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2022 Country Report - The Netherlands

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Recommendation for a COUNCIL RECOMMENDATION

on the economic policies of the Netherlands and delivering a Council opinion on the 2022 Stability Programme of the Netherlands

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European Commission

Netherlands

2022 Country Report

ECONOMIC AND EMPLOYMENT SNAPSHOT

A strong recovery with challenges ahead

The Dutch economy has recovered quickly from the COVID-19 pandemic. Consumer spending in particular picked up swiftly, with the vaccination campaign in the first half of 2021 allowing the economy to open up again. The recovery in global trade resulted in strong exports and net trade making a significant contribution to GDP growth. At the same time, investment activity suffered from supply side constraints mainly due to labour shortages and global supply chain disruptions. Despite new restrictions triggered by the Omicron variant in the fourth quarter of 2021, overall GDP growth in 2021 was robust, coming in at 5.0%.

Consumer price inflation has surged because of rising energy prices. Annual average inflation increased to 2.8% in 2021. For 2022, inflation is forecast to rise further to 7.4% mostly due to continued upward pressure on energy prices. Authorities are only partially able to cushion the energy price impact by lowering energy taxes and providing lump sum transfers.

Nominal house prices have climbed sharply. With a growth of around 15% in 2021, up from below 8% in 2020, it has been one of the strongest increases in the EU and has been felt quite evenly across the country. Continued tax advantages linked to mortgage interest payments and a structurally insufficient housing supply together with an underdeveloped private rental market are fuelling both prices and debt. This puts households in a financially vulnerable position if there were to be major house price corrections ([1]).

Growth momentum from 2021 provides a solid basis for 2022, but the economy faces new headwinds. Russia's invasion of Ukraine has increased uncertainty and led to a strong drop in confidence of households. While COVID-19 restrictions were lifted at the end of January, growth in consumer spending is expected to be relatively subdued due to surging inflation affecting households' disposable income. The increased uncertainty is also expected to weigh on the investment activity of businesses while supply side constraints are expected to persist given the new lockdowns in China and the impact of Russia's invasion of Ukraine. Overall, the Commission's Spring Economic Forecast projects GDP growth of 3.3% for 2022 and 1.6% for 2023. To continue supporting growth in the medium and long term, measures to address below-target investments in research and development (see Annex 9) and comparably low productivity growth (see Annex 10) could be beneficial.

Russia's invasion of Ukraine is affecting the Dutch economy mainly through higher energy and raw material prices. Gas and oil price increases have a large impact on the Dutch economy given the energy mix, which relies heavily on these two energy sources. However, more than half of Dutch households have electricity and gas contracts that are longer than a year, which will make the impact of rising prices on disposable income rather gradual. In addition, the government has taken measures to ease the impact of higher energy prices on household budgets. Businesses in turn will also be hit by rising input and energy prices while the increased uncertainty is expected to weigh on firms' investment

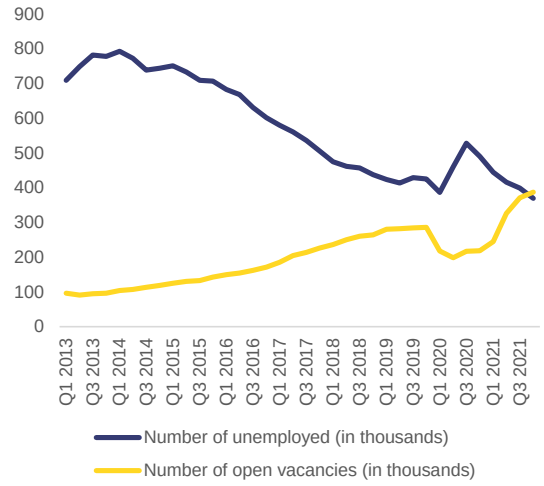
([1]) In-depth review of macroeconomic imbalances for the Netherlands 2022, European Commission.

decisions. Trade links with Russia are limited but direct investments by Dutch firms in Russia were relatively high compared to EU averages in 2020, with net foreign direct investments (excluding special purpose entities) in Russia amounting to 3.5% of Dutch GDP. Russian firms' investments (excluding special purpose entities) in the Netherlands over the past years were very limited. The trade and financial links of the Dutch economy with Ukraine are limited overall.

The government has taken large-scale emergency and support measures to limit the impact of the COVID-19 pandemic ([2]) and the new government is planning additional spending to address major societal challenges. Higher spending on healthcare related to COVID-19 and on support measures to protect jobs and maintain household purchasing power caused the general government deficit to increase to 3.7% of GDP in 2020. The deficit narrowed to 2.5% of GDP in 2021. At the same time, government debt decreased from 54.3% of GDP in 2020 to 52.1% of GDP in 2021. The new government, which took office on 10 January 2022, announced that it will increase expenditure for its entire mandate. Until mid-2025, it intends to increase spending by EUR 79 billion (9.2% of 2021 GDP). Additional spending is planned to address challenges such as climate change, excessive nitrogen deposits, rising energy prices and insufficient housing supply. The lowering of energy taxes and provision of lump sum transfers currently adds up to EUR 3.7 billion for 2022. Aside from that, long-term care and pension expenditure are expected to increase starting from the medium term due to population ageing.

The labour market is performing well overall, but challenges remain with increasing labour and skill shortages and labour market segmentation. Unemployment dropped from 4.7% in 2020 to 4.2% in 2021. In addition, the number of job vacancies has even surpassed the number of unemployed in the past year (see Graph 1.1). As a result, employers have found it increasingly difficult to find people with the right skills. Wage growth is gradually picking up, which is expected to continue in 2022 with shortages likely to persist. Overall, the Social Scoreboard, which supports the European Pillar of Social Rights, points to a well-performing labour market and good social outcomes, although challenges related to labour market segmentation remain. In particular, the high level of flexible employment requires further attention in terms of equal opportunities in the labour market, fair working conditions, adequate social protection as well as its contribution to slow productivity growth (see Annexes 10 and 12).

Graph 1.1: **Number of unemployed and number of job vacancies (in thousands)**



Source: CBS

The strong reliance on fossil fuels casts doubts on whether the country can meet its climate targets on time. The Netherlands is one of the five worst performing EU countries in terms of its share of renewable energy in gross final energy consumption and will need to fill a significant gap to achieve the current 2030 targets. Further investments to remove bottlenecks and digitalise the grid will help to increase the share of energy from renewable sources and the uptake of sustainable mobility.

Construction and farming are being held back by excessive nitrogen deposits, harming the environment. Over the past

([2]) European Commission Quarterly Report on the Euro Area (QREA), Vol. 20, No. 4 (2021), Chapter I on assessing the cushioning role of tax-benefit systems on households' income in the euro area during the COVID-19 pandemic: a microsimulation analysis.

decades, nitrogen deposition has increased sharply, also in nature protection areas. To reduce it, the government has taken action, which has negatively affected agricultural as well as construction activity. A key step to tackling the nitrogen crisis is the transition to sustainable agriculture. To facilitate it, the coalition agreement proposes a transition fund of EUR 25 billion until 2035.

One of the reasons why the country has weathered the COVID-19 crisis relatively well is the high degree of digitalisation of its economy. The Netherlands ranks among the highest performing EU Member States in the Digital Economy and Society Index ([3]). It performed particularly well on the uptake of digital technologies by companies and use of online services. However, while the Dutch population has a good level of basic and advanced digital skills ([4]), the relatively low share of ICT graduates adds to the difficulty for companies to find digitally qualified personnel to fill vacancies. The country could also make further progress on 5G readiness and high broadband prices (see Annex 8).

The Netherlands continues to experience macroeconomic imbalances related to a large current account surplus and a high stock of private debt. The current account surplus increased from 7% of GDP in 2020 to 9.5% in 2021 ([5]). From a sectoral perspective, the surplus in the household and corporate sectors widened compared to 2020. But this was partially offset by public sector net borrowing with a substantial set of crisis-related fiscal support measures. Household debt is composed mainly of mortgage debt and is expected to increase further in nominal terms due to the rapidly increasing house prices mentioned above (see Annex 17).

The Netherlands has made progress in addressing aggressive tax planning issues in recent years. The country has implemented a conditional withholding tax on interest and royalty payments made to low-tax jurisdictions and to jurisdictions on the EU list of uncooperative jurisdictions. The withholding tax also applies to interest and royalty payments in certain abuse situations. The government has committed to renegotiate clauses in bilateral treaties that could neutralise the effect of the withholding tax. Moreover, the government has adopted a proposal to strengthen its withholding tax on dividend payments to low-tax jurisdictions and to jurisdictions on the EU list of uncooperative jurisdictions per 1 January 2024.

The Netherlands scores very well on the United Nations Sustainable Development Goals (SDGs), although significant challenges remain in a few areas, such as access to affordable and clean energy (SDG 7). The country performs very well on economic growth and employment (SDG 8). On SDG 4 (quality education), it outperforms the EU average for advanced digital skills and has one of the highest shares of adult participation in learning. Its performance on SDG 10 (migration and social inclusion) could improve by including people with a migrant background more in the labour market.

([3]) Digital Economy and Society Index (DESI) 2021, European Commission.

([4]) While young people and adults in the Netherlands have strong digital, expanding university degrees in advanced digital technologies and aiming for a stronger gender balance among ICT specialists could further solidify the country's chances of managing the digital transition in a fair and successful way (Resilience country fiche: the Netherlands 2021, JRC - February 2022).

([5]) In-depth review of macroeconomic imbalances for the Netherlands 2022, European Commission.

PRIORITIES AHEAD

Although the Dutch economy is recovering rapidly from the impact of the COVID-19 pandemic, several challenges remain. These challenges prevent the economy from building up resilience and continuing to grow in the long term in a sustainable and inclusive manner. The long-standing issues related to the housing market have, if anything, intensified. The pandemic pointed to the risks of a highly segmented labour market. Other issues relate to labour shortages, the pension system and the transformation into a green and climate-neutral economy. Addressing these challenges will also help the country make further progress in reaching the SDGs in the corresponding areas and implement the European Pillar of Social Rights.

Addressing tax distortions and supply constraints on the housing market

House prices in the Netherlands have increased further over the past year, with growth continuing to spread from the major cities to the whole country. Annual house price growth between 2016 and 2020 already averaged above 7% and reached 15.2% on average in 2021. Prices surged especially towards the end of the year, with house prices in December 20.1% higher than in the same month a year earlier. The affordability and availability of housing has worsened significantly, in particular in major cities and their surroundings, which have experienced strong price growth for several years. For example, the price of a 100m^2 apartment in North Holland, the province with the highest average price level in the country, is equal to 17 years of income for a typical household - 45% above its value in 2014.

A combination of one-off effects and long-standing features of the Dutch housing market led to the sharp increase in prices in 2021. Pent-up savings accumulated during the pandemic increased household budgets. The abolishment of the transfer tax for first-time buyers drove up demand in 2021. Behavioural effects pushed up prices further - the tight market prompted existing homeowners searching for a new home to adopt a 'buy first, sell later' strategy. This effectively brought the market to a standstill, with the number of transactions dropping below 2020 levels (see Graph 2.1). The limited supply on the market in turn prompted house buyers to use pent-up savings to pay more than the list price out of 'fear of missing out'. These special factors in 2021 come on top of pre-existing factors, such as low interest rates, relatively loose mortgage borrowing limits ([6]), insufficient and inelastic supply and tax benefits that stimulate demand.

Tax distortions that incentivise debt-financed home ownership are a long-standing issue. Mortgage interest deductibility is the main feature at play. It allows households to deduct interest payments from their taxable income. Despite a gradual reduction in the deductibility rate in recent years, the incentive remains substantial. The coalition agreement of the current government includes abolishing the possibility for tax-free gifts for the purchase of homes. While this is welcome, the effect on overall distortions in the housing market is expected to be marginal.

([6]) For more details see Annex 17 and the In-depth review of macroeconomic Imbalances for the Netherlands 2022, European Commission.

Graph 2.1: **Growth in house prices and number of transactions on the housing market**

Source: Eurostat, CBS

Subsidies for debt-financed home ownership contribute heavily to the comparably high level of household debt. Additionally, relatively high borrowing limits ([7]) for residential mortgages could raise concerns about household debt sustainability if there are major house price corrections, primarily among recent buyers. However, even households with a positive net asset position could be vulnerable to shocks on financial markets given the illiquidity of their assets (primarily homes) ([8]). In 2019, the European Systemic Risk Board issued recommendations ([9]) to the Dutch authorities to address vulnerabilities in the housing sector, including the recommendation to reduce maximum borrowing limits. While some limited steps have since been taken ([10]), the recommendation on maximum borrowing limits remains unaddressed.

The insufficient supply of homes puts additional upward pressure on house prices ([11]). Dutch authorities estimate that an additional 279 000 homes would have been needed to satisfy demand in 2021, equivalent to 3.5% of the total housing stock ([12]). Construction activity has recovered to some degree after a sharp fall in building permits in 2019 linked to uncertainty over environmental protection measures ([13]).

In a pledge to boost the housing supply, the new government has raised the target of new-build homes from 75 000 to 100 000 units per year. While the government has outlined broad areas in which it plans to take action ([14]), e.g. the length of planning processes at the local administrative levels, the exact reforms that will be implemented to reach this new target still need to be determined. A swift increase in new-builds is complicated by increased labour and material shortages that have emerged in recent years. On top of these shortages, the Netherlands faces challenges in administrative capacity at municipal level, which slows down planning processes, as well as strict land use regulation that limits available land for housing development ([15]).

A malfunctioning rental market creates further incentives for households to buy rather than rent. Access to social housing (rented at a discount compared to market rates) is income-dependent only to a limited degree and thus relatively untargeted. Along with subsidies in the owner-occupied market, this leads to an underdeveloped private rental

([7]) The maximum loan-to-value ratio in the Netherlands is 100%, which is among the highest in the EU.

([8]) In-depth review of macroeconomic Imbalances for the Netherlands 2022, European Commission.

([9]) European Systemic Risk Board (2019), Recommendation 2019/7.

([10]) The Dutch National Bank introduced minimum risk weight floors for mortgages on 1 January 2022 and announced the intention to build up a countercyclical buffer. See the in-dept review (IDR) for additional details.

([11]) For more details see the in-depth review of macroeconomic Imbalances for the Netherlands 2022, European Commission.

([12]) BZK (2021), Staat van de Woningmarkt – Jaarrapportage 2021.

([13]) This was addressed with a set of temporary measures in 2021, with a more permanent solution still to be put in place – see the section *Investments for energy import independence and the green transition* below.

([14]) BZK (2022), Nationale Woon- en Bouw Agenda.

([15]) The obstacles to increasing the Dutch housing supply are described in "Het bouwproces van nieuwe woningen", CPB (2019). For more details on the supply of Dutch houses see also the in-depth review of macroeconomic imbalances for the Netherlands 2022, European Commission.

market and long waiting lists for those who need social housing most. Therefore, there is a lack of viable, affordable alternatives for many households in search of a home. This pushes them to debt-financed home ownership, while the high prices have made this option unaffordable for large parts of the population.

Boosting fairness and transparency in the pension system

The social partners and the government agreed in 2019 and 2020 on the main principles of fundamental pension reform. The main points of the agreement include eliminating ex-ante inter-generational redistribution in the current second pillar pension system while preserving some degree of intergenerational risk sharing, introducing additional flexibility in accessing pension assets and strengthening the link between pension fund performance and payouts. Draft legislation (*Wetsvoorstel toekomst pensioenen*) was submitted to parliament on 30 March 2022 and is currently foreseen to enter into force as of 1 January 2023. Once adopted, the new framework will be phased in gradually from 2023 until 2027.

The planned pension reform is expected to address structural shortcomings in the second pillar of the pension system related to intergenerational fairness, transparency, flexibility and shock resilience. The planned phasing-out of the de facto systematic redistribution ([16]) from younger to older workers ([17]) will improve both intergenerational fairness and transparency, the latter since the link between contributions and benefits will become clearer. Another weakness in the current system is its reliance on pension premium adjustments to absorb imbalances in pension funds' balance sheets, an issue that is aggravated by demographic developments ([18]). The strengthened link between pension fund performance and payout in the proposed new system implies that benefit adjustments ([19]) will become the primary mechanism to absorb imbalances, which would improve shock resilience of the system. The new system is based on life-cycle investing and better allocation of risks to the groups that can best bear them (e.g. less interest rate risk for the elderly) Moreover, the current system is also not well equipped to deal with the needs of a modern labour market, where more flexibility would help workers that are moving between different types of employment.

At macroeconomic level, second pillar pension contributions are an important driver of compulsory savings for households, contributing to the current account surplus. The relatively large pension contributions, especially when combined with high mortgage debt and related amortisations, can lead to suboptimal consumption smoothing across different phases of life ([20]). In other words, in some cases, households save more than they would like, while once they reach retirement age they often enjoy high pension income with limited housing expenses.

([16]) Regardless of age, employees build up the same amount of pension rights for every euro of pension premium paid. However, the contributions paid by younger employees normally have a much longer period to benefit from returns on investments. Decoupling the build-up of pension rights from distance to retirement age (and therefore the investment horizon) means that younger workers de-facto subsidise the pension build-up of older workers.

([17]) CPB Netherlands Bureau for Economic Policy Analysis (2018), Effecten van afschaffing van de doorsneesystematiek en de gelijktijdige overgang naar een nieuw pensioencontract.

([18]) With an ageing population, increasingly large premium adjustments would be needed to maintain the pensions of an increasingly large share of the population beyond the retirement age. As a result of these developments, there has already been a shift to a conditional (indexation depending on pension fund performance) defined benefit system in recent years.

([19]) These adjustments only apply to second-pillar pension benefits. The presence of the basic state pension under the first-pillar as well as the high average replacement rates (estimated at 97% by the OECD) imply that old-age poverty risks are limited.

([20]) CPB Netherlands Bureau for Economic Policy Analysis (2020), Are the savings of Dutch households optimal?

Tackling money laundering risks

The Netherlands is among the countries with the largest flows of inward and outward foreign direct investment worldwide and therefore subject to high money laundering risks. A substantial part of these flows (some 80%) is ultimately transferred to a foreign destination through special purpose entities, letterbox or shell companies with no real economic activity in the Netherlands. Against this backdrop, it is key that entities involved in company and trust formation (trust and company service providers, tax and legal advisers) are aware of the money laundering risks linked to those business structures.

In recent years, the Dutch government has taken several measures to combat the misuse of company and legal structures for money laundering purposes. This includes a wide range of measures featured in the government's Anti-Money Laundering Action Plan launched in 2019. The plan intends among other things to strengthen the role of trust and company services as gatekeepers and address the risks this sector is exposed to. Furthermore, in November 2021, the implementation of a publicly accessible register that contains certain personal information on the ultimate beneficial owners of trusts and similar legal arrangements, also known as the Trust Register, was approved by the Dutch Senate.

However, the Netherlands still needs to tackle remaining challenges. In addition to incorporating the 5th Anti-Money Laundering Directive into national law, the Trust Register still needs to be set up and populated with actual data. Furthermore, several issues related to compliance with anti-money laundering and countering the financing of terrorism requirements by obliged entities in the entire non-financial sector, including trust and company service providers, remain important challenges for the Netherlands. In that respect, the effectiveness of the new supervisory regime and enforcement measures still needs to be assessed and evidenced.

Opportunities to improve social outcomes and support inclusive growth

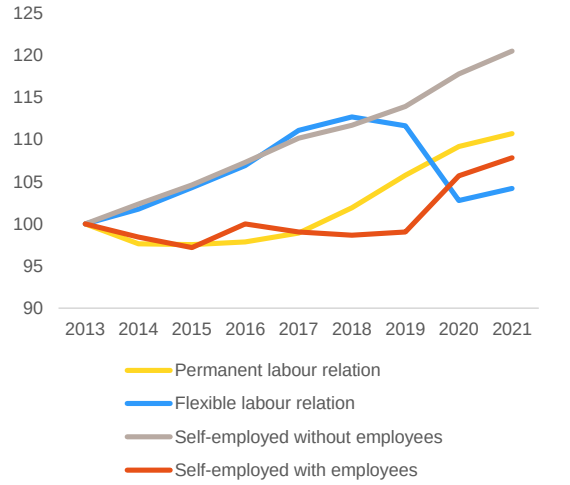
Overall labour market performance is good, with high participation and low unemployment, but important challenges remain on labour market segmentation. The Social Scoreboard that supports the European Pillar of Social Rights points to a well-performing labour market and good social outcomes in the Netherlands (see Annex 12). Nevertheless, the high level of flexible employment (39% of the labour force in 2021) ([21]) and its strong growth in the last decade (see Graph 3.2) remain a concern also in comparison to other EU Member States. This development requires further attention with regard to equal opportunities in the labour market, fair working conditions, adequate social protection coverage and its role in low productivity growth. While certain workers may choose flexible employment due to changing individual preferences, some do not have a choice ([22]). The use of these types of employment is to a considerable extent influenced by institutional factors and national policy choices such as differences in tax treatment (for the self-employed without employees), social security coverage and labour protection regulations. For example, the self-employed are not subject to social security contributions related to sickness, disability, unemployment and old age. Rather

([21]) This includes flexible work arrangements (around 2.5 million / 28% of the labour force), self-employed without employees (around 1.1 million in total / around 11% of the labour force).

([22]) Especially those on flexible, zero-hour, on-call or temporary agency contracts, doing platform work or the self-employed without employees operating at the margins of the labour market. Regulation of Work report by the Bortslap Committee (2020) and the Better Work ('*Het betere werk*') report by the Scientific Board of Government policies (WRR, 2020). See also SER MLT advice (Sociaal-economisch beleid 2021-2025 – Zekerheid voor mensen, een wendbare economie en herstel van de samenleving), Advies 21/08, June 2021.

than being determined by the characteristics of the job, these financial (dis)incentives influence the type of employment status chosen.

Graph 2.2: **Evolution of employment status by type**



(1) Index, 2013=100
Source: CBS

The pandemic further highlighted the risks of a highly segmented labour market and the unfavourable employment and social situation of certain groups. People with flexible and/or temporary contracts ([23]) (mostly the young, low(er) skilled, people with a migrant background or disabilities), along with the self-employed without employees, were the groups hit hardest during the pandemic (see Graph 3.2) ([24]). As a consequence they were faced with a (considerable) drop in income and a number of them applied for temporary income support measures and/or had to use their financial buffers ([25]).

Ambitions have been expressed to address institutional drivers of labour market segmentation, but challenges remain. Some measures have been adopted to reduce the gap between the different tax treatments, such as gradually reducing the tax deduction for self-employment from 2020 onwards ([26]). However, significant differences remain in the working conditions (e.g. limited income security for those with on-call and zero-hour contracts) and adequate social protection coverage under different employment and work arrangements. The coalition agreement of the current government intends to address differences between permanent and flexible work arrangements and to improve social protection for the self-employed, notably by introducing mandatory disability insurance.

Despite the crisis, labour shortages have increased further and have become more general across sectors. While some sectors and entrepreneurs still notice the consequences of the pandemic, pre-existing labour market shortages resurfaced in line with the overall economic recovery and pick-up in labour demand. Labour market tightness reached historic levels at the end of 2021 (see the Economic and Employment Snapshot and Graph 1.1). Shortages based on the number of job vacancies are currently most concentrated in information and communication technologies, construction and the hospitality sector ([27]). Labour market forecasts point to a

([23]) CPB Netherlands Bureau for Economic Policy Analysis (2021), Notitie economische analyse steunpakket, https://www.cpb.nl/sites/default/files/omnidownload/CPB-Notitie-Economische-analyse-steunpakket-2020.pdf . See also Centraal Bureau voor de Statistiek (CBS) (2021), Ontwikkelingen flexwerk (https://www.cbs.nl/nl-nl/dossier/dossier-flexwerk/hoofdcategorieen/ontwikkelingen-flexwerk See also Fana, M., Tolan, S., Torrejón, S., Brancati, C. U., & Fernández-Macías, E. (2020). The COVID confinement measures and EU labour markets. Luxembourg: Publications Office of the European Union, https://publications.jrc.ec.europa.eu/repository/handle/JRC120578.

([24]) Diris, R., Jongen, E., Van Vliet, O., (2022), Zelfstandigen hard geraakt door coronacrisis, Economische Statistische berichten.

([25]) CPB Netherlands Bureau for Economic Policy Analysis (2022), Ontwikkeling van het arbeidsinkomen tijdens corona.

([26]) While compensating them fully in 2020, 2021 and 2022 by increasing the 'arbeidskorting' (general tax credit), the government intends to continue compensating self-employed via this tax credit until 2025.

([27]) Centraal Bureau voor de Statistiek (CBS) (2021), Vacaturegraad naar bedrijfstak (https://www.cbs.nl/nl-nl/visualisaties/dashboard-arbeidsmarkt/vacatures/vacaturegraad-naar-bedrijfstak).

continued tight labour market in the future for education, healthcare, technical jobs (including science and engineering) and in the IT sector ([28]). The tight labour market also risks hampering the realisation of the government's ambitious plans in the context of the green and digital transition. In addition, the low degree of housing affordability in some regions also hampers mobility in the Dutch labour market and could increase regional labour shortages.

Despite a high overall participation rate, the Netherlands still has a pool of untapped and underutilised labour that could be activated. In 2020, the gap between non-EU citizens and Dutch nationals in terms of employment rates was 26.0 pp ([29]), which is higher than the EU average (15.7 pp). The employment rate for women is high and still on the rise, with a high share of women in part-time employment (in 2021, around 62.5% of employed women worked part-time compared to an EU average of 28.3%) ([30]). This results in an above-average gender pay gap (14.2% in 2020, while the EU average was 13%) ([31]), which is one of the largest in the EU (see Annex 12). Activating and up- and re-skilling the inactive people, those in long-term unemployment and those at the margins of the labour market via targeted and personalised actions could help alleviate labour shortages. More than 500 000 workers in the Netherlands (around 5% of the labour force) indicate that they would like to work more hours ([32]). Furthermore, incentivising an increase in the number of hours worked by part-time workers, among them many women, could further reduce the existing labour market shortages. For example, improving access to high-quality and affordable childcare and introducing measures to help parents achieve a better work-life balance could facilitate an increase in the hours worked.

Targeted support and continued investments in basic, technical and digital skills, education and training could improve access to the labour market while promoting equal opportunities and active inclusion. Overall, adult participation in lifelong learning remains significantly higher than the EU average. Nevertheless, participating in learning is a challenge for those in a vulnerable labour market situation because of their uncertain employment relationship (flexible or temporary work/self-employed), and in certain cases lower education level or low literacy. More targeted support, including focusing on increasing cross-sector mobility, may be required to reach people at the margin of the labour market more effectively. Tackling these challenges is key for the Netherlands to reach the 2030 EU headline target on skills.

The rate of early school leaving is in line with the EU-level target, but there has been a decline in basic skills and the differences in performance levels between schools are increasing. Children of lower and more highly educated parents are increasingly being educated in different schools. Among all EU Member States, the Netherlands is the country where differences between schools have the strongest impact on pupils' performance, reflecting ability-based tracking from an early age. The proportion of low achievers is especially high (56%) among pupils born abroad. Native-born pupils with a migrant background only partially catch up. Furthermore, expected teacher shortages could

([28]) Bakens, J., Bijlsma, I., Dijksman, S., Fouarge, D., Goedhart, R. (2021). De arbeidsmarkt naar opleiding en beroep tot 2026. ROA. ROA Reports No. 005.

([29]) The gap between non EU-citizens and Dutch national in terms of employment rates (% of population aged 20 to 64) increased slightly between 2016 and 2021, from 25.3 pp to 26 pp, which is higher than the EU average (14.9 pp).

([30]) The Netherlands continues to have the highest gender gap in the EU in part-time employment, which stood at 44.1 pp in 2021.

([31]) Even if the employment rate of women is high and still on the rise (77.5% in 2021 compared to 76.6% in 2020), the gender gap in hours worked results in an above-average gender pay gap and one of the largest gender pensions gaps later in life (women aged over 65 received 36.9% less pension than men in 2020, compared to an estimated EU average gap of 27.5%).

([32]) Central Bureau for Statistics (CBS) (2021), dashboard beroepsbevolking (https://www.cbs.nl/nl-nl/visualisaties/dashboard-beroepsbevolking/wil-meer-uren-werken-beschikbaar).

negatively affect the quality of education and educational outcomes (see Annex 13).

Reducing fossil energy dependence and advancing the green transition

The Netherlands has made good progress in reducing greenhouse gas emissions, but more is needed to reach EU and national targets. The country has exceeded the 2020 target in the Effort Sharing Decision although this is partially due to the impact of the pandemic rather than structural reductions. Greenhouse gas emissions in 2020 were 23% lower compared to 1990. By 2030, emissions are estimated to be at 38% to 48% below 1990 levels with current policies, which is below the target set in the coalition agreement of 55% lower emissions.

The Netherlands relies strongly on energy from fossil fuels, with persistent dependence on Russian oil and gas. Natural gas and oil together provided around 80% of the energy consumed in the Netherlands in 2020, compared to the EU average of below 60%. Due to the extraction of natural gas on its own territory, the Netherlands has traditionally been a net exporter of gas and its network is strongly interconnected with other Member States. With the phase-out of domestic gas extraction, import dependency has significantly increased and gas imports surpassed exports in 2017. A considerable part of the imports come through the LNG (liquefied natural gas) terminal in Rotterdam or through the connection with the terminal of Zeebrugge in Belgium. Nonetheless, dependence on Russian gas has been considerable, although to a lesser extent than in many other Member States (30% of imported natural gas in the Netherlands came from Russia in 2021 compared to an EU average of 44%). Through energy savings measures and expansion of LNG capacities, the government aims to be independent of Russian gas supplies by the end of 2022. The domestic oil supply is small and the reliance on crude oil imports from Russia is at the same level as the EU average (26%). The Dutch government also aims to become independent of Russian oil by the end of the year and has called on firms exposed to oil imports from Russia to reduce their dependence to contribute to a fast phasing out of imports. With 54%, the dependence on coal import from Russia is at the same level as the EU average. Overall, the Dutch economy is somewhat less exposed to risks of supply disruptions from Russia than other Member States but the impact of rising gas prices is expected to be relatively strong ([33]).

There is substantial potential for reducing the share of fossil sources in the energy mix by expanding the production of renewable energy. The Netherlands has the fifth lowest share of renewable energy in gross final energy consumption in the EU, despite having made progress in 2020 (see Graph 2.3 and Annex 5). It also has one of the largest gaps between the 2020 shares (14.7% in 2020) and the targets for 2030 (27%). However, there is significant potential to boost this share as the North Sea offers major opportunities to expand generation of power from wind.

The Netherlands is taking measures to increase the supply and use of sustainable bio-methane and hydrogen. The Netherlands intends to accelerate the production of bio-methane, notably through the introduction of a blending obligation for energy suppliers. There are also plans to invest into electrolysis capacity for hydrogen production as well as to transform part of the existing gas transmission network into a hydrogen backbone by 2027, covering the main industrial clusters and including interconnections with Antwerp and the Ruhr area in Germany.

Frontloading renewable energy requires additional investments in energy network infrastructures. This concerns network infrastructure for electricity, heat and

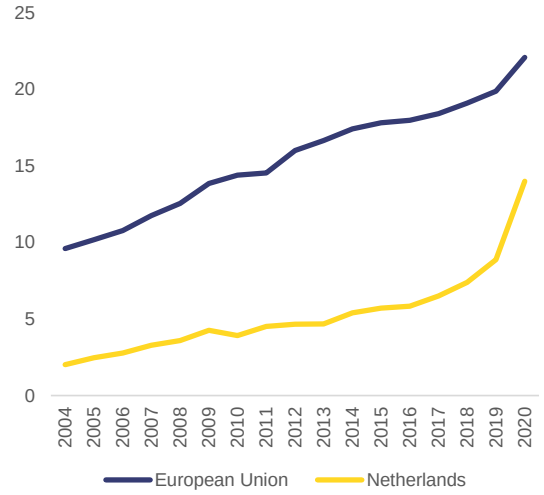
([33]) Eurostat (2020), share of Russian imports over total imports of natural gas, crude oil and hard coal. For the EU27 average, the total imports are based on extra-EU27 imports. For the Netherlands, total imports include intra-EU trade. Crude oil does not include refined oil products.

renewable hydrogen. The electricity grid is strongly connected to surrounding countries. However, capacity constraints in the Dutch grid continued to increase in 2021, leading to implementation delays for new onshore renewable energy projects. Capacity constraints are acute in particular in Flevoland, Drenthe and North Limburg. According to Netbeheer Nederland, implementation of the current plans in the nationwide programme of the regional energy strategy requires substantial network expansion to overcome network bottlenecks ([32]). The lack of a sufficiently 'smart' energy grid to accommodate variable renewable energy also limits the effectiveness and speed of the energy transition.

Further simplification of administrative procedures could also increase the share of energy produced from renewables. The Netherlands has taken several measures in recent years to simplify permitting of energy projects (e.g. only renewable project above certain thresholds can be appealed in higher courts, online platform for "All in One Permit for Physical Aspects" for onshore wind and ground-mounted photovoltaic, environmental pre-assessment of offshore wind sites), but bottlenecks remain, notably at local level to authorise renewable energy projects, given the high density of population. The coalition agreement includes plans to accelerate administrative procedures for energy infrastructure projects and set up a climate transition fund of EUR 35 billion for the next 10 years. It aims to achieve the climate goals laid down at national and European level, notably by developing the necessary energy infrastructure and stimulating the supply of renewable energy.

Energy efficiency improvements are a cost-efficient way to reduce emissions and dependence on fossil fuels in the Netherlands. There is considerable potential for improvements in building renovations and the roll-out of heat pumps in the private housing sector, which is often preferable to installing new gas boilers.

Graph 2.3: **Share of renewable energy in gross final energy consumption (in %)**



Source: Eurostat

Further investments in transport infrastructure could help remove bottlenecks and support sustainable mobility. Rail and road infrastructure is congested. The Dutch railway network is the most heavily used in Europe (RMMS, 2020). The deployment of European Railway Traffic Management System (ERTMS) in the Dutch railway network is ongoing to support the increase in traffic capacity. In 2019 road congestion, albeit slightly below the EU average, was estimated to have cost 4% of Dutch GDP ([34]). The coalition agreement includes investments in transport infrastructure maintenance and contains the introduction of "mileage" dependent taxation by 2030 (*betalen naar gebruik/MRB-plus).* It also envisages the further roll-out of charging infrastructure. The country is also leading efforts to decarbonise inland waterway transport. Investments in sustainable mobility infrastructure can have positive spill over effects for the single market, given the importance of Dutch transport hubs (Port of Rotterdam, Schiphol airport) and reduce further the high dependency of the country towards oil (39% of the energy mix in 2020).

([34]) Schroten, A., van Essen, H., van Wijngaarden, L., Sutter, D., Andrew, E. (2019), Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities (study prepared for the European Commission, Publications Office of the European Union, Luxembourg).

Excessive nitrogen deposits in agriculture are harming the environment. The nitrogen surplus is four times the EU average, with ammonia emissions per hectare also the highest in Europe (60 kg NH3/ha). Nitrogen deposition (the Netherlands exceeding the Nitrates Directive thresholds) hinders biodiversity objectives and affects the quality of water ([35]). Further to a ruling of the Council of State in 2019, the government needs to take action to reduce nitrogen deposits in Natura 2000 areas. The ruling has affected existing and new building permits, constraining construction activity in 2020 and creating uncertainty for agricultural activity.

A shift towards sustainable agriculture is necessary to reduce nitrogen deposits and will require significant investments. Agriculture is responsible for 45% of nitrogen deposits ([36]), mainly because of intensive livestock farming. This makes the Netherlands the country with the highest livestock density in the EU ([37]). The coalition agreement envisages a transition fund of EUR 25 billion up to 2035 to support the transition to sustainable agriculture (including downsizing), tackle the nitrogen crisis and restore nature. The care-taker government prepared the nitrogen reduction law that anchors the nitrogen reduction programme that the government decided on following the Council of State rulings.

([35]) 15% of ground water station report poor quality.

([36]) RIVM (2022), Wat is Stikstof?.

([37]) European Commission (2021), Nitrates Directive Implementation Report.

KEY FINDINGS

Given the key challenges outlined in this report, the Netherlands would benefit from:

- Limiting the tax incentives that favour debt-financed home ownership, thereby reducing the high level of household debt and bringing down the strong growth in house prices, as well as increasing the housing supply, in particular by relaxing land-use regulations and improving planning capacity at local administrative level.

- Addressing shortcomings in the second pillar pension system by implementing the 2019 and 2020 pension agreement, which will make the system more shock resilient, transparent and fair.

- Further improving social outcomes and inclusive growth by reducing labour market segmentation and promoting adequate social protection for the self-employed.

- Addressing labour shortages to support the implementation of investments, in particular those supporting the green and digital transition, notably by activating untapped labour and up- and reskilling measures.

- Boosting energy efficiency as well as increasing investments in grid capacity, renewables and electrification to reduce dependence on fossil fuels, including from Russia.

- Easing pressures on congested road and rail infrastructure and supporting sustainable mobility through further investments in transport infrastructure.

- Encouraging more sustainable agriculture to reduce soil and water pollution and protect biodiversity by reducing nitrogen emissions.

ANNEXES

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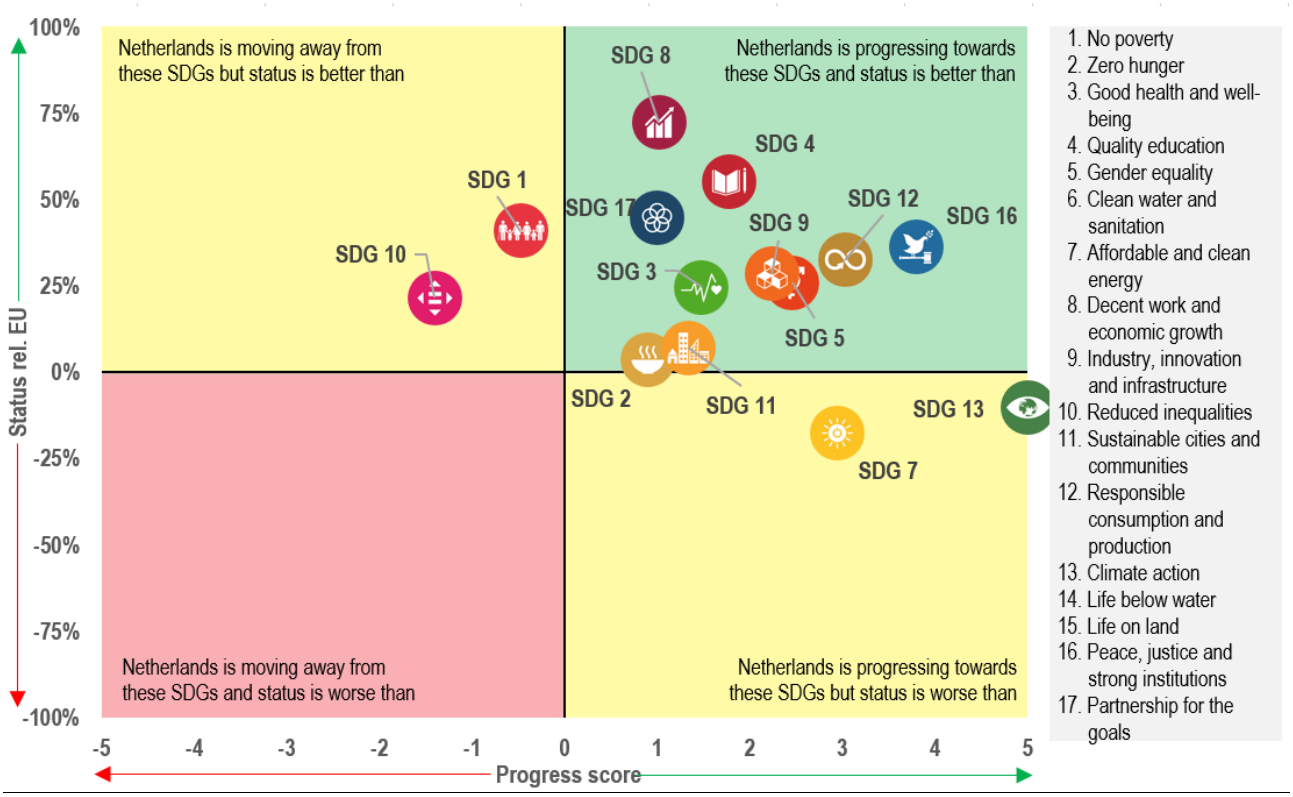
ANNEX 1: SUSTAINABLE DEVELOPMENT GOALS

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

The Netherlands performs very well on several SDG indicators related to *environmental sustainability* (SDG 2, 6, 9, 11, 12, 13, 15) and is improving on one more (SDG 7). On addressing 'Affordable and clean energy' (SDG 7), the country has made considerable progress on the share of renewable energy in total energy consumption, which increased from 5.7% in 2015 to 14% in 2020, but is still below the EU average (22.1% in 2020). The country also improved on indicators like 'primary energy consumption" (3.4 tonnes of oil equivalent per capita in 2020) and 'final energy consumption' (2.6 tonnes in 2020) but consumption remains above the EU average (2.8 and 2 tonnes respectively in 2020). Regarding the environmental impacts of agricultural production (SDG 2), ammonia emissions from agriculture have slightly decreased from 61.7 kg per ha of utilised agricultural area in 2014 to 58.9 kg in 2019, which is still very high compared to the EU average (19.7 kg in 2019).

The Netherlands performs very well on most SDG indicators related to fairness (SDG 1, 2, 3, 4, 5, 8, 10). The country outperforms the EU average in most indicators related to poverty, health and education (SDGs 1, 3, 4). It historically performs very well on economic growth and employment (SDG 8). The employment rate increased from 77.9% in 2016 to 81.7% in 2021, which makes the Netherlands one of the best performers in the EU (EU average: 73.1% in 2021).

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



For detailed datasets on the various SDGs see the annual ESTAT report 'Sustainable development in the European Union', https://ec.europa.eu/eurostat/web/products-statistical-books/-/KS-03-21-096; Extensive country specific data on the short-term progress of Member States can be found here: Key findings - Sustainable development indicators - Eurostat (europa.eu).

Source: Eurostat

At the same time, the long-term unemployment rate decreased from 2.3% in 2016 to 0.8% in 2021 and is well below the EU average (2.8% in 2021). On migration and social inclusion (SDG 10), the gap between non-EU citizens and Dutch nationals at risk of income poverty after social transfers rose sharply from 4.7% in 2015 to 25.9% in 2020, above the EU average (23.8% in 2020). Similarly, the gap between these two categories in terms of employment rates increased slightly between 2016 and 2021 (from 25.3% to 26.0% in 2021), and remains higher than the EU average (14.9%).

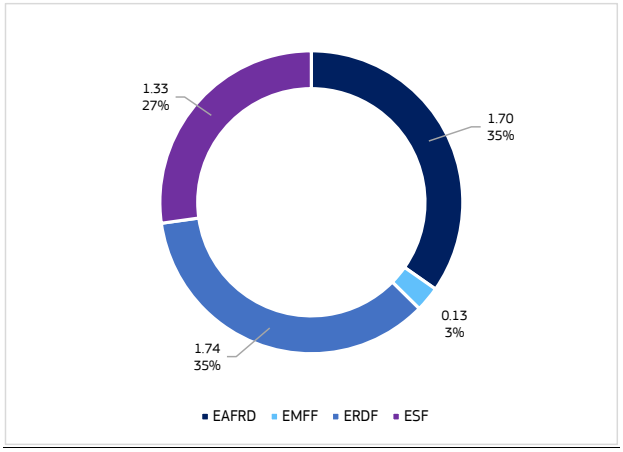
The Netherlands performs very well on SDG indicators related to productivity (SDG 4, 8, 9). The country has the highest share of people with at least basic digital skills (79% in 2021, compared to the EU average of 54%), and one of the highest shares of adult participation in learning, which has increased since 2015 (18.8% in 2016 and 26.6% in 2021) (SDG 4). The share of households with high-speed internet in 2021 (90.6%) is well above the EU average (70.2%) and represents significant progress on this indicator since 2016 (31.2% in 2016). The Netherlands has increased its share of GDP on R&D from 2.1% in 2015 to 2.3% in 2020 and now meets the EU average (2.3% in 2020). The share of R&D personnel among the active population rose from 1.6% in 2015 to 1.7% in 2020 (EU average: 1.4% in 2020) (SDG 9).

The Netherlands performs very well on SDG indicators related to macroeconomic stability (8, 16). In particular, the indicators on "peace, justice and strong institutions' (SDG 16) have further improved and it scores highly on indicators relating to access to justice. The Netherlands also outperforms the EU average on indicators related to employment and decent work (SDG 8). Although the percentage of the population reporting crime, violence or vandalism decreased from 17.4% in 2014 to 15.7% in 2020, it is still above the EU average (11% in 2019) (SDG 16).

The Recovery and Resilience Facility (RRF) is the centrepiece of the European Union's efforts to support the Union's recovery from the COVID-19 pandemic and strengthen resilience against future shocks. By 13 May 2022, the Netherlands had not yet officially submitted its RRP.

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

Graph A3.1: **ESIF 2014-2020 Total budget by fund**



(1) EUR billion in current prices, % of total
(2) Please note that the data for the EAFRD refers to the period 2014-2022 according to EU regulation 2020/2220 laying down certain transitional provision for support from the EAFRD and EAGF in the years 2021 and 2022.
Source: European Commission, Cohesion Open Data

In 2021-2027, EU cohesion policy funds ([38]) will support long-term development objectives in the Netherlands by investing EUR 1.92 billion ([39]). This includes EUR 623.1 million from the Just Transition Fund directed at alleviating the socio-economic impacts of the green transition in the most vulnerable regions. The 2021-2027 cohesion policy funds partnership agreements and programmes take into account the 2019-2020 country-specific recommendations and investment guidance provided as part of the European Semester. In addition, the Netherlands will benefit from EUR 4.1 billion support for the 2023-27 period from the Common Agricultural Policy, which supports social, environmental, and economic sustainability and innovation in agriculture and rural areas, contributing to the European Green Deal, and ensuring long-term food security.

In 2014-2020, the European Structural and Investment Funds (ESIF) allocated EUR 2.73 billion ([40]) from the EU budget to the Netherlands, with another EUR 2.18 billion from national financing (Graph A3.1**), representing around 0.1% of GDP for 2014-2020 annually and 2.5% of public investment ([41]).** By 31 December 2021, the total ESIF budget was allocated to specific projects and 60% was reported as spent, leaving EUR 1.97 billion to be spent by the end of 2023 ([42]). Among the 11 objectives the most relevant ones for cohesion policy funding in the Netherlands are research and innovation, low-carbon economy, sustainable and quality employment and social inclusion, (EUR 2.25 billion in total). By the end of 2020, cohesion policy investments supported over 8 000 businesses, of which around 2 700 aimed to introduce new products to the market. 760 businesses received support to cooperate with research institutions. Private investment matching the support for R&D and innovation projects adds up to almost EUR 614 million. Cohesion policy also helped over 589 000 people on join the labour market and financed dedicated traineeships that led to jobs being offered to almost 111 000 trainees who would otherwise have had very little chances on the labour market.

Cohesion policy funds already substantially contribute to the Sustainable Development Goals (SDGs) objectives. In the Netherlands, these funds are supporting 5 of the 17 SDGs with up to 98% of expenditure contributing to the attainment of the goals.

The REACT-EU instrument (Recovery Assistance for Cohesion and the Territories of the EU) under NextGeneration EU provided EUR 668.4 million of additional funding to 2014-2020 cohesion policy allocations for the Netherlands to ensure a balanced recovery,

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

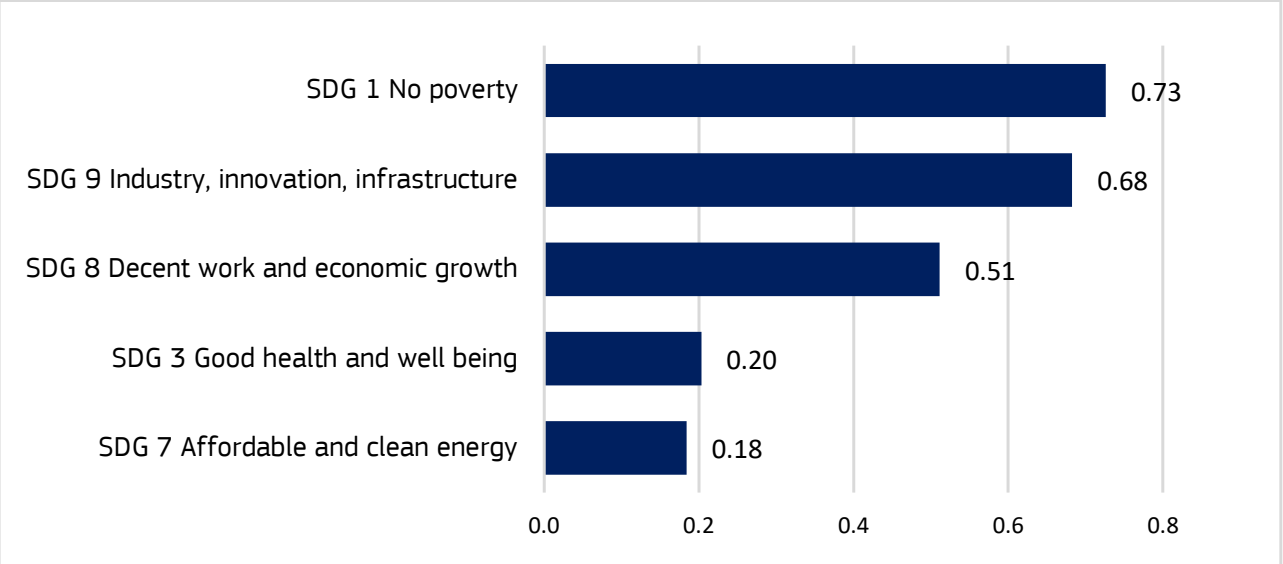
([39]) Current prices, Cohesion Open Data.

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

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

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

Graph A3.2: **Cohesion policy contribution to the SDGs (EUR billion)**



Source: European Commission

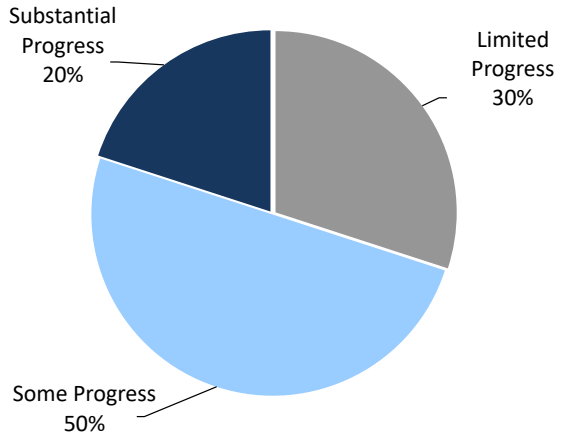
boost convergence and provide vital support to regions following the impact of the coronavirus outbreak. REACT-EU supports investments that help transition towards a digital and green economy and make the regional economy more resilient. It supports vulnerable groups that are hit hardest by the COVID-19 crisis by providing support and guidance in finding (new) work and developing the necessary basic and professional skills – also in light of the green and digital transitions.

The Commission provides tailor-made expertise via the Technical Support Instrument to help the Netherlands design and implement growth-enhancing reforms. Since 2019, the country has received assistance through 19 technical support projects. Projects delivered in 2021 aimed for example to improve local employment services or accelerating the implementation of car sharing strategies. In 2022, new projects will start to support, amongst others, the integration of non-EU nationals in the Netherlands.

The Netherlands benefits also from other EU programmes, such as the Connecting Europe Facility, which allocated EU funding of EUR 585.6 million to specific projects on strategic transport networks, and Horizon 2020, which allocated EU funding of EUR 5 330 million.

The Commission assessed the 2019-2021 country-specific recommendations (CSRs) ([43]) addressed to the Netherlands in the context of the European Semester. The assessment takes into account the policy action taken by the Netherlands to date. Overall, 70% of the CSRs focusing on structural issues in 2019 and 2020 have recorded at least "some progress", while 30% recorded "limited" (see Graph A4.1).

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



Source: European Commission

([43]) 2021 CSRs: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021H0729%2819%29&qid=1627675454457

2020 CSRs: https://eur-lex.europa.eu/search.html?textScope0=ti&lang=en&scope=EURLEX&qid=1526385017799&type=quick&AU_CODED=CONSIL&DD_YEAR=2020&andText0=recommendation&DD_MONTH=07

2019 CSRs: https://eur-lex.europa.eu/search.html?textScope0=ti&lang=en&scope=EURLEX&qid=1526385017799&type=quick&AU_CODED=CONSIL&DD_YEAR=2019&andText0=recommendation&DD_MONTH=07

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

Netherlands	Assessment in May 2022
2019 CSR1	**Some Progress**
Reduce the debt bias for households and the distortions in the housing market, including by supporting the development of the private rental sector.	Limited Progress
Ensure that the second pillar of the pension system is more transparent, inter-generationally fairer and more resilient to shocks.	Some Progress
Implement policies to increase household disposable income, including by strengthening the conditions that support wage growth, while respecting the role of social partners.	Some Progress
Address features of the tax system that may facilitate aggressive tax planning, in particular by means of outbound payments, notably by implementing the announced measures.	Substantial Progress
2019 CSR 2	**Limited Progress**
Reduce the incentives for the self-employed without employees, while promoting adequate social protection for the self-employed,	Limited Progress
and tackle bogus self-employment.	Limited Progress
Strengthen comprehensive life-long learning and upgrade skills notably of those at the margins of the labour market and the inactive.	Some Progress
2019 CSR 3	**Some Progress**
While respecting the medium-term budgetary objective, use fiscal and structural policies to support an upward trend in investment.	Not relevant anymore
Focus investment-related economic policy on research and development in particular in the private sector,	Some Progress
on renewable energy, energy efficiency and greenhouse gas emissions reduction strategies	Some Progress
and on addressing transport bottlenecks.	Some Progress
2020 CSR1	**Some Progress**
In line with the general escape clause, take all necessary measures to effectively address the pandemic, sustain the economy and support the ensuing recovery. When economic conditions allow, pursue fiscal policies aimed at achieving prudent medium-term fiscal positions and ensuring debt sustainability, while enhancing investment.	Not relevant anymore
Strengthen the resilience of the health system, including by tackling the existing shortages of health workers and stepping up the deployment of relevant e-Health tools.	Some Progress
2020 CSR2	**Some Progress**
Mitigate the employment and social impact of the crisis and	Substantial Progress
promote adequate social protection for the self-employed.	Limited Progress
2020 CSR 3	**Some Progress**
Front-load mature public investment projects (to foster the economic recovery)	Limited Progress
and promote private investment to foster the economic recovery.	Limited Progress
Focus investment on the green and digital transition, in particular on digital skills development,	Some Progress
sustainable infrastructure and clean and efficient production and use of energy	Some Progress
as well as mission-oriented research and innovation.	Substantial Progress
2020 CSR 4	**Some Progress**
Take steps to fully address features of the tax system that facilitate aggressive tax planning in particular on outbound payments, notably by implementing the adopted measures and ensuring its effectiveness.	Substantial Progress
Ensure effective supervision and enforcement of the anti-money laundering framework.	Some Progress
2021 CSR1	**Substantial Progress**
In 2022, pursue a supportive fiscal stance, including the impulse provided by the Recovery and Resilience Facility, and preserve nationally financed investment.	Full Implementation
When economic conditions allow, pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring fiscal sustainability in the medium term.	Substantial Progress
At the same time, enhance investment to boost growth potential. Pay particular attention to the composition of public finances, on both the revenue and expenditure sides of the budget, and to the quality of budgetary measures in order to ensure a sustainable and inclusive recovery. Prioritise sustainable and growth-enhancing investment, in particular investment supporting the green and digital transition.	Some Progress
Give priority to fiscal structural reforms that will help provide financing for public policy priorities and contribute to the long-term sustainability of public finances, including, where relevant, by strengthening the coverage, adequacy and sustainability of health and social protection systems for all.	Substantial Progress

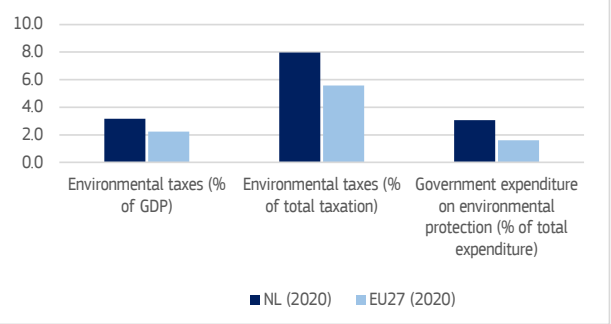
Source: European Commission

ANNEX 5: GREEN DEAL

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

Greenhouse gas emission intensity has dropped substantially in recent years in the Netherlands, but further efforts are needed. Between 1990 and 2019 (2020), economy-wide greenhouse gas (GHG) emissions (excluding land use) in the Netherlands fell by 14% (23%), which is less than the EU average. Although its economy has an emission intensity similar to the EU average, emissions per capita are above the EU average. The Dutch Climate Act set an economy-wide target of reducing GHG emissions to 48% below 1990 levels by 2030. The Netherlands has largely overachieved its 2020 target of reducing emissions in sectors not covered by the EU Emissions Trading System by -16% compared to 2005. In its National Energy and Climate Plan, it intends to achieve the same reductions as its current effort sharing target for 2030 of -36%. The proposed new Effort Sharing Regulation target for the Netherlands is a reduction of 48%. Under current land management practices, the Netherlands is projected to see higher net emissions by 2030.

Graph A5.1: **Fiscal aspects of the green transition**

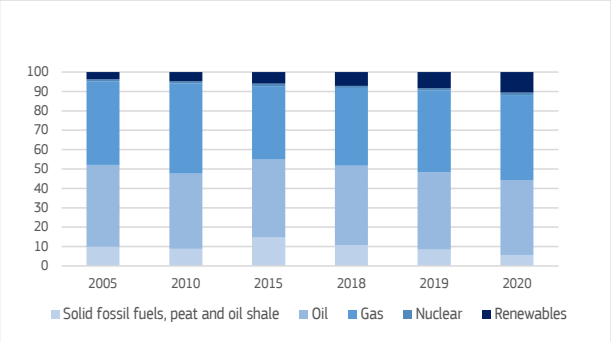


(1) Taxation and government expenditure on environmental protection.
Source: Eurostat

Both environmental taxation and government expenditure on environmental protection in the Netherlands are above the EU average. Dutch tax revenues, both as a share of total tax revenues and a share of GDP, are above the EU average. Energy taxes largely drive the total, with a considerable share also being attributed to transport taxes. A small percentage also goes to taxes on pollution. At the same time, the Dutch government spends a higher share of its expenditure on environmental protection than the EU overall. Fossil fuel subsidies have shown a steady decline since 2016. Budgetary exposure to climate hazards (i.e. the climate risk to public sector finances due to uninsured assets) is considered low/moderate, with the exception of flooding. For more indicators on taxation, see Annex 18.

The Netherlands has a relatively low share of renewable energy in gross inland consumption (11%). Fossil energy carriers still constitute the majority of the energy mix with 39% oil and petroleum and 44% natural gas. With domestic gas production being reduced significantly, the Netherlands is moving from being a large exporter to a large importer of natural gas. As a result, it required statistical transfers to meet its 2020 renewable energy target, and still requires significant investment to reach its renewable energy contribution to the EU 2030 target of 27% of gross final energy consumption.

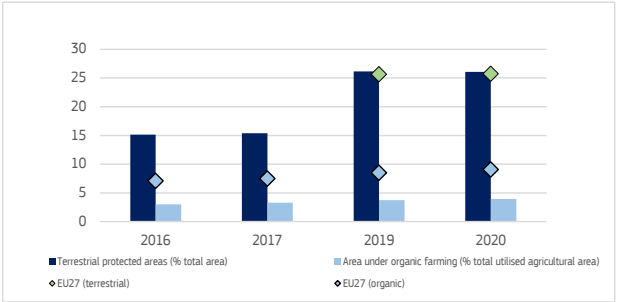
Graph A5.2: **Thematic – Energy**
Share in energy mix (solids, oil, gas, nuclear, renewables)



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

Biodiversity protection presents significant challenges, with more than three quarters of the protected habitats and species having unfavourable conservation status. The share of assessments for habitats with good conservation status has increased, notably those not affected by nitrogen. At the same time, the share of habitats with bad conservation status has increased to 58.85% and the share of assessments for species with bad conservation status has decreased to 38.75%. The main pressures are agriculture, human-induced changes in the water regime and natural processes. One main reason for the deterioration of habitats is the continued high pressure from agriculture and the changes in water regime (drainage). As to protected species, the share of assessments in good conservation status in 2018 was 26.25%, more than the 22.78% reported under the previous reporting period (2007-2012). Of the forest habitats protected under the EU nature directives, none show a favourable conservation status. On birds, 58% of the breeding species showed short-term rising or stable population trends (62% for key wintering species).

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



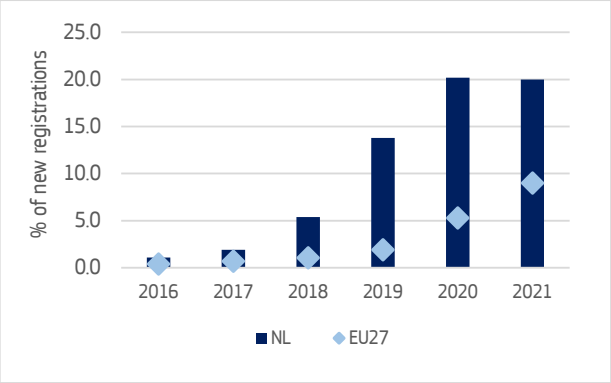
(1) For terrestrial protected areas data for 2018, and data for the EU average (2016, 2017) is lacking. The change in terrestrial protected areas between 2017 and 2019 is partly due to a change in national methodology of protected areas definition.
Source: EEA and Eurostat

The main challenges are water quality, which is greatly affected by nitrogen deposition, and air pollution due to nitrates and ammonia. Land use and highly intensive agriculture affect nature and biodiversity. Air quality in the Netherlands continues to give cause for serious concern, with ([44]) 78 % of surface water bodies affected, but also by dams, barriers and locks. Nitrogen deposition stems mainly from agriculture and traffic and specific measures still need to be discussed. The Netherlands needs to substantially strengthen its nitrate action programme with measures that match the severity and urgency of the situation, in line with the obligations under the Nitrates Directive. It also needs to ensure that it achieves the objectives of the Water Framework Directive, Natura 2000 and air quality legislation.

In terms of sustainable mobility, the Netherlands has a very dynamic deployment of zero-emission vehicles and a high share of electrification in its railway network.

([44]) European Environment Agency. Air Quality in Europe – 2021 Report. For details on the underpinning methodology, see page 106.

Graph A5.4: **Thematic - Mobility**
Share of zero emission vehicles (% of new registrations)



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

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

						Target	Distance		'Fit for 55' Target	'Fit for 55' Distance	
			2005	2019	2020	2030	WEM	WAM	2030	WEM	WAM
Progress to policy targets	Non-ETS GHG emission reduction target [1]	MTCO2 eq; %; pp [2]	128.1	-24%	-29%	-36%	-7	-7	-48%	-19	-19

			2005	2016	2017	2018	2019	2020	National contribution to 2030 EU target
Progress to policy targets	Share of energy from renewable sources in gross final consumption of energy [1]	%	2%	6%	7%	7%	9%	14%	27%
	Energy efficiency: primary energy consumption [1]	Mtoe	70.1	65.1	65.0	64.3	63.5	58.4	46.6
	Energy efficiency: final energy consumption [1]	Mtoe	54.1	49.8	50.2	50.6	49.7	45.5	43.9

			NETHERLANDS						EU		
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	3.3	3.4	3.3	3.3	3.4	3.2	2.4	2.4	2.2
	Environmental taxes (% of total taxation)	% of taxation [3]	9.0	8.7	8.6	8.6	8.6	8.0	6.0	5.9	5.6
	Government expenditure on environmental protection	% of total exp.	3.02	3.18	3.19	3.26	3.25	3.06	1.66	1.70	1.61
	Investment in environmental protection	% of GDP [4]	0.69	0.49	0.50	0.51	-	-	0.42	0.38	0.41
	Fossil fuel subsidies	EUR2020bn	0.55	0.82	0.81	0.78	0.75	-	56.87	55.70	-
	Climate protection gap [5]	score 1-4	1.9 out of 4 (increase from historical level of 1). This is a low/medium risk category (4 being a high risk).								
Climate	Net GHG emissions	1990 = 100	88	88	90	87	86	76	79	76	69
	GHG emissions intensity of the economy	kg/EUR'10	0.33	0.32	0.30	0.29	0.27	0.26	0.32	0.31	0.30
	Energy intensity of the economy	kgoe/EUR'10	0.11	0.11	0.11	0.11	0.10	0.10	0.12	0.11	0.11
Energy	Final energy consumption (FEC)	2015=100	100.0	102.1	102.9	103.8	101.9	93.4	103.5	102.9	94.6
	FEC in residential building sector	2015=100	100.0	103.1	100.8	101.0	99.1	97.5	101.9	101.3	101.3
	FEC in services building sector	2015=100	100.0	100.6	102.9	102.6	100.5	96.0	102.4	100.1	94.4
Pollution	Smog-precursor emission intensity (to GDP) [4]	tonne/EUR'10 [6]	0.74	0.70	0.67	0.65	0.60	0.56	0.99	0.93	-
	Years of life lost caused due to air pollution by PM2.5	per 100.000 inh.	614	545	578	638	551	-	863	762	-
	Years of life lost due to air pollution by NO2	per 100.000 inh.	118	87	95	101	62	-	120	99	-
	Nitrate in ground water	mg NO3/litre	-	-	-	-	-	-	21.7	20.7	-
Biodiversity	Terrestrial protected areas	% of total	-	15.2	15.4	-	26.2	26.1	-	25.7	25.7
	Marine protected areas	% of total	-	25.6	-	-	25.6	-	-	10.7	-
	Organic farming	% of total utilised agricultural area	2.7	3.0	3.3	3.5	3.8	4.0	8.0	8.5	9.1

			2000-2006	2006-2012	2012-2018	00-06	06-12	12-18
	Net land take	per 10,000 km2	98.9	60.3	18.4	13.0	11.0	5.0

			2015	2016	2017	2018	2019	2020	2018	2019	2020
Mobility	GHG emissions intensity of transport (to GVA) [7]	kg/EUR'10	1.02	0.99	0.96	0.96	0.94	0.88	0.89	0.87	0.83
	Share of zero emission vehicles [8]	% in new registrations	0.7	1.1	1.9	5.4	13.9	20.5	1.0	1.9	5.4
	Number of plug-in electric vehicles per charging point		5	6	5	5	5	5	8	8	12
	Share of electrified railways	%	75.9	75.7	75.6	70.7	75.6	-	55.6	56.0	-
	Congestion (average number of hours spent in road congestion per year by a representative commuting driver)		30.2	31.3	31.9	32.4	32.8	-	28.9	28.8	-

			Year	NL	EU
Digital	Share of smart meters in total metering points [9] - electricity	% of total	2018	46.5	35.8
	Share of smart meters in total metering points [9] - gas	% of total	2018	46.6	13.1
	ICT used for environmental sustainability [10]	%	2021	63.6	65.9

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

The green transition not only encompasses improvements to environmental sustainability, but also includes a significant social dimension. While measures in this regard include the opportunity for sustainable growth and job creation, it must also be ensured that no one is left behind and all groups in society benefit from the transition.

The Netherlands has planned substantial green investments, considerable potential for job creation, while energy-intensive sectors remain fairly large. Social dimension challenges of access to transport and energy are less likely to be an issue.

The Netherlands laid down an ambitious package of green transition measures in its national energy and climate plan (NECP), to achieve a sustainable future for the country. The availability of sufficiently qualified professionals, especially technically skilled workers, is essential, with digital skills being increasingly needed across the economy. The European Social Fund Plus (ESF+) will help workers and job seekers find and keep employment, also in light of the green and digital transitions. The Just Transition Fund (EUR 623.1 million) will help mitigate the social impact of the transition in the most affected regions through up- and reskilling and increasing cross-sector mobility. Following the NECP, agreements have been made to draw up sectoral education and labour market agendas[1]. These include initiatives to strengthen labour market and training policies that should actively guide workers towards jobs in sustainable technologies across sectors and stimulate lifelong learning. On energy poverty, the Netherlands reports the number of households affected, but does not provide any specific measures beyond its existing and comprehensive anti-poverty policies.

On the employment dimension, the economy's carbon footprint has slightly decreased, and although energy-intensive sectors remain fairly large, the green economy could be further expanded as it provides considerable potential for job creation. The GHG emissions intensity of the Dutch economy decreased by 20% between 2015 and 2020 (in terms of gross value added) and is now 10% below the EU average, while the average carbon footprint per worker at 15.88 tonnes of GHG emissions is higher than the EU average (13.61 tonnes in the EU, see Graph A6.1). While no declining sectors have been identified ([45]), the Dutch energy-intensive industry (EII), including natural gas extraction, shipping and chemicals ([46]), provides jobs for 1.3% of the total employed workforce, for which up- and reskilling could be particularly important (see Annex 15). The environmental goods and services sector provides jobs to about 1.5% of the employed population (2.2% in the EU) ([47]), and wind and solar energy as well as energy efficiency improvements offer further opportunities for green jobs ([48]).

On the social dimension of the green transition, ensuring access to transport and energy appears less of a challenge in the Netherlands overall. A relatively low but stable share of the rural population is at risk of poverty (10.8% versus 18.7% in the EU in 2020) ([49]). The share of the population unable to keep their homes adequately warm decreased from 2.9% in 2015 to 2.4% in 2020, which is below the EU average (8%). Lower-income groups are affected most (see Graph A6.2). Consumption patterns vary across the population: the average carbon footprint of the top 10% emitters is about four times higher than that of the bottom 50% of the population (5.3 times in the EU).

Tax systems are key to ensuring a fair transition towards climate neutrality ([50]). The Netherlands' revenues from total environmental taxes have remained fairly constant over time (2015 to 2020), amounting to around 3.3% of GDP in 2020 (above the EU average of 2.2%). The

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

([46]) 2020 European Semester: Overview of Investment Guidance on the Just Transition Fund 2021-2027 per Member State (Annex D).

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

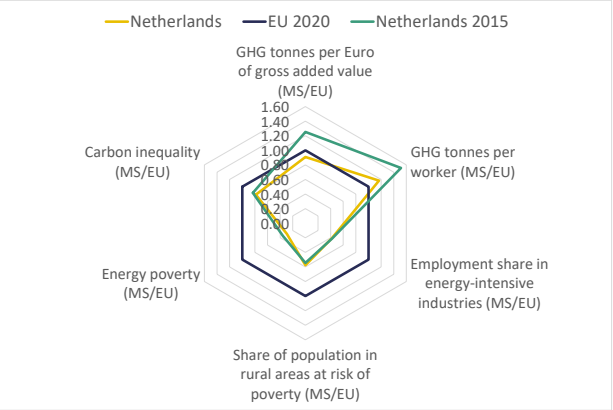
([48]) Asikainen, T., Bitat, A., Bol, E., Czako, V., Marmier, A., Muench, S., Murauskaite-Bull, I., Scapolo, F. and Stoermer, E (2021)., The future of jobs is green, EUR 30867 EN, Publications Office of the European Union, Luxembourg.

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

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

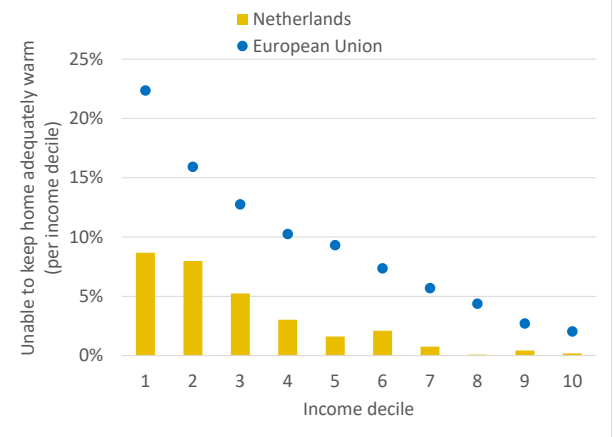
tax wedge for low-income earners ([51]) decreased from 26.9% to 23.9% from 2015 to 2019 (22% in 2021), compared to 31.9% in the EU in 2021 (see Annex 18). Redistributive measures accompanying environmental taxation have the potential to positively affect the disposable income of lower income households ([52]).

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



(1) Numbers are the normalised indicator performance signifying factors relative to the EU 27 average.
(2) Carbon inequality: average emissions per capita top 10% vs bottom 50% (2019).
Source: Eurostat, World Inequality Database

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



(1) HH050: Ability to keep home adequately warm.
(2) HY020: Total disposable household income.
Source: Eurostat EU-SILC survey (2020)

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

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

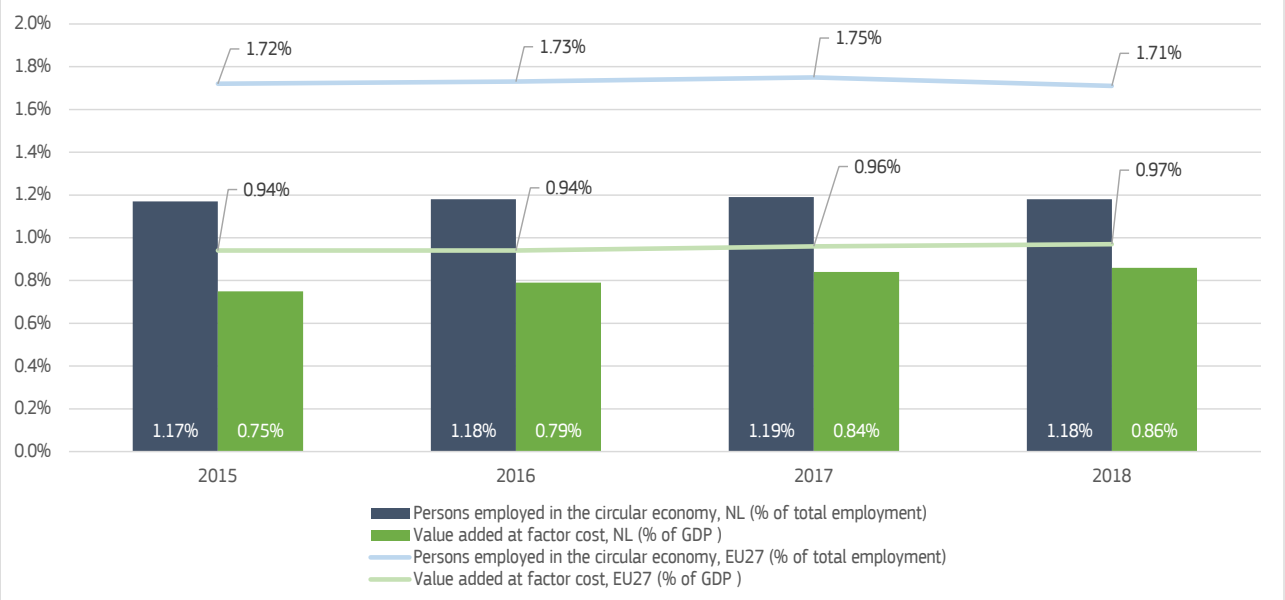
The efficient use of resources is key to ensuring competitiveness and open strategic autonomy, while minimizing the environmental impact. The green transition presents a major opportunity for European industry by creating markets for clean technologies and products. It will have an impact across the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

The Netherlands leads the EU first place in circular secondary material usage. With 28.5% use rate in 2016 and 30.9% in 2020, the country stands way above the EU average of 12.8%. The programme 'A circular economy in the Netherlands by 2050' is one of the most far-reaching in the EU. Green public procurement already exceeds Commission recommendations. The country has several circular procurement practices in place and the 'green deal' programme includes a number of pilots and guidance for functional specifications. Overall, The Netherlands is a frontrunner in the circular economy policy framework.

The Netherlands is the best performer in terms of resource productivity and is well above the EU average. Resource productivity expresses how efficiently the economy uses material resources to produce wealth. Improving this can help to minimise negative impacts on the environment and reduce dependency on volatile raw material markets. Resource productivity in the Netherlands is 5 purchasing power standards (PPS) generated per kg of material consumed in 2020, while the EU average is 2.2 PPS per kg. The country uses innovative public-private partnerships (Green Deals). Small businesses are also becoming increasingly circular.

The Netherlands' economic growth is not yet decoupled from the generation of waste. Total waste generation remains at high levels (8.4 kg per person in 2018, whereas 8.3 kg per person in 2016), above the annual EU average of 5.2 kg per person. The Dutch municipal waste recycling rate is around 57%, well above the EU average of around 48%, and above the 2020 and 2025 EU targets of 50% and 55% respectively. Recycling remains the main form of treatment of municipal waste, while landfilling, at 3%, is well below the EU average as a result of landfill taxes and bans. This comparatively high value illustrates the advanced level of waste management in the Netherlands. However, in relation to waste generation and management, the Netherlands' overall performance is good taking into account the indicator for recycling and circular material use. In any case, waste prevention and re-use are the most preferred options and top the waste

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



Source: Eurostat

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

Key indicators - Netherlands

SUB-POLICY AREA	2015	2016	2017	2018	2019	2020	EU27
Circularity							
Resource Productivity (Purchasing power standard (PPS) per kilogram)	3.3	3.7	4.1	4.2	4.6	5.0	2.2
Material Intensity (kg/EUR)	0.3	0.3	0.2	0.2	0.2	0.2	0.4
Circular Material Use Rate (%)	25.8	28.5	29.7	28.9	30.0	30.9	12.8
Material footprint (Tones/capita)	7.9	7.9	7.3	7.4	7.4	-	14.6
Waste							
Waste generation (kg/capita, total waste)	-	8281	-	8429	-	-	5234
Landfilling (% of total waste treated)	-	2.2	-	3.1	-	-	38.5
Recycling rate (% of municipal waste)	51.8	53.5	54.6	55.9	56.9	56.8	47.8
Hazardous waste (% of municipal waste)	-	3.6	-	3.6	-	-	4.3
Competitiveness							
Gross value added in environmental goods and services sector (% of GDP)	2.1	2.2	2.3	2.2	2.3	2.4	2.3
Private investment in circular economy (% of GDP)	0.1	0.1	0.1	0.2	-	-	0.1

Source: Eurostat

hierarchy.

Further measures can help the Netherlands maintain its leading position in environmental technology. This relates in particular to sustainable product design, resource-efficient production processes, digital solutions, industrial symbiosis, remanufacturing in key value chains, alternatives to the unsustainable extraction of raw materials, and new circular business models. There is also scope to shift reusable and recyclable waste away from incineration, including through economic tools, to ensure that the post-2020 recycling targets, in particular on plastics, are met. This will require action to reduce the incineration of municipal waste.

The Digital Economy and Society Index (DESI) monitors EU Member States' digital progress. The areas of human capital, digital connectivity, the integration of digital technologies by businesses and digital public services reflect the Digital Decade's cardinal points ([53]). This annex describes the Netherlands' DESI performance.

While the Netherlands generally performs well as a digitally advanced country, the low share of ICT graduates is a concern as it may impair the Netherlands' ability to accelerate its digital transition. The Netherlands has the highest share of individuals with at least basic digital skills in the European Union. However, the share of ICT graduates continues to lag behind the EU average (3.1% compared to 3.9% according to the latest available data) and the share of enterprises with hard to fill ICT vacancies remains high (71.3% compared 55.4% at EU average in 2020). This lack of digital ICT personnel could harm further progress in the Dutch digital transition. Additionally, the share of female ICT specialists is also below the EU average (18% vs. 19%).

The Netherlands performs well in connectivity with a high level of 5G and Very High-Capacity Network (VHCN) coverage. The country continues to score well-above EU average in these connectivity dimensions. Nevertheless, the uptake of at least 100 Mbps speeds is below its potential, despite the available coverage, as households stick to lower speeds and broadband prices remain higher than the EU average. Mobile broadband uptake on the other hand appears to not be affected and reached 94% in 2021. However, despite the high 5G coverage, there is significant room for improvement in the quality, dependability, and capacity of the Dutch 5G network. The expansion of spectrum options beyond the current system of dynamic spectrum sharing – in particular, the launch of the 3.6 GHz band auction – is crucial in this regard.

Dutch businesses are successfully integrating new digital technologies, scoring above average in all key metrics, but more work is needed to reach the EU top performance for all advanced technologies. The share of enterprises using cloud is high above the EU average. The share of SMEs with at least a basic level of digital intensity as well as the use of Artificial Intelligence and big data by businesses are also above the EU average. However, the use of AI by businesses lags behind the use of cloud and big data.

The Netherlands is a frontrunner for the provision of digital public services. The country performs above the EU average for delivering digital public services to both citizens and businesses with some of the highest scores in the EU for both indicators.

([53]) 2030 Digital Compass: the European Way for the Digital Decade Communication, COM (2021) 118 final.

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

Human capital	Netherlands DESI 2020	Netherlands DESI 2021	Netherlands DESI 2022	EU DESI 2022	EU top-performance DESI 2022
At least basic digital skills	**NA**	**NA**	**79%**	**54%**	**79%**
% individuals			2021	2021	2021
ICT specialists	**5.6%**	**5.9%**	**6.7%**	**4.5%**	**8.0%**
% individuals in employment aged 15-74	2019	2020	2021	2021	2021
Female ICT specialists	**17%**	**18%**	**18%**	**19%**	**28%**
% ICT specialists	2019	2020	2021	2021	2021
Connectivity					
Fixed Very High Capacity Network (VHCN) coverage	**89%**	**90%**	**91%**	**70%**	**100%**
% households	2019	2020	2021	2021	2021
5G coverage (1)	**NA**	**80%**	**97%**	**66%**	**99.7%**
% populated areas		2020	2021	2021	2021
Integration of digital technology					
SMEs with at least a basic level of digital intensity	**NA**	**NA**	**75%**	**55%**	**86%**
% SMEs			2021	2021	2021
Big data	**22%**	**27%**	**27%**	**14%**	**31%**
% enterprises	2018	2020	2020	2020	2020
Cloud	**NA**	**NA**	**60%**	**34%**	**69%**
% enterprises			2021	2021	2021
Artificial Intelligence	**NA**	**NA**	**13%**	**8%**	**24%**
% enterprises			2021	2021	2021
Digital public services					
Digital public services for citizens	**NA**	**NA**	**85**	**75**	**100**
Score (0 to 100)			2021	2021	2021
Digital public services for businesses	**NA**	**NA**	**88**	**82**	**100**
Score (0 to 100)			2021	2021	2021

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

This Annex provides a general overview on the performance of the Dutch research and innovation system. According to the 2021 edition of the European Innovation Scoreboard ([54]), the Netherlands belongs to the group of strong innovation performers and scores well above the EU average. However, its innovation performance decreased slightly compared to previous years, when it was in the group of innovation leaders.

The Netherlands announced major R&D investment initiatives in 2020 and 2021. Their aim is to bring Dutch R&D investments closer to those of other Member States with similar levels of economic development. Total R&D intensity reached 2.29% in 2020, below the EU average of 2.32% and below the national target of 2.5%, initially set for 2020. While public R&D intensity remains below the EU average at 0.75% of GDP in 2020, against an EU average of 0.78% of GDP, and has decreased over time, business R&D expenditure has increased to reach the EU average. Through the EUR 20 billion National Growth Fund as well as a forthcoming EUR 5 billion R&D fund, the Netherlands is raising public R&D expenditure which also aims to stimulate (directly and indirectly) private R&D to boost further innovation. The innovation support could benefit from more focus on sustainability and reaching a wider range of companies. A potential policy lever to boost R&D investment while tackling persisting or emerging challenges to society could come from the mission-oriented innovation policy. This ambitious policy initiative links sectoral and technological challenges with the societal challenge approach by bringing together public and private stakeholders to develop shared knowledge agendas, vision and implementation.

The Netherlands performs below the EU average when it comes to new graduates in science, engineering and ICT. New graduates in science and engineering in the Netherlands amounted to 11.3% for 2019 when the EU average was 16.3% (see statistics below). Similarly, the number of graduates in computing is below the EU average and has remained stable over the years while demand for ICT professionals has shot up. This shortage of qualified personnel is still a significant challenge and does not correspond to the size and ambition of the Dutch economy to accelerate in the digital and green transitions.

([54]) 2021 European Innovation Scoreboard, Country profile: the Netherlands https://ec.europa.eu/docsroom/documents/45927.

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

The Netherlands	2010	2015	2018	2019	2020	Compound annual growth 2010-20	EU average
Key indicators							
R&D Intensity (GERD as % of GDP)	:	2.15	2.14	2.18	*2.29*	0,8(*)	*2.32*
Public expenditure on R&D as % of GDP	:	0.77	0.72	0.73	0.75	0(*)	*0.78*
Business enterprise expenditure on R&D (BERD) as % of GDP	:	1.38	1.42	1.46	1.54	1,3(*)	1.53
Quality of the R&I system							
Scientific publications of the country within the top 10% most cited publications worldwide as % of total publications of the country	16.1	15.4	15	:	:	-0.9	9.9
PCT patent applications per billion GDP (in PPS)	5.7	5.8	4.9	:	:	-1,7	3.5
Academia-business cooperation							
Public-private scientific co-publications as % of total publications	11.1	11.7	12.4	12.2	11.4	0.3	9.05
Human capital and skills availability							
New graduates in science & engineering per thousand pop. aged 25-34	9.2	:	10.8	11.3	:	6.1	16.3
Public support for business enterprise expenditure on R&D (BERD)							
Total public sector support for BERD as % of GDP	:	0.244	0.251	0.254	:	-0,7(**)	0.196
R&D tax incentives: foregone revenues as % of GDP	0.135	0.135	0.138	0.145	:	0.9	0.1
Green innovation							
Share of environment-related patents in total patent applications filed under PCT (%)	11,9	10,0	9,9	:	:	-2,2	12,8
Finance for innovation and Economic renewal							
Venture Capital (market statistics) as % of GDP	0.04	0.03	0.05	0.06	0.08	10.2	0.054
Employment in fast-growing enterprises in 50% most innovative sectors	5.2	4.8	4	6.6	6.9	3.2	5.5

(*) Compound annual growth 2013-2020.
(**) Compound annual growth 2013-2019.
Data: Eurostat, OECD, DG JRC, Science-Metrix (Scopus database and EPO's Patent Statistical database), Invest Europe.
Source: DG Research and Innovation - Common R&I Strategy and Foresight Service - Chief Economist Unit

Productivity growth is a critical driver of economic prosperity, well-being and convergence over the long run ([55]). A major source of productivity for the EU economy is a well-functioning Single Market, where fair and effective competition and a business-friendly environment is ensured, in which small and medium enterprises can operate and innovate without difficulty. Businesses and industry rely heavily on robust supply chains and are facing bottlenecks that bear a negative impact on firms' productivity levels, employment, turnover and entry/exit rates. This may impact the Member State's capacity to deliver on Europe's green and digital transformation.

While the Netherlands is a top performer in the EU in terms of productivity levels, it lags peers in terms of productivity growth. Labour productivity, measured by real GDP per hour worked, grew by only 0.4% on average between 2000 and 2018, less than half of the euro area and G7 average ([56]). At the same time, the Dutch economy has become more and more labour intensive, and several developments can explain this outcome. More than 60% of real GDP growth in the Netherlands in recent years comes from growth in labour input (total hours worked by all persons involved). Flexible working arrangements have bolstered this trend, in particular in the service sectors, which has lower overall productivity ([57]). The contribution of capital, both ICT and non-ICT, to GDP growth, which has higher productivity growth potential, has been decreasing over time, from 43% before 2015 to 15% in 2018.

The Netherlands has a generally friendly business environment but there are some areas of concern. The country performs above average in terms of single market indicators, especially in trade integration and market openness. Nonetheless, a number of big companies have moved their headquarters out of the country in recent years. A recent court ruling on climate issues has had an impact on the predictability of the business environment and business investment. Business dynamism in the Netherlands has been declining steadily since at least 2006, with a significant impact on productivity especially in services ([58]). Dutch SMEs' access to bank finance remains consistently below EU averages ([59]).

The Dutch economy is affected by acute labour shortages and is dependent on raw material imports. Labour shortages are one of the key concerns of companies. On average in 2021, 23% of companies in the Netherlands reported constraints due to labour shortages versus 17% in the EU. Towards the end of the year, shortages worsened further, with over 35% of all companies reporting constraints due to labour shortages. The Dutch economy is more dependent than other Member States on critical raw materials (import concentration index of 0.19 versus 0.17 in the EU).

([55]) Annual Sustainable Growth Survey 2022.

([56]) Productivity in the Netherlands, IMF, 2020.

([57]) JRC, 'Productivity in Europe', Factsheet – Netherlands, 2020.

([58]) CPB, 'The Contribution of Business Dynamics to Productivity Growth in the Netherlands', August 2021.

([59]) EIF composite index for loans and the SAFE survey.

Table A10.1:**Key Single Market and Industry Indicators (1 of 2)**

SUB-POLICY AREA	INDICATOR NAME	DESCRIPTION	2021	2020	2019	2018	2017	Growth rates	EU27 average*
HEADLINE INDICATORS									
Economic structure	Value added by source (domestic)	VA that depends on domestic intermediate inputs, % [source: OECD (TiVA), 2018]				65.83			**62.6%**
	Value added by source (EU)	VA imported from the rest of the EU, % [source: OECD (TiVA), 2018]				14.84			**19.7%**
	Value added by source (extra-EU)	% VA imported from the rest of the world, % [source: OECD (TiVA), 2018]				19.3			**17.6%**
Cost competitiveness	Producer energy price (industry)	Index (2015=100) [source: Eurostat, sts_inppd_a]	134.2	81.5	99.8	104.4	93.9	**42.9%**	**127.3**
RESILIENCE									
Shortages/supply chain disruptions	Material Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	22	6	9	8	7	**214%**	**26%**
	Labour Shortage using survey data	Average (across sectors) of firms facing constraints, % [source: ECFIN CBS]	19	11	19	18	10	**90%**	**14%**
	Sectoral producer prices	Average (across sectors), 2021 compared to 2020 and 2019, index [source:Eurostat]						**8.6%**	**5.4%**
Strategic dependencies	Concentration in selected raw materials	Import concentration a basket of critical raw materials, index [source: COMEXT]	0.19	0.18	0.19	0.18	0.2	**-5%**	**17%**
	Installed renewables electricity capacity	Share of renewable electricity to total capacity, % [source:Eurostat, nrg_inf_epc]		30.10	19.50	17.50	15.00	**101%**	
Investment dynamics	Net Private investments	Change in private capital stock, net of depreciation, % GDP [source: Ameco]		3.6	4.5	3.6	3.3	**9.1%**	**2.6%**
	Net Public investments	Change in public capital stock, net of depreciation, % GDP [source: Ameco]		0.2	0.3	0.4	0.3	**-33%**	**0.4%**

(*) latest available

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

Table A10.2:**Key Single Market and Industry Indicators (2 of 2)**

SINGLE MARKET									
Single Market integration	Intra-EU trade	Ratio of Intra-EU trade to Extra-EU trade, index [source: Ameco]	1.21	1.20	1.15	1.17	1.20	**1%**	**1.59**
Professional services restrictiveness	Regulatory restrictiveness indicator	Restrictiveness of access to and exercise of regulated professions (professions with above median restrictiveness, out of the 7 professions analysed in SWD (2021)185 [source: SWD (2021)185; SWD(2016)436 final])	0				1	**-100.0%**	**3.37**
Professional qualifications recognition	Recognition decisions w/o compensation	Professionals qualified in another EU MS applying to host MS, % over total decisions taken by host MS [source: Regulated professions database]	28.1						**45%**
Compliance - cooperation EC and MS	Transposition - overall	5 sub-indicators, sum of scores [source: Single Market Scoreboard]		Below average	Below average	Above average	Above average		
	Infringements - overall	4 sub-indicators, sum of scores [source: Single Market Scoreboard]		On average	Below average	Below average	On average		
Investment protection	Confidence in investment protection	Companies confident that their investment is protected by the law and courts of MS if something goes wrong, % of all firms surveyed [source: Flash Eurobarometer 504]	65						**56%**
BUSINESS ENVIRONMENT - SMEs									
Business demography	Bankruptcies	Index (2015=100) [source: Eurostat, sts_rb_a]		53.2	63.4	60.6	64.7	**-17.8%**	**70.1 (2020)**
	Business registrations	Index (2015=100) [source: Eurostat, sts_rb_a]		121.2	126.1	111.8	106.2	**0.141**	**105.6**
Access to finance	Late payments	Share of SMEs experiencing late payments in past 6 months, % [source: SAFE]	22.7	25	33.1	n.a.	n.a.	**-31%**	**45%**
	EIF Access to finance index - Loan	Composite: SME external financing over last 6 months, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.33	0.28	0.21	0.29	**15.0%**	**0.56 (2020)**
	EIF Access to finance index - Equity	Composite: VC/GDP, IPO/GDP, SMEs using equity, index from 0 to 1 (the higher the better) [source: EIF SME Access to Finance Index]		0.33	0.17	0.38	0.43	**-21.9%**	**0.18 (2020)**
	% of rejected or refused loans	SMEs whose bank loans' applications were refused or rejected, % [source: SAFE]	16.5	28.2	18.4	2.7	16.4	**0.9%**	**12.4%**
Public procurement	SME contractors	Contractors which are SMEs, % of total [source: Single Market Scoreboard]		67	66	63	72	**-6.9%**	**63%**
	SME bids	Bids from SMEs, % of total [source: Single Market Scoreboard]		74	75	71	70	**6%**	**70.8%**

(*) latest available

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

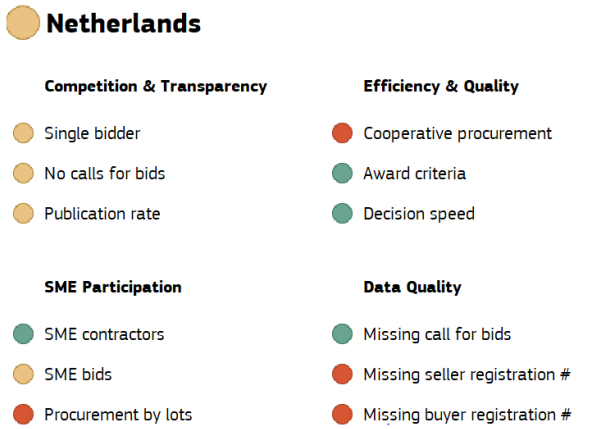
Good administrative capacity enables economic prosperity, social progress and fairness. Public administrations at all government levels deliver crisis response, ensure the provision of public services and contribute building the resilience needed for the sustainable development of the European economy.

Public administration in the Netherlands is among the most effective in the EU ([60]). The country is among the EU's best performers in terms of digital public administration, with a medium-high level of digitalisation (NL: 85%, EU: 71%). It offers 94% of services digitally (EU: 81%) ([61]). The share of e-government users has increased throughout the COVID-19 pandemic, reaching 92%.

The Netherlands has a well-functioning fiscal framework and ranks around the EU average on public procurement. The quality of budgetary planning and the strength of fiscal rules have been consistently above the EU average for the past four years. There is however, room for improvement in public procurement given the relatively low use of centralised procurement and the low scores in indicators measuring data quality in procurement (Graph A11.1).

The Netherlands is well above the EU average on evidence-based policy making (NL: 2.07, EU: 1.67). It is among the EU countries resorting most frequently to stakeholder consultation and *ex-post* evaluation of legislation. However, businesses consistently identified fast changing legislation as a problem encountered when doing business nationally (41% in both 2017 and 2019) ([62]).

Graph A11.1: **Performance on the single market public procurement indicator**



(1) The competition and transparency indicators are triple-weighted, whereas the efficiency and quality indicators have unitary weights. All others receive a 1/3 weighting in the SMS composite indicator.
Source: Single Market Scoreboard, 2020 data.

The justice system performs efficiently overall. The length of proceedings at first instance is short, in particular for civil and commercial cases, while the efficiency of administrative justice has somewhat decreased at first instance. The overall quality of the justice system is good, although the level of digitalisation could be further improved. For 2022, the government envisages increased funding for the legal aid system, given certain concerns over the adequacy of its funding ([63]). As regards judicial independence, no systemic deficiencies have been reported ([64]).

([60]) Worldwide Governance Indicators, 2020. The Netherlands scores 1.9 on a scale from -2.5 to 2.5.

([61]) eGovernment Benchmark 2021, European Commission.

([62]) European Commission, Flash Eurobarometer 482, 2019: https://europa.eu/eurobarometer/surveys/detail/2248.

([63]) See also the Commission's 2021 Rule of Law Report Country Chapter on the rule of law situation in the Netherlands.

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

Table A11.1:**Public administration indicators - Netherlands**

NL	Indicator (1)	2017	2018	2019	2020	2021	EU27
E-government							
1	Share of individuals who used internet within the last year to interact with public authorities (%)	82.0	86.0	84.0	91.0	92.0	70.8
2	2021 e-government benchmark´s overall score (2)	na	na	na	na	85.1	70.9
Open government and independent fiscal institutions							
3	2021 open data maturity index	na	na	na	na	91.6	81.1
4	Scope Index of Fiscal Institutions	70.5	70.5	70.5	70.5	na	56.8
Educational attainment level, adult learning, gender parity and ageing							
5	Share of public administration employees with tertiary education, levels 5-8 (3)	53.2	53.9	56.1	58.6	57.6	55.3
6	Participation rate of public administration employees in adult learning (3)	26.9	26.4	25.9	24.9	37.4	18.6
7	Gender parity in senior civil service positions (4)	32.8	31.2	25.4	23.4	20.2	21.8
8	Share of public sector workers between 55 and 74 years (3)	26.2	27.3	27.2	26.3	26.7	21.3
Public Financial Management							
9	Medium term budgetary framework index	0.85	0.85	0.85	0.85	na	0.72
10	Strength of fiscal rules index	2.3	2.3	2.3	2.3	na	1.5
11	Public procurement composite indicator	-3.0	3.0	0.0	0.7	na	-0.7
Evidence-based policy making							
12	Index of regulatory policy and governance practices in the areas of stakeholder engagement, Regulatory Impact Assessment (RIA) and ex post evaluation of legislation	1.89	na	na	2.07	na	1.7

(1) High values stand for good performance barring indicators # 7 and 8. (2) Measures the user centricity (including for cross-border services) and transparency of digital public services as well as the existence of key enablers for the provision of those services. (3) Break in the series in 2021. Also, for indicator 5: break in the series in 2019. (4) Defined as the absolute value of the difference between the share of men and women in senior civil service positions.

Source: ICT use survey, Eurostat (# 1); E-government benchmark report (# 2); Open data maturity report (# 3); Fiscal Governance Database (# 4, 9, 10); Labour Force Survey, Eurostat (# 5, 6, 8), European Institute for Gender Equality (# 7), Single Market Scoreboard public procurement composite indicator (# 11); OECD Indicators of Regulatory Policy and Governance (# 12).

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

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

Table A12.1:**Social scoreboard for the Netherlands**

Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	5.3
	Individuals' level of digital skills (% of population 16-74) (2021)	79.0
	Youth NEET (% of total population aged 15-29) (2021)	5.5
	Gender employment gap (percentage points) (2021)	8.2
	Income quintile ratio (S80/S20) (2020)	4.2
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	81.7
	Unemployment rate (% population aged 15-74) (2021)	4.2
	Long term unemployment (% population aged 15-74) (2021)	0.8
	GDHI per capita growth (2008=100) (2020)	106.9
Social protection and inclusion	At risk of poverty or social exclusion (in %) (2020)	16.0
	At risk of poverty or social exclusion for children (in %) (2020)	15.8
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	36.8
	Disability employment gap (ratio) (2020)	25.4
	Housing cost overburden (% of population) (2020)	8.3
	Children aged less than 3 years in formal childcare (% of under 3-years-olds) (2020)	67.6
	Self-reported unmet need for medical care (% of population 16+) (2020)	0.2

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

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

The Dutch labour market performs well overall, but significant challenges remain in terms of labour market segmentation and the unfavourable employment and social situation of certain groups. The employment rate in the Netherlands is well above the EU average (82.2% versus 74.4% in Q4 2021). However, the high level of both non-standard flexible and temporary contracts and the number of self-employed without employees, which have been growing strongly over the last decade, remain a concern and require further attention in terms of challenges related to equal opportunities, fair working conditions and adequate social protection. The COVID-19 pandemic exacerbated risks in an already highly segmented labour market. People with flexible contracts (in particular young people, lower skilled, people with a migrant background and/or with disabilities) were among the groups hit the hardest, together with the self-employed without employees. While the gender employment gap is on average 8.2 pps in 2021, part-time employment remains widespread, in particular among women. As a result, the gender pension gap in the Netherlands is one of the largest in the EU. Under the European Social Fund Plus (ESF+), the Netherlands will continue to invest in the active inclusion of vulnerable groups, among which people with a migrant background. ESF+ resources will be used to provide up and reskilling opportunities to workers at the margins of the labour market and to prevent job losses.

Increasing labour and skill shortages and inequalities in terms of access to education, adult learning and up- and reskilling pose challenges, also in view of the green and digital transition. Improving the labour market outcomes of groups in an unfavourable employment and/or vulnerable social situation would also help tackle labour shortages and activate the untapped labour and skills potential. After several years of weak growth, adult participation in learning over the past four weeks decreased in 2020, but much less than in most countries (by 0.7 pps compared to 2019), and at 18.8% it was still more than double the EU average (9.2%). Following a break in time series, the participation rate increased to 26.6% in 2021. However, outreach to those in a vulnerable labour market situation poses a challenge. Continued investment in improving basic, technical and digital skills, increasing cross-sector mobility and employability, as well as strengthening the quality and inclusiveness of education and training for all, is key for the Netherlands to contribute to reaching the 2030 EU headline target on skills.

While the at-risk-of-poverty or social exclusion rate in the Netherlands is stable and well below the EU average, challenges remain for specific groups, such as people with a migrant background and those with disabilities. In 2020, 36% of the non-EU-born living in the Netherlands were at risk of poverty or social exclusion, 22.5 pps higher than among the native-born. For people with a non-EU migrant background, the gap is driven by a more prevalent risk of poverty (29.7% versus 11.1% for the native-born), linked partly to a more unfavourable employment situation, by a higher rate of severe material deprivation (8.9% versus 1.1%) as well as greater prevalence of in-work poverty (14.9% versus 4.6%). More than a quarter (29.3%) of children with foreign-born parents were at risk of poverty in 2020, which is over three times higher than for children with native born parents (9%). In addition, 24.9% of people with disabilities were at risk of poverty or social exclusion in 2020 (versus 12% of those without). In-work poverty risks are higher for people on flexible and/or temporary contracts as well as for the self-employed without employees. Significant challenges in terms of access to adequate social protection also remain for the self-employed without employees. There is therefore scope for greater social policy action for the Netherlands to contribute to reaching the 2030 EU headline target on poverty reduction.

This Annex outlines the main challenges for the Netherlands' education and training system in light of the EU-level targets of the European Education Area Strategic Framework and other contextual indicators, based on the analysis from the 2021 Education and Training Monitor. The education and training system of the Netherlands performs well in terms of early school leaving and tertiary attainment but faces equity challenges. These are reflected in a long-term decline of basic skills and the differences in performance levels between schools are increasing.

Participation in early childhood education and care (ECEC) from age 3 is below the EU average; recent investment aims to improve quality and participation. From age 3, 90.5% of children participate in ECEC, which is below both the EU average and the EU-level target for 2030. For 2020, the government made extra investments to improve the quality of ECEC. The aim is to increase the number of participation hours, raise the qualification level of ECEC staff to tertiary level, and evaluate equal educational opportunities.

The rate of early school leaving is in line with the EU-level target, but there has been a decline in basic skills as measured by the OECD Programme for International Student Assessment (PISA). The Netherlands has already achieved the EU-level target (less than 9%) for early leavers from education and training. However, there is a downward trend in mean scores across the board over the long term. The proportion of underachievers is close to the EU-level target of 15% in mathematics but above it in science and especially in reading. The proportion of low achievers is especially high (56%) among pupils born abroad. Native-born pupils with a migrant background only partially catch up. Differences between schools have the strongest impact on pupils' performance of all EU countries, reflecting ability-based tracking from an early age and the uneven distribution of human resources. Evidence suggests that the pandemic has aggravated learning gaps. In response, in February 2021 the government announced an extraordinary additional investment in education to compensate

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

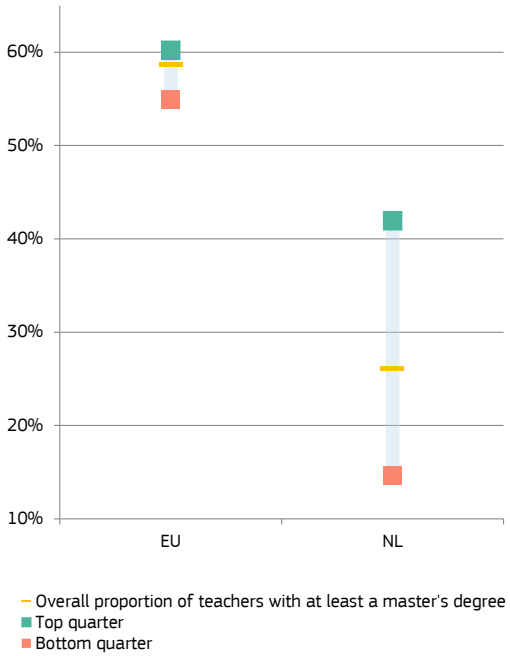
				2015		2021	
Indicator			**Target**	**Netherlands**	**EU27**	**Netherlands**	**EU27**
Participation in early childhood education (age 3+)			**96%**	**92.8%**	**91.9%**	**90.5%** 2019	**92.8%** 2019
Low achieving 15-year-olds in:		**Reading**	**< 15%**	**18.1%**	**20.4%**	**24.1%** 2018	**22.5%** 2018
		Mathematics	**< 15%**	**16.7%**	**22.2%**	**15.8%** 2018	**22.9%** 2018
		Science	**< 15%**	**18.5%**	**21.1%**	**20.0%** 2018	**22.3%** 2018
Early leavers from education and training (age 18-24)	**Total**		**< 9 %**	**8.2%**	**11.0%**	**5.3%**	**9.7%**
	By gender	*Men*		9.9%	12.5%	6.8%	11.4%
		Women		6.4%	9.4%	3.9%	7.9%
	By degree of urbanisation	*Cities*		7.6%	9.6%	5.2%	8.7%
		Rural areas		9.2%	12.2%	6.3%	10.0%
	By country of birth	*Native*		8.0%	10.0%	5.0%	8.5%
		EU-born		: u	20.7%	10.8%	21.4%
		Non EU-born		11.2%	23.4%	7.5%	21.6%
Tertiary educational attainment (age 25-34)	**Total**		**45%**	**45.1%**	**36.5%**	**55.6%**	**41.2%**
	By gender	*Men*		40.6%	31.2%	50.8%	35.7%
		Women		49.6%	41.8%	60.5%	46.8%
	By degree of urbanisation	*Cities*		51.9%	46.2%	61.6%	51.4%
		Rural areas		35.0%	26.9%	40.9%	29.6%
	By country of birth	*Native*		46.6%	37.7%	56.2%	42.1%
		EU-born		44.7%	32.7%	53.3%	40.7%
		Non EU-born		32.4%	27.0%	51.5%	34.7%
Share of school teachers (ISCED 1-3) who are 50 years or over				41.2%	38.3%	37.4% 2019	38.9% 2019

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

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

for the learning losses linked to the pandemic.

Graph A13.1: **Proportion of teachers with at least a master's degree, by schools' socio-economic profile, PISA 2018**



Source: OECD (2019), PISA 2018

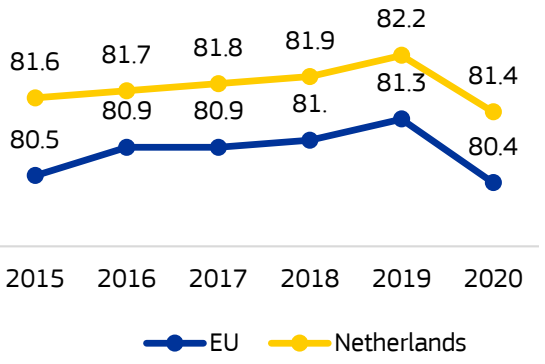
The shortage of teachers is increasingly challenging. The Netherlands faces a growing shortage of teachers. 35% of all primary teachers are aged 50 or over, and only one in three teachers works full-time. Teacher shortages are the highest in the 'Randstad', covering the four largest cities (Amsterdam, Rotterdam, The Hague and Utrecht) and their surrounding areas. The distribution of qualified teachers varies markedly by region, by school type and by composition of the school population. The difference in the share of teachers with at least masters' degree between schools with advantaged socio-economic and disadvantaged profiles is the biggest in the EU. Shortages are more acute in schools where the majority of pupils have a migrant background. The government took a series of measures, including raising teacher salaries, to reduce teacher shortages. The impact of these measures remains to be seen.

Tertiary attainment and graduate employment rates are well above the EU average. 55.6% of the population aged 25-34 holds a tertiary degree (EU: 41.2%). The attainment rate among the EU-born population from outside the Netherlands (53.3%) is close to that of the native population (56.2%) and is also relatively high among the non EU born (51.5%; EU average: 34.7%). The employment rate of recent tertiary graduates is very high, at 95.2% (EU average: 84.9%).

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

Life expectancy in the Netherlands is higher than in the EU as a whole, but fell in 2020 by more than 9 months due to COVID-19. As of 17 April 2022, the Netherlands reported 1.27 cumulative COVID-19 deaths per 1 000 inhabitants and 461 confirmed cumulative COVID-19 cases per 1 000 inhabitants. The Netherlands has one of the lowest mortality rates from treatable causes in the EU. Most people report good health, but sizeable disparities exist between income groups.

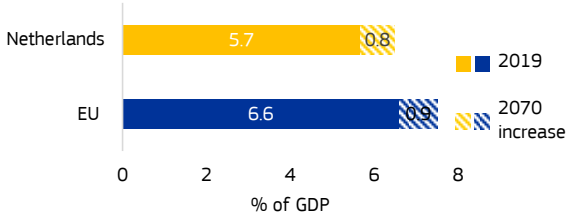
Graph A14.1: **Life expectancy at birth, years**



Source: Eurostat database

Health spending relative to GDP and per capita in the Netherlands was above the EU average in 2019. Public sources cover a high share of health expenditure, resulting in a low share of out-of-pocket payments. There is also a large voluntary health insurance sector, covering services outside the benefit package. Public expenditure on health as a share of GDP is projected to be slightly below the EU average for 2070 ([65]).

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



Source: European Commission/EPC (2021)

The Netherlands has a strong primary care system, but faces a shortage of certain health workers. General practices often struggle to find a replacement after retirement. While the number of nurses per resident is above the EU average, the nursing workforce is overburdened for example in hospitals. Although health care service provision is comparatively well developed, the Dutch system has been experiencing excessive waiting times in some outpatient departments and for some services (for instance, mental healthcare for children). Antimicrobial use is also much lower than the EU average.

The existing shortages of health workers were already part of the country-specific recommendations (CSRs) in 2020. The second challenge, which was part of the 2020 health CSRs, concerns the deployment of e-health tools. During the pandemic, teleconsultations helped maintain access to health services.

([65]) The 2021 Ageing Report: Economic and Budgetary Projections for the EU Member States (2019-2070), European Commission (ECFIN) and Ageing Working Group (EPC).

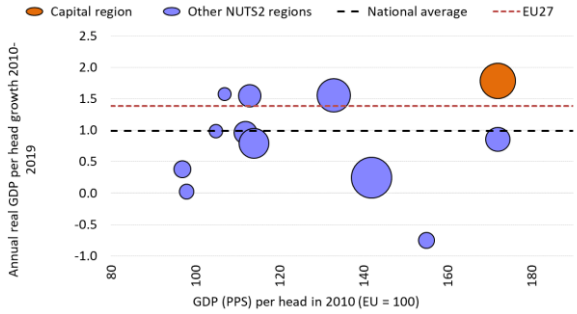
Table A14.1:**Key health indicators**

	2016	2017	2018	2019	2020	EU average (latest year)
Treatable mortality per 100 000 population (mortality avoidable through optimal quality healthcare)	68.9	65.0	64.6	61.3		92.1 (2017)
Cancer mortality per 100 000 population	285.1	276.7	269.7	266.6		252.5 (2017)
Current expenditure on health, % GDP	10.3	10.1	10.0	10.2		9.9 (2019)
Public share of health expenditure, % of current health expenditure	81.2	81.7	82.1	82.6		79.5 (2018)
Spending on prevention, % of current health expenditure	3.5	3.3	3.2	3.3		2.8 (2018)
Acute care beds per 100 000 population	290.0	277.8	274.1	261.7		387.4 (2019)
Doctors per 1 000 population *	3.5	3.6	3.7	3.7		3.8 (2018)
Nurses per 1 000 population *	10.7	10.9	11.2	10.7		8.2 (2018)
Consumption of antibacterials for systemic use in the community, daily defined dose per 1 000 inhabitants per day **	9.3	8.9	8.9	8.7	7.8	14.5 (2020)

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

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

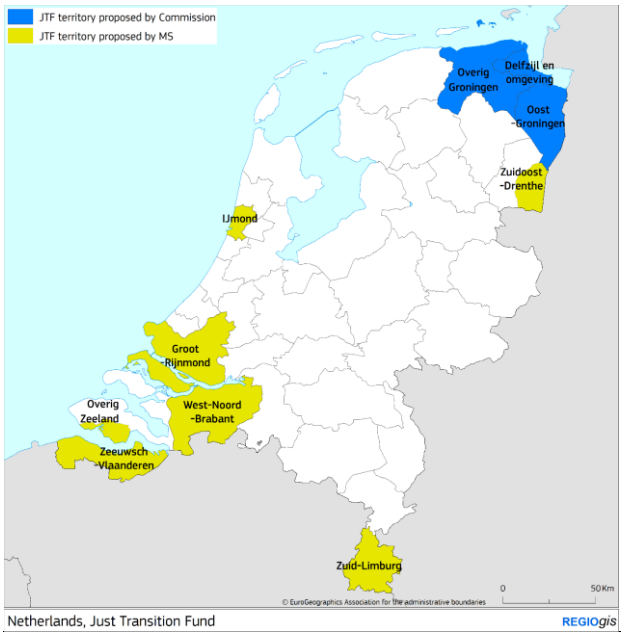
Graph A15.1: **GDP per head (2010) and GDP growth (2010-2019)**



Source: European Commission

Regional disparities are very low in the Netherlands and have been very stable over the last decade. The province of North Holland, where the capital Amsterdam is situated, had the highest GDP per head (170% of the EU average) in 2019. Three provinces - Drenthe, Friesland and Flevoland - have a GDP slightly below the EU average (87%, 88% and 96% respectively). This smaller variation in regional disparities is also reflected in relatively limited differences in regional household disposable income averages in 2019. These vary from 108% of the national average in Utrecht to 82% in Groningen. North Holland also had the highest GDP per head growth (1.8%) between 2010 and 2019, while the only region with a shrinking GDP is Groningen (-0.75). This negative GDP per head growth is primarily due to the reduction in gas extraction that is set to end in 2022. However, growth in Groningen excluding natural gas extraction was 1.1% in 2019. This implies a smaller difference in economic performance excluding gas extraction at regional level compared to the rest of the economy. Three other regions - Zeeland, North Brabant and Limburg - achieved a similar growth rate as North Holland. The two regions with the lowest GDP per head, Drenthe and Friesland also have fairly low growth rates: 0.02% and 0.38%.

Graph A15.2: **Territories most affected by the climate transition in the Netherlands**

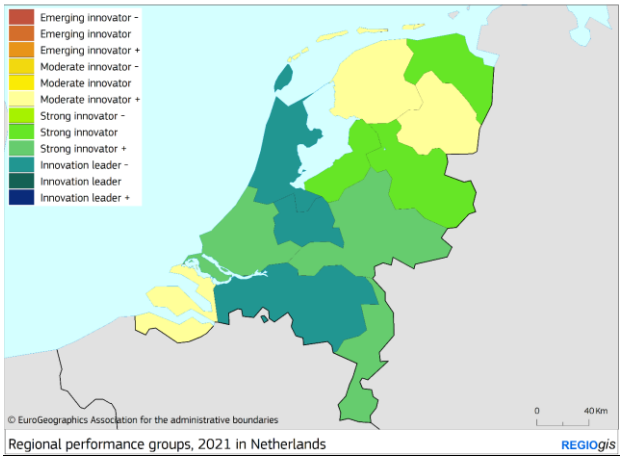


Source: European Commission

The relatively small differences in GDP per head are also reflected in small labour productivity gaps. North Holland and Utrecht are the most productive (132% and 122% of the EU average respectively), while Friesland and Drenthe are the least productive (85% and 87% of the EU average respectively). Average real productivity growth between 2010 and 2019 ranged from –1.3% in Groningen to 1.5% in North Holland.

The transition to a carbon-neutral economy affects regions in a differentiated way. Regions with clusters of emission-intensive industries in the Netherlands face particular challenges to reduce greenhouse gas emissions, sustainably transform their industries, develop alternative sustainable economic activities and provide for re- and upskilling of workers. These areas are Delfzijl/Eemshaven in the province of Groningen, the North-Sea channel area (Amsterdam/Ijmond), Rotterdam and West-North Brabant, Zeeuws-Vlaanderen and other areas in Zeeland, and South Limburg. Climate transition affects Groningen in particular due to the combined effects of the end of natural gas extraction and the emission reduction challenges in industry.

Graph A15.3: **Innovation performance in the Netherlands**



(1) Regional performance groups, 2021 in the Netherlands
Source: European Commission

Innovation performance is high in the Netherlands with some regional differences. While most provinces are strong innovators or leaders, Drenthe, Friesland and Zeeland qualify as moderate innovators. The latter three score slightly below the EU average in the Regional Innovation Index (2021). The innovation leaders North Holland, Utrecht and North Brabant score between 4.1pp and 5.7pp above the national average suggesting moderate regional differences.

The Netherlands has a high level of employment (80% in 2020) and a low unemployment rate (3.8% in 2020) with modest regional differences. Employment rates range from 74.5% in Groningen to 82.6% in Utrecht. The unemployment rate is the highest in Groningen at 5.2% followed by South Holland at 4.4%. The lowest rate is in Zeeland at 2.6%. Groningen has the highest share of the population at risk of poverty and social exclusion at 22%. In contrast to the upward trend in 2015-2019 and linked to the pandemic, the employment rate dropped in most regions in 2020. The unemployment rate showed a similar trend reversal in 2020 in most regions. These effects were cushioned by measures deployed by the Dutch authorities to mitigate the consequences of the covid-19 pandemic.

Labour shortages are growing in the Netherlands with the most recent figures (CBS, 2021) showing a record high increase in the number of vacancies. Labour market tightness affects the entire country. Some regions, among which Zeeland, Greater Amsterdam and some areas in Brabant, struggle with an extremely tight labour market.

All Dutch regions were affected by the COVID-19 pandemic. Mortality since week 9 of 2020 increased by between 5% and 19% compared to average mortality in the same weeks of 2015-2019. The impact of the pandemic impacted regions differently in line with the asymmetric impact of the crisis and different regional economies. North Holland was badly affected by the pandemic given the presence of the Schiphol airport and the importance of the hotel and catering industry in the region.

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

NUTS 2 Region	GDP per head (PPS)	Productivity (GVA (PPS) per person employed)	Real productivity growth	GDP per head growth	Employment rate	Unemployment rate	At-risk-of-poverty or social exclusion	Innovation performance
	EU27=100, 2019	EU27=100, 2018	Avg % change on preceding year, 2010-2019	Avg % change on preceding year, 2010-2019	% of pop. aged 20-64, 2020	% of active population, 2020	% of active population, 2020	RIS regional performance group
European Union	100	100	1.00	1.39	72.3	7.1		
Nederland	128	110	0.67	0.99	80.0	3.8	16.30	
Groningen	116	111	-1.44	-0.75	74.5	5.2	21.70	Strong innovator
Friesland (NL)	88	85	-0.53	0.38	80.1	3.9	16.70	Moderate innovator +
Drenthe	87	87	-0.33	0.02	78.4	3.7	15.00	Moderate innovator +
Overijssel	108	92	0.05	0.96	80.6	3.5	15.10	Strong innovator
Gelderland	108	97	0.36	0.79	80.2	3.5	14.90	Strong innovator +
Flevoland	96	102	0.73	0.98	81.3	3.9	15.00	Strong innovator
Utrecht	158	122	0.88	0.86	82.6	3.5	14.20	Leader innovator -
Noord-Holland	170	132	1.62	1.79	80.6	3.9	18.10	Leader innovator -
Zuid-Holland	126	113	0.47	0.24	79.0	4.4	18.30	Strong innovator +
Zeeland	103	99	0.81	1.58	81.0	2.6	14.60	Moderate innovator +
Noord-Brabant	130	107	0.96	1.56	81.9	3.5	13.90	Leader innovator -
Limburg (NL)	113	101	0.82	1.55	75.9	3.5	15.00	Strong innovator +

Source: Eurostat, *EDGAR Database

ANNEX 16: KEY FINANCIAL SECTOR DEVELOPMENTS

This Annex provides an overview of key developments in the financial sector of the Netherlands. The financial sector appears well capitalised and moderately profitable. Banks' assets increased in 2021 and their profitability recovered. Solvency is good, with a capital adequacy ratio of 22.7% in Q3-2021 (vs 19.3% in the EU). Credit quality is strong, with a steadily decreasing non-performing loans ratio of 1.5% in Q3 2021 (versus. 2.1% in the EU). Return on equity of 8.9% is the highest achieved in the last 5 years and better than levels registered compared to the EU-27 average (7.1% on average). Dutch banks have recently seen an increase in credit growth to non-financial corporations, but they need to manage the risk of persistently low interest rates, a sudden rise in inflation, and climate transition. Other challenges arise from soaring housing prices as well as from a commercial real estate market that has been badly affected by the pandemic. Risks related to money laundering and cybercrime also pose threats to financial institutions.

The residential real estate market exhibits high risks that are partially mitigated by macroprudential policy measures. The European Systemic Risk Board has identified several key vulnerabilities ([66]): signs of house price overvaluation, elevated house price growth, high household indebtedness, and loose lending standards. Over the past 5 years, Dutch housing prices have risen by an average of 8% per year, recording a 15.2% increase on average in 2021. This reduces the affordability of owner-occupied homes and results in higher risk-taking by homebuyers. In addition, interest-only borrowing has become more attractive again. Because the current risk weighting of mortgage loans takes insufficient account of the systemic risk of a housing market correction, as of 1 January 2022, under Article 458 of the Capital Requirements Regulation ([67]), the Dutch National Bank has introduced a floor for the risk weighting of mortgage loans. Moreover, it announced its intention to build up a countercyclical capital buffer that would increase banks' resilience to shocks.

([66]) ESRB, Vulnerabilities in the residential real estate sectors of the EEA countries, February 2022, https://www.esrb.europa.eu/news/pr/date/2022/html/esrb.pr220211~9393d5e991.en.html.

([67]) Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 (the Capital Requirements Regulation – CRR) on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (OJ L 176, 27.6.2013, p. 1).

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

	2017	2018	2019	2020	2021
Total assets of the banking sector (% of GDP)	322.0	299.9	297.0	317.5	310.6
Share (total assets) of the five largest bank (%)	83.8	84.7	84.7	84.3	-
Share (total assets) of domestic credit institutions (%)[1]	92.6	93.3	93.7	93.9	93.9
Financial soundness indicators:[1]					
- non-performing loans (% of total loans)	2.1	1.9	1.8	1.9	1.5
- capital adequacy ratio (%)	22.1	22.4	22.9	23.2	22.7
- return on equity (%)	8.8	8.1	7.7	3.0	8.9
NFC credit growth (year-on-year % change)	-0.7	-0.3	-1.0	1.6	7.0
HH credit growth (year-on-year % change)	0.0	0.2	0.2	-0.8	1.3
Cost-to-income ratio (%)[1]	57.3	59.8	58.1	58.2	55.4
Loan-to-deposit ratio (%)[1]	117.7	117.5	119.4	104.4	99.3
Central bank liquidity as % of liabilities	1.5	1.4	1.4	6.8	7.6
Private sector debt (% of GDP)	249.6	243.6	232.3	233.7	-
Long-term interest rate spread versus Bund (basis points)	20.4	17.9	18.3	13.3	4.4
Market funding ratio (%)	52.1	50.3	50.0	42.6	-
Green bond issuance (bn EUR)	8.8	8.9	21.8	18.6	25.9

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

The Macroeconomic Imbalance Procedure matrix presents the main elements of the in-depth review undertaken for the Netherlands in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances, as summarized in the Staff Working Document (SWD(2022)636) ([68]). For Member States selected in the 2022 Alert Mechanism Report it presents, separately for each source of imbalance and adjustment issue, the main findings regarding the gravity and the evolution of the identified challenges, as well as policy response and gaps.

The Netherlands is facing vulnerabilities relating to high private debt level and large current account surplus. The Netherlands has persistently recorded current account surpluses and private debt levels that are large both by international standards and fundamentals. The current account surplus largely stems from a surplus in goods trade. From a sectoral perspective, high savings and low domestic investments of non-financial corporations (NFC) are the main structural drivers of the continued high current account surplus, which rebounded to 9.5% of GDP in 2021. Private debt levels remain high, standing at 229% of GDP, due to both high NFC debt and high household debt. The latter is especially problematic as it makes households vulnerable to economic shocks, given that house prices seem to be overvalued and strong house price increases over the past years have contributed to rising nominal mortgage debt.

Going forward, the current account surplus and private debt will likely remain high. Household debt is expected to remain elevated on the basis of strong house price growth and the various distortions in the housing market that favour debt-financed home ownership. Expansionary spending plans by the government could dampen the current account surplus to some degree towards the end of the government's mandate. A worsening of the terms of trade and the relocation of Shell to the UK is expected to reduce the savings surplus in the Netherlands somewhat compared to 2021. However, as the main drivers underpinning the surplus remain in place, the overall level is expected to remain above the prudential threshold.

Policy progress has been limited. Notably, despite a gradual reduction in the mortgage interest deductibility rate until 2023, a generous tax subsidy on owner-occupied housing will remain. In addition, there is a shortfall in housing supply, the private rental market remains underdeveloped and macroprudential regulation continues to be relatively lenient. Regarding the elevated current account surplus, incentives for firms to retain earnings have only been partially addressed and high mandatory household savings through the pension system will remain in place despite the second pillar pension reform that will enter into force in 2027. Simulations show that a full implementation of the expansionary spending plans could dampen the current account surplus over the coming years.

For those reasons, and more generally on the basis of the elements of the in-depth review undertaken for the Netherlands under Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances as summarised in the Staff Working Document (SWD (2022)636 final), **the Commission has considered in its Communication "European Semester – 2022 Spring Package" (COM(2022)600 final) that the Netherlands continues to experience macroeconomic imbalances.**

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

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

	Gravity of the challenge	Evolution and prospects	Policy response
	Imbalances (unsustainable trends, vulnerabilities and associated risks)		
Current account balance	The Netherlands has been running a current account surplus over the last three decades, it remains one of the highest in the euro area and is well above levels warranted by fundamentals (3.2% of GDP in 2021, according to Commission current account 'norm' estimates). Between 2017 and 2021, it averaged almost 10% of GDP per year. From a sectoral perspective, this reflects a persistent gap between savings and investment, with possible misallocation of resources, and has relevance for the euro area as a whole. A breakdown by institutional sector points to non-financial corporations as the largest contributor due to the large presence of multinationals, leading to a savings surplus of the corporate sector of 6.3% of GDP in 2021. Household savings are supported by substantial mandatory pension savings. The government sector also recorded headline savings surpluses before the pandemic.	Overall, the current account surplus increased in 2021 to 9.5% of GDP after a decrease in 2020. In terms of sectoral contributions, in 2021, curtailed consumption and precautionary savings following the COVID-19 crisis boosted the household surplus, which only decreased slightly from 6.3% of GDP in 2020 to 5.8% in 2021. A more pronounced drop in household net savings is forecast for 2022. The corporate surplus increased sharply in 2021, to 6.3% from 4.8%, in part due to rising oil prices and the resulting earnings of Shell. Due to the company's relocation to the UK, the company's net savings will no longer contribute to the NFC sector's net savings. The government's net borrowing was at 2.5% of GDP in 2021 and is forecast to stay at a similar level in 2022. The current account surplus is expected to decrease to 8.8% of GDP in 2022 and remain roughly at the same level in 2023 as structural drivers remain in place.	In 2021, the government has maintained an expansionary fiscal stance to support households and businesses in view of the continued impact of the COVID-19 crisis. Additional spending of EUR 79 billion is planned over the following three years, pointing to a continued expansionary fiscal stance, although a substantial portion of the expenditure is backloaded towards the end of the government's legislative term. Deficits for 2022 and 2023 are forecast at 2.7% and 2.1% of GDP. The second pillar pension reform that will enter into force in 2027 improves flexibility and intergenerational fairness, but will not substantially affect the system's high mandatory savings, one of the main structural drivers of the household sector's savings surplus. Incentives for firms to retain earnings have only been partially addressed in past years.
Private debt	Private debt in the Netherlands stood at 229% of GDP in 2021, one of the highest values in the EU and well above the fundamental and prudential benchmarks. Household debt, at 99.5% of GDP in 2021 and largely composed of mortgage debt, exceeds the fundamental benchmark by more than 25 %-points of GDP and the euro area average by some 50 %-points. The illiquidity of assets and high debt levels could make households vulnerable to house price corrections. Non-financial corporate (NFC) debt stood at 129.5% of GDP in 2021 exceeding the prudential threshold by 35 %-points and the fundamental benchmark by 15 %-points. It is largely driven by intra-group debt of multinationals and hence presents lower risk than the headline number suggests.	Household debt decreased slightly over 2021. Nominal mortgage growth came in at 4.1%. Despite the small decrease over 2021, total nominal household debt is expected to continue growing in nominal terms driven by house price growth and relatively lax macroprudential regulation. Corporate debt as a percentage of GDP decreased slightly in 2021. Fiscal support measures have met a significant part of firms' liquidity needs. Mortgage credit is likely to keep growing amid rising house prices. Denominator effects are however expected to keep private debt as a percentage of GDP relatively stable in the next few years.	The maximum rate at which mortgage interest can be deducted from taxable income will continue to decrease until 2023. However, a substantial subsidy on debt-financed homeownership will remain. Relatively lenient macroprudential regulation fuels household debt. Despite recommendations to the contrary by the European Systemic Risk Board (ESRB), the high loan-to-value ratio is likely to remain in place. Capital-based measures regarding risk-weights for mortgages have been tightened in January 2022 and may discourage mortgage lending by banks to some degree.
Housing Sector	House prices in the Netherlands have grown continuously in nominal and real terms since 2014. Between 2017 and 2020, they grew by almost 8% on average in nominal terms and by about 6% in real terms. Nominal growth over 2021 reached 15% on average. There are clear and increasing signs of overvaluation, with the overall valuation gap at 23% in 2021. Price growth is driven by tax incentives for (debt-financed) home ownership combined with structurally insufficient housing supply.	House prices accelerated in 2021. In December 2021, house prices were about 20% above their level of the same month in 2020. According to Commission estimates, the average valuation gap has more than doubled over 2021. Pent-up household savings and new incentives towards home ownership combined with long-standing structural factors favouring home ownership and low interest rates drove the surge. As structural drivers remain in place, prices are expected to keep increasing over the next year, although at a lower rate than in 2021.	The authorities have implemented changes to the transfer tax on house purchases. The tax (which stood at 2%) was abolished for first-time house buyers and raised for buy-to-let investors. This measure increases the bias towards owner-occupancy and could further undermine the private rental market. Mortgage interest deductibility (see above) is another incentive favouring home ownership. The target for construction of new houses will be increased significantly, which could help ease demand pressures. However, obstacles to increase supply remain.

Source: European Commission

This Annex provides an indicator-based overview of the Netherlands' tax system. It includes information on the tax structure, i.e. the types of tax that the Netherlands derives most revenue from, the tax burden for workers, and the progressivity and redistributive effect of the tax system. It also provides information on tax collection and compliance on the risks of aggressive tax planning activity, which still appears high according to the current data.

The Netherlands is among the countries with the highest tax revenues in relation to GDP worldwide, and relies heavily on labour taxes. The ratio of total tax revenues to GDP remained slightly below the EU aggregate in 2020, despite a relatively strong increase between 2010 and 2020 (up 11.8%, which was almost twice the increase compared to the EU aggregate, i.e. 6.1%, during the same period). The main sources of tax revenues in the Netherlands in 2020 were labour taxes (20.6% of GDP) and consumption taxes (11.7% of GDP), for which the values were close to the EU aggregate. Revenues from environmental taxes as a percentage of GDP were among the highest in all Member States. Revenues from property taxes were slightly below the EU average, as were revenues from recurrent property taxes, which are particularly conducive to growth. Increased use of recurrent property taxes could also be beneficial given the housing market imbalances faced by the Netherlands and generous mortgage interest tax relief, which encourages the build-up of household debt.

The Netherlands' labour tax burden is low for different wage levels. Its tax wedge in 2020 was considerably lower than the EU average at various income levels, i.e. for single people at the average wage (100%) as well as at 50%, 67% and 167% of the average wage. Second earners earning 67% of the average wage, whose spouse earns the average wage, also faced a considerably lower tax wedge than the EU average. The difference between their tax wedge and that of single people at the same wage level was also lower than the EU average. The tax-benefit system helped reduce inequality as measured by the GINI coefficient by slightly more than the EU average in 2020.

Data suggest that the Dutch tax system is being used for aggressive tax planning purposes, but reforms have recently been introduced. The flows of interest, royalty and dividend payments made from and to the Netherlands remain very high – 45.2% of Dutch GDP in 2020, compared with an average of 10.5% of EU GDP in 2019 (last available year) – albeit decreasing from 63.1% in 2018 and 57.0% in 2019. However, recently implemented reforms, notably the introduction in January 2021 of a conditional withholding tax on interest and royalty payments (and as of 1 January 2024 on dividend payments) made to low tax juridictions ad to non-cooperative jurisdictions for tax matters, reduce the risks of the Dutch tax system being used for aggressive tax planning. This is not yet visible in the figures.

The Netherlands is doing well on digitalisation of the tax administration, which can help reduce tax arrears as well as cut compliance costs. While outstanding tax arrears increased by 1 percentage point to 6.1% of total tax revenues in 2019, they remain low in the Netherlands, significantly below the EU27 (simple) average of 31.8%. However, that average is inflated by very large values in a few Member States. The Annual Report on Taxation 2021 shows that the Netherlands scores highly on filing tax returns online ([69]). Between 2018 and 2019, the VAT gap (an indicator of the effectiveness of VAT enforcement and compliance) decreased by 1.1 percentage point, to 4.4% in the Netherlands, well below the EU-wide gap of 10.5%.

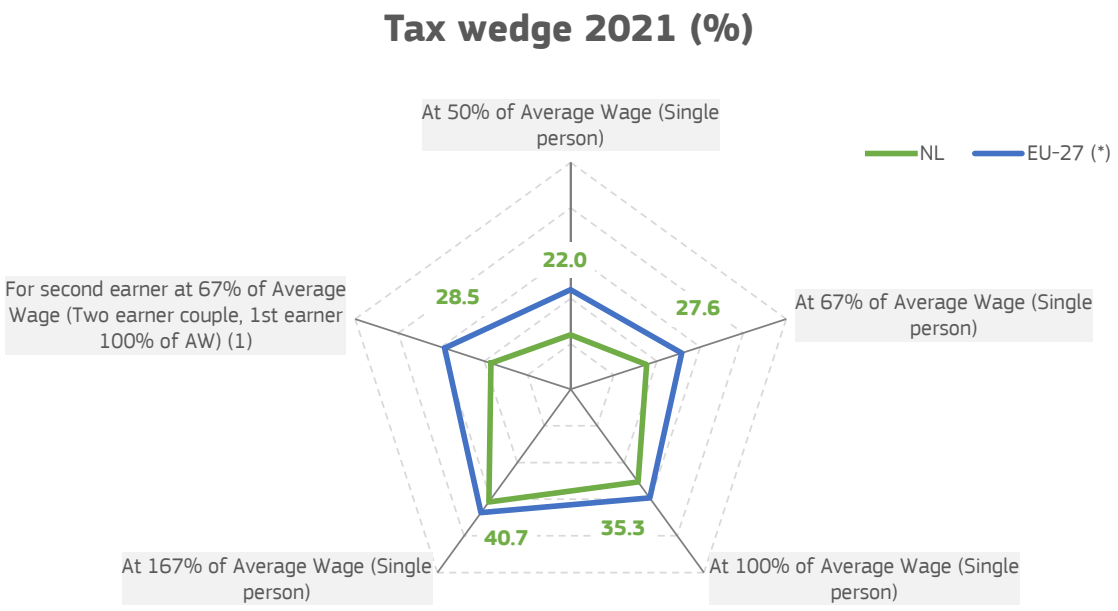
([69]) European Commission, Directorate-General for Taxation and Customs Union, Annual Report on Taxation 2021 : review of taxation policies in the EU Member States, Publications Office, 2021, https://data.europa.eu/doi/10.2778/294944, See Section 2.1.4 Improving tax for further details.

Table A18.1:**Taxation indicators**

		Netherlands					EU-27				
		2010	2018	2019	2020	2021	2010	2018	2019	2020	2021
Tax structure	Total taxes (including compulsory actual social contributions) (% of GDP)	35.5	38.8	39.3	39.7		37.9	40.1	39.9	40.1	
	Labour taxes (as % of GDP)	19.5	19.8	19.5	20.6		20.0	20.7	20.7	21.5	
	Consumption taxes (as % of GDP)	11.0	11.4	11.8	11.7		10.8	11.1	11.1	10.8	
	Capital taxes (as % of GDP)	5.0	7.6	7.9	7.3		7.1	8.2	8.1	7.9	
	Total property taxes (as % of GDP)	1.3	1.7	1.6	1.8		1.9	2.2	2.2	2.3	
	Recurrent taxes on immovable property (as % of GDP)	0.6	0.9	0.8	0.9		1.1	1.2	1.2	1.2	
	Environmental taxes as % of GDP	3.5	3.3	3.4	3.2		2.4	2.4	2.4	2.2	
Progressivity & fairness	Tax wedge at 50% of Average Wage (Single person) (*)	28.3	24.7	23.9	23.2	22.0	33.9	32.4	32.0	31.5	31.9
	Tax wedge at 100% of Average Wage (Single person) (*)	38.1	37.8	36.9	36.1	35.3	41.0	40.2	40.1	39.9	39.7
	Corporate Income Tax - Effective Average Tax rates (1) (*)		23.1	23.7	23.7			19.8	19.5	19.3	
	Difference in GINI coefficient before and after taxes and cash social transfers (pensions excluded from social transfers)	10.0	10.3	10.1	9.4		8.4	7.9	7.4	8.3	
Tax administration & compliance	Outstanding tax arrears: Total year-end tax debt (including debt considered not collectable) / total revenue (in %) (*)		5.1	6.1				31.9	31.8		
	VAT Gap (% of VTTL)		5.5	4.4				11.2	10.5		
Financial Activity Risk	Dividends, Interests and Royalties (paid and received) as a share of GDP (%)		63.1	57.0	45.2			10.7	10.5		
	FDI flows through SPEs (Special Purpose Entities), % of total FDI flows (in and out)		61.2	62.9	41.9			47.8	46.2	36.7	

(1) Forward-looking effective tax rate (OECD).
(*) EU-27 simple average, as no aggregated EU-27 value.
Source: European Commission and OECD

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



The tax wedge measures the difference between the total labour cost of employing a worker and the worker's net earnings: sum of personal income taxes and employee and employer social security contributions, net of family allowances, expressed as a percentage of total labour costs (the sum of the gross wage and social security contributions paid by the employer).
(1) The second earner average tax wedge measures how much extra personal income tax plus employee and employer social security contributions (SSCs) the family will have to pay as a result of the second earner entering employment, as a proportion of the second earner's gross earnings plus the employer SSCs due on the second earner's income. For a more detailed discussion see OECD (2016), Taxing Wages 2016, OECD Publishing, Paris. http://dx.doi.org/10.1787/tax_wages-2016-en.
(*) EU-27 simple average, as no aggregated EU-27 value
Source: European Commission

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

	2004-07	2008-12	2013-18	2019	2020	2021	forecast 2022	forecast 2023
Real GDP (y-o-y)	2.8	0.0	1.8	2.0	-3.8	5.0	3.3	1.6
Potential growth (y-o-y)	1.8	0.9	1.1	1.8	1.4	1.4	1.4	1.3
Private consumption (y-o-y)	0.8	-0.4	1.1	0.9	-6.6	3.5	4.6	1.9
Public consumption (y-o-y)	3.0	1.4	0.7	2.8	1.0	5.5	1.8	1.8
Gross fixed capital formation (y-o-y)	6.2	-4.1	3.6	6.2	-4.1	3.5	2.9	2.8
Exports of goods and services (y-o-y)	6.6	2.0	.	2.0	-4.8	6.6	3.9	3.5
Imports of goods and services (y-o-y)	6.8	1.1	4.7	3.2	-5.5	5.1	4.1	4.3
Contribution to GDP growth:								
Domestic demand (y-o-y)	2.4	-0.7	1.4	2.3	-3.5	3.7	3.0	1.9
Inventories (y-o-y)	0.0	0.0	0.1	0.3	-0.3	-0.3	0.0	0.0
Net exports (y-o-y)	0.4	0.8	0.2	-0.7	0.0	1.7	0.3	-0.4
Contribution to potential GDP growth:								
Total Labour (hours) (y-o-y)	0.4	0.2	0.7	1.0	0.7	0.6	0.4	0.4
Capital accumulation (y-o-y)	0.7	0.5	0.4	0.7	0.5	0.6	0.6	0.6
Total factor productivity (y-o-y)	0.7	0.3	0.1	0.1	0.1	0.2	0.3	0.3
Output gap	-0.5	-1.3	-1.1	1.4	-3.9	-0.7	0.9	0.8
Unemployment rate	6.0	5.8	7.1	4.4	4.9	4.2	4.0	4.2
GDP deflator (y-o-y)	2.0	1.0	1.1	3.0	2.3	2.4	3.8	3.3
Harmonised index of consumer prices (HICP, y-o-y)	1.5	1.9	1.0	2.7	1.1	2.8	7.4	2.7
Nominal compensation per employee (y-o-y)	2.1	2.2	1.3	2.9	4.7	2.1	3.1	3.7
Labour productivity (real, hours worked, y-o-y)	1.6	0.2	0.4	-0.2	-1.1	2.5	.	.
Unit labour costs (ULC, whole economy, y-o-y)	0.4	2.3	0.5	2.9	8.3	-1.0	1.9	3.2
Real unit labour costs (y-o-y)	-1.5	1.3	-0.5	-0.1	5.9	-3.4	-1.8	0.0
Real effective exchange rate (ULC, y-o-y)	-0.3	0.3	-0.1	-0.2	.	.	.	.
Real effective exchange rate (HICP, y-o-y)	-0.5	-0.8	0.4	0.4	1.8	0.1	.	.
Net savings rate of households (net saving as percentage of net disposable income)	3.0	6.9	10.0	11.4	17.8	17.3	.	.
Private credit flow, consolidated (% of GDP)	12.1	7.6	4.6	-0.1	-1.3	10.7	.	.
Private sector debt, consolidated (% of GDP)	229.9	244.6	257.0	232.3	233.7	229.0	.	.
of which household debt, consolidated (% of GDP)	107.9	116.6	109.9	99.6	103.0	99.5	.	.
of which non-financial corporate debt, consolidated (% of GDP)	122.0	128.0	147.1	132.7	130.7	129.5	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	2.4	2.3	1.7	1.7	.	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	9.2	9.0	6.5	5.0	4.8	6.3	7.3	6.8
Corporations, gross operating surplus (% of GDP)	27.3	27.7	27.2	26.1	26.4	26.6	26.8	26.5
Households, net lending (+) or net borrowing (-) (% of GDP)	-2.4	1.4	3.3	2.6	6.3	5.8	4.3	4.0
Deflated house price index (y-o-y)	2.4	-3.7	.	4.6	6.0	.	.	.
Residential investment (% of GDP)	6.0	4.8	3.9	5.1	5.3	5.4	.	.
Current account balance (% of GDP), balance of payments	7.7	7.2	9.0	9.4	7.0	9.5	8.8	8.7
Trade balance (% of GDP), balance of payments	8.5	8.4	10.0	9.8	10.4	11.0	.	.
Terms of trade of goods and services (y-o-y)	-0.1	-0.5	0.3	0.6	1.0	-1.6	-2.6	0.7
Capital account balance (% of GDP)	-0.4	-0.3	-0.1	0.0	0.0	0.1	.	.
Net international investment position (% of GDP)	-5.5	10.3	54.1	89.9	113.9	93.8	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (1)	-64.3	-73.2	-39.4	-1.8	9.2	22.2	.	.
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	326.3	387.0	398.8	353.7	363.4	335.5	.	.
Export performance vs. advanced countries (% change over 5 years)	6.9	-0.1	-4.3	-1.8	7.9	.	.	.
Export market share, goods and services (y-o-y)	-1.5	-2.7	0.5	-1.2	5.4	-3.1	-0.7	-0.7
Net FDI flows (% of GDP)	4.6	5.8	6.9	4.7	-4.6	10.7	.	.
General government balance (% of GDP)	-0.6	-3.8	-0.8	1.7	-3.7	-2.5	-2.7	-2.1
Structural budget balance (% of GDP)	.	.	-0.3	0.7	-1.3	-2.0	-3.2	-2.5
General government gross debt (% of GDP)	47.1	59.7	61.9	48.5	54.3	52.1	51.4	50.9

(1) NIIP excluding direct investment and portfolio equity shares. (2) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

Source: Eurostat and ECB as of 2022-05-02, where available; European Commission for forecast figures (Spring forecast 2022)

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

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

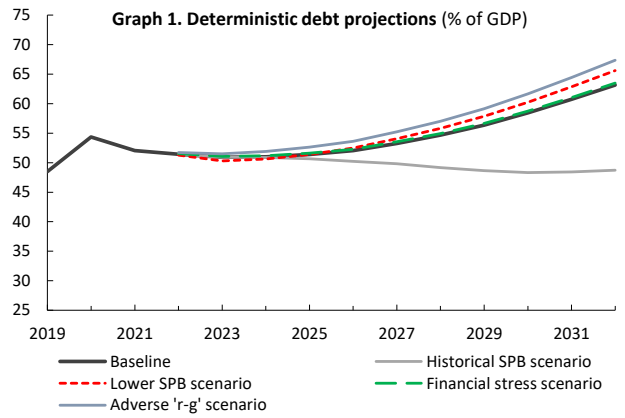
Graph 1 shows four alternative scenarios around the baseline, to illustrate the impact of changes in assumptions. The 'historical SPB' scenario assumes that the structural primary balance (SPB) gradually returns to its past average level. In the 'lower SPB' scenario, the SPB is permanently weaker than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

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

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

Table A20.1: **Debt sustainability analysis for the Netherlands**

Table 1. Baseline debt projections	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross debt ratio (% of GDP)	**48.5**	**54.3**	**52.1**	**51.4**	**50.9**	**51.0**	**51.4**	**52.0**	**53.3**	**54.7**	**56.4**	**58.4**	**60.7**	**63.2**
Change in debt	-3.9	5.8	-2.3	-0.6	-0.5	0.1	0.4	0.7	1.2	1.4	1.7	2.1	2.3	2.4
of which														
Primary deficit	*-2.5*	*3.0*	*2.0*	*2.3*	*1.7*	*1.9*	*2.1*	*2.3*	*2.7*	*2.9*	*3.1*	*3.3*	*3.6*	*3.8*
Snowball effect	*-1.8*	*1.5*	*-3.3*	*-3.1*	*-2.0*	*-1.8*	*-1.7*	*-1.7*	*-1.5*	*-1.5*	*-1.4*	*-1.3*	*-1.3*	*-1.4*
Stock-flow adjustment	*0.3*	*1.3*	*-1.0*	*0.2*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Gross financing needs (% of GDP)	7.6	14.0	10.6	11.0	10.2	10.6	10.9	11.3	12.0	12.5	13.1	13.8	14.5	15.2



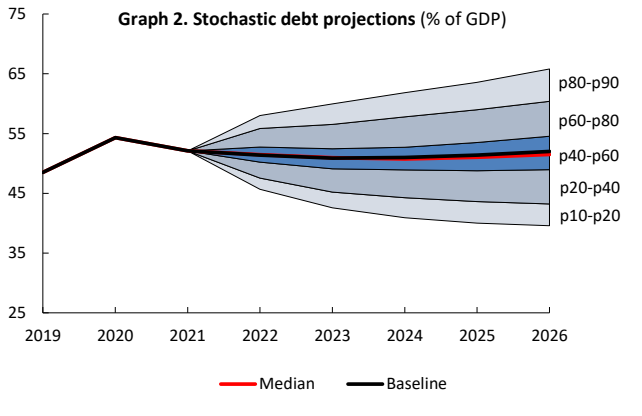


Table 2. Breakdown of the S1 and S2 sustainability gap indicators

		S1	S2
Overall index (pps. of GDP)		**1.9**	**6.2**
of which			
Initial budgetary position		1.2	2.4
Debt requirement		-0.7	
Ageing costs		1.5	3.8
of which	*Pensions*	*0.6*	*1.1*
	Health care	*0.3*	*0.7*
	Long-term care	*0.8*	*2.3*
	Others	*-0.1*	*-0.2*

Source: European Commission

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

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

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

Medium-term risks to fiscal sustainability are medium. The two elements of the Commission's medium-term analysis lead to this conclusion. First, the debt sustainability analysis (DSA) shows that government debt is projected to rise from about 51% of GDP in 2022 to around 63% of GDP in 2032 in the baseline (Table 1). This debt path is also sensitive to possible shocks to fiscal, macroeconomic and financial variables, as illustrated by alternative scenarios and stochastic simulations (Tables A20.1 and A20.2). Moreover, the sustainability gap indicator S1 signals that a consolidation effort of 1.9 pps. of GDP would be needed to bring the debt ratio to 60% of GDP in 15 years' time (Table 2). Overall, the medium risk reflects the unfavourable initial budgetary position and the projected increase in ageing costs.

Long-term risks to fiscal sustainability are high. The sustainability gap indicator S2 (at 6.2 pps. of GDP) points to high risks, while the DSA points to significant vulnerabilities, leading to the overall high risk assessment. The S2 indicator suggests that, to stabilise debt over the long term, it will be necessary to address budgetary pressures from population ageing, especially related to long-term care and public pension expenditure (Table 2).

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

Short term	Medium term										Long term	
				Debt sustainability analysis (DSA)								
					Deterministic scenarios							
Overall (S0)	Overall (S1+DSA)	S1	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	Overall (S2+DSA)
LOW	MEDIUM	MEDIUM	MEDIUM	Overall	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	HIGH	HIGH
				Debt level (2032), % GDP	63	49	66	67	63			
				Debt peak year	2032	2021	2032	2032	2032			
				Fiscal consolidation space	100%	85%	100%	100%	100%			
				Probability of debt ratio exceeding in 2026 its 2021 level						48%		
				Difference between 90th and 10th percentiles (pps. GDP)						26		

(1) *Debt level* in 2032: green: below 60% of GDP, yellow: between 60% and 90%, red: above 90%. (2) The *debt peak year* indicates whether debt is projected to increase overall over the next decade. Green: debt peaks early; yellow: peak towards the middle of the projection period; red: late peak. (3) *Fiscal consolidation space* measures the share of past fiscal positions in the country that were more stringent than the one assumed in the baseline. Green: high value, i.e. the assumed fiscal position is plausible by historical standards and leaves room for corrective measures if needed; yellow: intermediate; red: low. (4) *Probability of the debt ratio exceeding in 2026 its 2021 level*: green: low probability, yellow: intermediate, red: high (also reflecting the initial debt level). (5) The *difference between the 90th and 10th percentiles* measures uncertainty, based on the debt distribution under 2000 different shocks. Green, yellow and red cells indicate increasing uncertainty.
Source: European Commission (for further details on the Commission's multi-dimensional approach, see the 2021 Fiscal Sustainability Report).