66]; Pleijers and Hartgers, 2016[69]).

The new Personal Learning and Development Budget (STAP) is an innovative approach to fund individual life-long learning activities for any adult, independent of their employment status, thereby complementing individual learning accounts. The envisaged 2022 budget of EUR 200 million is likely too low to cover currently un-met upskilling needs, but the initiative is open to co-financing by employers and easy to scale up and target to specific needs if initial experiences are positive. In order to produce the desired outcomes, the system needs to be accompanied by a strong quality assurance system (Chapter 1).

Figure 2.16. The Dutch labour market shows signs of polarisation

Percentage point change in share of total employment between 2000 and 2019



Note: The panel shows the percent point change in employment shares by skill intensity between the fourth quarter of 2000 and the fourth quarter of 2019. High-skilled occupations include jobs classified under the ISCO-88 major groups: legislators, senior officials, and managers, professionals, and technicians and associate professionals. Middle-skilled occupations include clerks, craft and related trades workers, and plant and machine operators and assemblers. Low-skilled occupations include service workers and shop and market sales workers, and elementary occupations.
Source: Calculations based on Eurostat (2020), Employment by occupation and economic activity (database).

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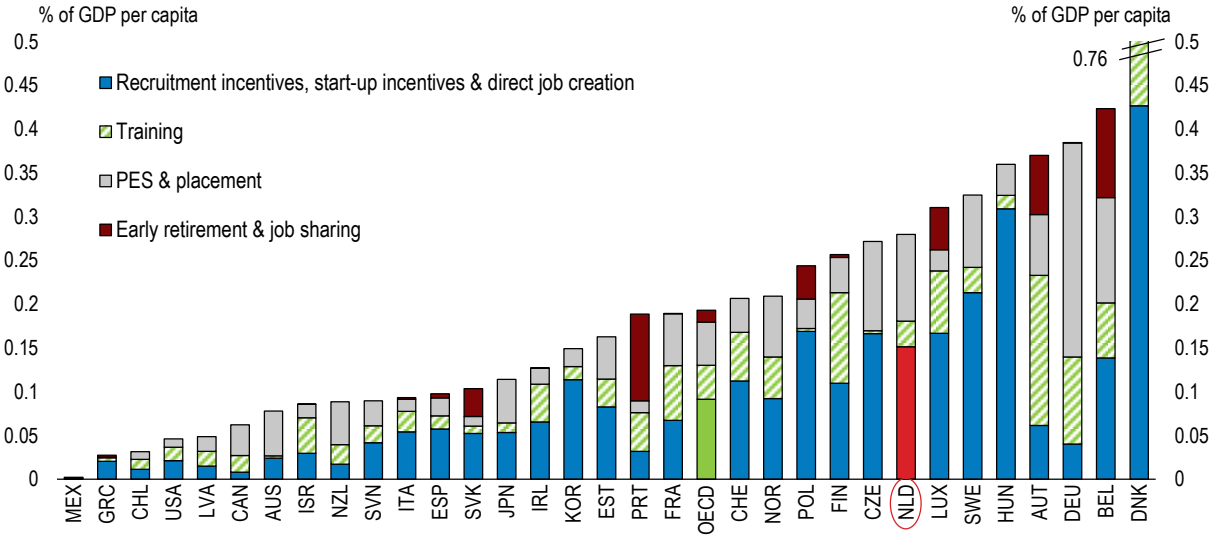
Spending on active labour market policies is above the OECD average, but spending on training for the unemployed is low compared to most OECD peers and likely insufficient to meet the re-training needs from the COVID-19 crisis (Figure 2.17). Recently, the government has stepped up spending on public employment services (PES), which as a share of GDP receive more funding than the OECD average. Targeting PES and training for the unemployed, focusing on low-skilled workers and workers hit by the COVID-19 crisis, could support job mobility. Not only will this be crucial as a response to the COVID-19 crisis, but also for coping with challenges arising from automation and digital advances in the longer term.

Individuals with good proficiency in foundational skills (reading, mathematics and science) obtain new skills more easily over their lifetime and can perform more diverse and complex tasks in a digital environment. This is necessary to thrive in digital-intensive workplaces (OECD, 2019[2]). The education system in the Netherlands achieves good results in this regard. Pupils scored higher than the OECD average in mathematics and science, despite a recent decline, according to the OECD Programme for International

Student Assessment (PISA). The share of young adults not in employment, education or training is among the lowest in the OECD (OECD, 2019[70]).

Figure 2.17. Labour market policy spending is relatively high, while spending on training is relatively low

Labour market policy spending per unemployed (% of GDP per capita) by policy type, 2018 or latest



Note: Spending on public employment services (PES) includes funding for authorities that connect jobseekers with employers through information, placement and active support services.
Source: OECD (2020), Labour Market Programmes (database); and OECD (2020), OECD Economic Outlook: Statistics and Projections (database).

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Despite the good average performance in mathematics and sciences, certain groups have more limited opportunities to develop and fully use their skills. One out of ten adults has a low command of essential skills to read and calculate (OECD, 2018[71]). The overall performance of 15-year-olds in the PISA Survey has declined recently, driven by a 10 percentage point increase in the share of low achievers in secondary education from 2009 to 2018. Students' performance remains strongly dependent on their socio-economic background and their school choice. The high share of students with a migration background among the low achievers is worrisome (OECD, 2019[70]). Children of more educated parents and those of less educated parents and with migration background are increasingly being educated in different schools. In addition, students from vulnerable groups have less access to help after school hours, such as homework support. These trends risk narrowing education opportunities (Education Council, 2019[72]) and reducing labour market outcomes for disadvantaged students (OECD/European Union, 2018[73]).

The government has taken several measures to address growing inequality, including bridging classes for disadvantaged students. An additional EUR 87 million was earmarked in a reform favouring disadvantaged schools with a high share of foreign-born students between 2016 and 2019. Funding for this purpose was further extended with EUR 20 million from 2020 onwards (Education Council, 2019[72]). The additional funding has improved the allocation of material resources to schools with children from disadvantaged socio-economic background between 2015 and 2018, as measured by the OECD PISA index of material resource allocation by schools' socio-economic profile (OECD, 2019[74]). In Germany, similar reforms that target disadvantaged students suggest that additional structural reforms are necessary to improve equity in educational outcomes. The German Support Strategy for Low Achieving Students from 2010 has

provided additional funding for personalised training and language classes for disadvantaged students (Kultusministerkonferenz, 2017[75]). Although it helped reducing drop-out rates in secondary education, overall inequality in the German education system remained high as measured by the PISA index of economic, social and cultural status (OECD, 2019[74]). Measures to increase participation in early childhood education and care would be particularly beneficial to pupils from less advantaged social backgrounds. Systems for application and assignment of places to over-subscribed primary schools can also potentially contribute better to a mix of social backgrounds than it does today (Chapter 1).

The Dutch Education Council (2019[72]) recently suggested structural reforms to secondary education to stem the overall decline in PISA outcomes. A priority would be to increase transition pathways between different tracks of secondary education, including pre-vocational secondary education (*voorbereidend middelbaar beroepsonderwijs* or VMBO), general secondary education (*hoger algemeen voortgezet onderwijs* or HAVO) and secondary education that gives access to tertiary education (*voorbereidend wetenschappelijk onderwijs* VWO). Strengthening collaboration between different school types in secondary education within a region could help better identifying students with high potentials and ease transitions between different tracks. Furthermore, a stronger focus on general education in the vocational track could improve foundational skills of students.

As in other countries, the COVID-19 crisis has exacerbated existing inequalities of the education system. Students from poorer households have had less access to fast internet connections and laptops needed to fully engage in online classes. Students in basic vocational training had the biggest problems adapting to e-learning during the COVID-19 outbreak, which risks reducing their labour market prospects (Ministry of Education, Culture and Science, 2020[76]). Ensuring better access to ICT equipment, also for home use, to pupils in disadvantaged schools and vocational education and training institutions as part of the school funding reform could help reducing the growing digital gap between students with immigrant background and native students.

Digital user skills are high but some students lag behind

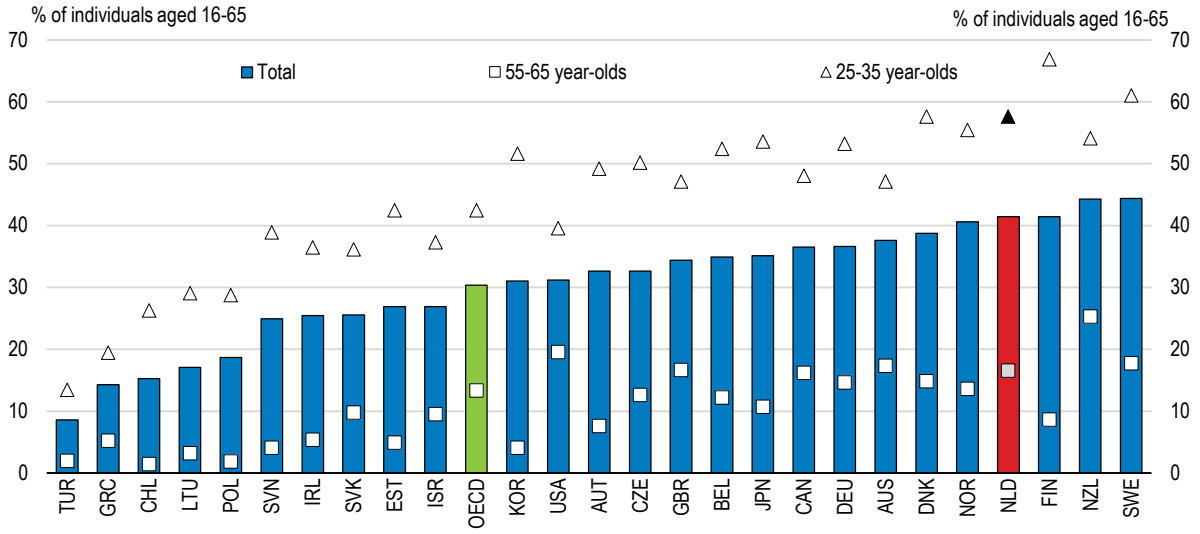
Adults aged 16-65 years have on average high levels of digital skills. Young adults aged 25-35 stand out with high digital skills while older generations have lower scores in the Netherlands and elsewhere (Figure 2.18). Nonetheless, certain groups in the Netherlands have more limited ICT user skills. In particular, the digital problem-solving skills of young graduates from vocational education and training institutions are lower compared to graduates from general and tertiary education. While still significantly above the OECD average, this divide is worrisome and calls for concerted efforts to raise digital skills in schools, businesses and training.

Priority should be given to the development of curricula to equip all students with digital skills beyond the simple use of computers to more ICT specialist skills. Currently, the curriculum for Dutch schools does not include attainment targets for digital skills, creating a risk that students in disadvantaged schools do not attain the necessary levels of digital skills. In response, the National Institute for Curriculum Development has developed proposals for a new curriculum that includes attainment targets for digital literacy in collaboration with teachers' unions and parents (Curriculum.nu, 2017[77]). It covers basic ICT skills, media literacy and coding skills. The government has taken up the reform proposals but progress has stalled recently (Ministry of Education, Culture and Science, 2019[78]).

Addressing the digital skill challenge will depend on teachers' digital competences. Before the COVID-19 outbreak, the Netherlands was lagging behind other OECD countries regarding teachers' preparedness to teach with digital tools. Thus, only 52% of students were in schools where the principals reported that teachers have the necessary technical and pedagogical skills to integrate digital devices in the classroom, lower than the OECD average of 65% (OECD, 2019[8]).

Figure 2.18. Adults' skills for the digital economy are high

Problem solving in technology-rich environments by age, individuals in employment



Note: Problem solving in technology-rich environments refers to Level 2 or Level 3 of PIAAC proficiency and measures adults' abilities to solve the types of problems they commonly face as ICT users in modern societies: co-ordinated use of several different applications, evaluating the results of web searches, and responding to occasional unexpected outcomes. For most countries, data refer to 2012; for Chile, Greece, Israel, Lithuania, New Zealand, Slovenia and Turkey, data refer to 2015. Population weighted average used for the OECD aggregate.
Source: OECD Survey of Adult skills (2012 and 2015).

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A major obstacle to the increase in digital skills is the acute shortage of teachers, which is projected to reach 10 000 teachers by 2025 (Ministry of Education, Culture and Science, 2018[79]). Shortages are more acute in cities, where the majority of disadvantaged pupils live. A declining attractiveness of the teacher profession exacerbate teacher shortages. Low salaries stand out as a factor behind the low supply of teachers, especially in urban areas where housing costs have increased significantly in recent years. A primary teacher's salary is equivalent to 71% of the average earnings of tertiary-educated workers, below the OECD average of 78% (OECD, 2019[70]). In response, the government granted additional EUR 237 million funding for schools to increase teachers' salaries for 2018 and 2019 as part of the "work pressure agreement". This additional funding was increased to EUR 430 million in 2020-21. The greater funding is welcome but room remains for more targeted resource allocation for disadvantaged schools, notably for ICT equipment and teachers' digital skills. Examples of such targeted programmes include the Digital Pact for Schools in Germany (Kultusministerkonferenz, 2019[80]) and ProgeTiger in Estonia (OECD, 2019[81]).

In vocational education, teachers with IT experience from the business sector are hired on a part-time basis, while they can continue working for private companies during the remaining part of their working time. Dutch educational institutions are cooperating within a standard-setting platform, the *Edustandaard*, and through joint procurement increasingly implement open standard software, so that services from a variety of suppliers can be easily integrated in their digital infrastructure (Association of Universities, Association of Universities of Applied Sciences and SURF, 2018[82]).

New education technologies (EdTech) can help increase the quality and availability of education and training provided that a number of conditions are met - high quality infrastructure, teachers' preparedness and the integration of new education technologies in innovative teaching practices are key. However, there

is a risk that digital learning reproduces or reinforces inequalities observed in standard forms of learning. COVID-19 has boosted the use of distance learning, and the Netherlands had noticeable initiatives in this regard also before the crisis. In primary and secondary education, the Cooperative for Primary and Secondary Education (SIVON) is a voluntary cooperation of school boards committed to join forces when introducing new technologies and working with suppliers and start-ups in the field of EdTech. Joint purchases via SIVON can give schools access to high-quality digital infrastructure and EdTech software at lower prices and more favourable conditions than individual schools would get (Ministry of Education, Culture and Science, 2019[78]).

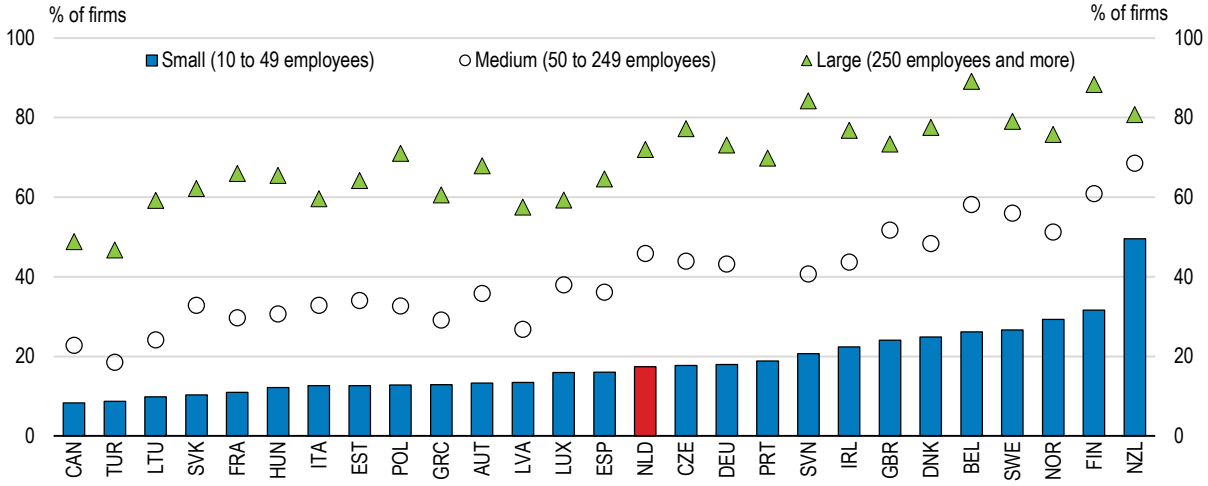
There is room to improve ICT training among smaller firms

Skills at work are essential to translate technology adoption into improved productivity (OECD, 2019[67]). A new OECD empirical analysis undertaken for this survey (Borowiecki et al., 2021[83]) reveals that higher shares of ICT professionals and workers using computers for work purposes lead to significant productivity gains for Dutch enterprises. Productivity benefits also arise from in-house ICT training.

Small and medium-sized firms provide on average less ICT training than larger firms (Figure 2.19). In order to help SMEs develop ICT training, the Ministry of Social Affairs and Employment stated its intention to provide EUR 48 million a year from 2020 for SMEs to stimulate further training and development, and EUR 1.2 million for five years for larger firms operating in agriculture, hospitality and the recreation sector (SLIM regulation). In addition, the Ministry of Economic Affairs and Climate Policy established the EUR 7.5 million 'MKB!dee' challenge to promote ideas that lead to increased investment in training among SMEs, notably around digitalisation (Ministry of Economic Affairs and Climate Policy, 2019[84]).

Figure 2.19. Small firms provide less ICT training than larger ones

Percentage of businesses providing ICT training to their employees by size class, 2020 or latest year



Note: Firms with at least 10 employees that provided any type of training to develop the ICT related skills of their employees within the last 12 months. Data for Canada, Greece and the UK refer to 2019 and 2018 for New Zealand.
Source: OECD (2021), ICT Access and Usage by Businesses (database) and OECD (2021), OECD Telecommunications and Internet Statistics (database).

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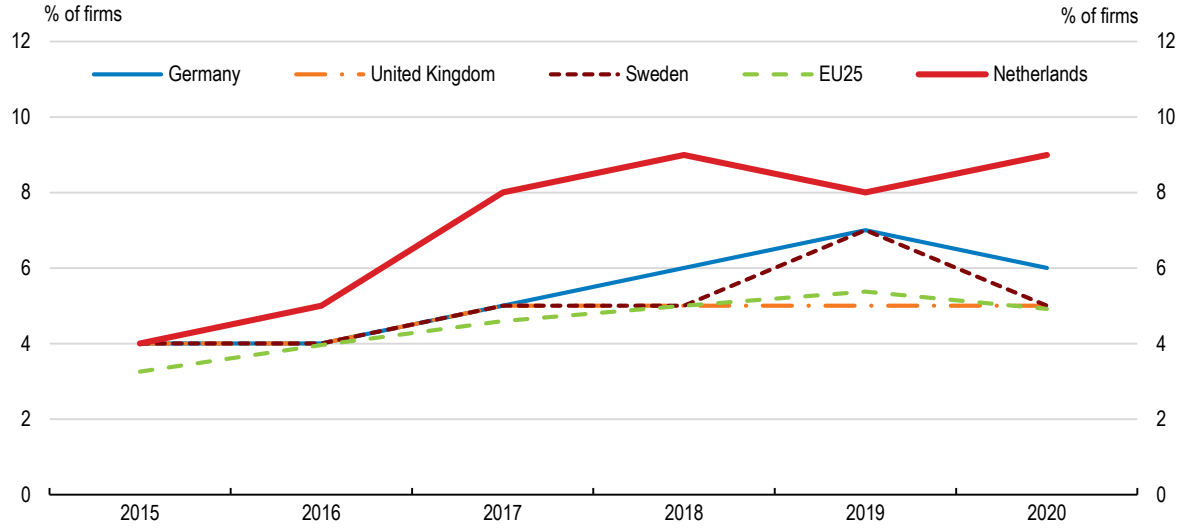
Firms face shortages of ICT specialists

Recent shortages of ICT specialists are substantial and higher than in most other EU countries (Figure 2.20). High demand for ICT specialists in the past few years remained strong during the COVID-19 crisis (CBS, 2020[85]). Furthermore, shortages of ICT specialists are projected to grow substantially going forward (OECD, 2020[57]), calling for a concentrated effort in schools, businesses and policy to increase the supply. Part of the COVID-19 crisis package is aimed at learning and developing skills, with a budget of EUR 37.5 million available to co-finance reskilling people to work within ICT, technology and energy.

Attracting high-skilled immigrants could ease skill shortages. The Netherlands has a favourable tax regime to attract high-skilled immigrants from the European Union and further abroad. It grants a 30% allowance from their payroll tax, the so-called "30% facility". Workers can benefit up to five years from the tax allowance. These policies have contributed to the attractiveness of the country for skilled immigrants. According to the OECD Artificial Intelligence Observatory, the Netherlands is in particular a strong net beneficiary of professionals with Artificial Intelligence skills (OECD.AI, 2021[86]).

Figure 2.20. Shortages of ICT specialists are pressing

Share of enterprises with hard-to-fill vacancies for jobs requiring ICT specialist skills



Note: Firms with at least 10 employees, excluding the financial sector. 2015 data for Germany refers to 2014. The EU25 aggregate includes 25 European OECD Member countries.
Source: Eurostat (2021), Digital Economy and Society (database).

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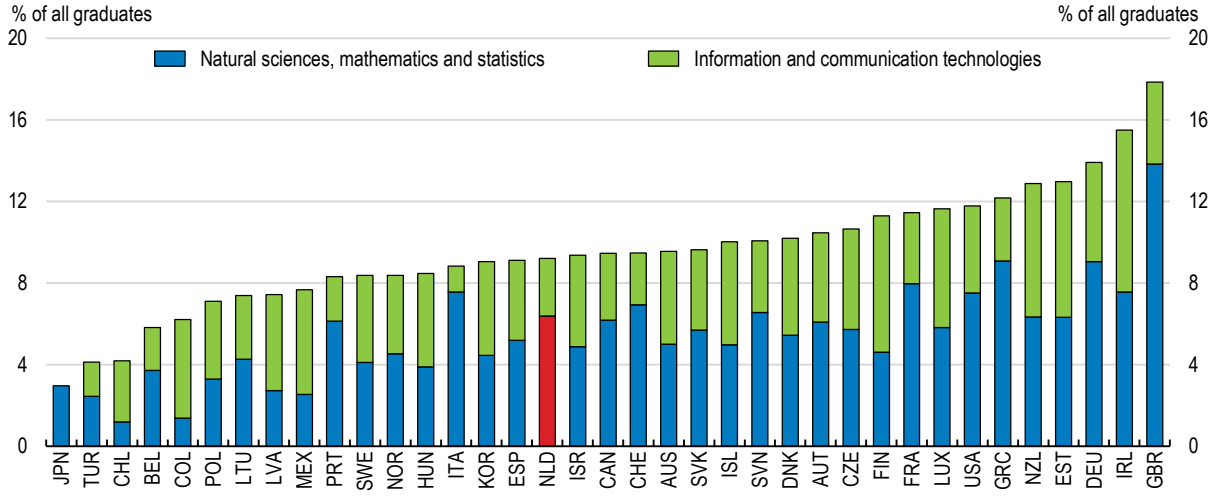
Despite the high tertiary attainment rate of 49.4%, demand for high-skilled workers is expected to grow by 2.4 million until 2025, while supply is expected to grow by only 1 million (OECD, 2018[23]). One reason is that few Dutch students pursue degrees in sciences, technology, engineering and mathematics (STEM). In addition, the share of graduates in ICT is among the lowest in the OECD (Figure 2.21). In response, universities have drawn up sectoral plans for STEM and the government has committed EUR 70 million to strengthen universities' offer and capacity in this domain (Ministry of Economic Affairs and Climate Policy, 2019[12]; Ministry of Education, Culture and Science, 2020[87]). Funding to address shortages is welcome, but attitudes to STEM studies will also need to change, calling for a long-term strategy to improve the image of, interest in, and knowledge of science. Supply of university study places for ICT students also needs to increase, and teaching methods should adapt to allow more students per teaching personnel

(d'Hondt, Mauw and van Petegem, 2020[88]). Such efforts should involve schools and the private sector and include measures to improve curricula, teacher competences, career guidance and advice (Caprile et al., 2015[89]).

Raising the number of ICT graduates from upper secondary education would help ease skill shortages. Part-time higher education pathways could help easing the transition between secondary and tertiary education. For instance, universities of applied science have developed short-cycle higher education associate degrees in close coordination with vocational education institutions in order to increase students' employment prospects. These programmes match training priorities with skill-needs on the labour market. Associate degrees are shorter than usual higher education degrees and have a strong emphasis on professional and technical skills. Their uptake has been increasing continuously in recent years. Expanding part-time higher education pathways could help raise entry rates of vocational education students into higher education, as was done in Germany with the 2018 Vocational Training Pact. Furthermore, stronger involvement of businesses in the design of engineering and technical programmes can help make vocational programmes more responsive to changing demands for digital skills. Current initiatives include, amongst others, cooperation between vocational and higher education institutions and the private sector in ten selected, highly competitive industries to support student training. These experiences should be carefully monitored and, if suitable, scaled up at a later stage modernising vocational training to equip graduates with the right skills for the digital economy.

Figure 2.21. The Netherlands is experiencing a shortage of ICT graduates

Share of all tertiary graduates by field, 2018 or latest year



Source: OECD (2021), OECD Education at a Glance database.

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Reducing gender imbalances in ICT and STEM studies will be key to increase the low number of students in these subjects. The share of female students among entrants into tertiary-level ICT programmes is low at 14%, and considerably lower than the OECD average of 19%. It reflects in part educational choices (OECD, 2019[70]). Early outreach to elementary and high school female students and more female teachers as role models are strategies to address the gender gap in ICT. The OECD (2018[90]) report on the digital gender divide recommends the establishment of targets for women in STEM fields, grant schemes aimed at enhancing the enrolment of women in STEM education, prizes enhancing the visibility of women in STEM and in high-technology sectors, and awareness campaigns tackling stereotypes. In Germany, for

instance, enterprises, universities, and research centres successfully increase female students' interest in technical professions and activities, including ICT, by organising an open day for girls aged 10 and older every year (Federal Ministry for Family Affairs, Senior Citizens, Women and Youth and Federal Ministry of Education and Research, 2019[91]). The United States have implemented a number of initiatives targeted at girls and young women at the federal and state levels including mentoring, lecturing, events and camps. Federal initiatives include the Department of Energy STEM Mentoring Program, the Department of State's Women in Science STEAM Camps, facilitated in public-private partnerships, and the NASA G.I.R.L.S. (Giving Initiative and Relevance to Learning Science) initiative. Moreover, and as mentioned above, ensuring a fast implementation of a nation-wide digital curriculum is a priority to ensure schools focus their resources on computational thinking and skills of all students.

Table 2.1. Policy recommendations from this chapter

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations are bolded)
Supporting an inclusive and efficient digitalisation	
Small and medium enterprises account for a relatively large share of employment and value added. A lack of awareness and the fixed cost nature of investment in digital technologies weigh on the digitalisation process.	**Increase direct support to SMEs to facilitate the adoption of digital tools, including business advisory services and testing facilities.**
A large share of businesses are either unaware of, or passive towards, IT security issues, notably SMEs.	**Encourage enterprises to implement existing digital security standards.**
An increased incidence of teleworking brings new challenges for worker welfare, and the tax system puts remote workers at a disadvantage.	Implement best practices for teleworking. Align tax treatment of home office-related expenses to those of other job-related expenses.
Access to finance is a barrier to growth for many start-ups and SMEs. The regulatory burden in the financial sector is generally high and not always flexible enough to allow new business models and technical solutions.	Create credit and collateral registries for companies to ease SME's access to bank loans. Include promoting competition in the mandate of the regulatory sandbox to boost alternative financing targeted to SMEs.
Some viable start-ups may exit the crisis with high debt burdens holding back their growth prospects.	Consider introducing a scheme extending loans that can be converted into an equity stake to eligible start-ups.
R&D expenditure is low, especially among SMEs.	Extend R&D grants to new practices of open and collaborative research. Carefully evaluate costs and benefits of the Innovation Box.
Boosting skills and supporting job mobility	
COVID-19 and automation increase the need for re-skilling and up-skilling.	**Increase training subsidies to jobseekers and workers with high up-skilling and re-skilling needs.**
A considerable share of students lack digital skills, especially those in vocational training.	Give digital skills more prominence in the national curriculum. Target funding for teachers' digital training under the 'work pressure agreement' to teachers in disadvantaged Vocational Education and Training schools.
The Netherlands faces a clear shortage of ICT professionals.	Expand part-time higher education pathways for ICT professionals. Involve the private sector more in the design of curricula for ICT programmes in Vocational Education and Training institutions and in universities of applied sciences.
Most ICT students are men, reflecting early educational choices.	Increase girls' interest in ICT studies from the early stages of compulsory schooling by curriculum design, outreach activities and showcasing role models.

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OECD Economic Surveys

NETHERLANDS

Structural and institutional strengths, a strong crisis response and a high level of digitalisation have helped the Netherlands to weather the COVID-19 crisis with so far limited economic damage compared to many OECD countries. Several long-standing challenges are set to affect the strength of the recovery and its long-term sustainability. Non-standard employment is high, driven to a large extent by lower labour costs for the self-employed and other non-standard workers than for regular employees. Women are overrepresented among non-standard workers and typically work shorter hours. Households' balance sheets, inflated by tax-subsidised housing debt and mandatory pension savings, create macroeconomic vulnerabilities and underpin inequality of assets. Landmark court rulings limiting nitrogen and greenhouse gas emissions are set to speed up a necessary green transition and led to earlier than planned closures of polluting economic activities, but have slowed down investments in infrastructure, buildings and agriculture. Embracing digitalisation is key to raise living standards further, but the social costs of skill-biased structural change, in many cases accelerated by COVID-19, must be handled firmly, notably by boosting skills and ensuring equal access to social protection.

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