Dutch Trade in Facts and Figures

Exports, imports & investment

2023

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Explanation of symbols

Empty cell	figure not applicable
.	figure is unknown, insufficiently reliable or confidential
*	provisional figure
**	revised provisional figure
–	(between two numbers) inclusive
0 (0.0)	less than half of unit concerned
2016–2017	2016 to 2017 inclusive
2016/2017	average for the years 2016 up to and including 2017
2016/'17	crop year, financial year, school year etc., beginning in 2016 and ending in 2017
2004/'05–2016/'17	crop year etc. 2004/'05 up to and including 2016/'17

Due to rounding, some totals may not correspond to the sum of the separate figures.

Colophon

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Executive Summary

The whole world is affected by the war in Ukraine, not only geopolitically, but also in terms of inflation, food security and the economy. In a globalised world, everyone is connected and everyone is affected. As a small and open trading nation, the Netherlands is strongly connected to other countries and is therefore sensitive to international developments.
In February of this year, the second year of the war in Ukraine began. Due to the war and the sanctions against Russia, Dutch trade with Russia and Ukraine has declined. Moreover, prices of especially imported mineral fuels and raw materials have skyrocketed, partly as a result of the war.

China and the EU have increasingly traded with each other since reducing reciprocal import tariffs in the 1990s. This has led to ever greater mutual interdependence, which entails benefits, but also risks. We have become more dependent on China and the country has therefore gained more geopolitical power. Trade with China is an important topic of discussion when it comes to strategic dependencies. Some of the products for which the Netherlands and other European countries rely on imports from China are important for the green transition challenges Europe is facing.

Production problems in China, sanctions against Russia, devastation in Ukraine, increased transport costs: these and many other factors may have a negative impact on Dutch trade in goods and services. Following the recovery from the coronavirus crisis and the first price increases in 2021, the value of Dutch goods trade rose again in 2022. This was due to the sharply higher prices of many goods, such as mineral fuels, food and materials. The size of trade volume also increased, but much less strongly. At the onset of the coronavirus crisis in 2020, Dutch trade in services showed a significant contraction. Recovery already started in 2021 and continued through 2022.

The latest news and other reports on globalisation, such as the Internationalisation Monitors, can be found in our Globalisation dossier.

Dutch Trade in Facts and Figures 2023: Exports, imports and investment is a publication developed by the CBS Expertise Centre for Globalisation at the request of the Dutch Ministry of Foreign Affairs. It aims to provide a broad target group with objective information on internationalisation trends in the Dutch business economy and the national economy at large. Furthermore, it offers independent data for trade policy decisions by the Ministry of Foreign Affairs. Apart from the data tables with annually recurring key figures, this publication contains an outline of the main current events behind the figures.

Listed below are some of the main findings presented in this edition[1)]:

1) Chapter 1 comprises a dashboard with the key findings from Chapters 2–7 and is not included here.

Chapter 2: Major developments in 2022 and 2023

– Due to the aftermath of the coronavirus crisis, inflation, current events surrounding the climate crisis and Russia's invasion of Ukraine, 2021, 2022 and 2023 were atypical years. In order to do justice to all these developments, a chapter has been devoted to the most recent developments. Where possible, the aforementioned developments are also mentioned in other chapters.

One year of war: trade implications

– The EU has imposed sanctions on Russia in response to the war against Ukraine. More than a month after the start of the war and the first sanctions, the value of Dutch imports from Russia began to decrease. The Russian share in Dutch imports fell from 4% in Q1 2022 to 1% in the same quarter of 2023. The value of Dutch goods exports to Russia has decreased every month since March 2022 relative to the same month in 2021. The Russian share in Dutch exports fell from 0.6% in Q1 2022 to 0.3% in the same quarter of 2023.
– Since the import ban as of December 2022, Dutch firms have imported considerably less crude oil from Russia. Instead, imports of crude oil from Saudi Arabia, the US, Kazakhstan and Iraq have increased.
– In Q1 2023, exports of domestically produced goods to Russia collapsed by 47% compared to the first three months of 2022, while those to Kazakhstan (+136%), Armenia (+121%) and Kyrgyz Republic (+99%) increased sharply.

Volume developments in Dutch trade in goods

– According to the National Accounts figures, the price development of Dutch imports in 2022 compared to 2021 was no less than 24.9%; the volume development was around 1.8%. Prices of export goods were 21.0% higher in 2022 than in 2021. The volume of goods exports only increased by 2.3%. In Q1 2023, price development was already more limited with an increase of 4.7% in imports and 5.8% in exports. The import volume in that period was 4.0% higher than one year previously, the export volume 3.9%.
– The price and volume development for our most important trading partners is dominated by mineral fuels. Without this commodity group, the picture looks different: volume developments were mainly positive, both for imports and exports, and price increases were more limited.

Dutch goods trade with China

– Since 1996, total Dutch imports of goods from China have increased 55 times: from €2.3bn to €125.0bn (including quasi-transit trade) in 2022. No less than 89% of total imports from China return abroad as a result of transit flows or export after processing in the

Netherlands; 11% of imports remain in the Netherlands (direct domestic expenditure or domestic expenditure after processing in the Netherlands).
- Exports to China have also increased sharply in recent decades, albeit at a significantly lower level than imports. Total exports to China have increased 31 times since 1996, from €0.6bn to almost €19bn in 2022 (including quasi-transit trade).
- If we exclude all re-exports and quasi-transit trade, the large trade deficit with China disappears.

Import of raw materials and products for our green transition

- The import of transitional goods (i.e., goods needed for the energy transition) from China (€4.6bn) is slightly larger than the import from Germany (€4.5bn), making China the largest supplier of transitional goods. The Netherlands mostly imports solar panels from China, but also lithium-ion batteries and magnets.
- Russia is the largest supplier of transitional raw materials. In 2022, more than €1bn worth of transitional raw materials were imported from Russia, mainly copper and nickel.
- An important difference between China and Russia is that only transitional raw materials are obtained from Russia, while China supplies a wide range of transitional goods (which already contain those critical raw materials, such as rare-earth elements). If you include this indirect import, China is much more important than Russia for our green transition.

Women entrepreneurs at internationally operating firms

- In 2021, one third (475 thousand) of all entrepreneurs in the Dutch business economy were in charge of a firm that imported and/or exported services and/or goods. Out of those 475 thousand entrepreneurs, women entrepreneurs accounted for 27%. These shares are comparable to 2019 and 2020.
- The degree of international orientation is closely related to the industry in which the firm operates; differences between male and female entrepreneurs mainly reflect differences between industries.

Chapter 3: International trade in goods: composition and geography

Dutch goods exports in 2022

- In 2022, Dutch goods exports increased by 30.4% to €731.4bn. The increase in export volume was 2.3% compared to 2021. This indicates significantly higher export prices.
- The value of Dutch re-exports grew more rapidly than domestic exports in 2022. This was due to a relatively large increase in re-exports of mineral fuels.
- More than half (55%) of Dutch goods exports are destined for the five largest export partners: Germany, Belgium, France, the UK and the US. Germany is the largest export destination in every product category, with a particularly large share for mineral fuels.

- Two-thirds of the exported transport equipment consisted of domestic exports. In addition, more than half of the exported chemical products, mineral fuels, food and beverages, and raw materials were domestically produced. In exports of machinery and equipment and of manufactured goods, over 60% of the value concerned re-exported goods. Goods exports to other EU countries are mostly re-exports; goods exported to the UK, the US, China, Taiwan, and South Korea are mainly domestically produced.
- Petroleum products form the largest group of export goods, followed by natural gas, telephones, modems and routers, and machinery and appliances.

Dutch goods imports in 2022

- In 2022, total goods imports rose by 36.8% year on year to more than €677bn. The import volume rose much less strongly, by 2.3%.
- The relative importance of the US as a country of origin has increased, due to more import of natural gas (LNG). Russia's relatively much weaker position as a supplier since the war in Ukraine has paved the way for other countries.
- Slightly less than half (49%) of Dutch imports come from the five largest import partners: Germany, Belgium, China, the US and the UK.
- The largest import commodity groups are natural gas, crude oil and petroleum products. The value of these product groups has grown enormously relative to 2019, in particular due to price increases. In addition, most of the consumer electronics (telephones, modems, computers, laptops and tablets) are imported, some of which is (re)exported.

Importance of the Netherlands in world exports and imports

- In 2021, the Netherlands accounted for 3.1% of world exports. In ranking order, the Netherlands was the sixth largest exporter in the world. Since 2015, the Dutch share has grown by 0.3 percentage point in the global export market of goods.
- In 2021, the Netherlands was the eighth largest importer of goods worldwide. In 2021, the Netherlands contributed 3.2% to global goods imports. The Dutch contribution to world imports decreased by 1.1 percentage points between 1970 and 2021.

How important is the Netherlands as a trading partner for other economies?

- The Dutch share in Belgian goods imports amounted to 18% in 2021, making Belgium the country most dependent on goods from the Netherlands. For Germany, the Netherlands is the second most important supplier of goods. The Dutch share in British goods imports was about 0.9 percentage points lower in 2021 than in 2019.
- The Netherlands is also important for many countries as an importer of goods, for example, Iceland, Belgium, and Ivory Coast. The Dutch share in Norwegian and Russian goods exports shrank in 2021.

Chapter 4: International trade in services

Dutch service exports in 2022

- In 2022, the Netherlands exported nearly €261bn in services, 22% more than in the previous year and 20% above the 2019 level. Fewer services were exported in 2020 and 2021 due to restructuring as a result of tax changes as well as the coronavirus crisis and associated travel restrictions.
- Extreme price increases in 2021 and 2022 are also reflected in the volume of international trade in services. Compared to 2019, the volume of service exports increased by 1.5% in 2022 while the export prices of services were 10.9% higher.
- The fastest growth compared to 2021 was in tourism expenditure in the Netherlands (+91% growth). Travel services therefore gained in importance as a service type in 2022.
- Germany was the main destination for Dutch services in 2022, followed by the UK, the US and Ireland. Despite Brexit, the UK received more transport services in 2022 than in 2021 and 2019. Ireland became a more important export destination for Dutch services year on year (42% growth in 2022 compared to 2021). For telecommunications, computer and information services and intellectual property fees, Ireland was the most important export partner in 2022.

Dutch service imports in 2022

- Dutch imports of services were 19% higher than in 2021, amounting to €250bn. This is also above the level of 2019.
- Although the volume of trade in services was still below the 2019 level, the price increases in recent years have led to a substantially higher import value.
- Business services are the largest services import while there was significant growth in travel services, which includes spending by Dutch nationals abroad. The growth in travel services can be explained by the fact that travel restrictions due to the coronavirus pandemic were phased out in most countries at the beginning of 2022.
- Just as in 2021, the US was the most important supplier of services to the Netherlands. The Netherlands imported €47.3bn worth of services from the US. More than 60% of all Dutch cross-border payments for intellectual property ended up in the US.
- The UK and Germany are also among the main service providers. Imports from the UK were up by 11% on 2021 while imports from Germany were even 27% higher. The top 10 of most important partner countries has remained stable since 2019.

The Netherlands as an international service provider in 2021

- The Netherlands was in 2021 the seventh largest service exporter in the world, but has almost been overtaken by Singapore. The US has been the largest exporter of services for decades.
- In Belgium, the Netherlands was the second largest service provider with a share of 13.7% in 2021. The Netherlands mainly provides transport and business services to its southern neighbour.

The Netherlands as an international service consumer in 2021

- In terms of value, the Netherlands is the seventh largest service importer in the world. Annually, our country accounts for 4% of the globally imported services.
- The Netherlands is the most important destination for Belgian services, with Belgium mainly exporting transport services and business services. The Netherlands is also a major consumer of services from Barbados and Suriname.

Chapter 5: Foreign direct investment and multinationals

Foreign direct investment (excluding SPEs)

- As in previous years, in 2022 the Netherlands was one of the countries with the largest foreign direct investment (FDI) worldwide. This applies to both inward FDI and outward FDI.
- Just as in 2021, the US and the UK were the most important partner countries for both Dutch inward FDI and outward FDI.
- The total inward FDI position of the Netherlands increased by 3% in 2022 compared to 2021. The total outward FDI position of the Netherlands decreased by 1%. The FDI position is still below the pre-pandemic level of 2019.

Multinationals in the Netherlands

- In 2021, the Dutch business economy had approximately 25.1 thousand multinational enterprises (MNEs), 64% of which were under foreign control and 36% under Dutch control. This amounted to 1.8% of the total Dutch business economy.
- MNEs provided work for almost 2.3 million people in the Netherlands, accounting for 35% of total employment in the Dutch business economy in 2021. Compared to 2019, multinationals had 26 thousand fewer employed persons in 2021.
- 35% of all MNEs are active in the wholesale and retail sector. With 666,000 employed persons, these MNEs provide almost 40% of employment in wholesale and retail trade.
- One in five foreign multinationals (almost 3 thousand firms) in the Netherlands were US-owned in 2021, followed by German control (almost 2.4 thousand firms). In 2021, the US was also the largest foreign employer in the Dutch business economy with approximately 250,000 employees.
- In 2021, MNEs were responsible for 78% of goods imports and 83% of goods exports. In service imports and exports, 91% of the value was accounted for by MNEs.

Dutch multinationals abroad

- Dutch multinationals have the most subsidiaries in Germany and that number increased from 2018 to 2019.
- The manufacturing and agricultural sectors have the largest share of vertical investments in relative terms, in contrast to the trade and services sectors, where the share of vertical investments is significantly smaller.
- Of the firms that invest horizontally, a relatively large proportion are non-exporters. Manufacturers, where investing and exporting seem to go hand-in-hand, form an exception.

Chapter 6: Dutch earnings from exports

Contribution of exports to GDP

- The Netherlands exported €711bn worth of goods and services in 2021: 14% more than in 2020 and 5.9% more than in 2019. Exports of domestically produced goods were 8.7% higher than in 2019 and re-exports 14.7%. However, exports of services had not yet recovered from the coronavirus pandemic and were 10.3% lower in 2021 than in 2019.
- Domestic exports yielded almost €138bn, re-exports almost €36bn and service exports more than €106bn. In 2021, export earnings averaged 39 cents per euro: with 55 eurocents per euro in domestic exports, 65 eurocents in service exports and 12 eurocents in re-exports.
- Total export earnings (€279bn) accounted for 32.6% of GDP in 2021. That share is smaller than in 2019, because the domestic components of GDP grew faster than export earnings.
- Business services earned less from exports in 2021 than two years previously. Just as it applies to the entire flow of service exports, the decrease was due to the slow recovery of travel and therefore of travel-related services on the one hand and changes in the Dutch tax system (as a result of which firms implemented restructurings) on the other.
- In 2021, the Netherlands earned the most from exports to Germany. Domestic exports yielded the most, but re-exports also played a relatively large role in total export earnings. Earnings from exports to China mainly came from domestic exports. The Netherlands earns a relatively large proportion from the export of services to the US, the UK, Ireland and Switzerland.
- The Dutch economy grew by 4.9% in 2021. Of this, 2.3 percentage points were due to the export of goods and services. Domestic exports contributed 1.1 percentage point, re-exports 0.5 percentage point and service exports contributed 0.6 percentage point to GDP growth.

Export-induced employment

- In 2021, almost 2.4 million full-time jobs (FTE) in the Netherlands were related to exports: more than 1 million direct jobs and more than 1.3 million indirect jobs. Together, this was approximately 30.4% of total employment (in FTE) in the Netherlands. Domestic exports accounted for about 14.0% of total employment (+2.5% compared to 2019), re-

exports 3.7% (–3.2% compared to 2019) and service exports 12.7% (–7.9% compared to 2019).
- Occupations that are largely dependent on the export of goods (measured in hours spent on exports compared to domestic expenditure) are agricultural occupations and transport-related occupations.
- The self-employed work relatively more hours for export (37% of the hours) than employees with a permanent contract (30%) and employees with a temporary contract (28%).

Chapter 7: Use of imports in the Dutch economy

- In 2021, the total import value of goods and services amounted to €622.7bn, of which €485.8bn was related to goods and €136.9bn to services. This was 5.3% higher than in pre-pandemic year 2019. Imports of goods recovered strongly, while imports of services fell further.
- The Netherlands plays an important role in European intra-regional trade. A large part of the imports that are processed in exports (€38.5bn, representing 22.5% of total intermediate imports) came from within the EU-27 and went to the same or another EU-27 country. Much of the trade still takes place within the EU, but noticeably less than before Brexit.

Distribution of goods imports

- About half of goods imports (€243.4bn) in 2021 were destined for re-exports, and this share has been increasing in recent years. Goods imports directly destined for domestic expenditure had a value of €69.1bn in 2021. Intermediate goods imports amounted to €173.3bn in 2021: 36% of this was further processed by Dutch enterprises into goods or services that are sold on the domestic market and 64% ends up abroad after processing in the Netherlands.
- In 2021, electrical appliances were the most important category of goods imported for re-export. Crude oil and petroleum products were the largest category of intermediate goods imports: 84% were further processed into exported goods or services. Imports of goods for domestic expenditure were dominated by vehicles and computers.
- Imported goods destined for re-export in 2021 mainly came from Germany and China. Germany and Belgium were the most important import partners for intermediate goods imports and imports intended for domestic expenditure.

Distribution of service imports

- Nearly 4% of service imports (€5.5bn) in 2021 was destined for re-exports. Service imports directly destined for domestic expenditure had a value of €18.2bn, 32.1% less than in 2019. Intermediate service imports amounted to €113.3bn in 2021. 38% of this was

further processed by Dutch enterprises into goods or services that are sold on the domestic market and 62% ends up abroad after processing in the Netherlands.
- Business services was the largest category of intermediate service imports, with 61% further processed into exported goods or services. Service imports directly destined for domestic expenditure amounted to €4.7bn in ICT services and €4.3bn in business services.
- For intermediary service imports, the US and the UK were the most important import partners. Services intended for domestic expenditure mainly came from Germany and the US.

Unravelling export-related imports

- In 2021, a total of €33.1bn in imports of raw materials and mineral fuels and €16.9bn in industrial products were needed to realise exports.
- There is a high degree of dependence on the EU-27 for imports incorporated into exports in industrial products (69% from EU-27), chemical products (66%) and machinery and transport equipment (62%).
- In 2021, a total of €22.6bn in imports of business services and €11.4bn in transport services were needed to realise exports.
- Half of the imported services came from the EU-27 in 2021, an increase compared to 2020. The increased EU importance is mainly due to the sharp contraction of imported royalties from the US in 2021.

Footprint of Dutch imports

- The total greenhouse gas footprint of imports in 2021 was 441 megaton CO_2 equivalent, slightly more than in 2019. The footprint of goods imports is almost fifteen times larger than that of service imports.
- Almost half of the import footprint is related to re-exports; service imports play a very minor role. Intermediate imports constitute 45% of the total greenhouse gas footprint of imports. The remaining 10% of the greenhouse gas footprint of imports is accounted for by imports for domestic expenditure.
- With 189 megaton CO_2 equivalent (43% of the total) most of the import footprint is made in Europe. Asia and the Americas follow with 30% and 15% respectively. Almost 60% of the total import value comes from Europe, which is considerably more than the share of the greenhouse gas footprint that lies in Europe. The reverse is true for imports from Asia and Africa.
- Energy supply, agriculture, mining and quarrying were the foreign industries that contributed the most to the Dutch import footprint in 2021.

Dutch Trade in Facts and Figures 2023: Exports, imports and investment – An introduction

The whole world is affected by the war in Ukraine, not only geopolitically, but also in terms of inflation, food security and the economy. In a globalised world, everyone is connected and everyone is affected. As a small and open trading nation, the Netherlands is strongly connected to other countries and is therefore sensitive to international developments.
In February of this year, the second year of the war in Ukraine began. Due to the war and the sanctions against Russia, Dutch trade with Russia and Ukraine has declined. Moreover, prices of especially imported mineral fuels and raw materials have skyrocketed, partly as a result of the war.

China and the EU have increasingly traded with each other since reducing reciprocal import tariffs in the 1990s. This has led to ever greater mutual interdependence, which entails benefits, but also risks. We have become more dependent on China and the country has therefore gained more geopolitical power (Aerts et al., 2022). Trade with China is an important topic of discussion when it comes to strategic dependencies. Dutch imports from China have risen sharply since the country gradually opened up to international cooperation two decades ago. In 2022, the Netherlands imported €64.2bn worth of goods from China, representing 9.5% of total goods imports. Some of the products for which the Netherlands and other European countries rely on imports from China are important for the green transition challenges Europe is facing. China is the Netherlands' largest supplier of transitional goods (goods needed for the energy transition). The Netherlands mostly imports solar panels from China, but also lithium-ion batteries and magnets required for electric cars.

Production problems in China, sanctions against Russia, devastation in Ukraine, increased transport costs: these and many other factors may have a negative impact on Dutch trade in goods and services. Following the recovery from the coronavirus crisis and the first price increases in 2021, the value of Dutch goods trade rose again in 2022. Dutch goods exports increased in value by 30.4% year on year; total goods imports by 36.8%. This was due to the much higher prices of many goods, such as mineral fuels, food and materials. The size of trade volume also increased, but much less strongly. Adjusted for price increases, in 2022 the volume of imports and exports was up by around 2.3% on 2021. The value of re-exports, in which imported products are re-exported after virtually no processing, exceeded domestic exports for the first time in 2022. The increase was partly due to the substantial growth in the re-export value of mineral fuels, driven by the price increases. Nevertheless, this ratio between domestic exports and re-exports confirms the importance of the Netherlands as a gateway to the rest of Europe. Many goods enter Europe through the Netherlands and are transported to the hinterland by road or via inland shipping.

At the onset of the coronavirus crisis in 2020, Dutch trade in services showed a significant contraction. Recovery already started in 2021 and continued through 2022. The Netherlands exported almost €261bn worth of services in 2022; that is 22% more than in 2021 and exceeding the pre-pandemic 2019 level for the first time. Dutch importers bought €250bn worth of services abroad in 2022. That is 19% more than in the previous year and 16% more than in 2019. To a large extent, the higher value of services imports and exports consists of price increases. Expenditure by tourists in the Netherlands grew rapidly due to the lifting of many coronavirus-related travel restrictions. Conversely, there was also marked growth in expenditure by Dutch citizens during their stays abroad.

The latest news and other reports on globalisation, such as the Internationalisation Monitors, can be found in our Globalisation dossier.

Dutch Trade in Facts and Figures 2023: Exports, imports and investment has been developed by the Expertise Centre for Globalisation at Statistics Netherlands (CBS) and was commissioned by the Dutch Ministry of Foreign Affairs. It includes the latest trends and annually recurring key figures and indicators on the internationalisation of the Dutch economy and business economy. These key figures, indicators and descriptive trends offer rapid access to the most relevant data on international trade, enterprises that trade internationally and the role of the Netherlands in international production chains.

The publication consists of six descriptive chapters, illustrated with many figures, infographics and tables. These chapters present the key trends, figures and developments for 2022 and sometimes 2021 or earlier, and where possible we also look ahead to 2023. The datasets that form the basis of the figures, tables and infographics in these chapters are so extensive that they have not been included in full here; they can be accessed and downloaded from the home page of this publication. As in previous years, the publication begins with a dashboard showing a general overview of the important findings set out in the chapters. The dashboard and the chapters are in the following order:

- What are the latest developments (Chapter 2)?
- How many and which goods does the Netherlands trade and with which countries (Chapter 3)?
- How many and which services does the Netherlands trade and with which countries (Chapter 4)?
- How much is invested internationally by the Netherlands and in the Netherlands (Chapter 5)?
- What does the Netherlands earn from exports and how much employment is involved (Chapter 6)?
- How do goods and services from the rest of the world seep into the Dutch economy (Chapter 7)?

What has changed since the 2022 edition?

Several changes have been made to 'Dutch Trade in Facts and Figures 2023' compared to the previous edition. This year, for example, a change in methodology and a renewed link with data on business characteristics means that we do not include a separate chapter on business demographics of firms trading in goods and/or services (Chapter 5 in 2022 edition).

In Chapter 5 about foreign investment and multinationals (Chapter 8 in 2022 edition), we distinguish between horizontal and vertical investment, which may explain much of the issue of trade and investment complementarity. Chapter 7, about the use of imports in the Dutch economy, has been expanded this year to include an analysis on the greenhouse gas footprint of Dutch imports. This allows us to examine in more detail the emissions in other countries which are generated due to Dutch imports of goods and services.

Current developments

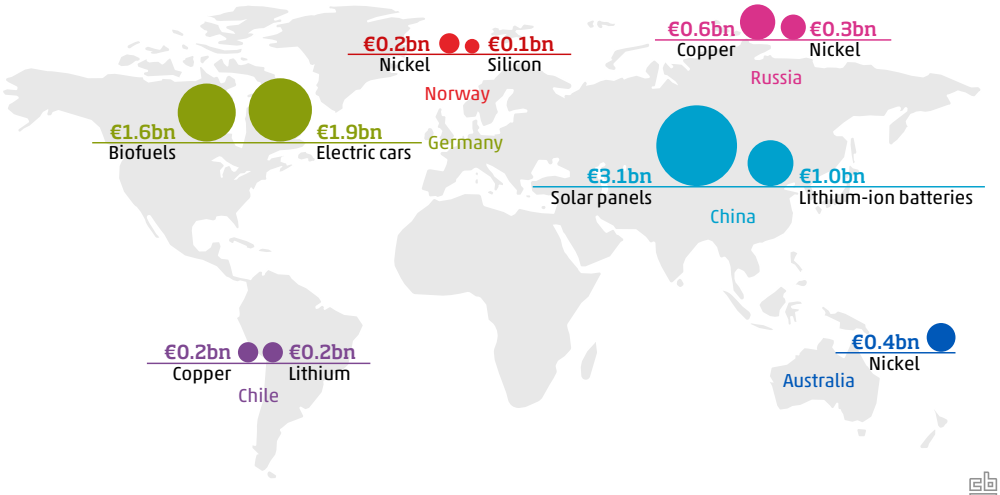
Many of the figures in this publication concern the years up to and including 2022. However, the coronavirus pandemic, inflation and Russia's invasion of Ukraine have made 2021, 2022 and 2023 atypical years. This is why, similar to the previous edition, a chapter has been dedicated to the latest developments which includes the most recently available figures. Chapter 2 is divided into five themes, namely: 1) trade developments related to the sanctions against Russia, 2) volume developments in goods trade, 3) the trade relationship between the Netherlands and China, 4) Dutch imports of raw materials and products for our green transition, and 5) developments in female entrepreneurship. Where possible, these topics also form a common thread throughout the other chapters.

References

Aerts, N., Freeman, D., Lemmers, O., Meijerink, G., Notten, T., Riet, van 't, M., Teulings, R. & Wong, K. F. (2022). *Economische verwevenheid met China via handel: twee kanten van een medaille*. The Hague/Heerlen/Bonaire: Statistics Netherlands and CPB Netherlands Bureau for Economic Policy Analysis.

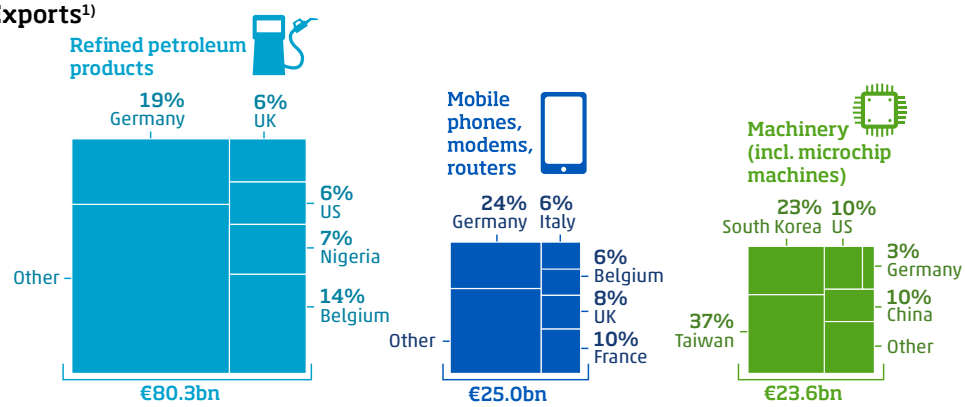
1 Dashboard

Chapter 2
Dutch imports of large goods flows for the green transition, excl. quasi-transit trade in 2022*

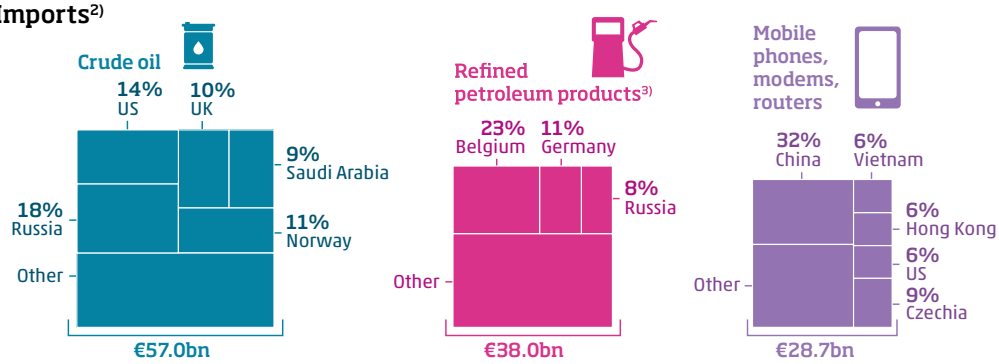


Chapter 3
Traded goods and top trading partners (2022*)

Exports[1)]



Imports[2)]



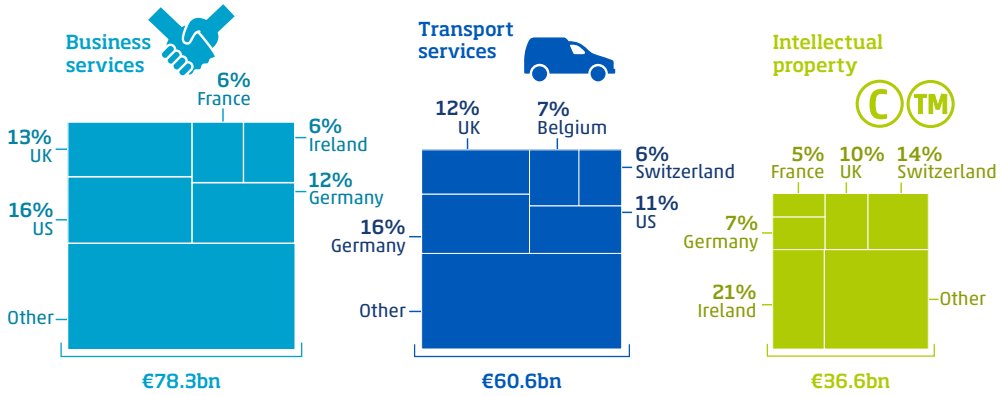
1) In terms of value, natural gas was the second most exported product for the Netherlands in 2022 (€44.9bn). For confidentiality reasons, the breakdown per trading partner cannot be shown here.

2) In terms of value, natural gas was the main import product for the Netherlands in 2022 (€57.3bn). For confidentiality reasons, the breakdown per trading partner cannot be shown here.

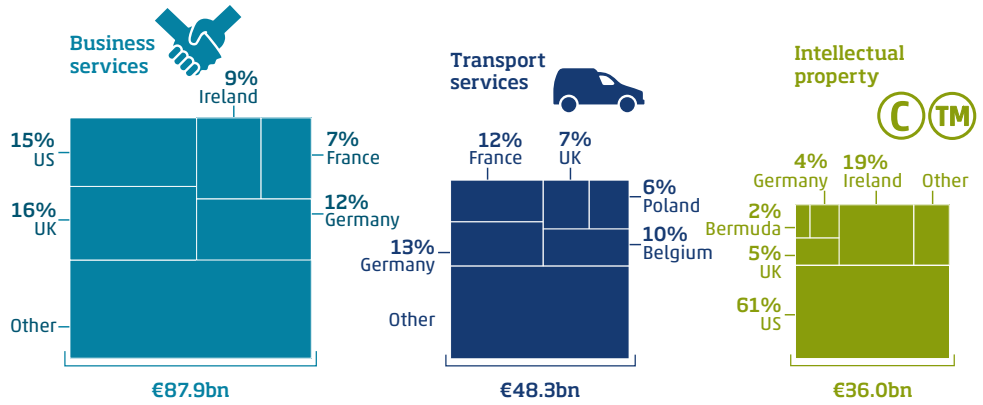
3) For confidentiality reasons, only the three main trading partners can be shown here.

Chapter 4
Traded services and top trading partners (2022*)

Exports

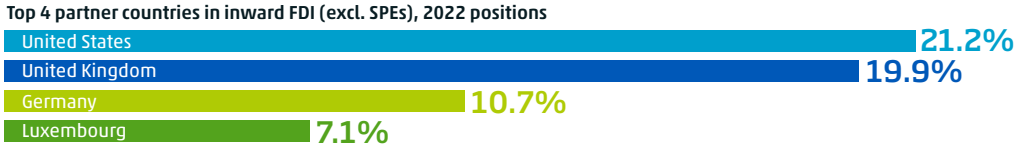


Imports

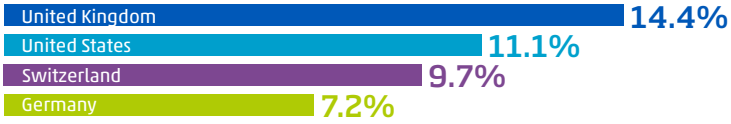


Chapter 5
International investments

Top 4 partner countries in inward FDI (excl. SPEs), 2022 positions

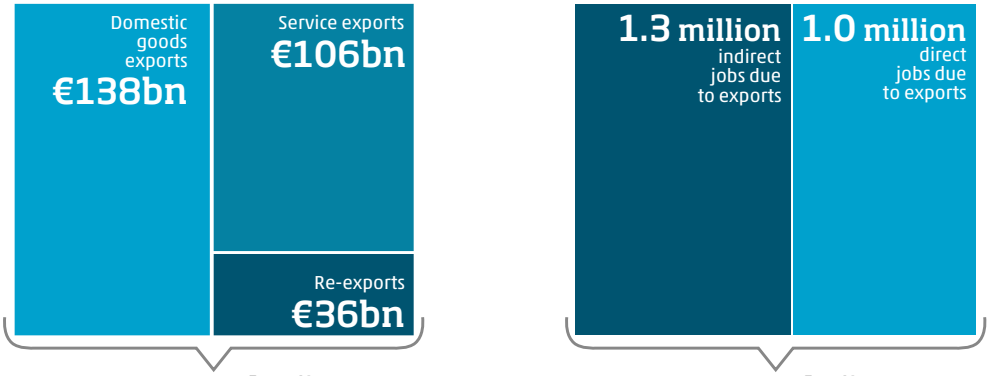


Top 4 partner countries in outward FDI (excl. SPEs), 2022 positions



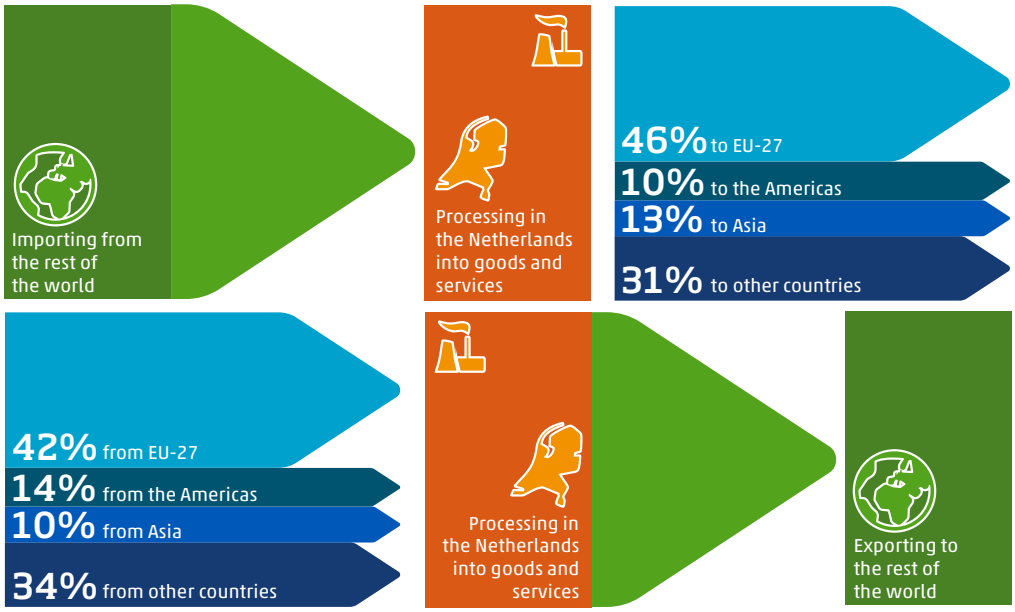
Source: DNB

Chapter 6
Dutch export earnings and export-induced employment (2021*)



1)Figures do not add up to total due to rounding

Chapter 7
Origin and destination of imports used in Dutch export production (2021)



2 Major developments in 2022 and 2023

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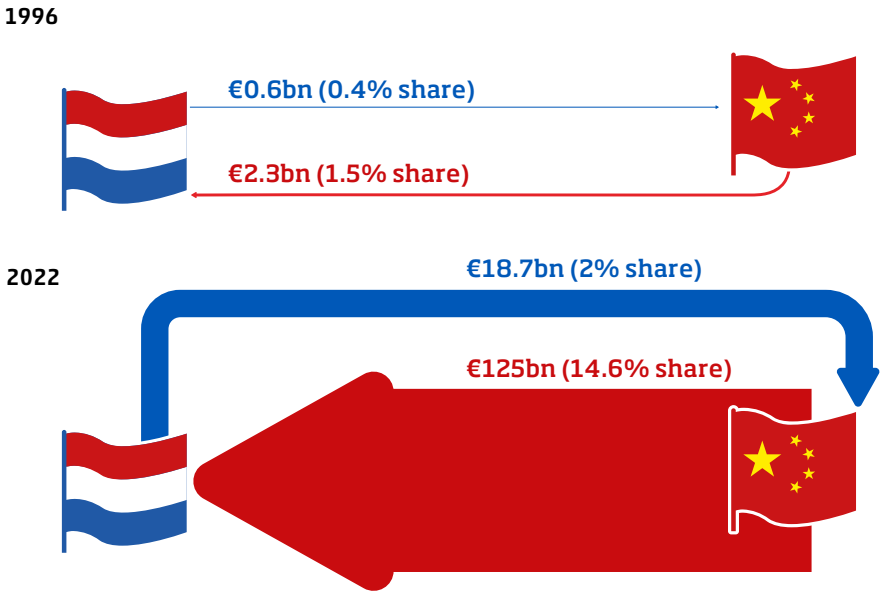
Dutch goods trade with China (incl. quasi-transit trade)



This chapter focuses on important current developments; events and trends that are affecting the Dutch economy in 2023. The war in Ukraine is the first important situation in this regard. Economically, the whole world is feeling the effects of the war, to a greater or lesser extent. The first section will discuss the development of Dutch trade with Russia and the impact of the sanctions imposed on it. The huge inflation figures call for a careful distinction between the effects of price and volume developments on the rapid growth of goods trade: section 2.3 will give an overview of this. In section 2.4, we discuss the trade relationship between the Netherlands and China. In section 2.5, we consider the Netherlands' dependence on China, among others, in relation to the green transition the world is facing. Finally, in section 2.6 we look at the development of female entrepreneurship following the Dutch policy on inclusiveness and equality in international trade.

2.1 Key findings

One year of war: trade implications

- The EU has imposed sanctions on Russia in response to the war against Ukraine. More than a month after the start of the war and the first sanctions, the value of Dutch imports from Russia began to decrease. The Russian share in Dutch imports fell from 4% in Q1 2022 to 1% in the same quarter of 2023. The value of Dutch goods exports to Russia has decreased every month since March 2022 relative to the same month in 2021. The Russian share in Dutch exports fell from 0.6% in Q1 2022 to 0.3% in the same quarter of 2023.
- Since the import ban as of December 2022, Dutch firms have imported considerably less crude oil from Russia. Instead, imports of crude oil from Saudi Arabia, the US, Kazakhstan and Iraq have increased.
- In Q1 2023, exports of domestically produced goods to Russia collapsed by 47% compared to the first three months of 2022, while those to Kazakhstan (+136%), Armenia (+121%) and Kyrgyz Republic (+99%) increased sharply. For sanctioned Dutch motor vehicles and office machinery, Turkey and Kazakhstan in particular became more important markets in Q1 2023.

Volume developments in Dutch trade in goods

- According to the National Accounts figures, the price development of Dutch imports in 2022 compared to 2021 was no less than 24.9%; the volume development was around 1.8%. Prices of export goods were 21.0% higher in 2022 than in 2021. The volume of goods exports only increased by 2.3%. In Q1 2023, price development was already more limited with an increase of 4.7% in imports and 5.8% in exports. The import volume in that period was 4.0% higher than one year previously, the export volume 3.9%.
- The price and volume development for our most important trading partners is dominated by mineral fuels. Without this commodity group, the picture looks different: volume developments were mainly positive, both for imports and exports, and price increases were more limited.

Dutch goods trade with China

- Since 1996, total Dutch imports of goods from China have increased 55 times: from €2.3bn to €125.0bn (including quasi-transit trade) in 2022. No less than 89% of total imports from China return abroad as a result of transit flows or export after processing in the Netherlands; 11% of imports remain in the Netherlands (direct domestic expenditure or domestic expenditure after processing in the Netherlands).
- Exports to China have also increased sharply in recent decades, albeit at a significantly lower level than imports. Total exports to China have increased 31 times since 1996, from €0.6bn to almost €19bn in 2022 (including quasi-transit trade). The substantially lower level than for imports is largely due to the fact that quasi-transit trade and re-exports plays a much smaller role in exports. If we exclude all re-exports and quasi-transit trade, the large trade deficit with China disappears.

Import of raw materials and products for our green transition

- The import of transitional goods (i.e., goods needed for the energy transition) from China (€4.6bn) is slightly larger than the import from Germany (€4.5bn), making China the largest supplier of transitional goods. The Netherlands mostly imports solar panels from China, but also lithium-ion batteries and magnets.
- Russia is the largest supplier of transitional raw materials. In 2022, more than €1bn worth of transitional raw materials were imported from Russia, mainly copper and nickel.
- An important difference between China and Russia is that only transitional raw materials are obtained from Russia, while China supplies a wide range of transitional goods (which already contain those critical raw materials, such as rare-earth elements). If you include this indirect import, China is much more important than Russia for our green transition. Moreover, the supply risk of raw materials from Russia (nickel, copper) is limited. The biggest supply risk of all raw materials is with rare earths and these are mainly produced in China.

Women entrepreneurs at internationally operating firms

- In 2021, one third (475 thousand) of all entrepreneurs in the Dutch business economy were in charge of a firm that imported and/or exported services and/or goods. Out of those 475 thousand entrepreneurs, women entrepreneurs accounted for 27%. These shares are comparable to 2019 and 2020.
- The degree of international orientation is closely related to the industry in which the firm operates; differences between male and female entrepreneurs mainly reflect differences between industries.

Outline

This chapter is devoted to the most current developments regarding international trade. Section 2.2 discusses trade developments with Russia after more than a year of war. Ample attention is paid to trade in sanctioned goods. In section 2.3, we explore volume developments in goods trade. The trade relationship between the Netherlands and China is the focus of section 2.4. Section 2.5 discusses the Dutch dependence for the green transition. Section 2.6 concludes by describing developments in female entrepreneurship.

2.2 One year of war: trade implications

One year ago, on 24 February 2022, Russia launched a military invasion of Ukraine. Due to the violence of the war in Ukraine and the sanctions against Russia, the Dutch trade in goods with those countries has partly come to a standstill. Sanctions are compulsory international measures against a country, organisation or person. The sanctions are supposed to make it difficult for Russia to finance the war, and they specifically target the political, military and economic elite that is responsible for the invasion (European Council, 2023). According to the European Commission, since February 2022, the European Union (EU) has banned more than €43.9 billion worth of goods exported to Russia and €91.2 billion worth of goods imported

from Russia. This means that as a result of the sanctions, the EU is currently exporting 49% less to Russia and importing 58% less from Russia than in 2021 (European Commission, 2023a).

The European sanctions against Russia

The EU has imposed individual, economic and diplomatic sanctions on Russia in response to the war against Ukraine. The sanctions are in addition to the measures taken against Russia in 2014 because of the annexation of Crimea and the failure to implement the Minsk agreements. In a recent paper, Kohl et al. (2023) studied the consequences of the 2014 EU sanctions for the export and investment relationship between the Netherlands and Russia. The EU has imposed a total of 11 packages of sanctions against Russia since February 2022.

Which goods may not be imported by the EU from Russia?
The sanctions list includes (European Commission, 2023a):
- crude oil and refined petroleum products (sixth sanctions package);
- coal and other solid fossil fuels (fifth sanctions package);
- steel, steel products and iron (fourth sanctions package);
- gold and jewellery (maintenance and alignment package);
- asphalt and synthetic rubber (tenth sanctions package);
- fish, crustaceans and shellfish (e.g., caviar), spirits (e.g., vodka), cement and timber (fifth sanctions package);
- paper, cigarettes, plastics and cosmetic products (eighth sanctions package).

Which goods may not be exported freely by the EU to Russia?
The sanctions list includes (European Commission, 2023a):
- advanced technology (e.g., chips, software, quantum computers) (fifth sanctions package);
- specific types of machinery, machine parts, transport equipment, aviation fuel (fifth sanctions package);
- equipment, technology and services for the energy sector (fourth sanctions package);
- goods and technology for the aviation and aerospace industry (e.g., aircraft, aircraft components) (eighth sanctions package);
- a number of products that can be used for both civilian and military purposes (e.g., drones) (ninth sanctions package);
- goods and technology for the Russian defence and security sector (sixth sanctions package);
- luxury goods (e.g., expensive cars, jewellery) (fourth sanctions package);
- civilian firearms (eighth sanctions package).

In addition, a number of sanctions were in force for service exports, such as accountancy services, IT consulting, legal advice, market research and engineering services (CPB, 2023; European Commission, 2023a). There were also financial sanctions, including an asset freeze against the Russian central bank and sanctions against individuals, such as travel bans and asset freezes targeting members of the Russian elite (Government of the Netherlands, 2023).

What do we mean by sanctioned products?

The database of sanctioned products was compiled using information obtained through the Dutch Customs authorities. It only concerns sanctions imposed between March 2022 and the end of March 2023 and that were still in force on 9 June 2023. We put this list on top of the trade values in 2022 and 2023, as if all those sanctions had been in place from the beginning. A sanction may involve an export/import ban but may also concern, for example, quotas or licence requirements.

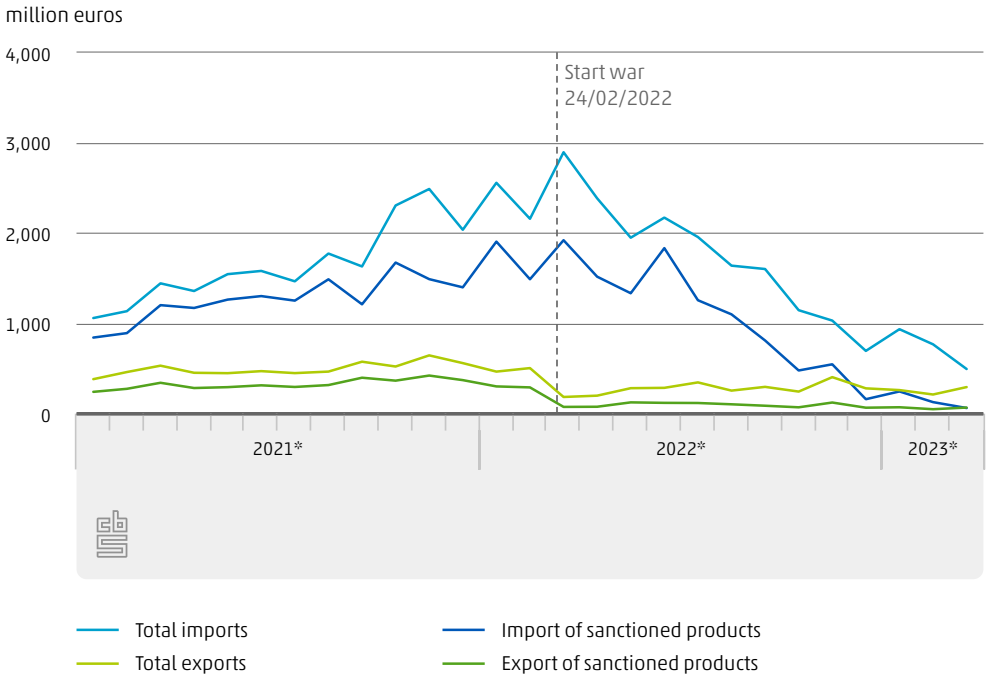
The sanctioned products at CN8 level were linked to the CBS International Trade in Goods (ITG) statistics. We only looked at the effective trade flow, with quasi-transit trade being disregarded. The individual CN8 products were subsequently aggregated to SITC 3 level.

Imports from Russia are hit hard

Figure 2.2.1 shows that the value of Dutch goods imports from Russia continued to rise sharply to the end of March 2022. This was particularly the result of the strong increase in energy prices. The import value began to decline around a month after the start of the war, when the first sanctions came into force. The value of goods imports from Russia stood at €2.2 billion in Q1 2023. This is 71% less than in Q1 2022 and 40% less than in Q1 2021. Russia's share of Dutch imports declined from 4% in Q1 2022 to 1% in Q1 2023.

From March 2022, the export value of Dutch goods to Russia was lower each month than in the same month in 2021, with the sharpest fall in March 2022. In the first three months of 2023, total export value was €768 million. This is 34% less than in the same quarter of the previous year and 44% less than in Q1 2021. As a result, Russia's share of Dutch exports fell from 0.6% in Q1 2022 to 0.3% in the same quarter of 2023.

2.2.1 Goods trade with Russia per month



Imports of crude oil from Russia nearly dried up at the end of 2022

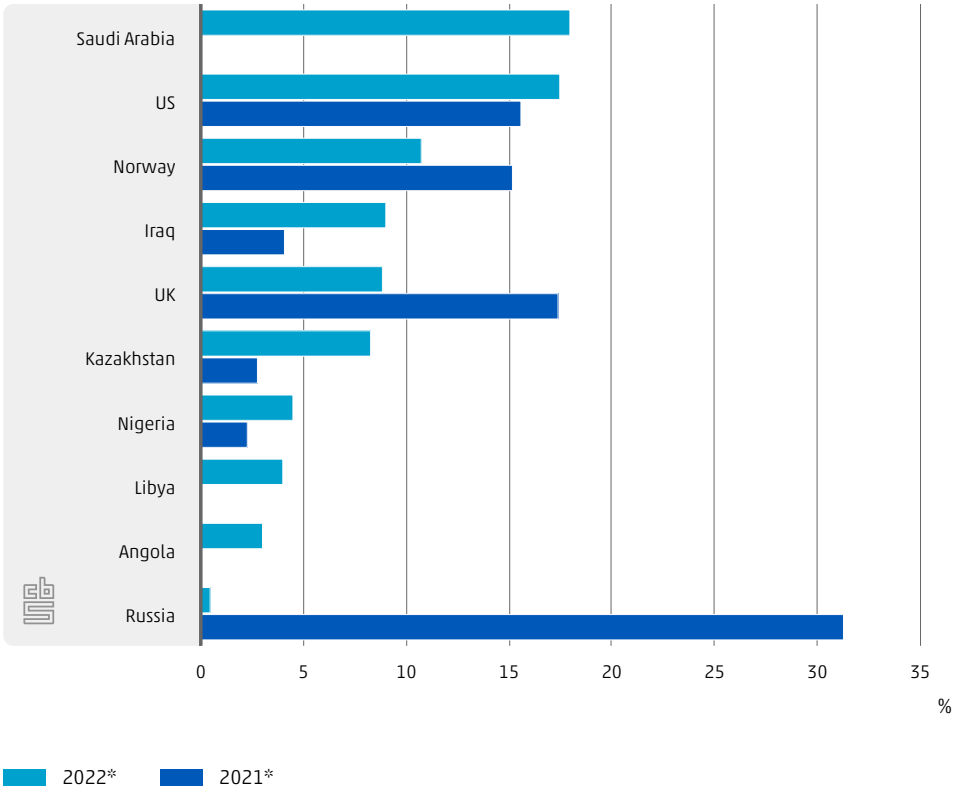
For years, imports of mineral fuels, including crude oil, petroleum products and natural gas, have made up around 90% of the total import value of goods from Russia. Up to the end of 2022, Russia was the largest supplier of crude oil to the Netherlands. In December 2022, the EU banned the import of Russian crude oil by ship and joined the G7 in setting a price cap of $60 per barrel. In practice, the price cap applies only for non-EU countries, because an even tougher measure came into force in the EU in December 2022 – a total boycott of Russian oil (NOS Nieuws, 2022; Customs, 2022).

Aside from mineral fuels, the Netherlands sources relatively large quantities of metals, such as copper and nickel, from Russia. In 2022, Russia was our largest supplier of copper (34% share) and second-largest supplier of nickel (22% share). Russia was also a major supplier of mineral fertilisers to the Netherlands (7% share in 2022). Dutch imports of nickel, copper and mineral fertilisers from Russia have barely decreased since the outbreak of the war in Ukraine (CBS, 2023a). These goods are not subject to the EU sanctions.

The value of Dutch imports of crude oil from Russia continued to increase strongly to the end of March 2022, but then declined virtually continuously. The high import value in June 2022 is attributable to higher fuel prices. In June 2022, a barrel of crude oil cost around €110 on average, which was 59% more than a year earlier. Imports of crude oil from Russia eventually stopped almost completely in December 2022. Although there has been an import ban on Russian crude oil since 5 December, it is possible that Russian oil is still being imported. If this oil is mixed with oil from other countries, it is not possible to work out the country of origin of the oil from its composition (see also CBS, 2023b).

After the import ban on Russian crude oil, Dutch enterprises obtained significantly less crude oil from Russia. In its place, imports of crude oil from Saudi Arabia, the US, Kazakhstan and Iraq in particular increased (Figure 2.2.2). In consequence, Russia's share plummeted from 31% in December 2021 to 1% in December 2022. Dutch enterprises have therefore been replacing Russian crude oil by purchasing oil from other countries since December 2022. For example, the import value of crude oil from Kazakhstan in December 2022 was four times higher than in the previous year. The import value of crude oil from Nigeria and Iraq tripled over the same period. Since the Russian invasion of Ukraine, the West has become more dependent on fossil fuels from countries such as Saudi Arabia, which has huge oil reserves (NOS Nieuws, 2023). Saudi Arabia was therefore responsible for 18% of Dutch crude oil import value in December 2022. The Netherlands needs crude oil and countries such as Norway and the US do not produce enough (Klein, 2022).

2.2.2 Share in Dutch import value of crude oil, December



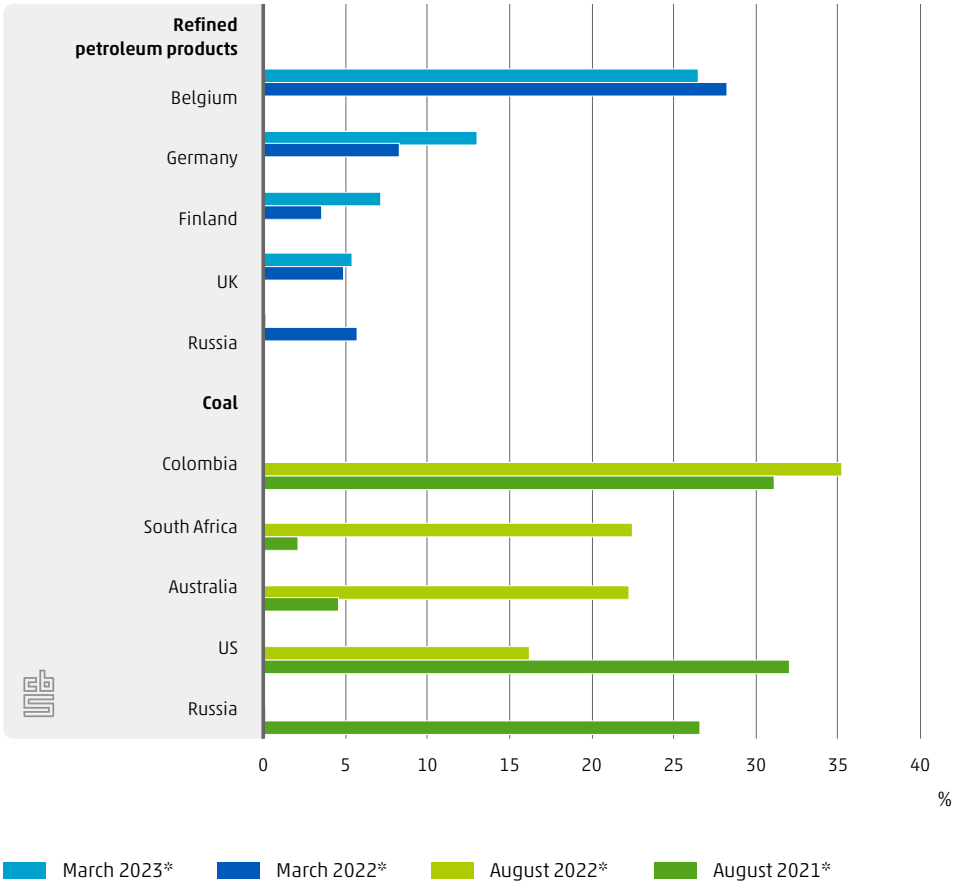
Imports of refined petroleum products and coal also sanctioned

As well as crude oil, imports of refined petroleum products, such as kerosene and diesel, from Russia have also been banned since 5 February 2023. In addition to the ban, the EU countries had already agreed a price cap for refined oil: $100 per barrel for diesel and $45 per barrel for fuel oil, for example (European Commission, 2023b). Diesel and kerosene continue to be required, so the Netherlands needs to seek alternative suppliers. This might possibly cause a shift in global trade (Niewold, 2023). Other major importers, such as China and India, have not imposed any sanctions, so Russia can still export large quantities of oil (Trouw, 2023).

Dutch imports of refined petroleum products from Russia were 47 times lower in March 2023 than in the same month of the previous year. This took the Russian share down from 5.8% to 0.2% (Figure 2.2.3). The Netherlands procured a higher value of refined petroleum products from Germany, the UK and Finland, among others.

Imports of Russian coal were also halted by the EU. From mid-August 2022, EU member states were forbidden to import any more Russian coal (Niewold, 2022). Figure 2.2.3 shows that for the Netherlands, imports of coal from Colombia, South Africa, Australia and the US increased from August 2022.

2.2.3 Share in Dutch imports of refined petroleum products and coal



Eurasian Roundabout: trade via neighbouring countries?

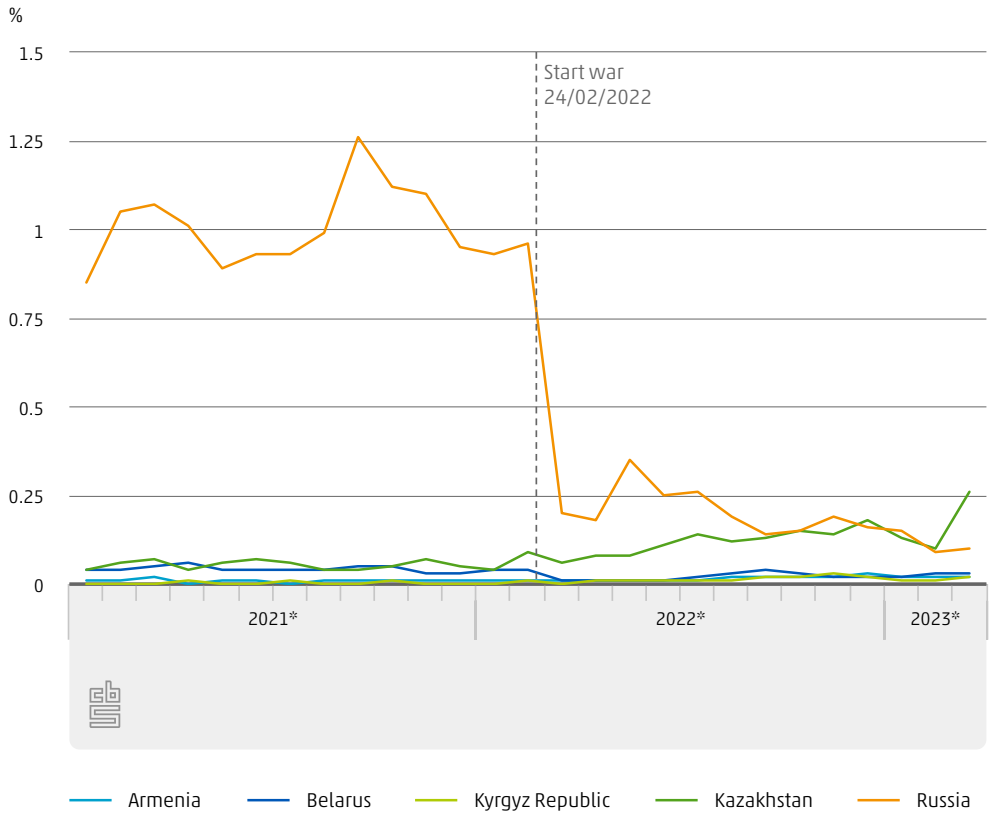
Dutch exports to Russia are very varied. Flowers and plants, medicaments, buses and heavy goods vehicles, agricultural machinery, prepared foodstuffs, and office machines were the six most important product groups in 2019. Together, these groups accounted for 36% of domestic exports to Russia in 2019. Russia was even the Netherlands' most important customer for office machines in 2019, but in 2022, it dropped to 17th place. In Q1 2023, there were actually no more exports to Russia of office machines, buses or heavy goods vehicles produced in the Netherlands. Exports to Russia of agricultural machinery and medicaments manufactured in the Netherlands increased in Q1 2023: these products are not subject to the sanctions imposed.

Due to the war in Ukraine and the sanctions against Russia, domestic exports to Russia have largely come to a standstill. In Q1 2023, exports of Dutch products to Russia slumped by 47% compared to the first three months of 2022, while such exports to Kazakhstan soared by 136%. Armenia bought 121% more Dutch domestic products and the Kyrgyz Republic took 99% more. These changes are particularly pronounced for sanctioned goods that accounted for the bulk of domestic exports to Russia before the war. Chupilkin et al. (2023) see substantial changes in regional trade patterns as a consequence of the war against Ukraine and the subsequent introduction of trade sanctions against Russia. This may result in trade via neighbouring economies being used to bypass sanctions.

Exports of sanctioned goods to Russia virtually collapse

Dutch trade in sanctioned products with countries bordering Russia is also booming (Figure 2.2.4). The Kyrgyz Republic, Armenia and Kazakhstan are in the Eurasian Economic Union together with Russia and Belarus. Goods that are exported to these countries can be shipped to Russia with minimal checks (comparable with shipments within the EU, for example). In Figure 2.2.4, we therefore see increasing interest in Kazakhstan since 2022. This may be because traders sometimes use other countries to evade trade bans (Pols & Mouissie, 2022; Chupilkin et al., 2023; Borin et al., 2023). Dutch exporters may also approach these surrounding countries in their search for new and different markets. In addition to Kazakhstan, Turkey also became somewhat more significant as an export destination for the sanctioned products. In Q1 2022, 1.2% of domestic exports were destined for Turkey, rising to 1.4% for the same period in 2023.

2.2.4 Share of the Eurasian Economic Union in sanctioned domestic exports

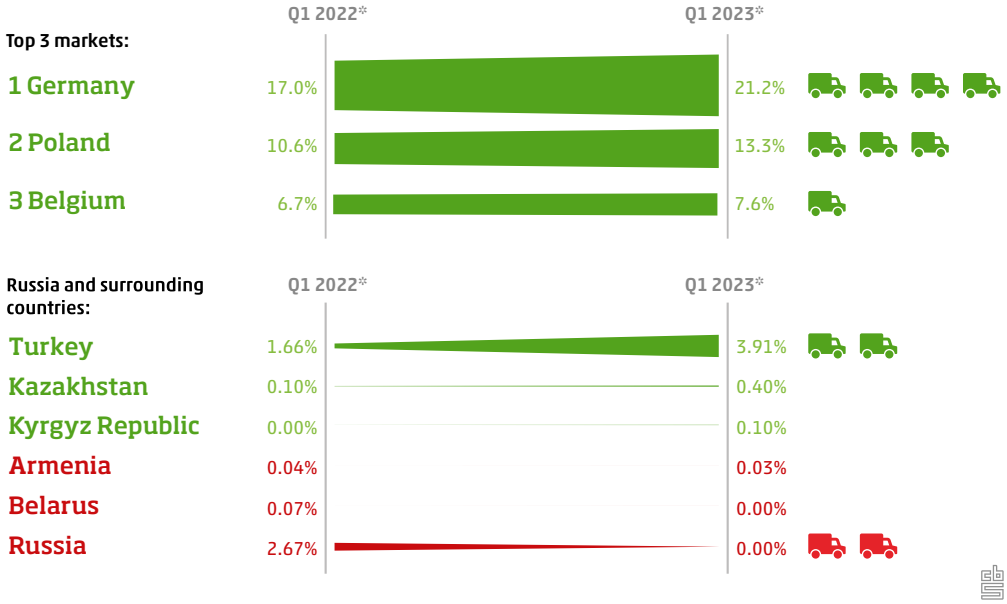


Nearly 4 times more HGVs and buses to Turkey in Q1 2023

The sanctions list includes specific types of machinery and means of transport. Of all other motor vehicles that are on the sanctions list, nearly 3% still went to Russia in Q1 2022 (Figure 2.2.5). In the first three months of 2023, Dutch enterprises did not export any more sanctioned heavy goods vehicles or buses manufactured in the Netherlands to Russia or Belarus. However, significantly more sanctioned motor vehicles were exported to Turkey in the same period.

Exports to Russia and Belarus of office machines produced in the Netherlands also stopped completely in Q1 2023. In the first three months of 2022, Russia still received 7.5% of all sanctioned office machines. Turkey and Kazakhstan in particular became important markets for sanctioned Dutch office machines in Q1 2023.

2.2.5 Share in exports of domestically produced other motor vehicles subject to sanctions



2.3 Volume developments in Dutch trade in goods

We have seen huge growth figures in international trade in recent years. These can be explained partly by the improving demand after the COVID-19 pandemic and an increasing supply of goods due to the recovery of production chains, with fewer shortages of raw materials, chips and freight containers in recent months, which have enabled growth in trade volumes. At the same time, the value was also pushed higher by prices: both 2021 and 2022 were years of unprecedented price rises, partly due to the huge demand, the war in Ukraine and – specifically just after the COVID-19 crisis – continuing disruptions in supply chains (CPB, 2022). The import and export values reported in this publication present an increasingly distorted picture of the actual trade flows, in particular in recent years. For example,

21.0 percentage points of the 23.8% growth in goods exports in 2022 compared to 2021 turned out to consist of price rises.[1)]

Price developments in international trade are important not only to obtain a comprehensive picture of trade: they also play a key role in domestic inflation. In a small and open economy such as that of the Netherlands, domestic consumer and producer prices are partly determined by inflation elsewhere (IMF, 2009; Naug & Nymoen, 1996). In fact, we import and export not only goods and services, but also the price developments thereof.

In order to give a more realistic picture of the development of international trade, this section will provide an overview of developments in the volume of Dutch goods imports and exports. In doing so, we distinguish between product groups and countries. This is because price trends are not the same for all types of goods and all countries.

21% increase in the price of Dutch goods exports in 2022 compared to 2021

Which deflators are used here?

The figures for this section were obtained using the international trade deflators: figures from the National Accounts (CBS, 2023c; CBS, 2023d). These National Accounts deflators are largely constructed on the basis of measured prices in the Producer Price Index (PPI) and supplemented with a few additional sources, for example from Wageningen University & Research. However, this process does assume the concept of international trade based on transfer of ownership[2)], and indices by country and detailed product group are not available.[3)] For this reason, CBS is currently developing price indices for international trade that draw a distinction in terms of the main trading partners and product groups based on the concept of border crossing.[4)] At the time of writing, these new price indices for international trade were not yet available. In this section, we therefore still use the National Accounts deflators by product group, with weighted averages of product groups for countries. This means that we use the National Accounts deflators to determine price developments at SITC 3 level. For countries, we make one average price development per country by aggregating the National Accounts deflators weighted by imports and exports of product groups. A method for identifying price developments at a detailed level, to produce volume figures for international trade at country and product level, is therefore still in development, which means that the figures in this section may differ from figures to be published in the future.

1) According to figures from the National Accounts, in which the concept of change of ownership is central.
2) Goods transactions in which a Dutch enterprise or person transfers the beneficial ownership of goods to a foreign enterprise or person, and vice versa.
3) Not more detailed than the (grouped) divisions in accordance with the CPA 2008 standard classification.
4) Goods movements in which the goods physically cross the Dutch national border, without this always involving change of ownership.

Volume developments by country in this section therefore only take account of differences in the composition of exports or imports between countries of destination or origin. The figures presented here take no account of, for example, differences in the price of the same product between different export markets (or origin countries in the case of imports).

Import volume nearly 4% higher in Q1 2023

The sharp price rises conceal whether and to what extent the volume of Dutch goods imports and exports is growing and how the volume of trade flows is developing. According to National Accounts figures (Table 2.3.1), the price development of Dutch imports in 2022 in relation to 2021 was no less than 24.9%. Volume development was around 1.8%, resulting in a 27.2% increase in value. The value of Dutch goods exports in 2022 was an unprecedented 23.8% higher than in 2021, while the volume of those exports rose by just 2.3%.

In 2023, for which only Q1 figures are available, these developments were already much smaller, partly because we are comparing these figures with the already strong price rises in Q1 2022. Price developments for imports in relation to Q1 2022 were only 4.7%. Together with volume development of 4.0%, this produced an increase in the import value of 8.9%. Over the same period, we see a 5.8% price rise and a 3.9% volume increase for exports. As a result, export value grew by 9.9%.

2.3.1 Development of imports and exports according to the National Accounts

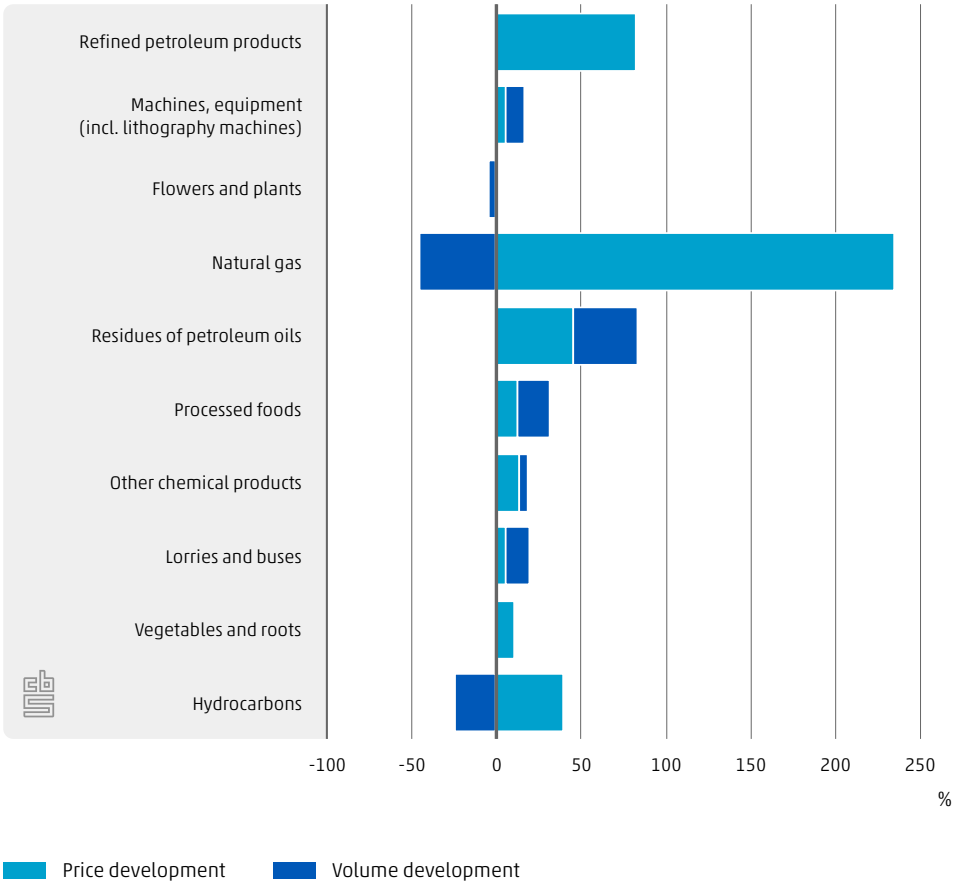
	Value	Price	Volume
	year-on-year growth rate	year-on-year growth rate	year-on-year growth rate
Imports			
2022*	27.2	24.9	1.8
2023 Q1*	8.9	4.7	4.0
Exports			
2022*	23.8	21.0	2.3
2023 Q1*	9.9	5.8	3.9

Exports of petroleum products subject to inflation

In Figure 2.3.2, we zoom in on total exports of the top 10 domestic goods. To determine these, we combine the most detailed figures on price rises from the National Accounts with the International Trade in Goods statistics. Refined petroleum products were the largest product category in 2022, with a rise in export value of nearly 83% from the previous year. However, the price of these exported petroleum products was on average also around 83% higher than in 2021, so that the volume barely changed. The growth in value was therefore completely determined by inflation. For natural gas exports, the price rise was even more extreme, at an average of over 200%. The value growth therefore turns out to have been masking a contraction in export volume.

In many other product categories, export value growth is a combination of growth in price and volume. For example, exports of machinery and devices (including chip-making equipment) increased in price by nearly 6% in 2022 and by nearly 11% in volume, resulting in value growth approaching 17%.

2.3.2 Top 10 domestic exports, development between 2021* and 2022*



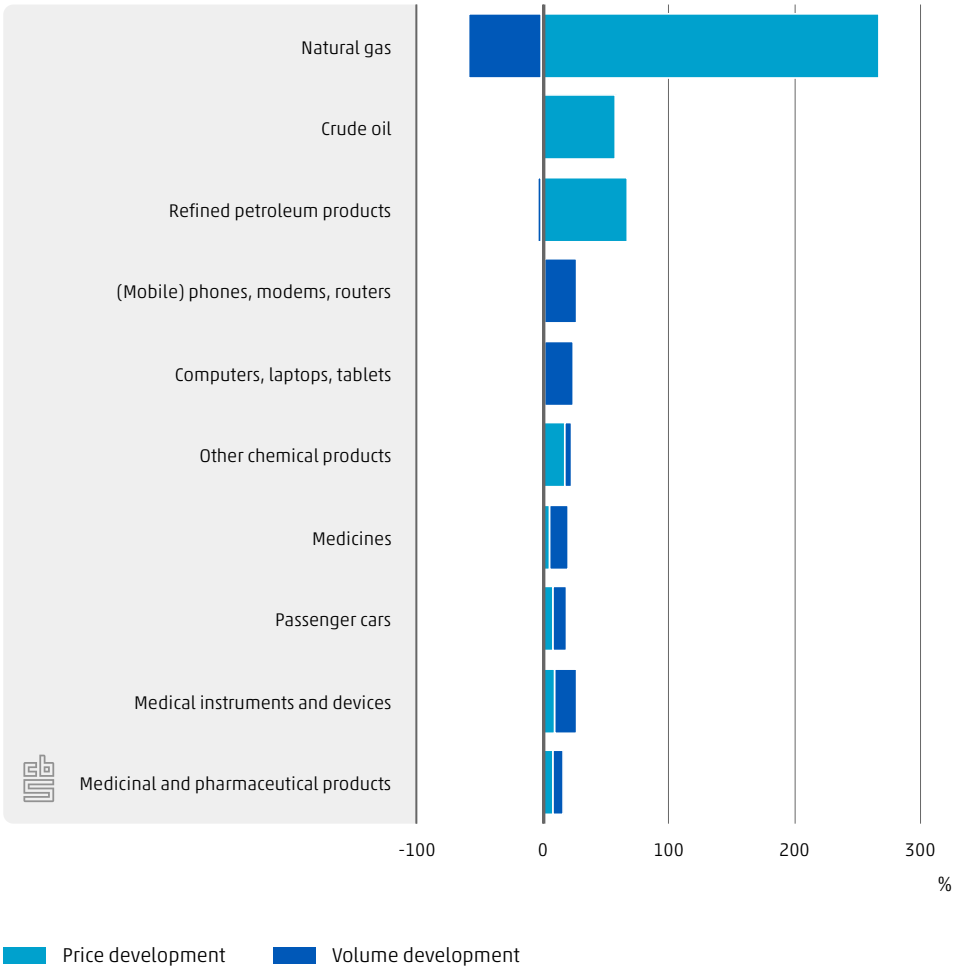
Price of crude oil imports nearly 60% higher in 2022

In terms of value, the biggest import product in 2022 was natural gas (see Figure 2.3.3 for an overview of the top 10 import products). As with natural gas exports, imports saw prices rise more strongly than volume. The import price jumped by an average of over 250%, while the value rose by some 200% from the previous year, so that the import volume decreased. As a result of savings by consumers and enterprises (partly due to the high prices), consumption of other energy sources and a mild winter, we imported less gas in 2022. The price development of crude oil in 2022 compared to 2021 (+58%) was comparable with the value development (+60%): the import volume therefore barely changed, with just a 2% increase. We see a similar picture in refined petroleum products, except that in this case, volume declined slightly.

Computers and laptops, as well as mobile telephones and routers, are product groups for which the import price hardly rose in 2022. An increase in volume was the main factor in the rise in import value. This was also the case for medicaments, pharmaceutical products,

medical instruments and passenger cars. For imported chemical products, the increase in price was the dominant factor.

2.3.3 Top 10 imports, development between 2021* and 2022*



Different trading partners, different prices?

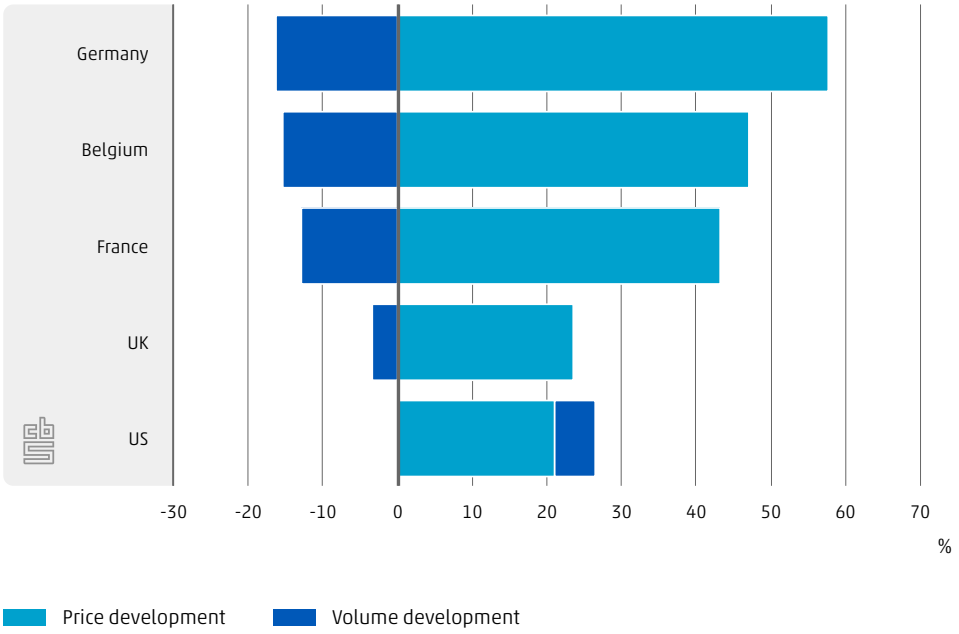
Developments in price and volume differ not only between products, but also between countries. The disparities between countries may be due to: (1) the fact that different countries import/export different products from/to the Netherlands. Countries that mainly import products from the Netherlands with substantial price rises experience a greater price development than countries that buy relatively more products with less significant or no price rises; and (2) the fact that enterprises may charge different export or import prices for the same product in different markets. This is referred to as 'pricing to market' and it depends on multiple factors, including domestic prices, the exchange rate, the market power of the enterprise and the quality of the goods (Krugman, 1986; Atkeson & Burstein, 2008; Hallak, 2006). The figures used in this section only include part (1) of the differences between countries. New, more detailed figures currently still being developed by CBS will give a more complete picture in the future of the differences between countries, by taking both factor (1) and factor (2) into consideration.

Price rise in mineral fuels dominant in trade with neighbouring countries

Figure 2.3.4 distinguishes the price and volume development of exports in 2022 compared to 2021 by country, looking at the top five export markets.

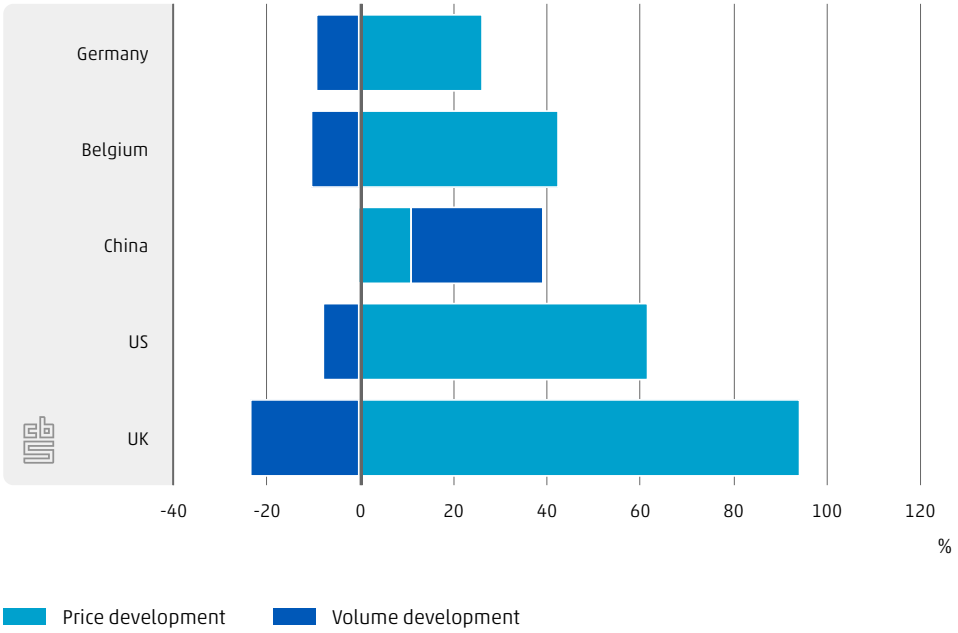
In 2022, the US was the only country that received more Dutch exports by volume than in the previous year. Exports to Germany, Belgium and France in 2022 featured a huge price increase compared to 2021 and at the same time a drop in volume from the previous year. Mineral fuels play a decisive role in the price and volume developments of total Dutch exports: there are major price rises, in particular in exports to those countries that receive significant shares of mineral fuels and mineral fuel products from the Netherlands. We export hardly any mineral fuels to the US, but we do send large amounts of fuel to France, Belgium and Germany in particular – partly processed (refined petroleum products) and partly as re-exports (crude oil, natural gas). The UK also imported smaller shares of goods in terms of volume in 2022 compared to 2021, but this difference is relatively small. The price rise was also relatively limited compared to the countries to which we export significant amounts of mineral fuels.

2.3.4 Top 5 export markets, development of exports between 2021* and 2022*



Dutch imports (Figure 2.3.5) in 2022 present a similar picture to exports: sharp price rises, particularly for imports from the countries where significant amounts of mineral fuels are sourced. The price rise of imported products from the UK and the US was therefore the largest. A price increase can also be seen in the case of Germany and Belgium, although to a lesser extent. Of the top five import partners, imports from China show the smallest price rise. Prices of goods such as computers and laptops, telephones, modems and routers, the bulk of which originate from China, barely rose in 2022 (Figure 2.3.3). Import volumes from China increased substantially, while there was actually a reduction in the quantity of imports from the other countries in the top five.

2.3.5 Top 5 countries of origin, development of imports between 2021* and 2022*



Volume development predominantly positive in top five origin and destination countries without mineral fuels

If mineral fuels are completely disregarded, it appears that volume developments were predominantly positive, both as regards imports and exports. Only imports from Belgium and Germany were comparable to those of the previous year, with growth figures that showed a slight contraction, as was the case with exports to Belgium. Imports from China, the US and the UK, as well as exports to the US, actually grew strongly between 2021 and 2022 without mineral fuels.

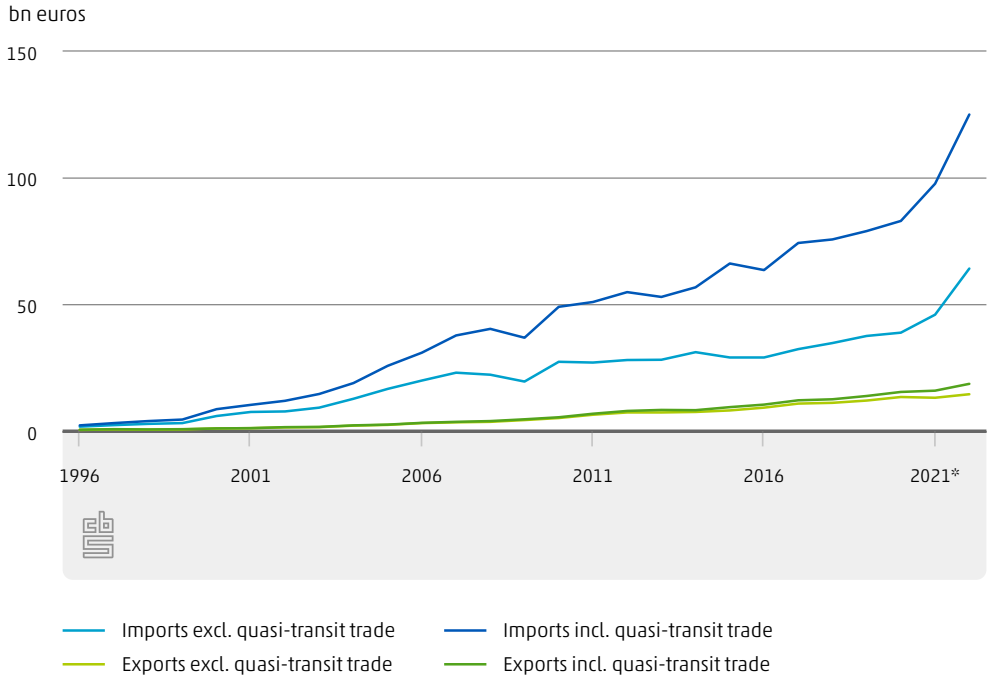
2.4 Dutch goods trade with China

In 1978, under the administration of Deng Xiaoping, China launched a programme of reform and greater openness with regard to foreign trade (open door policy). Isolation and autarky were abandoned, and China was slowly integrated into the global economy (De Wijk, 2019). China's increasing focus on exports to Western countries only really becomes evident in Dutch import figures from the 1990s. From that time on, China has benefited fully from new developments that gave a strong boost to growth in global trade: falling transaction costs; increasing fragmentation of production processes; free movement of goods in the EU; EU expansion; shift of production to China; and increasing use of large container ships (Kuypers et al, 2012; Creemers et al., 2020). After the country joined the World Trade Organization (WTO) in 2001, it could additionally count on better access to new markets and better trading conditions with other WTO members.

Since 1996, total Dutch goods imports from China have increased by a factor of 55, from €2.3 billion to €125.0 billion in 2022 (Figure 2.4.1). More than half of imports from China consist of quasi-transit trade. This involves goods from China that remain in foreign ownership and, after arriving in the Netherlands, continue their journey, to the European hinterland in particular. Another large share (one-third of total goods imports from China) is destined for re-export (transit goods temporarily in Dutch ownership). Finally, there is a small flow of goods (4%) which, after significant processing into a new product in the Netherlands, ends up abroad. This means that only 11% of original imports from China remain in the Netherlands and that 89% ultimately end up abroad.[5)]

Exports to China have also grown sharply over the last decade, although they are at a significantly lower level than imports. Total exports to China have increased by a factor of 31 since 1996, from €0.6 billion to nearly €19 billion in 2022. The much lower level compared to imports is mainly due to the fact that quasi-transit trade and re-exports play a much smaller role here. Once we exclude all re-exports and quasi-transit trade, both on the import and export side, the large trade deficit with China disappears.

2.4.1 Dutch goods trade with China



Goods trade with China has grown much faster than total goods trade

Since 1996, prices of traded goods (see also section 2.3) have risen sharply and with them also the trade values in Figure 2.4.1. At the same time, total global trade has grown strongly – not only trade with China. Because of these trends, in addition to the development of the total goods trade with China, it is also useful to analyse the Chinese share of the total

5) The information on the destination of imports is based on 2021 figures from the National Accounts and further calculations by the Globalisation department of CBS.

Dutch goods trade. An increasing share here indicates growth in trade with China that is stronger than growth in the total goods trade.

14.6% **was China's import share in 2022; the export share was 2%**

On the imports side, including quasi-transit trade, it can be seen in Figure 2.4.2 that the Chinese share has increased substantially, from 1.5% in 1996 to 12.6% in 2010. Afterwards, growth levelled off and the share even declined slightly in 2022. In 2022, 14.6% of the value of goods arriving in the Netherlands originated from China. Growth was evident to a lesser extent in imports excluding quasi-transit trade, with 9.5% of this flow of goods coming from China in 2022.

China's share also grew on the export side, but this has never risen above 3%. In 2022, 2% of Dutch goods exports were destined for China.

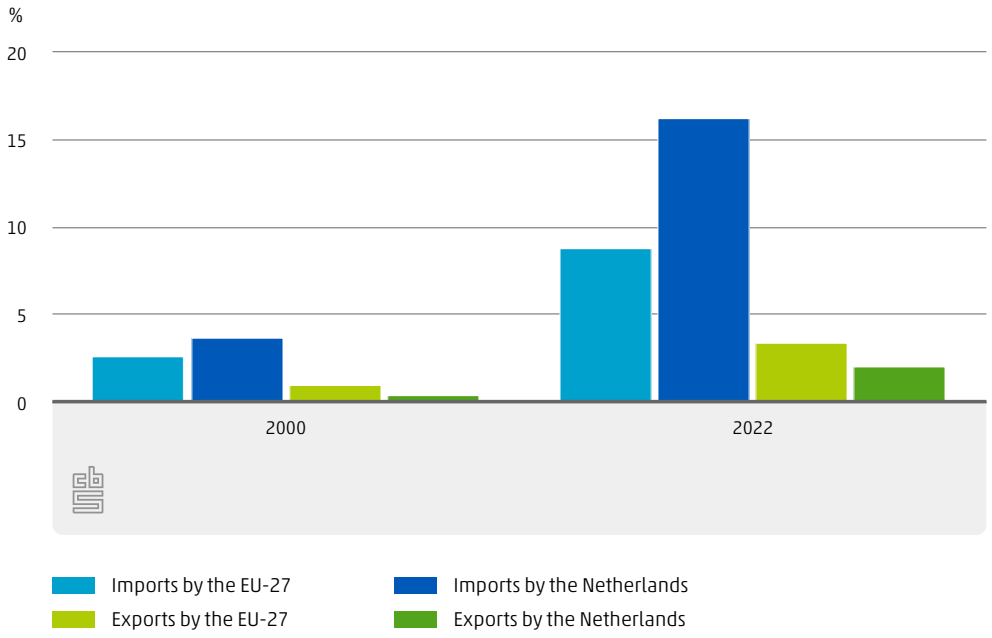
2.4.2 China's share in total Dutch goods trade

The Netherlands is largest EU importer from China and third-largest exporter

Because the Netherlands transports a lot of goods from China on to the European hinterland, Dutch imports from China are very large compared to most other EU countries. The Netherlands is now the largest importer of goods from China[6], just ahead of Germany, and it imports two to three times more than Italy (third place) or France (fourth place). In 2000, the Netherlands was the second-largest importer in the EU, at that time still far behind Germany. According to Eurostat, 16.2% of Dutch imports originated from China in 2022 – significantly more than the Chinese share in total EU imports, which was 8.8% (Figure 2.4.3).

With regard to exports, the Netherlands has risen from seventh place as an EU supplier to China in 2000 to third place in 2022, behind Germany and France. In spite of the high position of the Netherlands, China's share in Dutch exports is lower than the share in total EU-exports. This is due to the scale of German exports to China. Nearly half of total EU exports to China (€230 billion in 2022) are from Germany (€107 billion). Dutch exports to China are at a much lower level (€19 billion). The Netherlands does nevertheless benefit indirectly from Germany's considerable exports to China as a supplier of car or machine parts to Germany. In 2019, nearly €2 billion of added value created in the Netherlands flowed through Germany to eventually reach China (Aerts et al., 2022).

2.4.3 China's share: the Netherlands vs. the EU-27



Source: CBS, Eurostat

6) Eurostat applies a broader definition for goods imports from China than CBS does. As a result, imports totalled €139 billion in 2022 according to Eurostat (instead of €125 billion). Based on that figure, the Netherlands is the biggest importer of goods from China of all EU countries and the Chinese share of total goods imports was 16% in 2022 (instead of 15%). The difference between CBS and Eurostat is methodological: Eurostat publishes figures for extra-EU imports based on country of origin (where the goods were made) and CBS publishes figures based on the country where the goods were last located. The difference concerns, for example, Chinese goods that come from China but enter the Netherlands via Singapore or Hong Kong.

Imports from China mainly high-tech

The products from China with the highest import value in 2022 were computers, laptops and tablets (€22.7 billion) and telephones, modems and routers (€21.0 billion). A long way behind are semiconductor components (mainly solar panels; see also section 2.5), toys and electrical appliances. Without quasi-transit trade and re-exports, the first groups of goods mentioned above remain at the top of the list but the import value is considerably lower. We only have 2021 figures for these: €1.3 billion for telephones, modems and routers, and €1.9 billion for computers, laptops and tablets.

A completely different pattern can be seen in the case of India, another Asian country that is a strong focus of interest, although imports from India are at a much lower level. India is also a source of relatively large quantities of telephones and similar products (Table 2.4.4), but it additionally produces very different goods, such as petroleum products, aluminium or zinc. Partly due to its internationally focused policy, economic growth and huge population, India is a major player in the global trading market (Creemers et al., 2023). India could help the EU reduce its one-sided dependencies on China. In return, increased trade, investment and cooperation on innovation could help India strengthen its own manufacturing industry (Okano-Heijmans & Kranenburg, 2023). After a series of unsuccessful talks, the EU and India are currently resuming negotiations on a free trade agreement (André, 2022).

Exports to China are led by specialised machinery (e.g., Dutch chip-making machines), prepared foodstuffs (mainly baby milk powder) and pharmaceutical products, followed at some distance by medicaments and semiconductor components. If we only consider domestic exports (excluding quasi-transit trade and re-exports), then pharmaceutical products and medicaments drop out of the top five, to be replaced by Dutch pork and Dutch electromedical and radiological devices.

A comparison between China and India also fails when it comes to exports. The share of significant products shipped to India from the Netherlands is extremely small compared to China. Exports to India consist to a great extent of low-value products such as scrap, non-ferrous metals scrap or petroleum residues. For example, metal recyclers export large quantities of metal scrap to India (Creemers et al., 2023).

2.4.4 Most-traded products with China and India (including quasi-transit trade), 2022*

Most imported from China	€bn	Most imported from India	€bn
1. Computers, laptops, tablets	22.7	1. Petroleum products	1.4
2. Telephones, modems, routers	21.0	2. Telephones, modems, routers	1.1
3. Semiconductor components	12.8	3. Pharmaceutical products	0.6
4. Toys	5.7	4. Aluminium	0.4
5. Electrical appliances	4.9	5. Zinc	0.3

Most exported to China	€bn	Most exported to India	€bn
1. Specialised machinery	2.4	1. Pharmaceutical products	0.2
2. Prepared foodstuffs	2.3	2. Scrap	0.2
3. Pharmaceutical products	2.3	3. Remnants of non-ferrous metals	0.2
4. Medicaments	1.2	4. Medical instruments	0.2
5. Semiconductor components	1.0	5. Petroleum residues	0.2

2.5 Import of raw materials and products for our green transition

Under the Green Deal, Europe is committed to reducing its carbon emissions by 55% by 2030 in relation to 1990 levels. By 2050, Europe should be the first climate-neutral continent. The European Commission says that member states should save energy, seek more diverse energy suppliers and become less dependent on fossil fuels as soon as possible (Brands, 2022).

Our green transition entails a greater demand for metals. Copper, lithium and a range of rare earths, among others, are required to manufacture products such as wind turbines, solar panels and batteries. These metals are therefore critical materials for the success of the energy transition, with the Netherlands and the EU currently dependent on supplies from other countries (Engelsman et al., 2023). Geopolitical experts are concerned that we are going to swap our current high dependence on autocratic regimes for the use of fossil fuels for dependence on other autocratic regimes for the use of raw materials and products for a green transition in the near future (Witteman, 2022).

This section looks first at Dutch imports of key end products and product components for the green transition (referred to here as 'transition goods'). The focus here is on the import value of the various transition goods and their origins. It then examines Dutch imports of key critical raw materials for the green transition (referred to here as 'transition materials'), again looking at where these come from.

Imports of transition goods

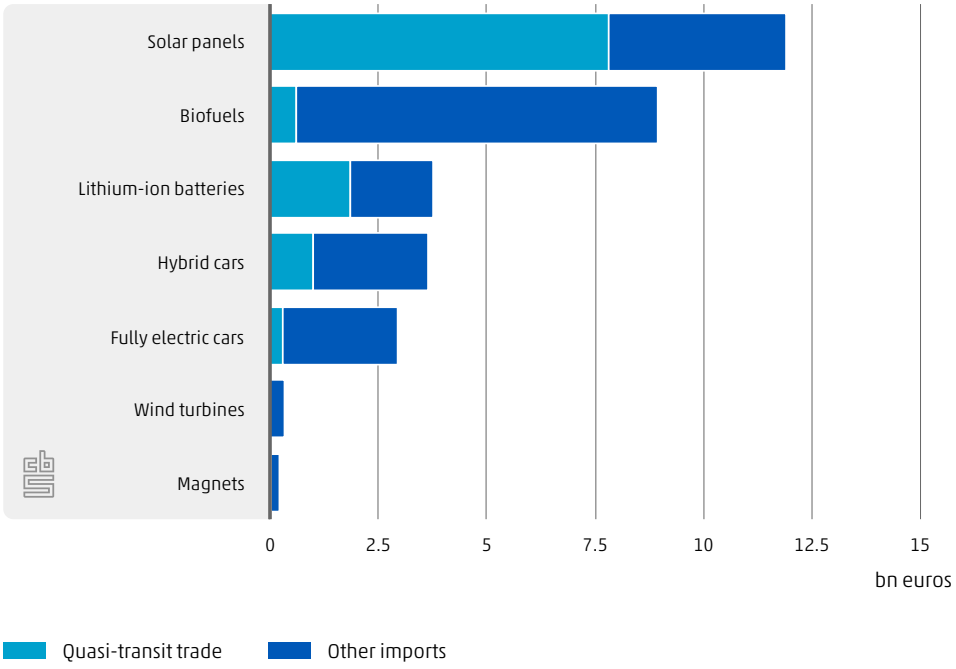
Renewable energy is a crucial part of the green transition as formulated in the European Green Deal. For instance, by 2030, 45% of energy generated in the EU must be sustainable (European Parliament, 2023a). The main renewables are solar and wind energy.[7] All new large buildings will have to be equipped with solar panels by 2025. From 2029, this will also apply to new-build homes (Brands, 2022). The Netherlands imported €12 billion worth of solar panels in 2022 (Figure 2.5.1). A large part of this (nearly €8 billion) was foreign-owned transit trade (known as quasi-transit trade). Generators and magnets for wind energy were imported for relatively small amounts (in total €0.5 billion).

7) The nuance here is that both solar and wind energy, as well as electric cars, require large and increasing amounts of metals and minerals, and that these have to be mined. The extraction of these raw materials is still too often accompanied by human rights violations or loss of biodiversity. Responsible extraction of raw materials is important if we are to ensure that the transition to green energy actually is a green transition (Van der Wal, 2023).

Another cornerstone of the European Green Deal is sustainable mobility. This includes a ban on new combustion engine cars from 2035 and fast-charging stations for electric cars every 60 kilometres along main EU roads (European Parliament, 2023b). In 2022, the Netherlands imported €3.7 billion worth of hybrid cars and €2.9 billion worth of fully electric cars. In 2021, three-quarters of total electric car imports were destined for the Dutch market. In addition, lithium-ion batteries are important for electric cars and Dutch imports of such batteries totalled €3.8 billion in 2022. In 2021, more than a fifth of the imports of these batteries were destined for the Dutch market.

Finally, biofuels (including liquid biofuels) are also related to green energy (Eurostat, 2022). These are biodegradable fuels produced from vegetable oils, animal fats or recycled fat from restaurants. They can significantly reduce total carbon emissions, provided they are produced sustainably and their production does not compete with food production in relevant countries[8] (IEA, 2011). The Netherlands imported €8.4 billion worth of liquid biofuels in 2022.

2.5.1 Dutch imports of transition goods, 2022*



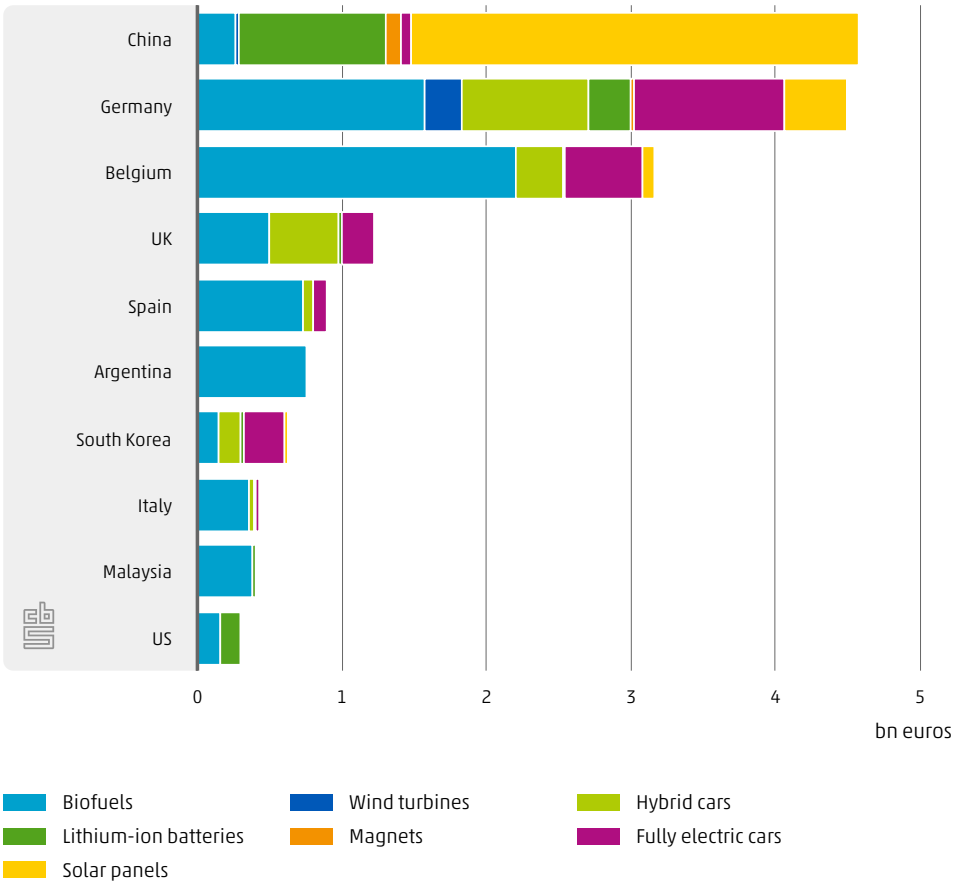
China is largest supplier of transition goods

Based on the above selection of transition goods, China is the largest supplier for the Netherlands (here, imports excluding quasi-transit trade) (Figure 2.5.2). China has invested heavily in green alternatives to oil and gas in recent years. For example, the country manages more than half of the world's renewable energy. This is partly because China itself extracts critical materials for the green transition, such as rare earths, and partly because it is involved in processing, logistics and mining outside China (Van den Elshout, 2022). Imports of transition goods (Figure 2.5.2) from China slightly exceed imports of those goods from

8) At the same time, biofuels from food crops are highly controversial because they can take over valuable agricultural land and potentially lead to deforestation. Biofuels also create emissions of nitrogen oxides and particulate matter (Rathenau Instituut, 2021).

Germany (€4.6 billion and €4.5 billion respectively). Above all, the Netherlands obtains a lot of solar panels from China, but also spends a significant amount on lithium-ion batteries. From Germany, it imports considerable amounts of biofuels and large numbers of electric cars (hybrid and fully electric). Belgium is also a major supplier (€3.2 billion), mainly of biofuels.

2.5.2 Top 10 suppliers of transition goods, excl. quasi- transit trade, 2022*



As well as the €3.1 billion worth of solar panel imports from China, the Netherlands imported another €7 billion worth of solar panels from China in 2022 that immediately left the country in the form of quasi-transit trade. Of total solar panel imports (excluding quasi-transit trade), more than three-quarters came from China in 2022. A relatively large share of lithium-ion batteries also come from China: €1.0 billion out of a total of €1.9 billion of regular imports, accounting for a 53% share. Through targeted investments, China is well-placed to produce millions of lithium-ion batteries, for example (Engelsman et al., 2023).

The other seven countries in the top 10 suppliers of transition goods are especially important in the supply of biofuels. Electric cars in particular are imported from the UK and South Korea.

Imports of transition raw materials

We need a variety of raw materials for the production of solar panels, wind turbines and electric cars. The global switch to green energy is therefore boosting demand for a number of crucial raw materials. For these, Europe largely depends on imports from other countries (Albers, 2023). The supply of these raw materials is subject to geopolitical shifts.

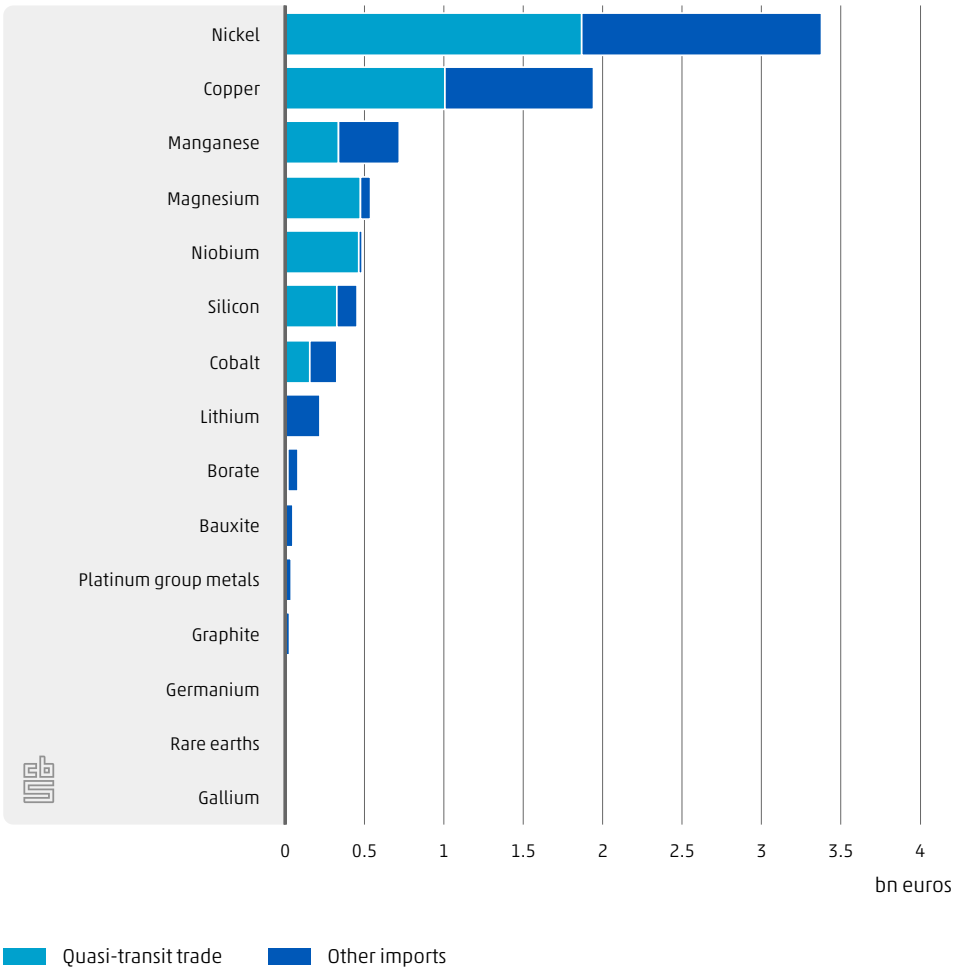
A great many critical raw materials are linked to the green transition in Europe. For example, cobalt, lithium, nickel, graphite and manganese are essential for the production of lithium-ion batteries in electric cars (ZERauto, 2019). Compared to a conventional car, an electric vehicle requires at least six times more critical raw materials (IEA, 2021). The European Commission believes that by 2050, demand for lithium will be 57 times higher than it is now (Cooper et al., 2023). Many critical raw materials, such as lithium, are not scarce in absolute terms, but they are relatively scarce because demand is increasing more rapidly than they can be produced (Koenis, 2023; Engelsman et al., 2023).

Magnesium is also listed in Figure 2.5.3 because magnesium batteries could possibly be a safer and cheaper alternative to lithium batteries (Groot, 2019). Furthermore, germanium, silicon, gallium and copper, among others, are needed to produce solar energy, and rare earths, niobium and borates, for example, are important for manufacturing wind turbines (European Commission, 2020). Gallium and germanium were in the news recently because China is going to regulate their export by establishing export licences that could theoretically result in exports to specific countries being refused (Marselis, 2023). In addition, the rare earth neodymium is essential in the production of 'super magnets' for wind turbines, but also for electric cars (Groot & Vestergaard, 2022). Platinum group metals, among others, are important in the production of hydrogen electric cars in addition to conventional battery-powered electric cars (European Commission, 2020).

Figure 2.5.3 lists 15 raw materials that the European Commission sees as critical or strategic and that can also be firmly linked to the green transition. Critical raw materials are commodities with a relatively high importance for the European economy and also a relatively high supply risk (European Commission, 2023c). The mining of critical materials does sometimes have major drawbacks, such as human rights violations connected with cobalt mining in Congo (Kara, 2023) or excessive pressure on the environment. For example, 1,700 litres of water are needed to mine 1 kilogram of lithium in Chile, which leaves farmers short of water (Hickel, 2020).

The European Commission does not consider copper and nickel to be critical, but it does see them as strategic, due to their key role in the green transition. In addition, their role in the digital transition, defence, aviation and the aerospace sector is under examination (Boele, 2023). They are also the raw materials that the Netherlands imports the most. Imports of nickel in 2022 totalled €3.4 billion (of which €1.9 billion in quasi-transit trade) and €1.9 billion worth of copper was imported (of which €1.0 billion in quasi-transit trade). A long way behind are imports of manganese, magnesium, niobium, silicon, cobalt and lithium. The other critical and strategic raw materials are hardly ever imported directly as raw materials (more often indirectly, as a building block for an end product).

2.5.3 Imports of critical and strategic transition raw materials, 2022*



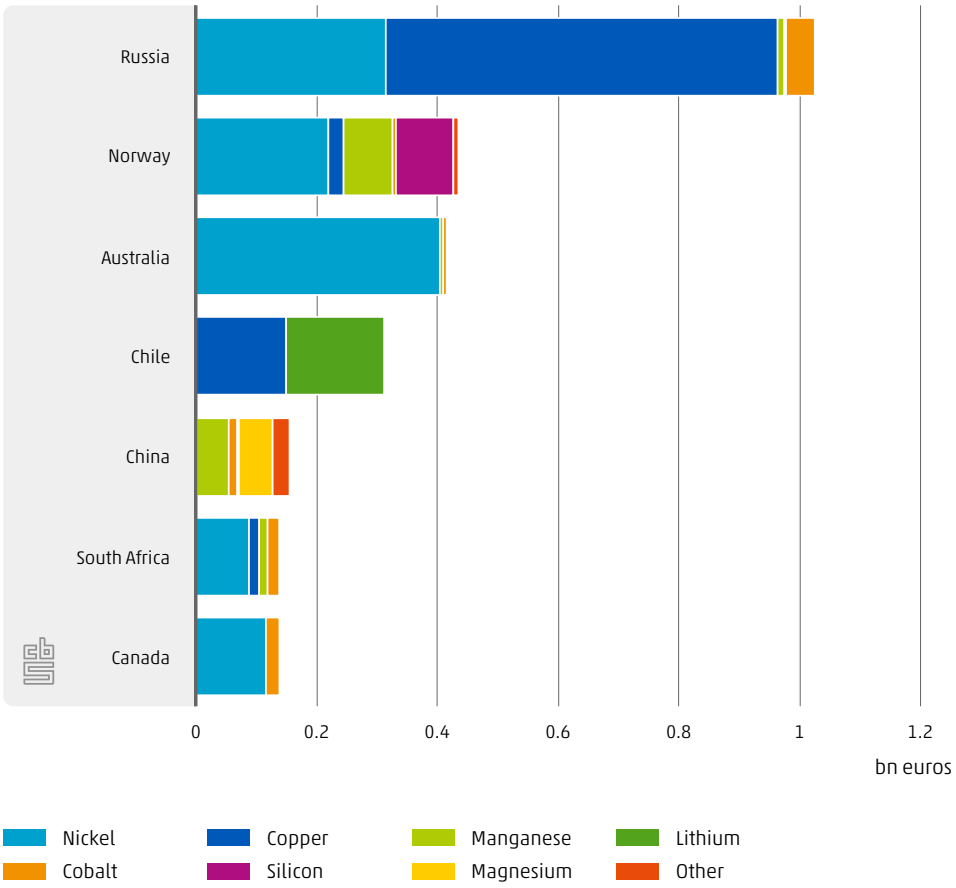
Russia is largest supplier of critical and strategic transition raw materials

Figure 2.5.4 shows the main countries of origin for the 15 critical and strategic raw materials referred to. Among them, Russia is the largest supplier. In 2022, more than €1 billion worth of transition raw materials were procured from Russia, the bulk of which was copper and nickel. Norway (nickel, manganese, silicon) ranks second and Australia (virtually only nickel) third. Lithium, together with copper, is mainly sourced from Chile. These countries are followed at some distance by China (manganese, magnesium, rare earths), South Africa and Canada (mainly nickel). The top seven are therefore all non-EU countries.

China is thus not among the top suppliers of transition raw materials, but globally, the country does play a major role in almost all green raw material supply chains. For example, it is the world's largest processor of copper, nickel, cobalt and lithium. For rare earths, China is both the largest raw material producer and the largest raw material processor (IEA, 2021). Moreover, China has properties outside its territory. For example, 15 out of 19 cobalt mines in Congo are fully or partly owned by China, and a large lithium producer in Chile is also partly owned by China (Global News, 2023).

A key difference between China and Russia is that Russia is only a source of transition commodities, while very large amounts of transition goods, such as solar panels, lithium-ion batteries and magnets, which already contain those critical raw materials, such as rare earths, are imported from China. If you include these indirect imports (via end products or components), China is more important for our green transition than Russia. Imports from China (€4.7 billion) are then more than four times higher than imports from Russia (over €1 billion). Furthermore, the supply risk of raw materials from Russia (nickel, copper) is limited, while the biggest supply risk of all raw materials is associated with rare earths and these mainly come from China (European Commission, 2020).

2.5.4 Main suppliers of critical and strategic raw materials, excl. quasi-transit trade, 2022*



There are also other transition materials. These are neither critical nor strategic, but due to their many applications, they are still important for the green transition. In first place is aluminium[9], which, just as copper or iron ore, is important for all parts of the green transition. One example is the required expansion of the electricity grid for solar panels, electric cars and wind turbines, for which the Netherlands depends on copper and aluminium (Van Gestel, 2022). Materials such as tin, silver, zinc (for solar energy), chromium and steel (for wind turbines) also play a role in the green transition.

9) Aluminium is not a raw material, but a metal produced from the raw material bauxite. Bauxite is itself a critical raw material, but hardly any is imported into the Netherlands (Figure 2.5.3). Aluminium, however, is a major import, with a total of €9 billion worth imported in 2022, of which more than €5 billion in quasi-transit trade. Aluminium is mainly imported from Norway and Iceland, but also from countries such as India, Russia and Mozambique.

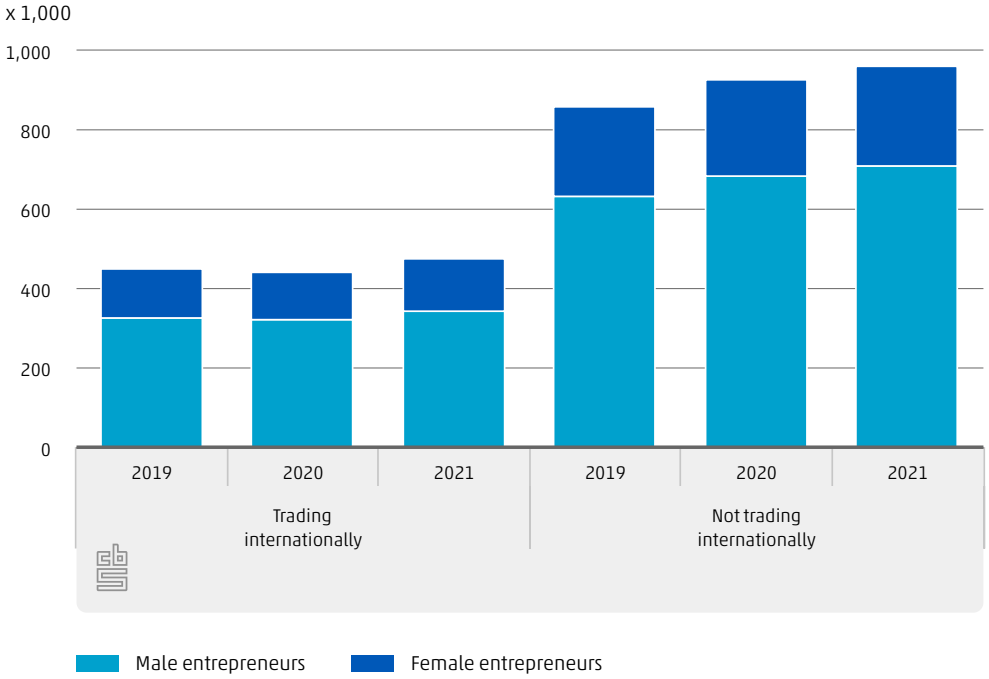
2.6 Women entrepreneurs at internationally operating firms

Encouraging female entrepreneurship is in line with a number of UN Sustainable Development Goals aimed at promoting equality and inclusivity in economic activities (United Nations, 2023). In this context, the role of women in international trade is neglected and insufficiently researched (Dijkhuizen & Majoor, 2019). For some years, CBS has provided insight into the development of trading enterprises led by men and women in 'Dutch Trade in Facts and Figures' and through the publication of tables (CBS, 2020). For years, the Dutch government has been pushing for more women in international trade, through specific trade missions, among other initiatives. With programmes such as 'Groei over grenzen' (Growth Beyond Borders), the Ministry of Foreign Affairs and the Netherlands Enterprise Agency aim to help enterprises, and specifically enterprises led by women, to achieve their international ambitions and thus become more productive and successful (Central government, 2022; Hoekstra & Schreinemacher, 2022). In this section, we analyse the similarities and differences between men and women who head firms that trade internationally.

In 2021, nearly 475 thousand entrepreneurs led enterprises that imported and/or exported goods and/or services (Figure 2.6.1). That is more than one in three of all entrepreneurs in the Dutch business economy, slightly more than in 2020 but still one percentage point lower than in 2019. Agriculture; forestry and fishing; financial institutions; public administration; education; health care; culture, sports and recreation; ideological and political organisations; wellness and funeral services; households; and extraterritorial organisations and bodies are outside the Dutch business economy. Of the 475 thousand entrepreneurs at the head of an internationally operating firm, 130 thousand were women and 345 thousand were men. This means that in 2021, the share of women (27%) was one percentage point higher for firms that operate internationally than for those that do not. These proportions were exactly the same in 2019 and 2020. If we look at the shares of male and female entrepreneurs that traded internationally in 2021, we also see very little difference. Of all female entrepreneurs, 34% traded internationally in 2021 against 33% of all male entrepreneurs.

At the overall level, international trade therefore seems to have little or no correlation with the sex of the entrepreneur. Later in this section, we consider possible differences in trade value or differences within industries. These overall figures are less consistent with the international literature, which shows that in the Netherlands, as well as other countries, the share of female entrepreneurs trading internationally lags behind the share of male heads of enterprises that also do so (Dijkhuizen & Majoor, 2019). Part of the explanation may lie in the methodological demarcation of female entrepreneurship. The aforementioned report only looks at exports, while in this section, we include both imports and exports. In addition, firms are counted here instead of entrepreneurs as in the study cited. Firms are defined by CBS as 'led by women' if at least one female entrepreneur is involved in the business, regardless of the number of male entrepreneurs.

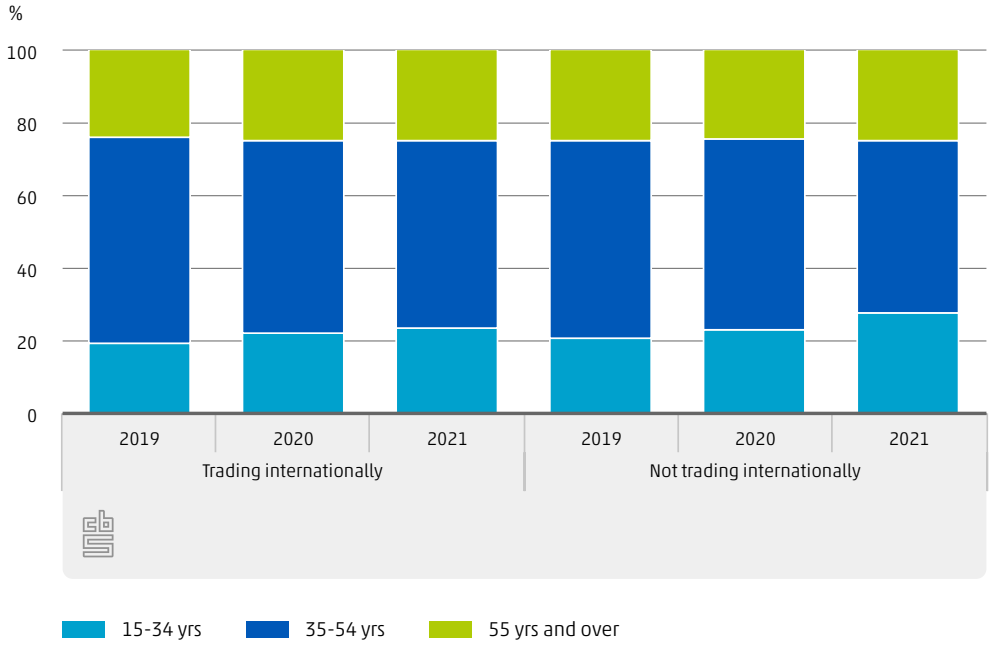
2.6.1 Entrepreneurs by sex and international orientation



Trading entrepreneurs slightly older than non-trading entrepreneurs

In 2021, 46% of all entrepreneurs in the Dutch business economy were aged between 35 and 54 years. Slightly more than a quarter were older and the same proportion were younger. There was a slightly higher concentration of 35 to 54-year-olds among entrepreneurs who trade internationally (50%). More specifically, slightly more male entrepreneurs were 55 years or older than was the case for women; this was also true of entrepreneurs at the head of enterprises engaged in imports and/or exports. Compared to female entrepreneurs not involved in trade, fewer women at enterprises *with* international trade were younger than 35 years (23% versus 27%; Figure 2.6.2). However, it does appear that the share of young female entrepreneurs is growing, regardless of the firm's international orientation. The share of male entrepreneurs aged younger than 35 years also grew between 2019 and 2021. Men and women who lead an enterprise that trades internationally are thus older than entrepreneurs at enterprises without international trade. The relationship between age and the international operations of enterprises barely differs for men and women.

2.6.2 Female entrepreneurs by age and representation in international trade

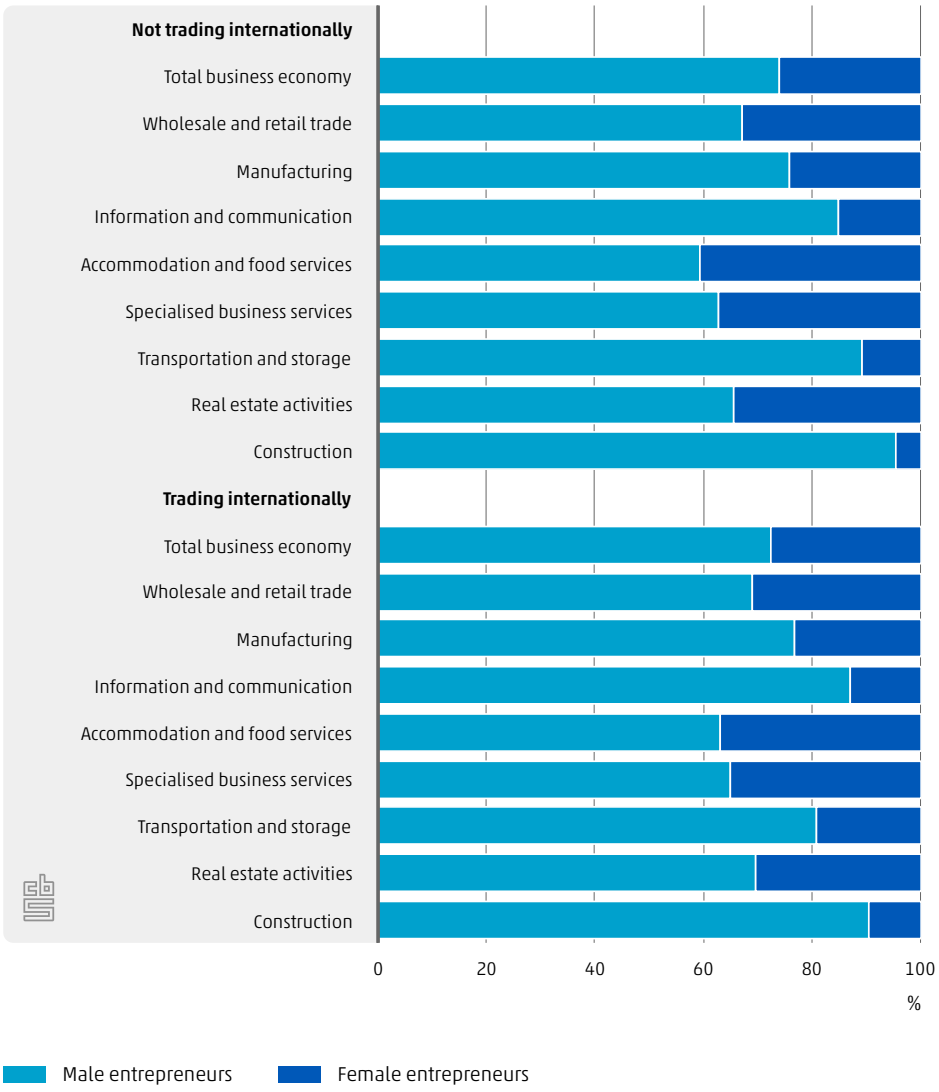


Female entrepreneurs relatively strongly represented in trade, business services and accommodation and food services

International orientation is highly dependent on the industry in which a firm operates. For example, in 2021, 50% of all entrepreneurs in the wholesale trade operated internationally, but only 18% of those in construction. Enterprises operating in manufacturing (44%) and information and communication (40%) also have a relatively strong international orientation. If we look at the industries in which the 380 thousand firms led by women are strongly represented (Figure 2.6.3), it is striking that the share of female entrepreneurs in relation to the total business economy (26%) is larger in accommodation and food services (39%), business services (36%) and wholesale trade (32%). In the information and communication; transportation and storage; and construction industries, firms led by men were relatively strongly represented. This is a reflection of the ratio of men to women employed in these industries (CBS, 2023e).

This pattern of more and less strong female representation is also present in the group of enterprises that operated internationally in 2021. If we compare the share of women entrepreneurs between firms that operate internationally and those that do not, we see that the percentage of internationally operating enterprises led by women is only slightly higher among firms belonging to the construction industry (10% compared to 4% in firms in the same industry that do not trade internationally) and transportation and storage (19% compared to 11%). However, the share of firms led by women in these industries involved in trade is still substantially smaller than the share of the totality of firms operating internationally: there is a woman at the head of 26% of all firms that operate internationally. It therefore appears that the industry in which an entrepreneur works is a greater determining factor for international orientation than sex or age. A relatively large number of women work and are entrepreneurs in some industries, while men are relatively strongly represented in other industries.

2.6.3 International orientation by sector and sex, 2021



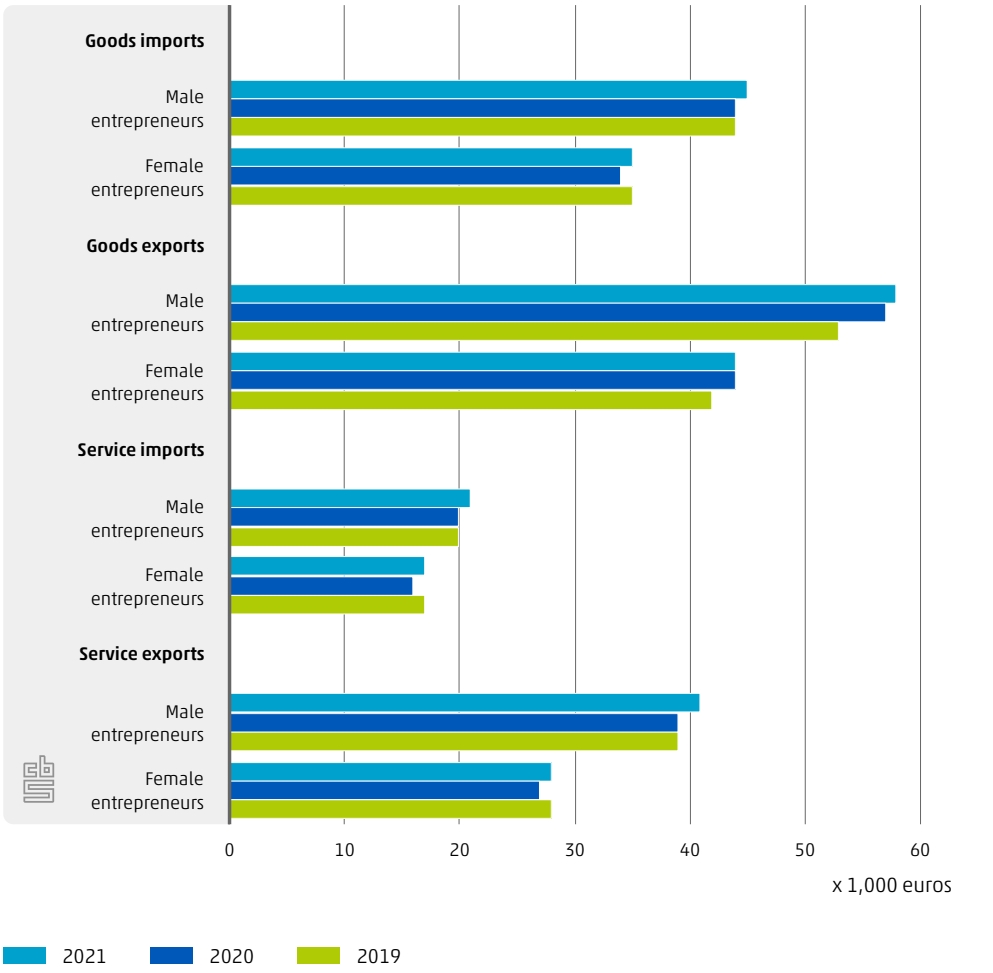
An analysis of the international orientation of enterprises within various industries shows that international trade is not strongly linked to the sex of the person at the head of a firm. In wholesale and retail trade, half of the firms operate internationally, regardless of the sex of the person in charge. A smaller proportion of firms within renting/leasing and other business services, as well as construction, are internationally oriented. It is notable that the small number of female-led firms in construction are more likely to trade across national borders. Within the transportation and storage industry, where the share of internationally operating enterprises is 30%, firms headed by women are also more likely to operate internationally (44%) than those where men are at the helm (28%).

Median trade value lower for firms led by women

Internationally trading enterprises led by female entrepreneurs trade fewer goods and services by value than those led by men.[10] On average, the trade value between 2019 and 2021 was highest for exports of goods, whether firms were led by men or by women. However, the median export value of firms led by women is one-quarter lower than that of firms managed by men. The difference in trade value is even greater in exports of services. Firms headed by women exported on average around one-third (€13 thousand) less than those run by men in 2021. In imports of services, the difference between firms led by a woman or man is actually relatively small. Firms with a female entrepreneur imported 19% less in 2021 than firms with a male entrepreneur.

For each type of trade, the trade value is therefore considerably higher for internationally trading enterprises headed by a man. In addition, the difference between the median trade value of firms led by women and those led by men was larger in 2021 than in 2019 for each type of trade. Female-led firms therefore export and/or import less on average, and the difference compared to firms led by men increased in absolute and relative terms between 2019 and 2021.

2.6.4 Median trade value of internationally trading enterprises, by sex



10) Firm size may play a role in the difference in trade value between enterprises led by women and those led by men. This study did not consider the size or turnover of enterprises led by either men or women.

In conclusion, we can state that the share of women in the total population of entrepreneurs in the Dutch business economy is low at 26%, but that there are few differences between men and women in international entrepreneurship. A similar share of women and men operated internationally in 2019, 2020 and 2021 and the age differences are also limited. What is striking is that enterprises where women are in charge have a lower trade value in both imports and exports of goods *and* services. In addition, we see a relatively strong representation of enterprises led by women in the industries where more women are employed. The international orientation of enterprises is thus strongly linked to the industry involved, and the differences between men and women are a reflection of this.

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3 International trade in goods: composition and geography

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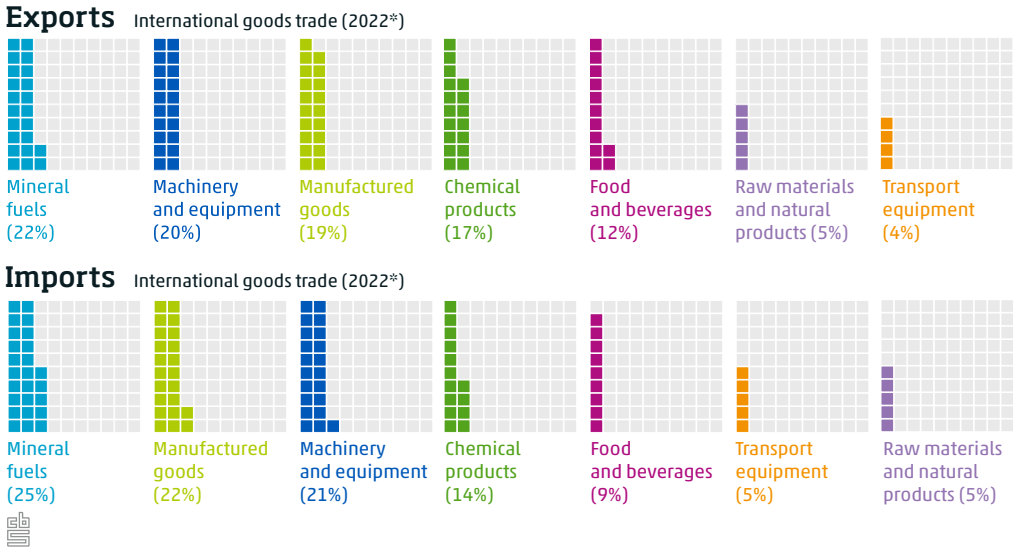


This chapter deals with the composition and geographical dimension of the Dutch goods trade. What did the trade portfolio of the Netherlands look like in 2022? Which goods saw falls in imports and exports and which experienced rises, compared with previous years? What are the main countries of origin and destination for Dutch trade in goods? How important is the Netherlands for the goods trade of all other countries in the world? How is the Dutch market share in global trade developing? In this chapter, we answer these and many other questions by analysing the composition and geographical dimension of Dutch goods exports and imports.

3.1 Key findings

Dutch goods exports in 2022

- In 2022, Dutch goods exports increased by 30.4% to €731.4bn. The increase in export volume was 2.3% compared to 2021. This indicates significantly higher export prices.
- The value of Dutch re-exports grew more rapidly than domestic exports in 2022. This was due to a relatively large increase in re-exports of mineral fuels.

- In exports to continents, the proportions remain stable every year. European countries remain by far the most important export destination with 78% of export value. Germany, Belgium and France were the main destinations for Dutch goods exports in 2022 (Figure 3.1.1).
- More than half (55%) of Dutch goods exports are destined for the five largest export partners: Germany, Belgium, France, the UK and the US. Germany is the largest export destination in every product category, with a particularly large share for mineral fuels.
- Two-thirds of the exported transport equipment consisted of domestic exports. In addition, more than half of the exported chemical products, mineral fuels, food and beverages, and raw materials were domestically produced. In exports of machinery and equipment and of manufactured goods, over 60% of the value concerned re-exported goods. Goods exports to other EU countries are mostly re-exports; goods exported to the UK, the US, China, Taiwan, and South Korea are mainly domestically produced.
- Petroleum products form the largest group of export goods, followed by natural gas, telephones, modems and routers, and machinery and appliances.

Dutch goods imports in 2022

- In 2022, total goods imports rose by 36.8% year on year to more than €677bn. The import volume rose much less strongly, by 2.3%.
- The main countries of origin in Dutch goods imports are European. The relative importance of the US as a country of origin has increased, due to more import of natural gas (LNG). Russia's relatively much weaker position as a supplier since the war in Ukraine has paved the way for other countries.
- Slightly less than half (49%) of Dutch imports come from the five largest import partners: Germany, Belgium, China, the US and the UK (Figure 3.1.1).
- The largest import commodity groups are natural gas, crude oil and petroleum products. The value of these product groups has grown enormously relative to 2019, in particular due to price increases. In addition, most of the consumer electronics (telephones, modems, computers, laptops and tablets) are imported, some of which is (re)exported.

Importance of the Netherlands in world exports and imports

- In 2021, the Netherlands accounted for 3.1% of world exports. In ranking order, the Netherlands was the sixth largest exporter in the world. Since 2015, the Dutch share has grown by 0.3 percentage point in the global export market of goods.
- In 2021, the Netherlands was the eighth largest importer of goods worldwide, after the US, China, Germany, Japan, France, Hong Kong and the UK. In 2021, the Netherlands contributed 3.2% to global goods imports. The Dutch contribution to world imports decreased by 1.1 percentage points between 1970 and 2021.

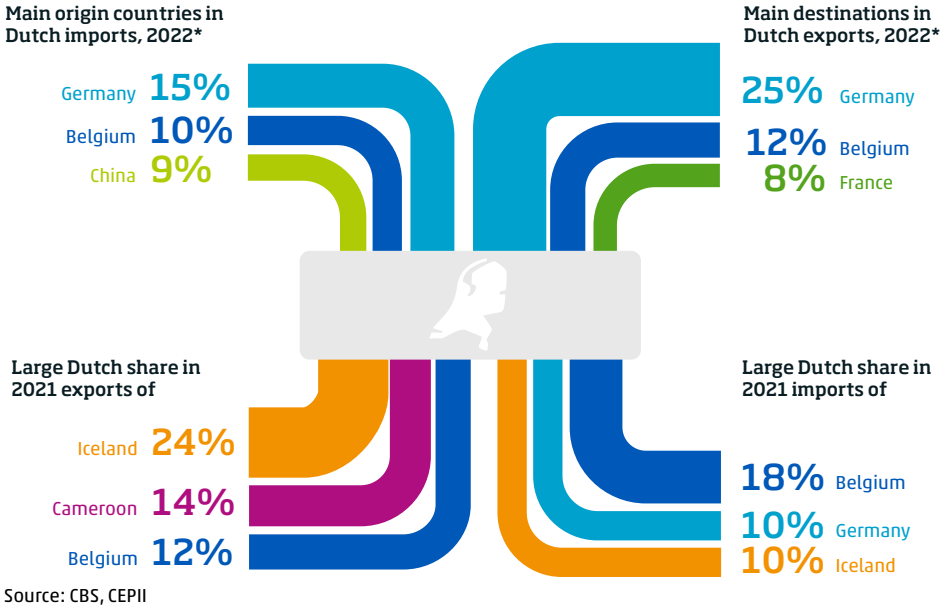
How important is the Netherlands as a trading partner for other economies?

- The Dutch share in Belgian goods imports amounted to 18% in 2021, making Belgium the country most dependent on goods from the Netherlands (Figure 3.1.1). For Germany, the Netherlands is the second most important supplier of goods. The Dutch share in British

goods imports was about 0.9 percentage points lower in 2021 than in 2019. The Netherlands did have a larger share in Polish and Taiwanese goods imports in 2021.

– The Netherlands is also important for many countries as an importer of goods, for example, Iceland, Belgium, and Ivory Coast (Figure 3.1.1). In 2021, 12.4% of all Belgian goods exports were destined for the Netherlands. This made the Netherlands the third export destination for Belgium. The Dutch share in Norwegian and Russian goods exports shrank in 2021. The Netherlands did have a larger share in Hong Kong's and Ukraine's goods exports in 2021.

3.1.1 The Netherlands in international goods trade



Source: CBS, CEPII

Recalculation of CBS figures on international trade in goods

From the beginning of 2023, CBS has published tables on StatLine covering the international trade in goods according to two different methods:

– **Change of ownership: goods transactions in which a Dutch enterprise or person transfers the *economic ownership* of the goods to a foreign enterprise or person, and vice versa.**
– **Border crossing: goods movements whereby the goods *physically cross the Dutch national border* without always involving a change of ownership.**

Due to a redesign of the International Trade in Goods statistics as of 2021, there is revised methodology in the series for the international trade in goods. For the figures according to border crossing, this change means that imports for 2021 are some €5 billion higher and exports around €1 billion lower than according to the old method. In addition, a larger share of the trade value is attributed to quasi-transit trade than before. On the imports side, quasi-transit trade has been revised upwards by €23 billion and on the exports side by €32 billion for 2021. For the figures according to change of ownership, this methodology change means that imports in 2021 are some €10 billion lower and exports around €1 billion higher. Due to the revision, the 2021 figures are not easily comparable to the 2020 figures (see also CBS, 2023a).

Two separate time series have therefore emerged. To be able to show a consistent development over a longer period, a recalculated time series was created for this publication. In this chapter, the principle of border crossing is applied. It is possible to produce this recalculated series because figures for 2021 are available according to both the old and the new method. In this way, the trend-based developments from old years are linked to the values from the years with a new method. This time series is not published on StatLine, but is only used in publications where time series are wanted in order to analyse multi-annual developments.

Outline

This chapter considers both the composition and geographical dimension of the Dutch goods trade. In sections 3.2 to 3.4, we look at these from a Dutch perspective. In section 3.2, we describe the key developments (in terms of value and volume) of the Dutch trade in goods, based on CBS figures. We also describe the importance of the different continents for the Dutch goods trade. Dutch exports of goods are discussed in more detail in section 3.3. What is the composition of Dutch exports? Which countries are major destinations for Dutch goods exports? Section 3.4 gives details on Dutch goods imports. In sections 3.5 to 3.6, the roles are reversed and we look at the Dutch goods trade from the perspective of the rest of the world, using CEPII data.[1)] The importance of the Netherlands as a supplier and customer of goods to other countries is addressed in section 3.5 and 3.6.

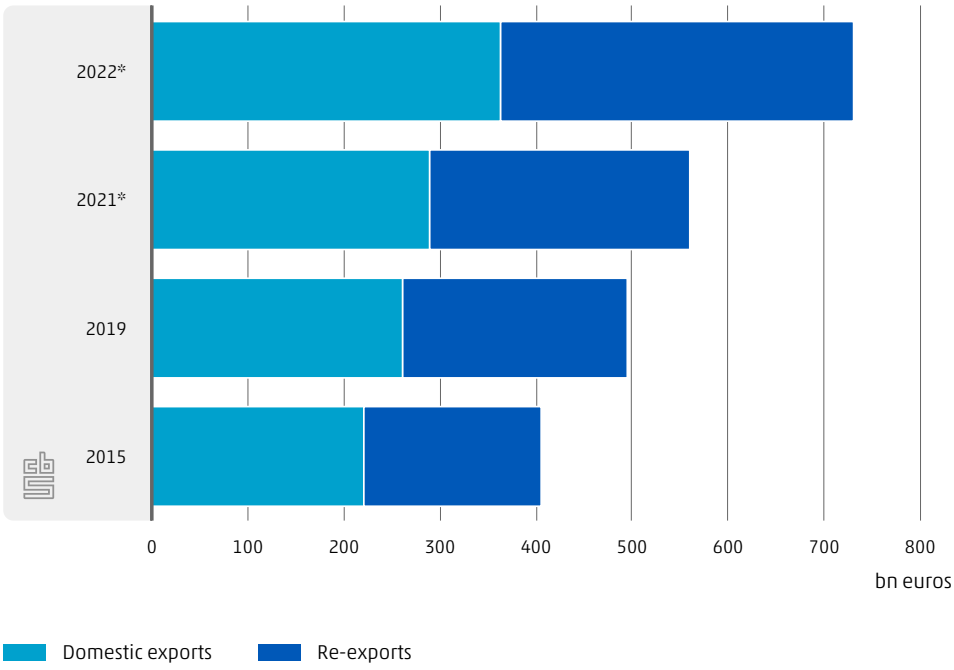
3.2 Key developments in Dutch goods trade

Rise in goods exports continues in 2022

The Netherlands exported €731.4 billion worth of goods in 2022. Figure 3.2.1 shows the ratio of domestic goods exports to re-exports. Re-exports consist of goods imported by the Netherlands and then re-exported after virtually no processing. It is important that the goods have been under Dutch ownership. Logically, the Netherlands earns less from re-exports of goods than it earns from domestic goods exports, as enterprises add little value in the case of re-exports. Chapter 6 of this publication shows that, on average, the Netherlands earned 12 cents for every euro of re-exports in 2021; in the case of domestic exports, the figure was 55 cents per euro. Of the total export value in 2022, re-exports accounted for 50.4%. The remaining 49.6% consisted of domestic exports. This means that for the first time, re-exports exceeded domestic exports. Up to and including 2021, domestic exports made up the largest share, although the percentages became closer year by year.

1) Information about specific goods is not available in the CEPII-CHELEM data. In order to interpret the findings on the basis of CEPII-CHELEM, CBS figures (as a reflection of international trade flows) are used at product level in sections 3.5 and 3.6.

3.2.1 Export value by export category

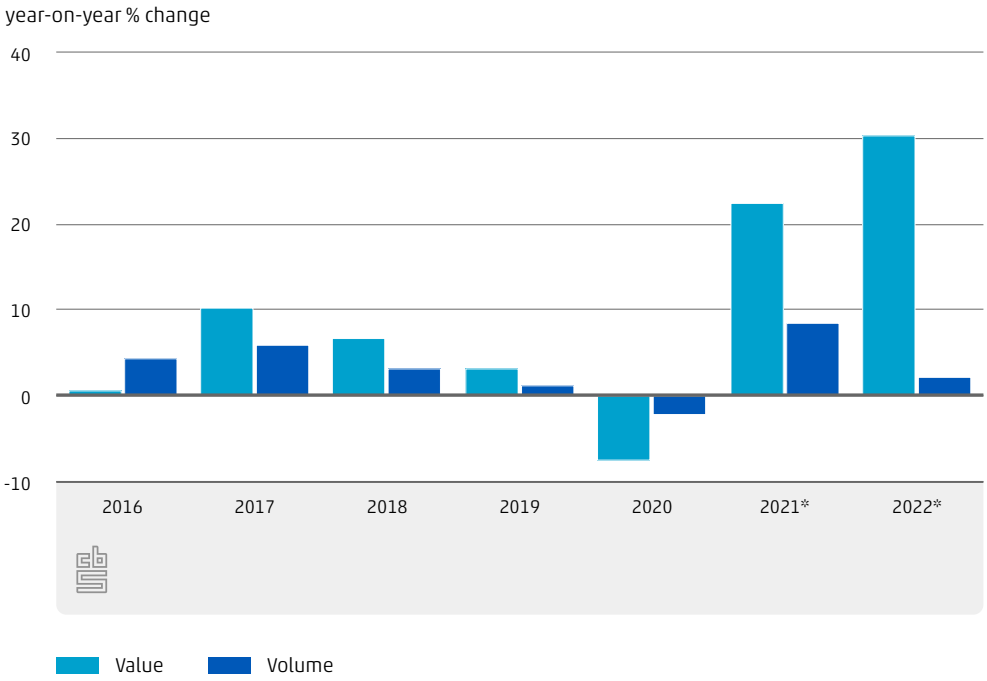


The value of re-exports rose by 36% in 2022, while that of domestic exports went up by 26%. The reason for the larger increase in the value of re-exports is that there was a relatively strong rise in re-exports of mineral fuels. Compared to the average of 2015–2021, the share of re-exports represented by mineral fuels rose by 10 percentage points in 2022. For the smaller product category transport equipment, re-exports also increased, by 5 percentage points.

Increase in value of exports much greater than volume development

The outbreak of war in Ukraine in February 2022 and the subsequent sanctions against Russia triggered unprecedented price rises in virtually all product categories, but especially in food products and mineral fuels. Moreover, the lifting of COVID-19 restrictions worldwide led to increasing demand, while value chains were still disrupted by lockdowns, chip shortages and sky-high container prices. The war and the higher demand for goods affected the year-on-year development of exports. The value of exports rose by 30.4% to €731 billion between 2021 and 2022. In the period 2015–2022, the export value rose faster than ever before. In the years 2019–2022, with 2019 as the last pre-pandemic year, the absolute export value increased by 47.8%, while the rise in the volume of goods exports was 8.8%. Figure 3.2.2 shows that the volume rise in 2022 was significantly smaller than the rise in value, which indicates sharply higher export prices. Nevertheless, 2022 exports were still 2.3% higher in volume than in 2021.

3.2.2 Development of Dutch goods exports

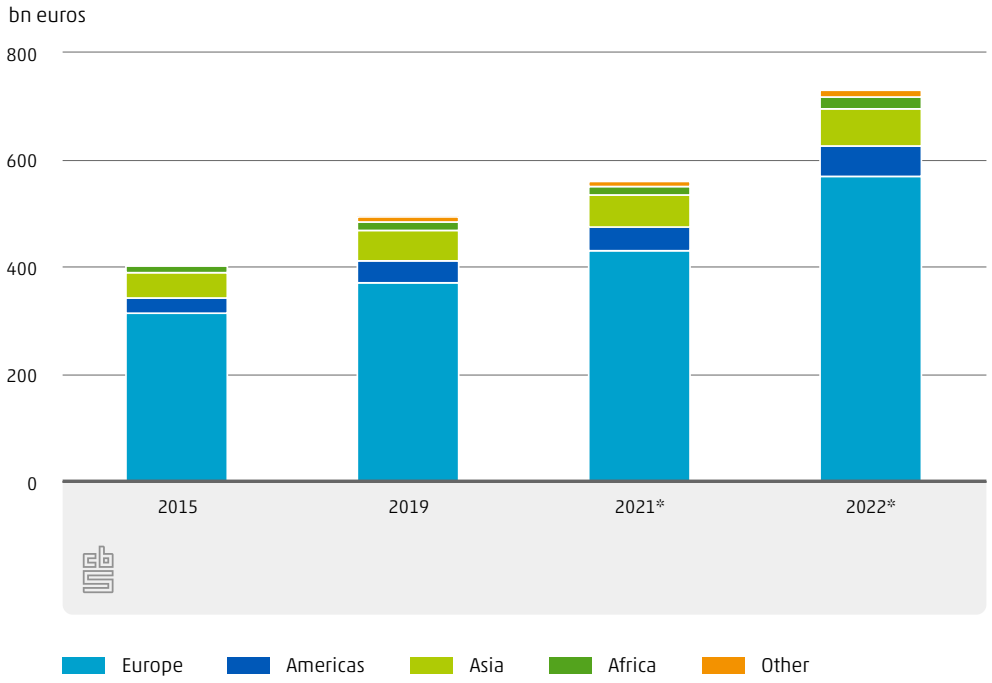


We can take natural gas as an example of the extreme rises in value. Between 2021 and 2022, the export value of natural gas shot up by no less than 232%. Other product groups also saw a major rise in export value. For example, the value of cheese and curd jumped by 36% and that of exports of passenger cars added 34% to total €6.0 billion. The price rise in mineral fuels was one factor that put pressure on the production of other goods, such as products from the greenhouse growing sector and mineral fertilisers. These energy-intensive goods therefore saw a dramatic rise in export value in 2022. The export value of mineral fertilisers, for instance, jumped by 57% in 2022 compared to 2021 (CBS, 2023b). In addition, imports and exports of goods were hampered by restrictions and trade barriers (see also Chapter 2 on trade developments in relation to the sanctions against Russia).

Europe maintains its importance as export destination

Just as in all previous years, Europe continues to take by far the largest share of total goods exports from the Netherlands (Figure 3.2.3). Of the total export value in 2022, 78% concerned exports to a European country. As with exports to other continents, the proportions remain very stable from one year to another. With its major seaports and airports, the Netherlands is an important logistics hub for the goods trade to other European countries. For example, re-exports as a percentage of total exports to Germany increased from 59% in 2021 to 62% in 2022. Asia's share as an export market for Dutch goods dipped slightly in the period 2020–2022, from 12% to 10%. As regards imports, in contrast, we see China and other South-Asian countries increasing in importance. See Figure 3.4.2 and section 3.4 for more on this subject.

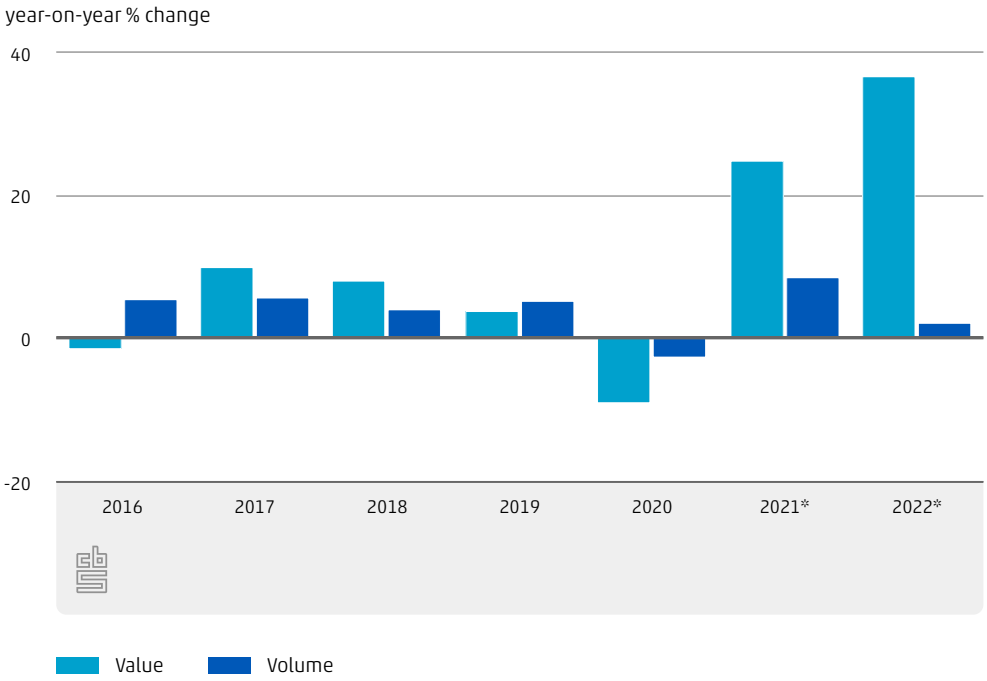
3.2.3 Export value by region



Import value rises unabated in 2022

The Netherlands also imported a record amount in 2022 in value terms. Figure 3.2.4 shows that the import value rose by nearly 37% compared to 2021, to €677 billion. The main reason for this rise was once again the sharply higher import prices. The import volume was up by 2.3% in 2022 from 2021. In the period 2019–2022, with 2019 as the last pre-pandemic year, the import value increased by 55.8%, while the volume rise was 8.4%. Moreover, the rise in the import value (36.8%) exceeded the rise in the export value (30.4%).

3.2.4 Development of Dutch goods imports



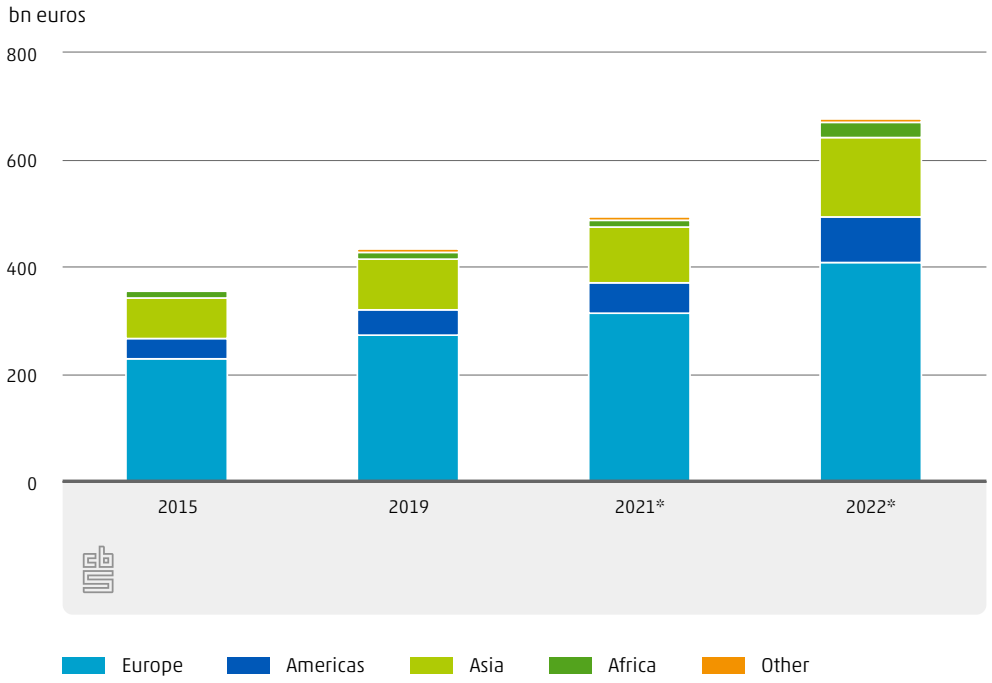
Importance of North America rises as origin of goods imports

In 2022, European countries were again the main countries of origin for Dutch goods imports (Figure 3.2.5). However, due to the sharp rises in the import value of mineral fuels, which were more often imported from other regions as a result of the war between Russia and Ukraine, Europe's significance as a region of origin did diminish slightly, from 64% in 2021 to 60% in 2022. Before the start of the war in Ukraine, between 2015 and 2021, an average of 28.5% of all natural gas and crude oil was imported from Russia. The United States has now taken over this import flow to a great extent, gaining a relatively large amount in terms of import share. Before 2021, the Netherlands imported no liquid natural gas (LNG) from the US. Partly due to the substantial price rises, LNG was the most important product group originating from the US in 2022 (see also Lalkens & van Dijk, 2023).

Asia's share in Dutch goods imports was steady in the period 2015–2022. However, there were major differences between countries. For example, China's share as a country of origin for the import value of the Netherlands rose from 8.2% to 9.5% between 2015 and 2022. Japan experienced a fall from 1.9% of total import value in 2015 to 1.3% in 2022. For an extensive analysis of the Dutch trade with China, we refer to Chapter 2 of this publication. The development of the main export and import partners is described in sections 3.3 and 3.4.

Africa's position was also relatively more important in 2022 than in previous years. For example, the import share of the two most important African trading partners increased from 2021, with Angola's share advancing by 0.7 percentage points and Nigeria's by 0.2 percentage points. The development of Angola is particularly striking. Whereas no LNG was imported from Angola before 2021, the country was the seventh-largest import partner for that fuel in 2022, with a value of €2.9 billion. The decline of the relative position of Russia in the European gas and oil market has paved the way for other players (see also Lalkens & van Dijk, 2023; NOS Nieuws, 2022).

3.2.5 Import value by region

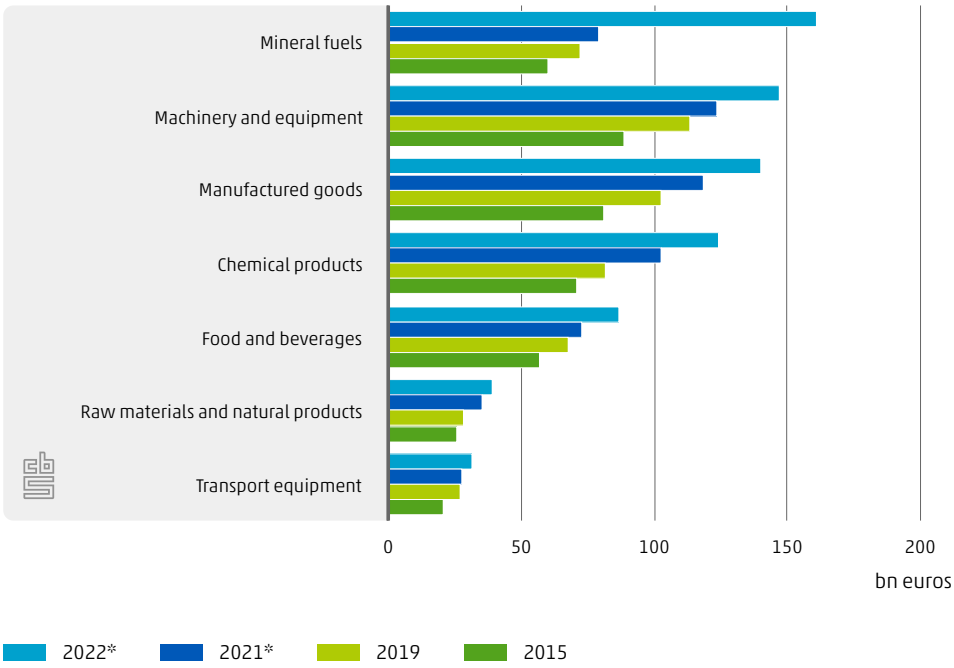


3.3 Dutch exports of goods in detail

Exports of mineral fuels double in relation to 2021

Dutch goods exports were worth €731 billion in 2022 – a 30.4% increase compared to 2021. A key explanation for this rise in value is the increase in the prices of mineral fuels. Partly as a result of this, mineral fuels were the most important product category for exports in 2022 (Figure 3.3.1). In 2021, mineral fuel exports were worth €79.4 billion, accounting for 14% of total export value. In 2022, this had risen to €161.1 billion and mineral fuels were the largest export category, with a 22% share. In the period 2015–2021, machinery and equipment were still the main group of export products. In addition to the sharp rise in the value of mineral fuels, all other product categories also rose in value compared to 2021.

3.3.1 Exports by product category

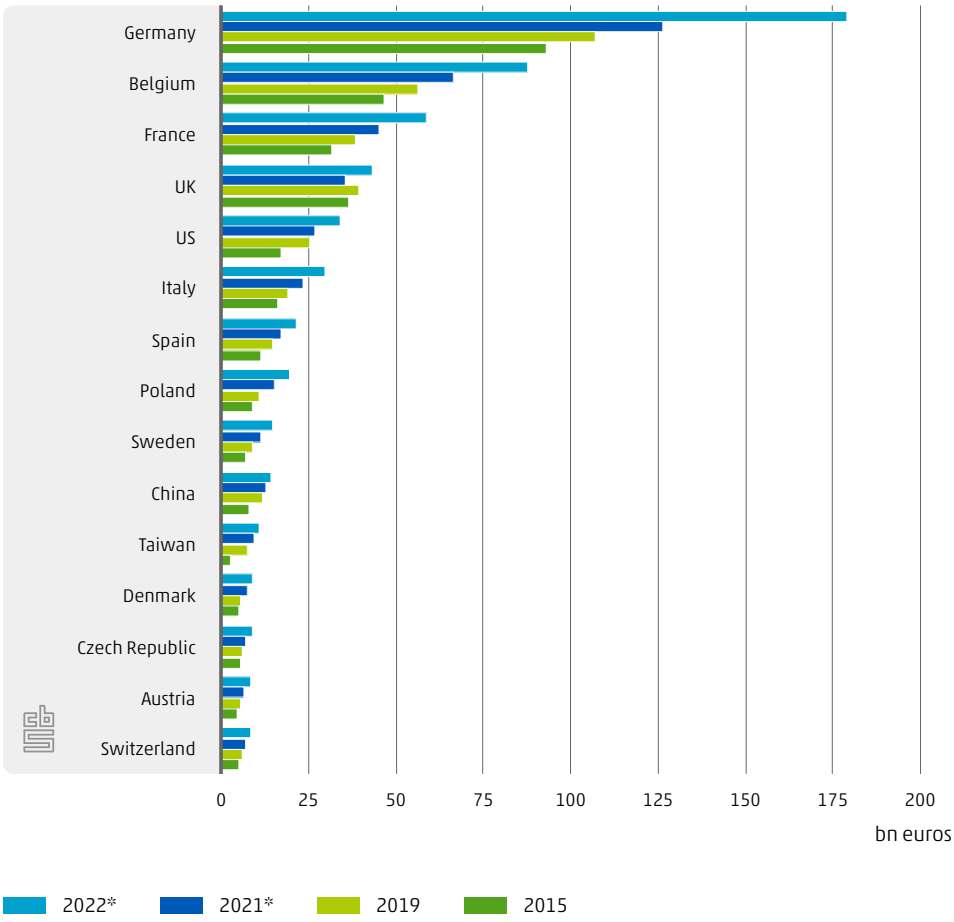


Germany, Belgium and France are principal export partners

Figure 3.3.2 shows that our neighbouring countries Germany, Belgium and France have been our principal export partners for years. The relative importance of Germany increased in 2022 (22.6% in 2021; 24.5% in 2022). With a year-on-year rise of 42%, Germany saw the largest increase of the top 15 export markets. Here too, a key explanation was the price hike in mineral fuels and Germany's large share in Dutch exports of mineral fuel in 2022.
In January 2021, the price of a barrel of North Sea Brent oil was still $55.30. In June 2022, this price had soared to $116.60. Among other things, Dutch deliveries of natural gas to Germany, with the sharp price rises, were responsible for the substantial growth (CBS, 2022a). For the other two members of the top 3 trading partners, Belgium and France, the rise in export value is also explained to a large extent by the exports of mineral fuels. For all partners in the top 15, the export value rose in 2022 compared to 2021.

The United Kingdom, the fourth-largest export partner, saw a relatively minor increase of around 20%. This is partly due to the type of products that the Netherlands exports to the UK (relatively small amounts of mineral fuels), and possibly also because, since Brexit, the UK has become a less attractive trading partner for Dutch enterprises. Exports of raw materials and natural products (various products, including flowers and plants) to the UK actually declined by 2.1% compared to 2021. Re-exports and domestic exports to the UK saw a similar level of growth between 2021 and 2022. The value of exports to the US and Poland (both +27%), and Sweden (+29%) also increased substantially. Exports to China grew by just 11% between 2021 and 2022. One of the few trading partners to experience a reduction in Dutch exports in 2022 compared to the previous year was Russia. This is largely explained by the sanctions introduced in response to the war in Ukraine. Chapter 2 examines the trade relationship with Russia in more detail. In particular, exports to Russia of heavy goods vehicles and buses produced in the Netherlands declined (CBS, 2022b).

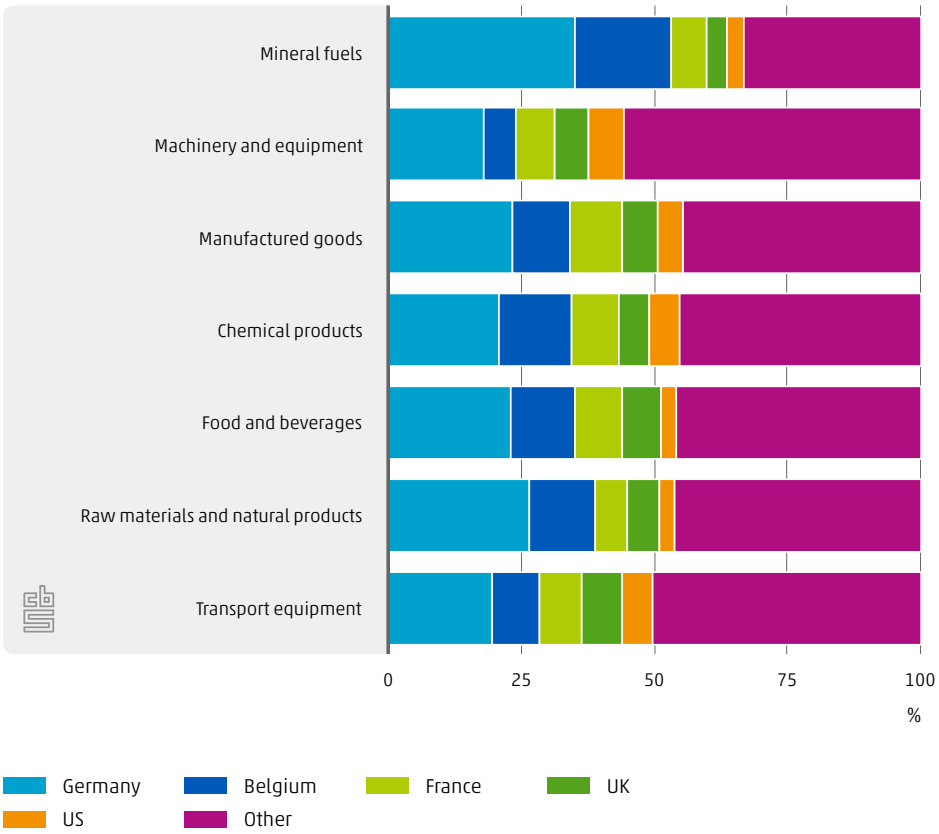
3.3.2 Exports by trading partner



More than half of exports go to top 5 trading partners

More than half (55%) of Dutch goods exports are destined for the five largest export partners: Germany, Belgium, France, the UK and the US. In mineral fuel exports, the top 5 destinations account for the largest share with 67% of total mineral fuel exports. Exports of machinery and equipment, with a 44% share, have the lowest concentration in the main markets. Just as in 2021, Germany has the highest value for each product category (Figure 3.3.3). German dominance in exports is particularly strong for mineral fuels: more than 35% of total Dutch exports of these goods go to Germany. This includes substantial re-exports of crude oiland (liquid) natural gas. Germany's share in exports in the product categories machinery and equipment, chemical products and transport equipment also increased compared to the previous year.

3.3.3 Top 5 export partners and product categories, 2022*



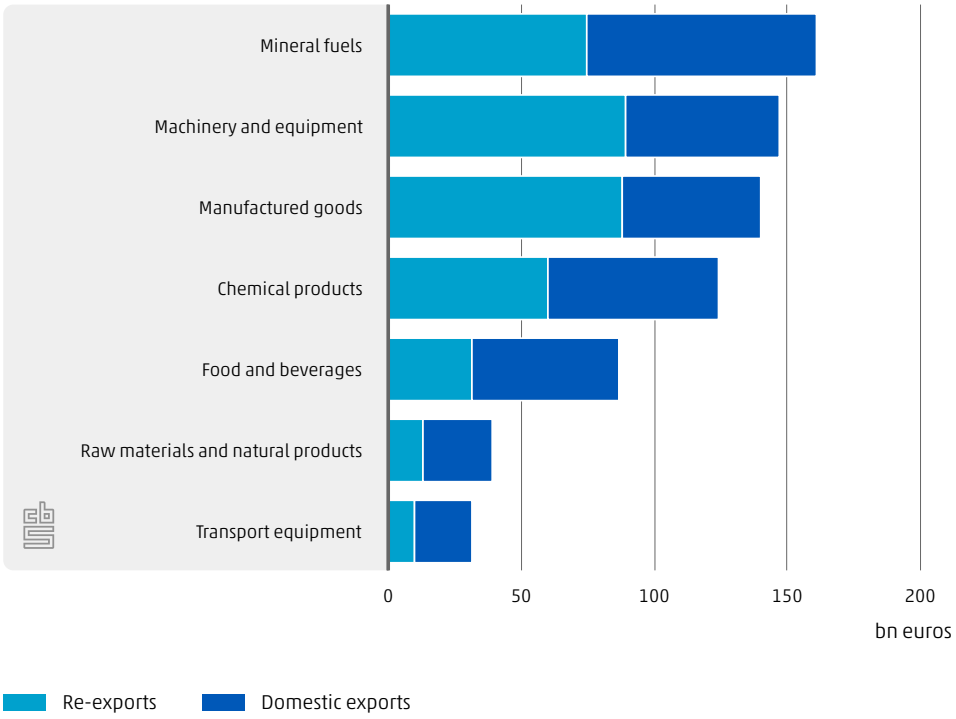
Dutch-made products make up two-thirds of transport equipment exports

When we zoom in on the largest product categories, we see in Figure 3.3.4 that there are major differences in the shares of re-exports. For example, 32% of exports of transport equipment consists of re-exports, on average. A number of goods in this product category are mainly domestic exports (goods such as boats and buses). For passenger cars, nearly half of the export value in 2022 consisted of re-exports.

Re-exports accounted for more than 60% of both machinery and equipment exports and exports of manufactured goods in 2022. The Netherlands is a key point of arrival for goods from countries around the world. Clothing, fruit, petroleum and natural gas, chips and semiconductors, and consumer electronics such as computers, telephones and modems are examples of goods that enter the Netherlands and, without significant processing, are sold abroad. This is done partly in the form of re-exports, in which Dutch enterprises are involved. When goods are imported by foreign-owned enterprises and are not processed, or only undergo minor processing, before being exported again via the Netherlands, we refer to this as quasi-transit trade. This form of international trade is outside the scope of this chapter, but the goods and trading partners that are relatively heavily involved in re-exports are generally also active in quasi-transit trade.

More than half of exports of chemical products, mineral fuels, food and beverages, and raw materials consisted of domestic goods. In the case of mineral fuels, this is mainly through exports of refined petroleum products. The Netherlands itself produces hardly any petroleum, but it does process imported crude oil on a large scale to produce fuels such as diesel, petrol and LPG, which are subsequently exported as domestic products.

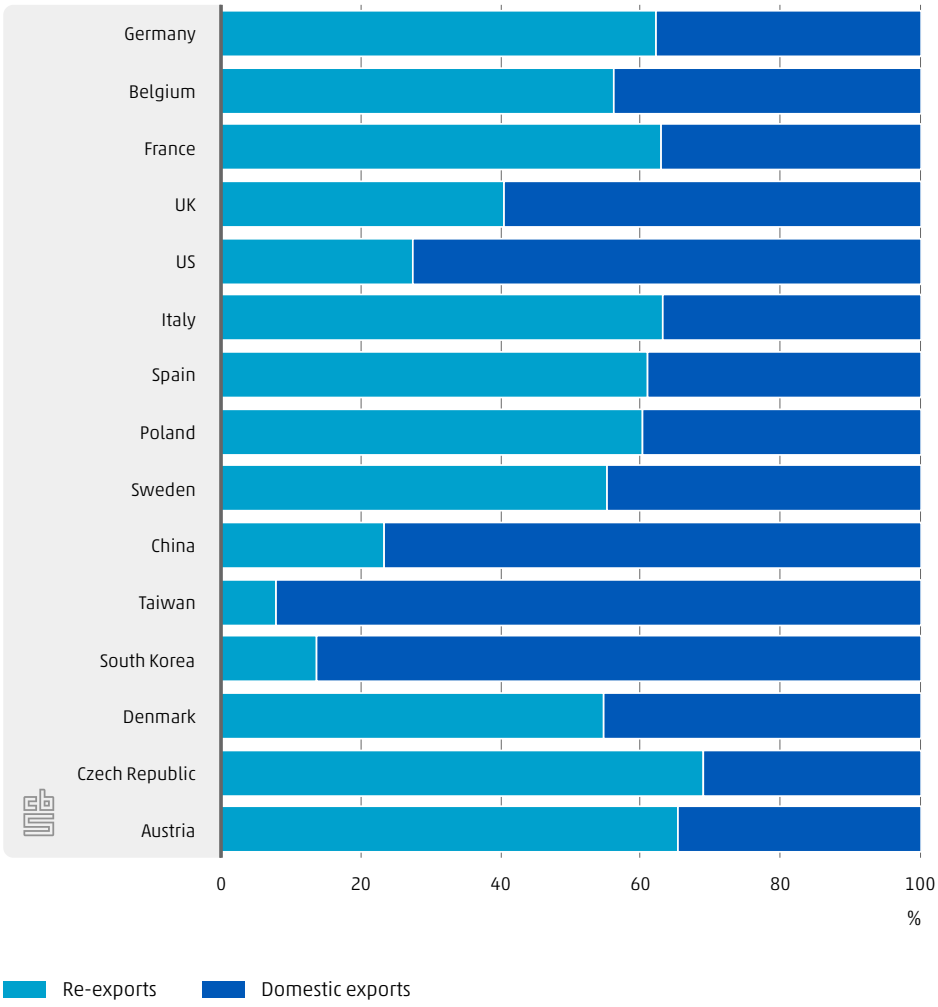
3.3.4 Product categories in domestic exports and re- exports, 2022*



Exports to EU countries to a great extent re-exports

Destination markets vary hugely as regards the shares of re-exports and domestic exports. For example, Figure 3.3.5 shows that exports to nearby partners in particular are largely made up of re-exports (see also CBS, 2023c for the values of re-exports and exports of domestic goods). For Germany, France, Italy and Spain, the share was more than 60% in 2022. Dutch domestic goods make up the largest share in exports to the UK, while re-exports account for 41% of total Dutch exports to the country. For the US, the share of re-exports is only 28%. For both Denmark and Sweden, it is 55%, and the share re-exports is 24% for China, 8% for Taiwan and 14% for South Korea. Distance is a major factor here: the more distance between the destination country and the Netherlands, the more illogical it is that the Netherlands should act as a trade hub for the country in question.

3.3.5 Top 15 export destinations by share in re-exports and domestic exports, 2022*



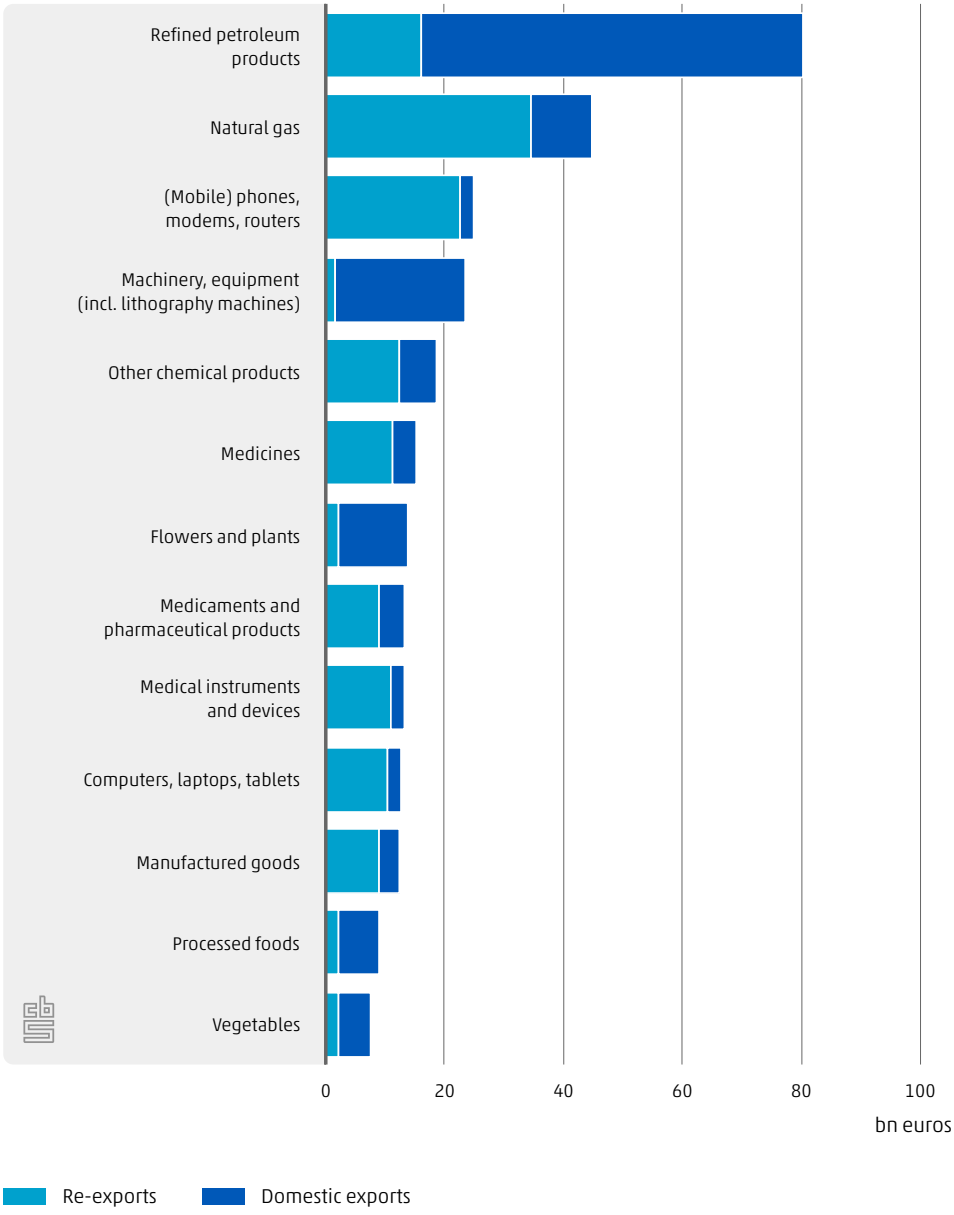
Mineral fuels are a major export product

Figure 3.3.6 shows – sorted by value – the 15 most important products that the Netherlands exported in 2022, distinguishing between re-exports and domestic exports. Refined petroleum products are by far the largest export product, with an export value of more than €80 billion. The main destinations for those petroleum products are Germany, Belgium, Nigeria, the US and the UK. Machinery, prepared foodstuffs such as soups and sauces or vegetables that were exported in 2022 were mostly domestic exports. Machinery (e.g., for manufacturing microchips) were mostly exported to distant countries, with Taiwan, South Korea, China and the US being the main destinations. Vegetables go mainly to Germany, while Belgium and the UK are also important destination countries.

Relatively large shares of natural gas, but also crude oil, telephones, laptops and tablets, as well as medicaments and pharmaceutical products, are re-exports. In particular Germany, but also France and Belgium, depend partly on Dutch natural gas for their energy supply (Been & McDonald, 2022). And although the Netherlands also struggled with the high prices and reduced deliveries from Russia in 2022, we have long-term supply contracts with our neighbouring countries, so that Dutch natural gas accounted for some 20% of the export

value of natural gas in 2022 (Been & McDonald, 2022). Telephones, laptops and tablets were also exported in particular to countries near the Netherlands: Germany, France, Belgium and the UK.

3.3.6 Main product groups [1)] in total exports, 2022*



1) Crude oil and residues of petroleum oils also belong on this list, but their value is confidential.

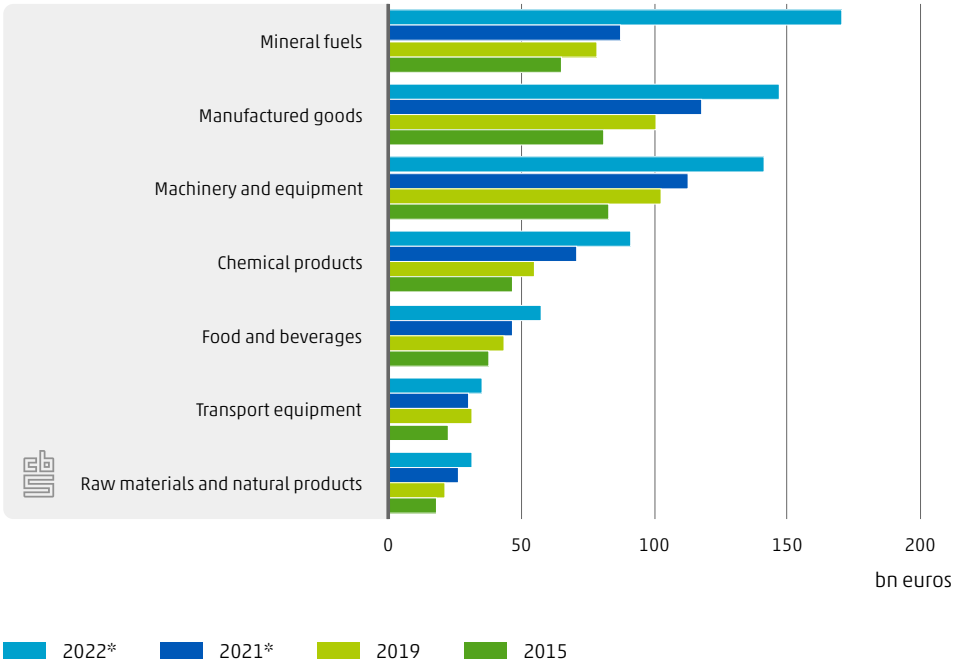
3.4 Dutch goods imports in detail

Mineral fuels are the main product category for imports

Total goods imports amounted to more than €677 billion in 2022, which was a 36.8% increase from 2021. In imports of goods, just as in exports, we can see that mineral fuels are the most important product. With a 94% rise in value, this product category saw enormous

growth compared to 2021, and in 2022, it accounted for 25% of total goods imports (Figure 3.4.1). It was followed by manufactured goods with 22% and machinery and equipment with 21%. Other products from the raw materials and natural products category also rose sharply. For example, the import price of aluminium soared by 64.5% in May 2022 compared to the same month a year earlier (CBS, 2022c). At 17%, imports of transport equipment remained relatively modest.

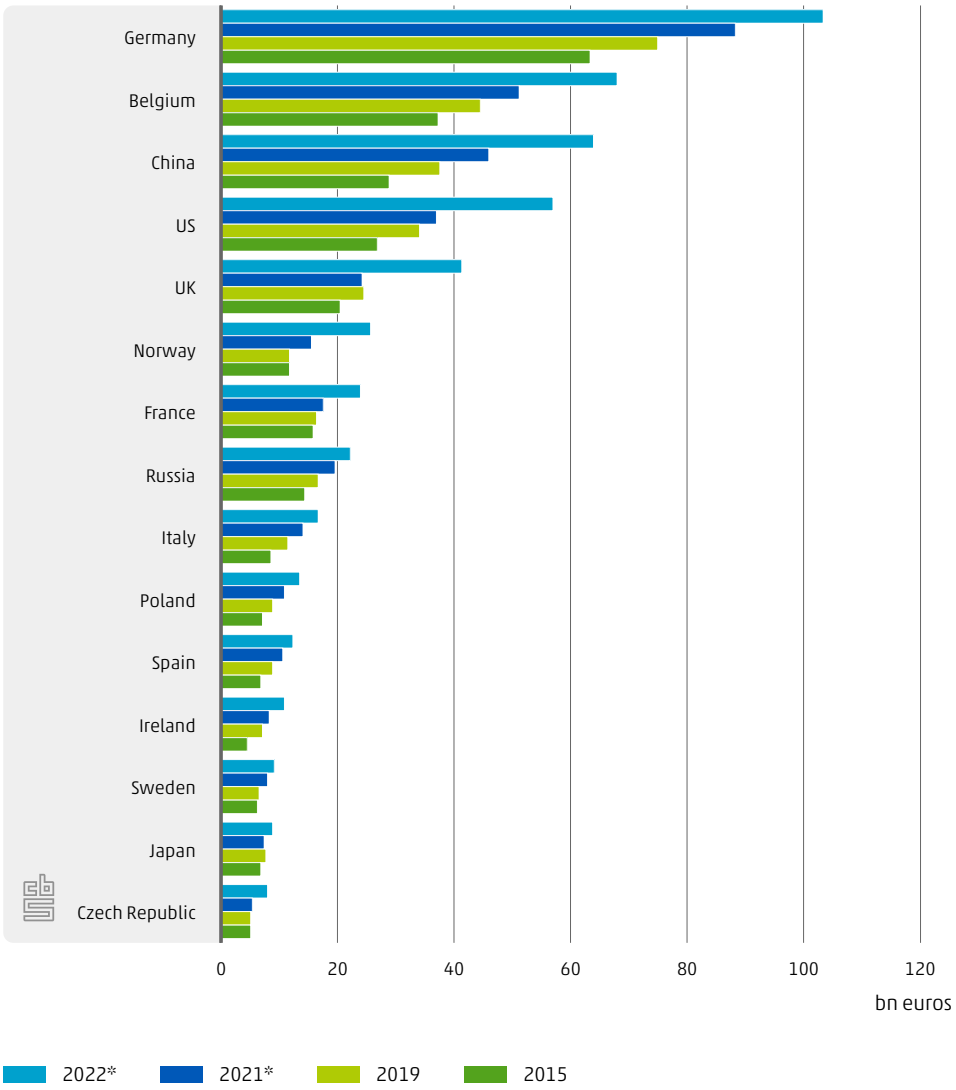
3.4.1 Imports by product category



Imports of mineral fuels shift from Russia to US and Norway

Germany and Belgium are our principal trading partners for exports as well as imports. However, their share in total Dutch imports fell relative to 2021 (Figure 3.4.2). Germany's share in Dutch imports declined from 17.9% in 2021 to 15.3% in 2022. For Belgium, the share was down by 0.3 percentage points to 10.1%. The US and Norway saw their shares grow relatively strongly, by 0.9 and 0.7 percentage points, respectively. This can be explained partly by the shift in imports of mineral fuels, which previously came from Russia. Imports from Russia nevertheless also increased in 2022. The value of Dutch imports of mineral fuels from Russia fell due to the European sanctions imposed from March 2022. However, higher prices meant that the total value of imports from that country was higher in 2022 than in 2021 (CBS, 2022b).

3.4.2 Imports by trading partner



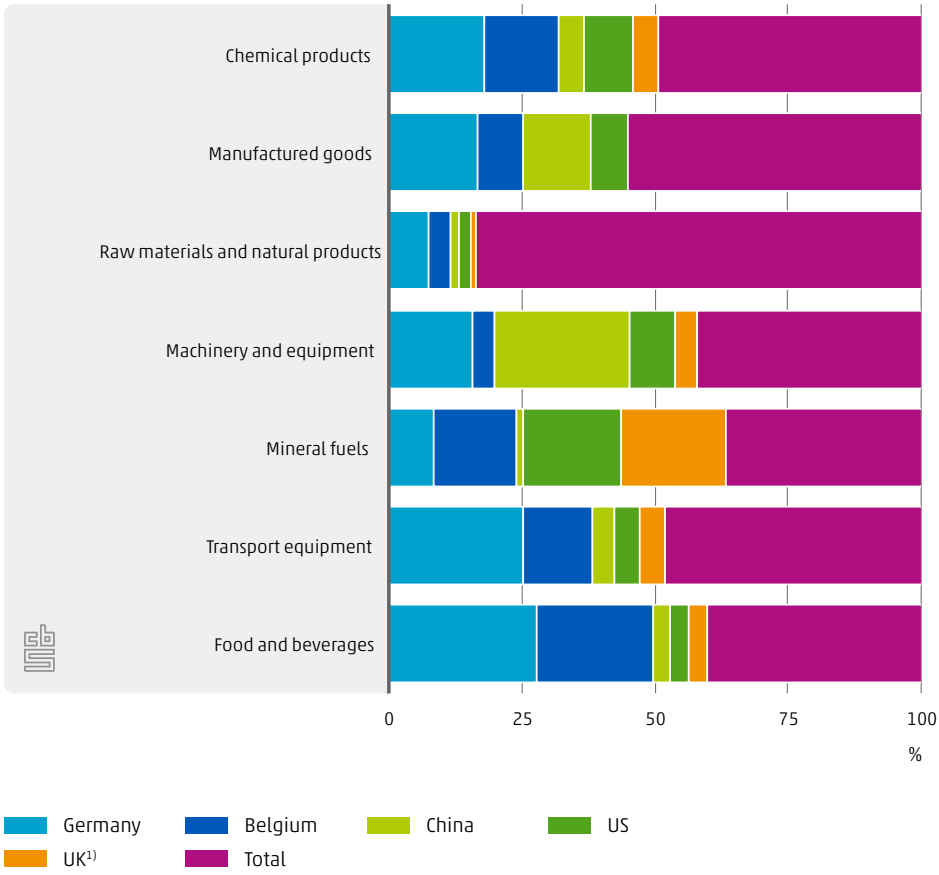
49.4% of Dutch import value comes from Germany, Belgium, China, the US and the UK

Germany is largest supplier, but its share declines

Figure 3.4.3 shows that just under half (49.4%) of Dutch imports come from the five largest import partners. Germany is the main country of origin specifically for transport equipment (27%), food and beverages (19%) and chemical products (21%). Compared to 2021 (and also to 2019), however, Germany's significance for Dutch imports has declined – a trend that has been underway for some time, as noted by Bouman (2023). The drop in Germany's share in

imports affects all product categories, but particularly manufactured goods, transport equipment and machinery and equipment. From Belgium, the Netherlands sources some 10–16% of total import value from each product category, with the exception of machinery. China is a major supplier of machinery and equipment (24%) and manufactured goods (14%), while the US was important in 2022 in particular for Dutch imports of mineral fuels (12%) and chemical products (11%). The Netherlands imports a relatively large share of mineral fuels (12%) from the UK.

3.4.3 Top 5 import partners and product categories, 2022*

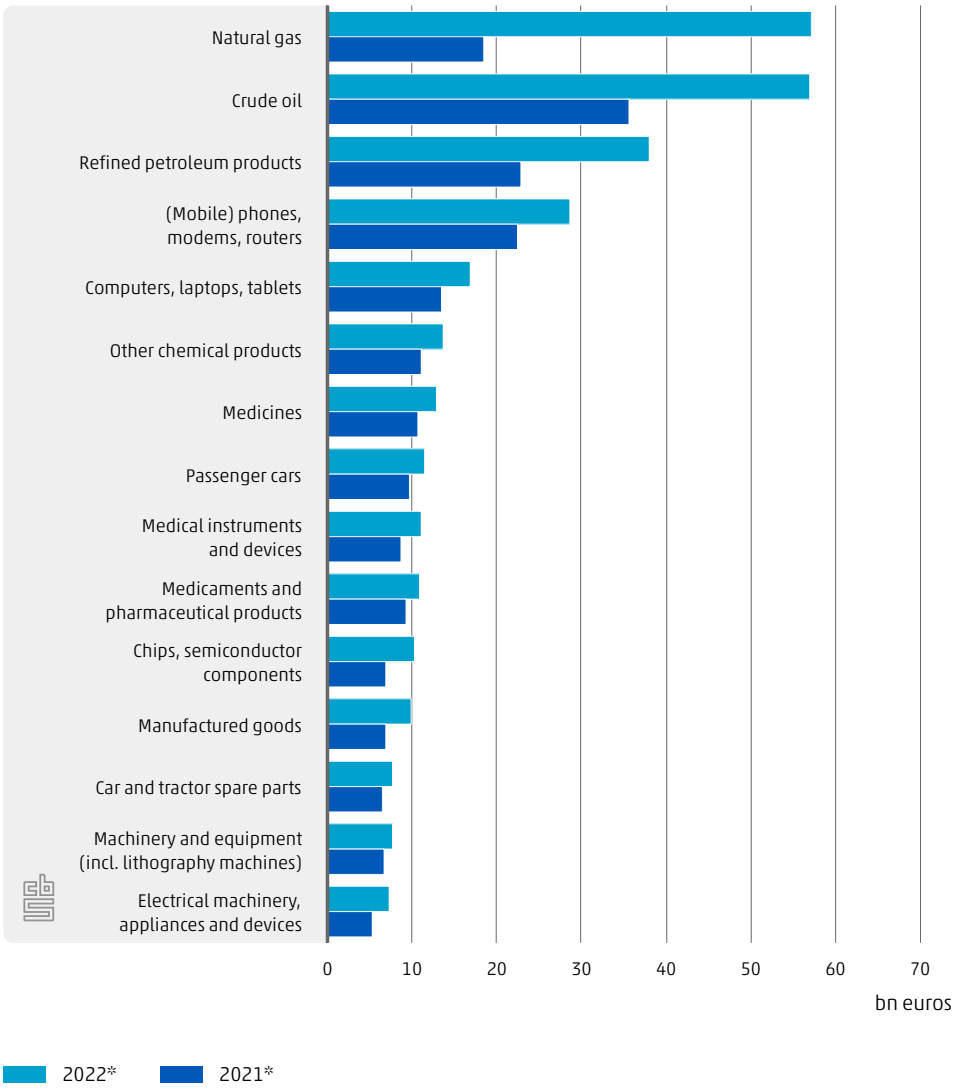


1) The 2022 figure for manufactured goods imports from the UK is confidential.

Mineral fuels, telephones, computers and medicaments are major import products

Partly due to huge energy price rises in 2021 and 2022, the most significant import products are mineral fuels (Figure 3.4.4): natural gas (€57 billion), crude oil (€57 billion) and refined petroleum products (€38 billion). Other key import goods are telephones (€29 billion), laptops and tablets (€17 billion) and medicaments (€13 billion). These products are typically imported by Dutch enterprises and then, with little or no processing, exported abroad as re-exports, as mentioned in section 3.3 on goods exports. In 2022, the Netherlands also imported many cars (€12 billion) and car parts (€8 billion). These products also experienced price rises and increased demand, which played a major role in the high import value.

3.4.4 Main product categories in imports



Import value of natural gas triples

Compared with 2021, the import value of natural gas in 2022 was more than 200% higher, while the import value of petroleum rose by 60% and that of petroleum products by 65%. All other products in the top 15 also grew in value relative to 2021, with price rises again playing a key role.[2)] Price hikes are responsible worldwide for a large part of total growth in the value of international trade, while volume growth is slower (UNCTAD, 2023). However, this varies considerably between industries: price rises play a bigger role in energy products, raw materials and food than, for example, in the manufacturing industry.

Important origin countries for natural gas in 2022 were Norway, the UK and the US. Russia, the US and Norway were major suppliers of petroleum, while Belgium, Germany and Russia were important for refined petroleum products. By far the largest supplier of telephones was China, followed by the Czech Republic and the US. China is also the largest supplier of laptops

2) For further details on volume developments in Dutch trade in goods, we refer to Chapter 2 of this publication.

and tablets, before the US, Hungary and Taiwan. In 2022, the Netherlands imported medicaments and medicinal and pharmaceutical products in particular from Germany, the US, Belgium and Ireland. Germany was the most important origin country for cars and car parts, followed by Belgium and Sweden.

3.5 Importance of the Netherlands as a supplier of goods to other countries

In this section, we set out what share the Netherlands has in the goods imports of other countries. In addition to the importance of the Netherlands' role and its share in imports abroad, we also look at its ranking among the key partners for other economies.

CEPII-CHELEM data

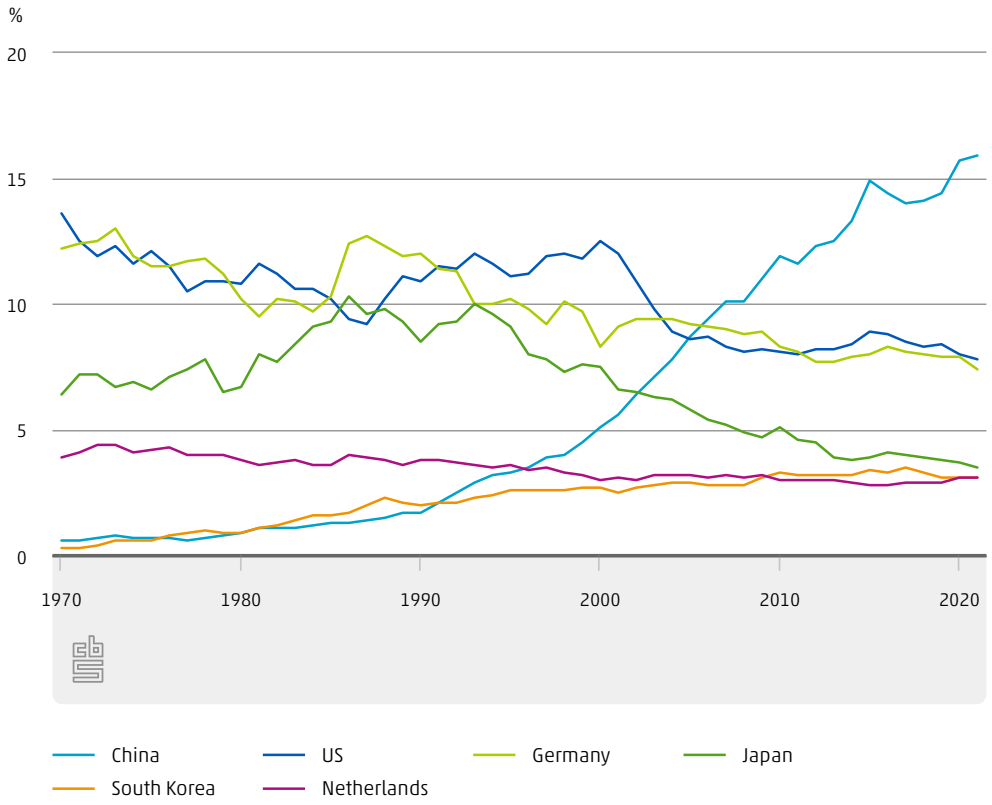
We base the results in sections 3.5 and 3.6 on the CHELEM International Trade database of the French Centre d'Études Prospectives et d'Informations Internationales (CEPII). We use CEPII-CHELEM because of the long time series of fully harmonised and complete bilateral trade data that is available. By harmonisation we mean that trade is completely 'squared' in the CEPII-CHELEM data: the import of product 1 by country X from country Y is exactly the same as the export of product 1 by country Y to country X. This sounds rather obvious, but it is rarely the case in bilateral statistics. The main source of the CEPII-CHELEM database is UN COMTRADE, supplemented by data from international institutions (e.g., the IMF, the World Bank, the OECD and UNCTAD) and all kinds of national sources, such as national statistical offices. In principle, reporting covers trade excluding re-exports, but for the Netherlands, among others, re-exports are part of the figures. (See also Aerts et al., 2022, for further information).

6th exporter of goods in the world in 2021 was the Netherlands

Figure 3.5.1 shows that the Netherlands was responsible for 3.1% of global exports in 2021. The Netherlands ranked sixth among exporters worldwide, after China, the US, Germany, Japan and South Korea. Neighbouring countries such as France, the UK and Belgium export less individually than the Netherlands in terms of value. With the seaport of Rotterdam and Schiphol Airport, the Netherlands forms an essential logistics hub in the heart of Europe. The Dutch share in the global goods export market has grown since 2015. During that period, the importance of the Netherlands for global goods exports rose by 0.3 percentage points. Trade integration by the Netherlands thus continued to increase in spite of the stagnation in

global trade. For example, the Netherlands participated to a greater extent in global value chains and intra-industry trade increased[3] (Nauta & Sander, 2022).

3.5.1 Contribution to global goods exports



Source: CBS, CEPII

The emergence of Asian trade giants

China was unmistakably the world's largest trading nation in 2021, accounting for 15.9% of total global exports (Figure 3.5.1). The Chinese economy has grown rapidly over the last 25 years. China's accession to the World Trade Organization in 2001 enabled large global producers and multinationals to benefit from the country's potential as 'the world's factory'. As a result, China was able to expand its exports rapidly to the rest of the world (Nicita & Razo, 2021). There are further details on the development of the Dutch goods trade with China in Chapter 2 of this publication.

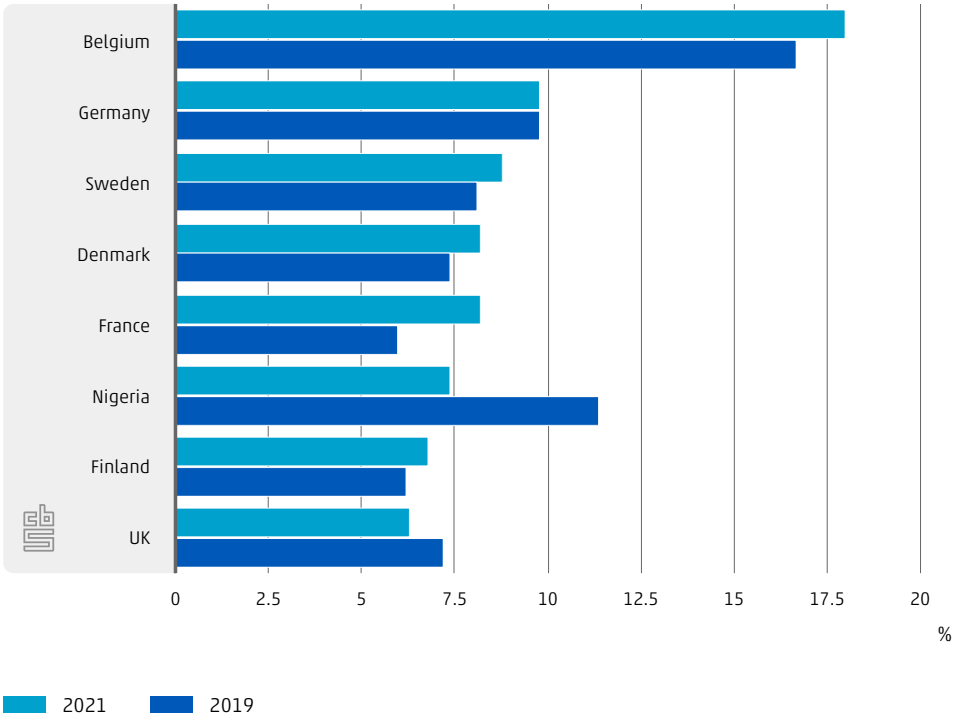
South Korea was the fifth-largest exporter in the world in 2021, accounting for 3.1% of global exports. The South Korean contribution to global exports between 1970 and 2021 increased by 2.8 percentage points. The rapid increase in exports has boosted the country's economic growth. This export growth can be explained by, among other things, (1) the export-driven policy and the conclusion of many free trade agreements with major countries, (2) benefiting from the economic prosperity of neighbouring countries by means of investments in China and attracting investment from Japan, and (3) diversifying export markets and products (Park, 2014; Connolly & Yi, 2015).

3) Importing and exporting the same product indicates intra-industry trade (Van Marrewijk, 2008).

Almost one-fifth of Belgian goods imports came from the Netherlands

The Netherlands is among the top 5 suppliers of goods to all the trading partners from Figure 3.5.2. For its neighbour Belgium, it was the largest supplier of goods in 2021, with an 18% share. Germany imported nearly 10% of its goods from the Netherlands in 2021. This makes the Netherlands the second-largest supplier of goods to Germany, behind China. France imported 8.2% of all goods from the Netherlands in 2021 – a significantly larger share than in 2019.

3.5.2 Top 8 shares in imports per trading partner[1)]



Source: CBS, CEPII
[1)] Only those trading partners with a Dutch import share ≥ 6 percent and total imports from the Netherlands worth ≥ 1 US$ billion in 2021.

The Netherlands less important as supplier of goods to Nigeria in 2021

The share of the Netherlands in Nigerian goods imports contracted from 11.4% in 2019 to 7.4% in 2021 (Figure 3.5.2). In 2021, India overtook our country as Nigeria's second-largest import partner. Nigerian imports of refined petroleum products and medicaments from the Netherlands fell sharply in 2021 compared to 2019. Instead, Nigeria obtained more refined petroleum products from India in 2021 (based on UN COMTRADE data). India's increasing capacity to supply refined petroleum makes the country a valuable partner for African countries (Gurjar, 2018). A significant share of Nigerian oil goes to the Netherlands, where it is subsequently processed into refined petroleum products. A proportion of these petroleum products returns to Nigeria as petrol and diesel (Nandram, 2023).

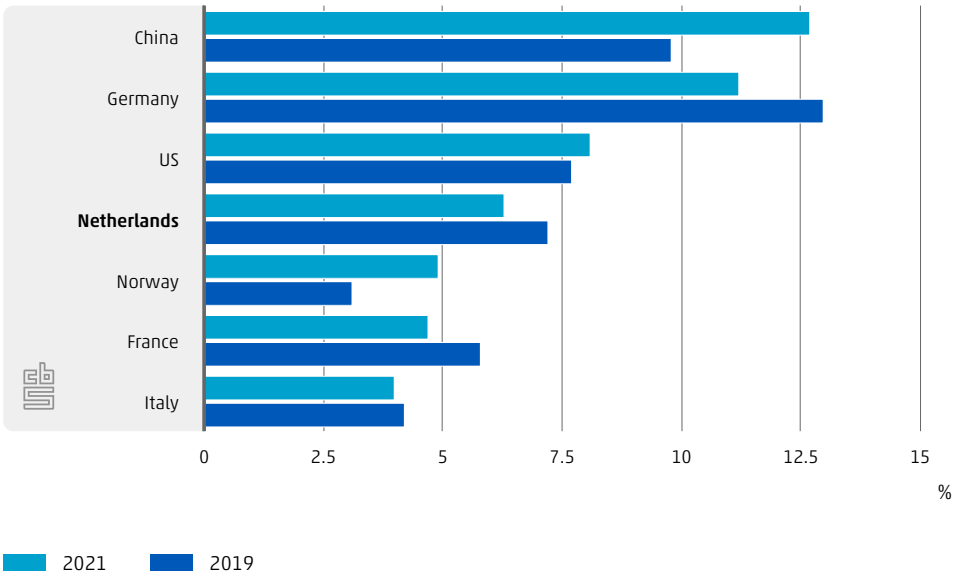
EU countries have smaller share in UK goods imports

In 2021, the Netherlands was relatively important to the UK as a supplier of goods, with a 6.3% share. Two years earlier, the Dutch share in UK goods imports was 0.9 percentage points larger. Figure 3.5.3 shows the same downward trend for the shares of other EU countries, such as France, Italy and Germany, in total UK imports. China overtook Germany in 2021 as the largest supplier of goods to the UK, which imported nearly 13% of its goods from China that year. In 2019, the share was still just under 10%. Other non-EU countries, such as the US and Norway, also gained in significance as suppliers of UK imports.

On 1 May 2021, the Trade and Cooperation Agreement (TCA) between the EU and the UK came into force and Brexit became official. Since that date, the UK has been a 'third country' – a country outside the EU – for the Netherlands with regard to trade. From a Dutch perspective, we can see that the uncertainty in the run-up to Brexit already had an impact on goods exports to the UK. From 2016, Dutch goods exports to the UK grew more slowly than exports to other trading partners. Quasi-transit trade and re-exports from the Netherlands to the UK in particular decreased. The value added of quasi-transit trade and re-exports is lower than for domestic exports and the loss of value added therefore remained limited for the Netherlands.

The decline in re-exports and quasi-transit trade through the Netherlands to the UK is partly the effect of diverted commodity flows from Asia. Many goods that the Netherlands imports from outside the EU are subject to import tariffs and quotas. If these goods are subsequently shipped on to the UK in the form of re-exports or quasi-transit trade, there may be import duties to pay again when they are imported into the UK. For this reason, it is less attractive to sell goods from outside the EU to the UK via the Netherlands (see also Creemers et al., 2022).

3.5.3 Top 7 import shares in trade with the UK[1)]



Source: CBS, CEPII

1) Only trading partners with an import share of ≥ 4% in 2021.

The Netherlands gains larger share in Polish and Taiwanese imports

In Table 3.5.4 (which only lists the trading partners that imported at least US$1 billion worth of goods from the Netherlands in 2021 and is therefore a supplement to the trading partners in Figure 3.5.2), we see that the Netherlands holds a relatively important position as a supplier to Poland, with a share of 5.5%. Eleven years earlier, the Netherlands had a 4.6% share in Poland's goods imports. In 2021, the Netherlands exported more than 12% of other motor vehicles, such as heavy goods vehicles or buses, to Poland, making it our second-largest importer of these goods. After Germany and China, the Netherlands was Poland's third most significant import partner in 2021, having progressed from fifth place in 2010.

Taiwan is relatively dependent on the Netherlands for its goods imports, as can be deduced from Table 3.5.4. It mainly imports machinery for manufacturing chips (lithography machines). With a share of 36.5%, Taiwan was our largest customer for this machinery in 2021. In 2021, the Dutch market share in Taiwan's imports was 2 percentage points higher than 11 years earlier (see also CBS, 2022d) and it represented 3.2% of total Taiwanese goods imports. China, Japan and the US were Taiwan's largest import partners in 2021.

3.5.4 Importance of the Netherlands as a supplier of goods by trading partner[1)]

	2010	2015	2019	2020	2021		2010	2015	2019	2020	2021
	%						%				
Ireland	5.2	4.7	5.3	5.4	5.9	Morocco	2.4	2.4	2.1	2.3	2.4
Italy	5.0	4.8	4.9	5.5	5.5	Switzerland	3.6	2.1	2.1	2.0	2.1
Luxembourg	6.8	4.5	5.8	5.6	5.5	Saudi Arabia	2.1	1.4	2.5	2.3	2.1
Poland	4.6	4.7	5.0	5.4	5.5	South Africa	1.8	1.6	1.6	1.7	1.9
Greece	5.5	5.4	4.6	5.7	5.3	Slovenia	2.4	2.2	2.1	2.1	1.9
Portugal	5.2	4.9	5.0	5.4	5.2	Slovakia	2.0	2.0	2.1	2.0	1.9
Lithuania	4.7	5.0	5.6	5.5	5.1	Ukraine	1.9	1.6	1.9	2.1	1.8
Spain	4.9	4.2	4.7	5.0	5.1	South Korea	1.1	1.1	0.9	1.5	1.7
Norway	4.5	4.6	5.0	5.3	5.0	Australia	0.8	0.9	1.4	1.3	1.4
Austria	3.7	3.4	3.6	3.6	4.4	Brazil	1.2	1.7	1.5	1.3	1.3
Czech Republic	4.8	4.5	3.9	4.1	4.4	US	1.0	0.8	1.1	1.1	1.1
Hungary	3.9	4.2	4.6	4.2	4.1	China	0.7	0.8	0.9	1.0	0.8
Bulgaria	2.6	3.5	3.4	3.9	4.1	Canada	0.5	0.7	1.0	0.8	0.8
Afghanistan	3.0	2.5	2.0	3.3	3.9	Singapore	2.0	1.4	1.0	0.9	0.8
Romania	3.4	3.7	3.7	3.7	3.8	Mexico	1.0	0.7	0.6	0.6	0.6
Estonia	2.7	4.4	4.2	4.3	3.8	Japan	0.6	0.6	0.6	0.8	0.6
Croatia	2.4	3.4	3.5	3.7	3.6	India	0.7	0.6	0.6	0.7	0.6
Israel	3.1	3.0	2.3	3.4	3.3	Indonesia	0.5	0.6	0.6	0.6	0.5
Taiwan	1.2	1.2	3.2	2.7	3.2	Malaysia	0.7	0.9	0.6	0.6	0.5
Russia	3.2	2.4	2.9	3.0	2.8	Thailand	0.6	0.6	0.6	0.5	0.5
Turkey	2.9	2.4	2.7	2.8	2.6	Vietnam	0.7	0.5	0.4	0.4	0.3
Egypt	2.4	2.1	2.2	2.1	2.5	Hong Kong	0.4	0.5	0.4	0.4	0.3

Source: CEPII, edited by CBS

1) Only trading partners that imported ≥ US$ 1 billion worth of goods from the Netherlands in 2021.

Nearly 10% of Iceland's imports came from the Netherlands

If we look at the trading partners that import goods worth less than US$1 billion from the Netherlands, the Dutch share in Iceland's imports is the largest. Iceland sourced 9.5% of all imported goods from our country in 2021. For Iceland, the Netherlands is the third-largest supplier of goods after Norway and Denmark. In 2020, this share was 11%, making the Netherlands the largest supplier of goods to Iceland. In particular, our country supplies Dutch-manufactured electrical appliances to Iceland.

3.6 Importance of the Netherlands as a market for other countries

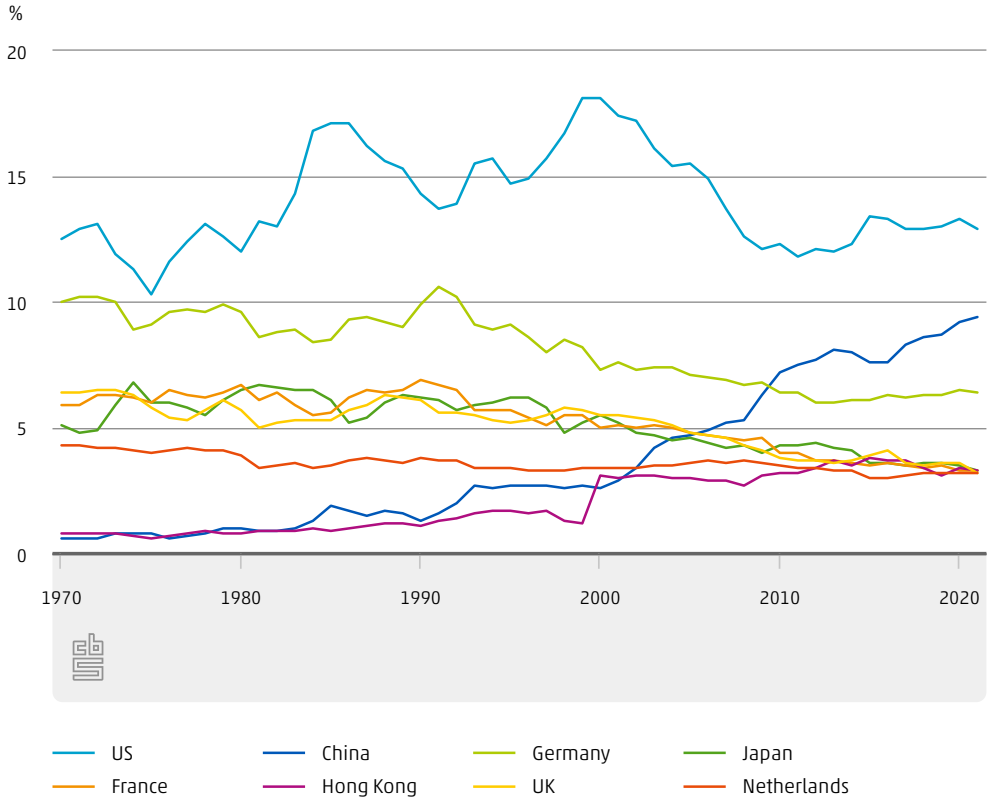
In this section, we set out what share the Netherlands has in the goods exports of other countries. In addition to the importance of the Netherlands for exports from other economies, we also look at the Netherlands' ranking among the main destinations for other economies.

8th importer of goods in the world in 2021 was the Netherlands

Figure 3.6.1 shows that the Netherlands was responsible for 3.2% of global imports in terms of value in 2021. This means the Dutch contribution to global imports declined by 1.1 percentage points between 1970 and 2021. The share in global imports of other European countries, including Italy, the UK, France and Germany, was also down. In 2021, the Netherlands ranked eighth among importers worldwide, after the US, China, Germany, Japan, France, Hong Kong and the UK. The US was the largest importing country in the world in 2021, accounting for close to 13% of total global imports. China occupied second place in 2021, with a 9.4% share in global goods imports. In 2000, before China's accession to the WTO, the country only imported 2.6% of the total. The increasing importance of China for global imports was partly fuelled by increasing demand for consumer goods from an emerging middle class. Another factor is China's role in global production chains, where some goods are imported for processing or assembly, before being exported as semi-finished products or finished products (Eurostat, 2022).

Hong Kong moved up to sixth place, with a 3.3% share in global imports. In 1970, the share was only 0.8%. Hong Kong's role as a link between the Chinese mainland and the rest of the world strengthened over time, as did its status as an international financial centre. Given its small domestic market, the lack of natural resources/raw materials and a limited production sector, Hong Kong depends on international trade to maintain its competitiveness (Cheung et al., 2018; Pang, 2020).

3.6.1 Contribution to global goods imports

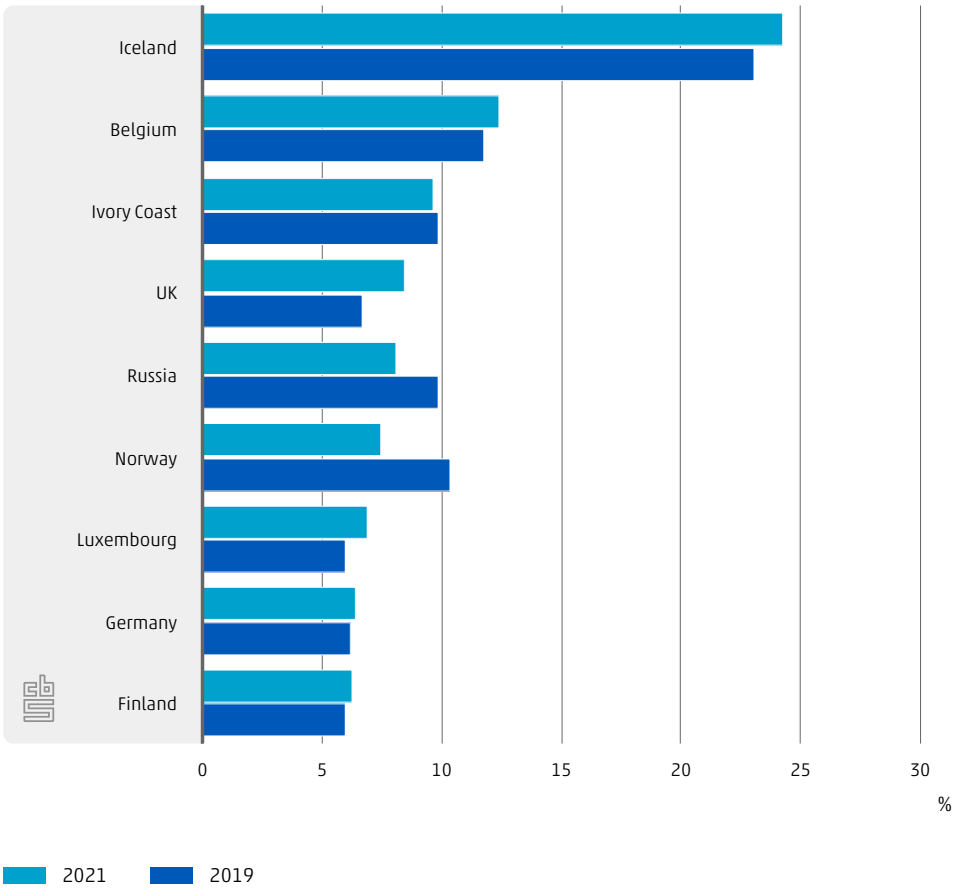


Source: CBS, CEPII

Almost a quarter of Iceland's goods exports go to the Netherlands

The Netherlands is among the top 5 markets for goods from all the trading partners from Figure 3.6.2. Its neighbour Belgium exported around 12.4% of its goods to the Netherlands in 2021. This makes the Netherlands its third-largest market after Germany and France. For Iceland, our country was the largest buyer of goods in 2021, with a 24.3% share. The bulk of Dutch imports from Iceland in 2021 consisted of aluminium. Ivory Coast also sold the largest share of its goods – 9.7% – to the Netherlands in 2021. The country mainly supplies the Dutch industry with cocoa beans and semi-finished products such as cocoa mass and cocoa butter. Ivory Coast is by far our largest supplier of cocoa: in 2021, 38% of cocoa imported by the Netherlands came from Ivory Coast. The value of exports from Ivory Coast to the Netherlands was nearly a fifth lower in 2021 than in 2019. Because cocoa bean harvests vary from year to year, the price of that commodity is subject to considerable fluctuations.

3.6.2 Top 9 shares in goods exports per trading partner[1)]



Source: CBS, CEPII
1) Only those trading partners with a Dutch export share of ≥ 6% and total exports to the Netherlands worth ≥ 1 US$ billion in 2021.

The Netherlands less important as a market for Norway and Russia in 2021

The share of the Netherlands in Norway's goods exports contracted from 10.4% in 2019 to 7.5% in 2021 (Figure 3.6.2). In 2021, the Netherlands was no longer Norway's third-largest export partner, having been overtaken by Sweden. Norway's exports destined for the Netherlands principally consist of mineral fuels. Russia exported 8.1% of its goods to the Netherlands in 2021, down from 9.9% in 2019. In contrast, exports from Russia to the UK, the US and China increased in the same period. Russia specifically supplies the Netherlands with crude oil and refined petroleum products, and in 2021, it was our largest supplier of crude oil.

The Netherlands has larger share in exports from Hong Kong and Ukraine

Hong Kong is relatively dependent on the Netherlands for its goods exports, as can be deduced from Table 3.6.3 (which only lists the trading partners that exported at least US $1 billion worth of goods to the Netherlands in 2021 and is therefore a supplement to the trading partners in Figure 3.6.2). In 2021, the Netherlands received 5.1% of Hong Kong's

goods exports, which were mainly mobile telephones, modems, routers, computers, laptops, tablets, chips and semiconductor components. After China, Hong Kong was our second-largest supplier of mobile telephones, modems and routers in 2021. In 2021, the Dutch market share in Hong Kong's exports was 2 percentage points higher than in 2010. China, India, the UK and the Netherlands were Hong Kong's largest markets in 2021. According to figures from Hong Kong's statistical office, the vast majority of Hong Kong's exports to the Netherlands are re-exports. Hong Kong's statistical office collects figures not only on the destination of the re-exports, but also on the origin of the imports for those re-exports. These data show that in 2021, close to 91% of Hong Kong's re-exports to the Netherlands originated from China. These figures confirm Hong Kong's function as a transit port for moving goods produced on the Chinese mainland to the rest of the world (Hong Kong Census and Statistics Department, 2023; see also Creemers et al., 2020).

We see in Table 3.6.3 that Ukraine sold 3.1% of all exported goods to Dutch enterprises in 2021. In 2021, China, Poland, Turkey and Russia were Ukraine's biggest markets. The Dutch share in Ukrainian goods exports has grown by 2.1 percentage points since 2010. In addition to the Netherlands, both China and Poland have increased in importance as destinations for exports from Ukraine. Conversely, Russia's importance as a market for Ukrainian exports has plummeted: since the annexation of Crimea in 2014, there has been a serious conflict on the Russia-Ukraine border. Dutch enterprises mainly imported refined vegetable oils and fats, such as sunflower oil, as well as maize from Ukraine in 2021. Ukraine was the largest supplier of maize to the Netherlands in 2021, followed at a great distance by France, Germany and Romania. It was also our largest supplier of refined vegetable oils and fats in the same year (see also CBS, 2022e).

3.6.3 Importance of the Netherlands as a customer by trading partner[1)]

	2010	2015	2019	2020	2021		2010	2015	2019	2020	2021
	%						%				
Estonia	2.3	2.9	3.3	4.0	5.7	Italy	2.4	2.3	2.6	2.7	3.1
Lithuania	5.4	4.3	3.8	5.4	5.3	Turkey	2.1	2.1	3.0	2.9	2.9
Sweden	4.9	5.2	5.4	5.2	5.2	China	2.7	2.3	2.6	2.7	2.7
Denmark	4.1	4.5	5.3	6.3	5.2	South Africa	2.6	1.7	2.5	3.0	2.7
Ireland	3.8	4.2	5.3	5.1	5.1	Bulgaria	1.5	2.4	2.6	2.7	2.5
Hong Kong	3.1	4.1	6.0	4.6	5.1	Philippines	3.4	2.4	2.1	2.2	2.5
Libya	3.2	0.4	2.0	0.9	4.8	Morocco	2.6	2.5	2.5	3.0	2.4
Nigeria	2.8	6.1	5.7	5.3	4.6	Greece	2.1	2.1	2.2	2.4	2.4
Poland	4.3	4.4	4.4	4.4	4.4	Malaysia	3.0	2.7	2.3	2.3	2.2
Algeria	6.8	5.2	3.5	2.7	4.2	India	2.9	1.7	2.4	2.0	2.2
Argentina	3.4	2.3	2.8	3.0	4.1	Vietnam	2.3	2.6	2.4	2.4	2.2
France	4.1	3.8	3.5	3.7	4.0	Slovakia	2.9	2.5	2.1	2.1	2.0
Portugal	4.1	4.0	4.0	3.8	4.0	Singapore	1.6	1.2	2.2	2.3	1.9
Czech Republic	3.8	2.9	3.8	4.1	3.7	Austria	1.6	1.6	1.9	2.0	1.9
Spain	3.2	3.0	3.4	3.5	3.6	Switzerland	2.3	1.6	1.9	2.1	1.9
Peru	2.2	2.5	3.0	3.5	3.4	Indonesia	2.1	1.9	1.7	1.8	1.8
Romania	2.7	2.5	3.1	3.4	3.3	Thailand	1.7	1.8	1.8	1.7	1.8
Pakistan	1.7	2.1	2.9	3.3	3.3	Chile	3.6	2.6	2.4	1.9	1.7
Bangladesh	4.2	2.7	3.4	3.5	3.2	Taiwan	1.7	1.3	1.6	1.6	1.6
Brazil	4.3	4.1	3.2	3.1	3.2	Japan	2.0	1.8	1.6	1.6	1.6

3.6.3 Importance of the Netherlands as a customer by trading partner[1)] (continued)

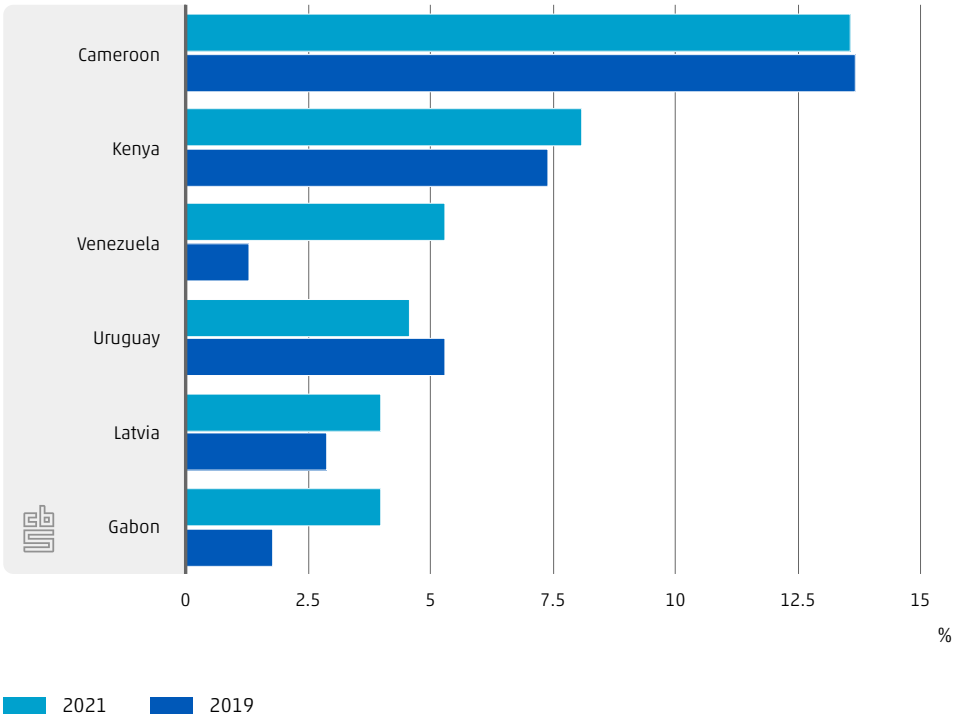
	2010	2015	2019	2020	2021		2010	2015	2019	2020	2021
Colombia	5.1	4.8	3.6	2.6	3.2	Saudi Arabia	1.2	0.8	0.9	1.0	1.3
Hungary	3.1	3.2	3.3	3.4	3.1	South Korea	1.1	0.7	0.8	0.9	0.9
Israel	3.4	3.2	3.6	4.5	3.1	Canada	0.8	0.7	0.9	1.1	0.8
US	2.8	2.7	3.2	3.2	3.1	Australia	0.8	0.9	0.8	0.7	0.8
Ukraine	1.0	2.2	3.4	3.4	3.1	Mexico	0.6	0.4	0.4	0.5	0.4

Source: CEPII, edited by CBS
1) Only trading partners that exported ≥ US$1 billion worth of goods to the Netherlands in 2021.

The Netherlands is important market for goods from Cameroon and Kenya

Of the countries with an export flow to the Netherlands of less than US$1 billion, Cameroon and Kenya are very dependent on the Dutch market (Figure 3.6.4). For Cameroon, the Netherlands is the second-largest export destination, with a share of 13.6%, preceded only by China. Cameroon mainly supplies cocoa and crude oil to the Netherlands. After Ivory Coast and Ghana, Cameroon was the third-largest supplier of cocoa to the Netherlands. In 2021, 8.1% of Kenya's exports were destined for the Netherlands. Kenya supplied many flowers and plants to the Netherlands, making it the second-largest supplier in this product group.

3.6.4 Top 6 Dutch shares in exports of trading partners[1)]



Source: CBS, CEPII
1) Only those trading partners with a Dutch share of ≥ 4% and goods exports to the Netherlands worth <1 US$ billion in 2021.

The Netherlands was fourth-largest market for Venezuelan exports in 2021

Venezuela sold the largest share of its goods – 26.4% – to China in 2021. The Netherlands ranked fourth among Venezuela's export partners, with a 5.3% share in its goods exports. Two years earlier, that share was 1.3%. Large amounts worth of alcohols, phenols, derivatives, crustaceans and molluscs left Venezuela for the Netherlands in 2021. In the same period, the Chinese and US shares of Venezuelan exports declined. In 2019, the US announced sanctions against Venezuela's state oil company PDVSA. Since then, the PVDSA's accounts in the US have been frozen and US residents are banned from trading with the enterprise. Venezuela is a major oil producer, but due to the sanctions imposed by the US, it has an extremely difficult time selling its oil to other countries (Roy, 2022; NOS Nieuws, 2019).

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4 International trade in services

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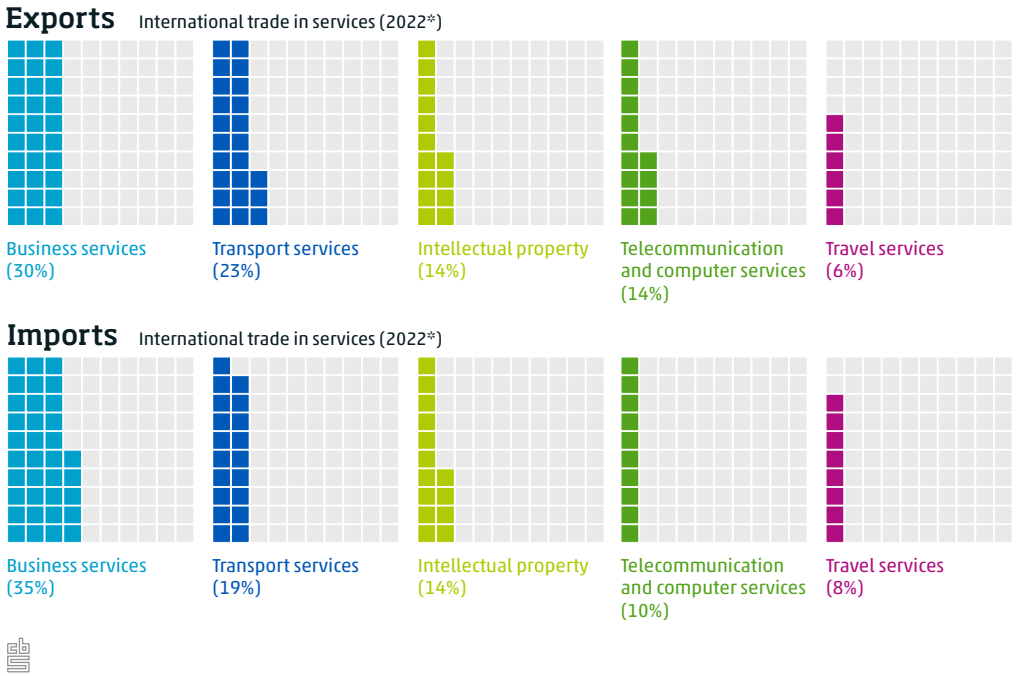


This chapter focuses on international trade in services. We discuss the development of Dutch trade in services over time, also distinguishing the main trading partners and service types. The international position of the Netherlands as a service trader is also discussed: how important is the Netherlands for the service trade of other countries, as a supplier and as a market?

4.1 Key findings

Dutch service exports in 2022

- In 2022, the Netherlands exported nearly €261bn in services, 22% more than in the previous year and 20% above the 2019 level. Fewer services were exported in 2020 and 2021 due to restructuring as a result of tax changes as well as the coronavirus crisis and associated travel restrictions.
- Extreme price increases in 2021 and 2022 are also reflected in the volume of international trade in services. Compared to 2019, the volume of service exports increased by 1.5% in 2022 while the export prices of services were 10.9% higher.
- The fastest growth compared to 2021 was in tourism expenditure in the Netherlands (+91% growth). Travel services therefore gained in importance as a service type in 2022.

- Germany was the main destination for Dutch services in 2022. In particular, our eastern neighbours received many transport services, business services and travel services from the Netherlands.
- The UK and the US rank second and third respectively on the list of top destinations for Dutch services. Despite Brexit, the UK received more transport services in 2022 than in 2021 and 2019. The US was the principal destination for business services, receiving 16% of all services of this type from the Netherlands.
- Ireland ranks fourth and became a more important export destination for Dutch services year on year (42% growth in 2022 relative to 2021). This growth is mainly driven by increasing flows of telecommunications, computer and information services as well as intellectual property fees to Ireland. Ireland was the principal export partner for both service categories in 2022.

Dutch service imports in 2022

- Dutch imports of services were 19% higher than in 2021, amounting to €250bn. This is also above the level of 2019.
- Although the volume of trade in services was still below the 2019 level, the price increases in recent years have led to a substantially higher import value.
- Business services are the largest services import while there was significant growth in travel services, which includes spending by Dutch nationals abroad. The growth in travel services can be explained by the fact that travel restrictions due to the coronavirus pandemic were phased out in most countries at the beginning of 2022.
- Just as in 2021, the US was the most important supplier of services to the Netherlands. The Netherlands imported €47.3bn worth of services from the US. Intellectual property fees and business services saw the strongest growth in absolute terms. More than 60% of all Dutch cross-border payments for intellectual property ended up in the US.
- The UK and Germany are also among the main service providers. Imports from the UK were up by 11% on 2021 while imports from Germany were even 27% higher. Germany was very important in the supply of transport services to the Netherlands.
- France was the fifth largest supplier of services to the Netherlands in 2022; the Netherlands imported 35% more from France than in 2021. France thus surpassed Belgium on the ranking of service suppliers for the first time. The top 10 of most important partner countries has remained stable since 2019.

The Netherlands as an international service provider in 2021

- The Netherlands was in 2021 the seventh largest service exporter in the world, but has almost been overtaken by Singapore. The US has been the largest exporter of services for decades.
- In Belgium, the Netherlands was the second largest service provider with a share of 13.7% in 2021. The Netherlands mainly provides transport and business services to its southern neighbour.

The Netherlands as an international service consumer in 2021

- In terms of value, the Netherlands is the seventh largest service importer in the world. Annually, our country accounts for 4% of the globally imported services.
- The Netherlands is the most important destination for Belgian services, with Belgium mainly exporting transport services and business services. The Netherlands is also a major consumer of services from Barbados and Suriname.

Outline

In sections 4.2 and 4.3 we look at services trade with other countries from a Dutch perspective using CBS figures. Section 4.2 covers the main developments in Dutch services exports and in section 4.3 we look at Dutch services imports. Due to a method break, the growth figures in these sections are based on provisional recalculation until 2019. In sections 4.4 and 4.5, we switch perspectives and look with the eyes of the rest of the world. How important is the Netherlands as a service provider and buyer for other countries? In section 4.4 we describe the importance of the Netherlands in the total services imports of partner countries, and in section 4.5 we elaborate on the importance of the Netherlands in the total services exports of trading partners. This uses data from the OECD-WTO. More information on this data source can be found in section 4.6 Data and methods.

4.2 Services exports by type of service and country

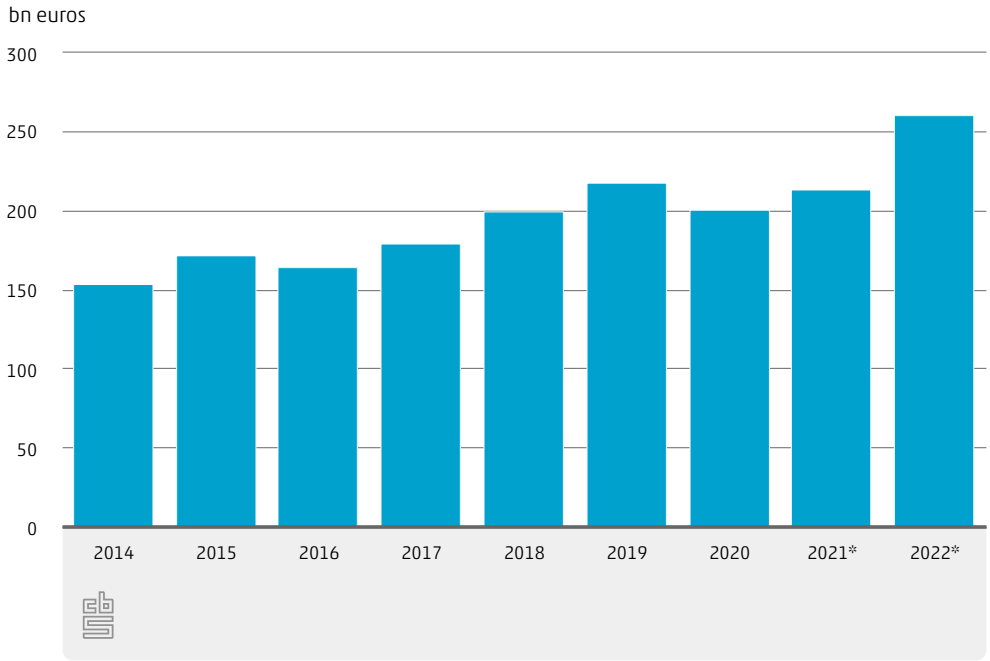
International trade in services is an important part of the Dutch economy. For a number of years now, services exports have contributed more than 10% to the GDP of the Netherlands, and 12.4% in 2021, the most recent year available. Nearly 1 million full-time jobs were directly or indirectly related to services exports in 2021. The Netherlands generates earnings from services exports through exports of transport services, payment services, technical services, such as those relating to petroleum and natural gas extraction, fees for the use of licences and intellectual property, expenditure by tourists and day visitors in the Netherlands, telecommunications, consulting and accountancy services, and many other types of international services.

Dutch services exports in 2022 far above level before coronavirus crisis

Dutch services exports totalled nearly €261 billion in 2022 (Figure 4.2.1). This is 22% more than in 2021 and 20% above the level of 2019, the last year before the coronavirus crisis. In 2020 and 2021, the Netherlands exported fewer services than in 2019, a contraction that was partly due to the COVID-19 pandemic and restructuring operations by enterprises as a consequence of changes to the tax system (Poulissen et al., 2022). Exports of travel services in particular slumped due to the travel restrictions in force in 2020 and 2021, which also caused sharp falls in exports of support services for travel (for instance, websites and platforms for booking accommodation and transport). Due to the lifting of the majority of coronavirus-

related travel restrictions, it was exports of travel services that grew fastest in 2022 compared to the previous year.

4.2.1 Exports of services



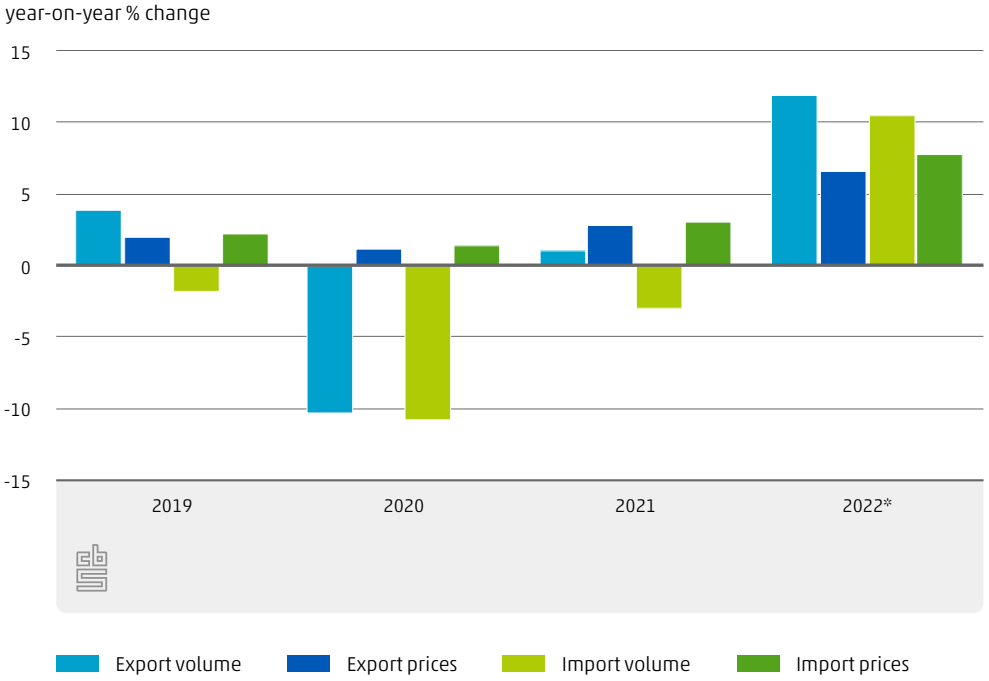
Price rises and the growth of services exports

The current macroeconomic situation is characterised by an inflation rate that is remarkably high from a historical point of view. For various reasons, price levels of both goods and services have risen sharply over recent years. Energy and fuel prices, for example, started rising strongly from the end of summer 2021, and Russia's invasion of Ukraine added more fuel to the fire in 2022. In addition, worldwide disruption of production chains due to the COVID-19 pandemic and trade conflicts, combined with a strong economic recovery in recent years and substantial catch-up demand for fuels from Asia, caused significant price rises. And while these strong price hikes were initially limited to specific product groups, inflation now appears to have spread throughout the entire economy.

High inflation rates also have an impact on the value of international services trade. International trade in services as measured by CBS refers to the total trade value, i.e., the total value of all services traded. This means that developments over time contain both a volume and a price effect. An increased trade value can therefore be the result of an increased volume of services, an increased price of these services or a combination of both factors. No detailed price indices are currently available at CBS with which the volume and price effect can easily be distinguished from each other within International Trade in Services statistics. However, it is possible to give an initial, rough indication based on the data that are known regarding the composition of GDP based on final expenditure (CBS, 2023).

If in Figure 4.2.2 we only look at the development of the volume of service exports and disregard price developments, we see that exports rose by 11.9% compared to 2021. Compared to 2019, the last year before the pandemic, the volume of service exports was only 1.5% larger in 2022. The price rises therefore explain nearly all the growth in service exports between 2019 and 2022. We do not currently have the volume developments broken down by service types or destination countries.

4.2.2 Development of Dutch trade in services



Travel services once again fifth-largest service type in exports

Figure 4.2.3 shows the composition of Dutch services exports. Exports went up in 2022 from 2021 for all service types apart from financial services (€600 million less). Exports of other services (manufacturing services; financial services; insurance services; personal, cultural and recreational services; government services; maintenance and repair services; and construction services) individually make up only a small part of total Dutch services exports.

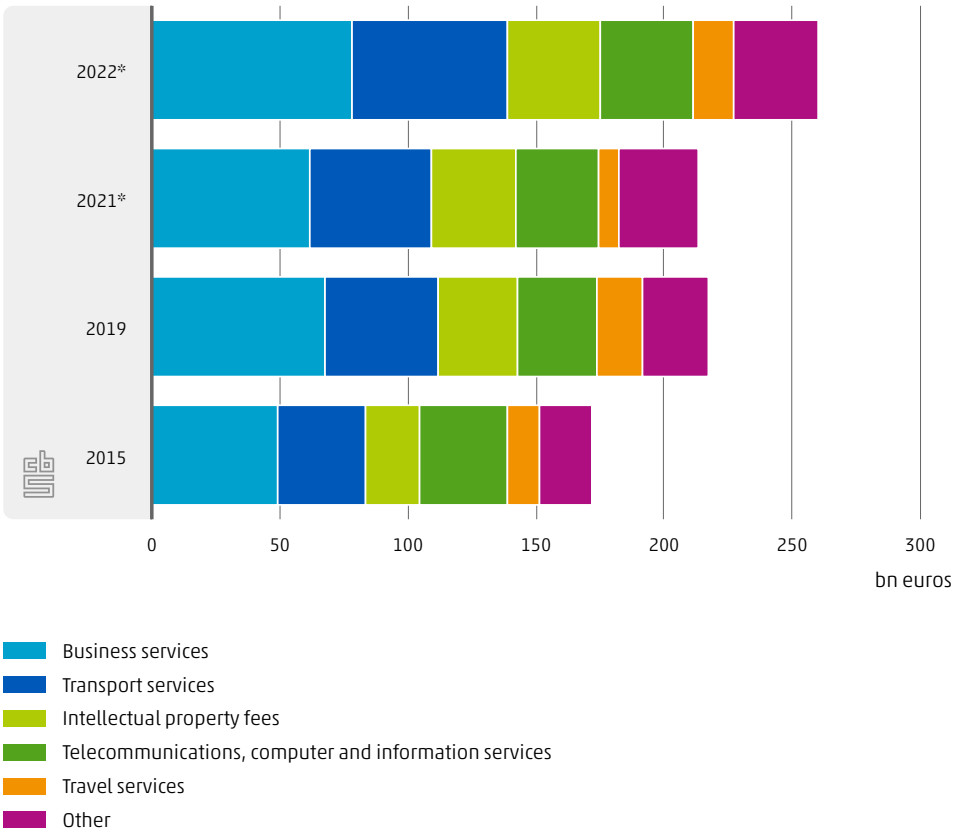
Travel services, at 6% of total export value in 2022, were once again the fifth-largest type of service, just as in 2019. This represented growth of 91% (+€7.4 billion) compared to 2021. In 2021, exports of travel services fell to €8.2 billion, less than 4% of the total. Exports of travel services therefore showed a substantial recovery in 2022, but they were not yet back up to 2019 levels. All other service types, with the exception of construction services, had a higher export value in 2022 than in 2019.

Share of transport services increases further

With a 30% share in total export value, business services have been the largest type of service in Dutch exports for years. In 2022, the export value was €16 billion higher than in the previous year. Exports of transport services experienced the second-fastest growth after travel services, reaching €60.6 billion in 2022. The previously mentioned sharply higher energy and fuel prices that are important in transport-related services played a major role in this development (see box). These services include passenger and freight transport by air and sea, together with related support services provided for non-Dutch individuals. They also include other transport services, such as freight and passenger transport, and support services for transport by rail, road, inland shipping and pipeline. These service types are related to goods transport and are important for Dutch exports, given the role of the Netherlands as a gateway to the European hinterland.

Exports of Dutch telecommunications, computer and information services grew less rapidly in 2022 than the other major service types. In 2022, the Netherlands exported €36.3 billion worth of this type of service, making it the fourth-largest among exports. These exports were up by €3.8 billion from 2021, a slightly smaller rise than for fees for the use of intellectual property. Exports of such fees generated €4.2 billion more than in 2021, which made them the third-largest type of service in Dutch exports.

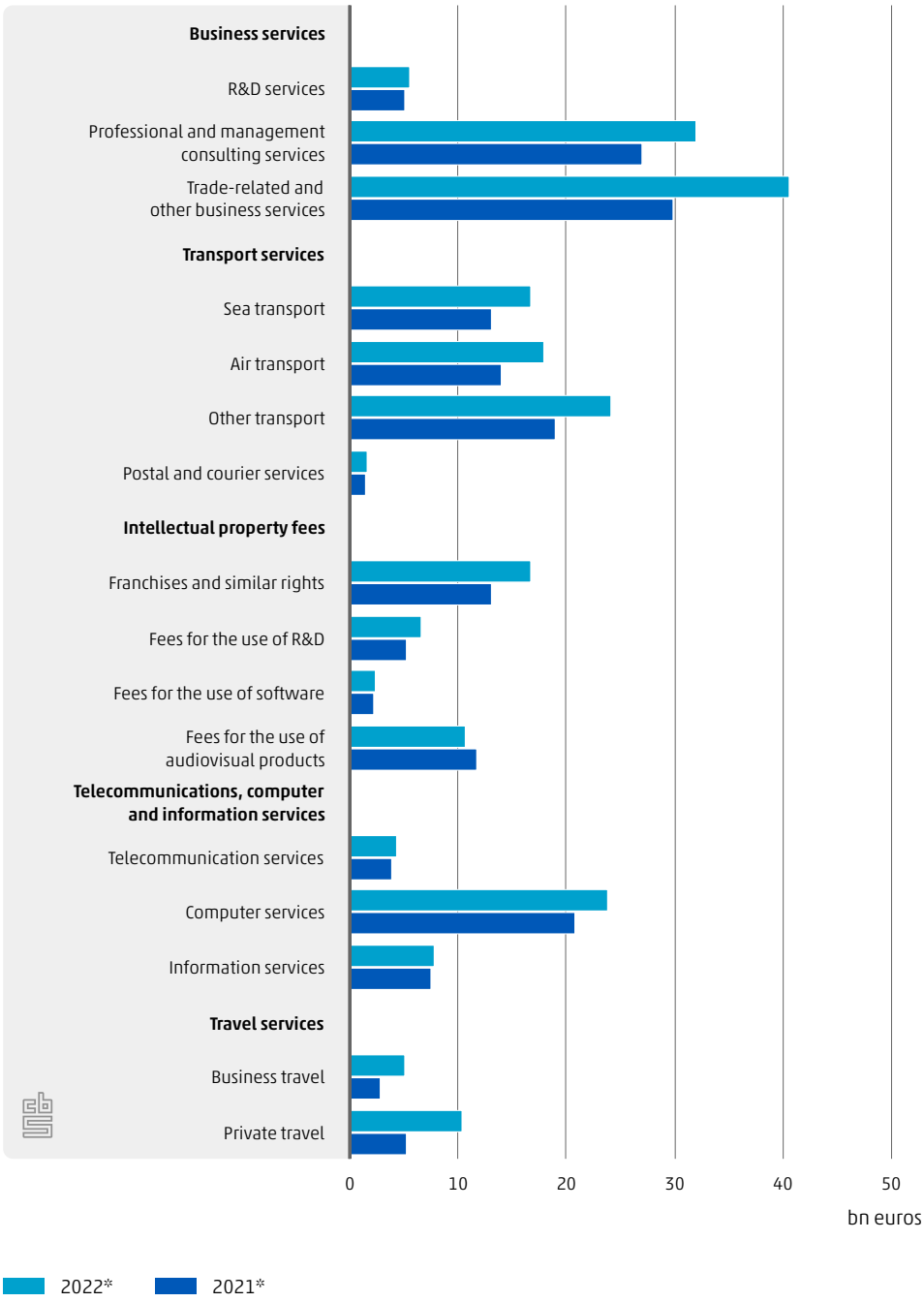
4.2.3 Exports of services by service type



Recovery of exports of travel services visible in several places

Figure 4.2.4 further breaks down the five largest service types in exports to see how exports of specific service types contribute to the total and how the export value is developing. Within exports of business services, the 'trade-related and other business services' category has the highest export value (€40.7 billion). This group includes services provided by architects, engineers, scientific and other technical services, services incidental to mining and oil and gas extraction, and operational leasing of aircraft, for example. It also includes platforms (for instance, for arranging travel, taxi services or accommodation). The absolute growth of professional and management consulting services in 2022 was slightly lower than the growth of other service types within business services. Examples of professional and management consulting services are legal services, accounting, bookkeeping and tax consulting services, business consulting, and public relations services, advertising and market research. Exports of R&D services totalled €5.6 billion in 2022 – higher than in 2021 but some €3.5 billion lower than in 2019. In 2018 and 2019, a few large enterprises were responsible for a spike in Dutch exports of R&D services; from 2020, the pattern seemed to be back in line with that of the period 2014 to 2017.

4.2.4 Exports of services by service type, top 5



Other transport services, which include freight transport as one of the most important transport services for the Netherlands, achieved an absolute increase in export value of €5.1 billion, the largest for any type of service. The next largest are exports of air transport services, at €18 billion, followed by sea transport services at €16.8 billion. These services include passenger and freight transport by air and sea, together with related support services, provided for foreign residents. Exports of fees for licences for the reproduction and distribution of audiovisual and related products, such as fees for music and film distribution rights, were actually lower in 2022 than in 2021. In exports of telecommunications, computer and information services, the largest were computer services. This type of service includes fees for the use of software or proprietary software rights. After two years of limited growth, exports of computer services picked up again in 2022 (+€3.0 billion).

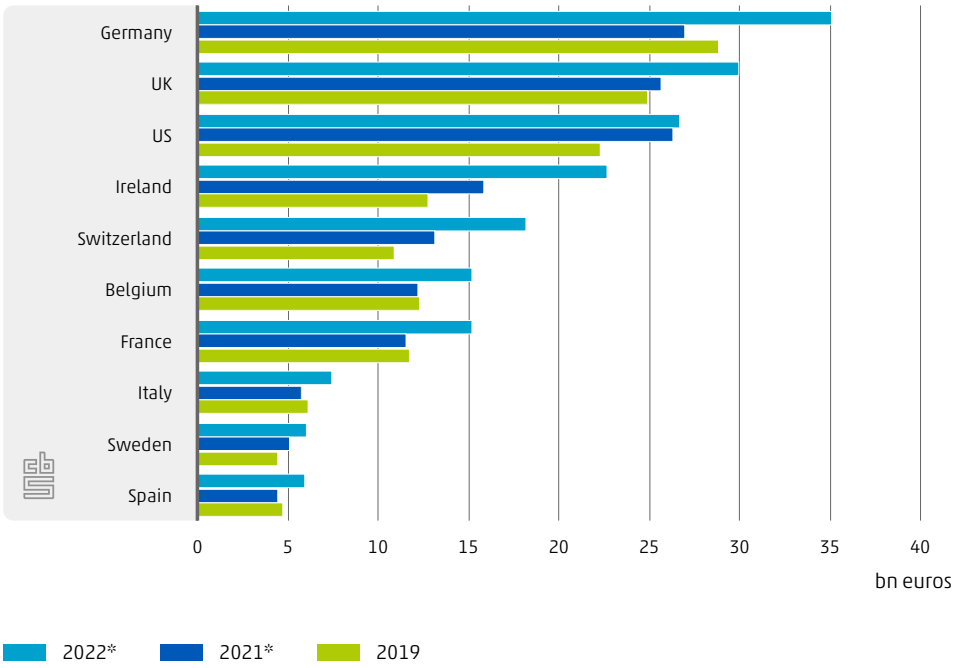
Germany most important export partner in 2022

In 2022, Germany was the largest export market for Dutch services. The value of service exports to Germany totalled more than €35 billion in 2022, a rise of 30% compared to 2021. Of this growth, 42% could be attributed to increased exports of travel services, in particular expenditure by German travellers in the Netherlands for private purposes. Exports to the second-largest market, the UK, grew in business services and transport services in particular (see box on Brexit for further details). The growth of exports to the US (in third place) was limited by lower exports of financial services, among other factors. The export value of those financial services slumped from €4.9 billion in 2021 to €1.2 billion a year later, partly due to enterprises shifting money and investment flows. Exports of transport services and business services to the US in particular did grow between 2021 and 2022.

Germany was also the largest market for services exports in 2019 and 2021, but the gap between that country and the US and the UK as second and third-largest partners was significantly wider in 2022, as can also be seen in Figure 4.2.5. The other export markets in the top 5 in 2022 were Ireland (8.7%) and Switzerland (7.0%). The value of Dutch exports to Ireland was 42% higher in 2022 than in 2021. This growth is a result of the higher export value of a few enterprises specialised in supplying user licences. In 2022, Switzerland paid the Netherlands mainly for the use of intellectual property and for the purchase of services linked to the processing and handling of goods, and for transport services. Exports of transport services grew by €1.1 billion in 2022 compared to the previous year. For the second year in a row, Switzerland was a larger market for our services than Belgium, which shared sixth place with France, each with a 5.8% share in the total export value.

The five largest partners of the Netherlands obtained more than half of total Dutch services exports in 2022. In 2019, €101 billion worth of services were exported to the five largest markets, accounting for 47% of the total. If we look at the share in total exports that goes to the top 10 (70%) or top 25 (87%) of trading partners, we can see that a growing share of trade is concentrated on the largest destination countries. In 2019, 64% of service exports went to the ten largest partners and 85% to the top 25.

4.2.5 Exports of services by country



Service exports to UK growing despite Brexit

The Netherlands exported around €30 billion worth of services to the United Kingdom in 2022. That is 20% more than in 2019 and 17% more than in 2021. This continuing rise is striking, given that the UK formally left the European Union on 31 January 2020. Whereas goods exports to the UK showed very limited growth in 2021 – the first year in which the rules of the Internal Market no longer applied – and also increased relatively little in 2022 in relation to total export growth, exports of services have so far proved immune to the changes (see section 3.3 on goods exports in Chapter 3 of this publication). This may be because the Trade and Cooperation Agreement between the UK and the EU includes less explicit agreements on mutual service trade than on goods trade. The British figures for UK service imports also show strong growth, in spite of Brexit taking effect and the expected limitations associated with it (The Economist, 2023). It is possible that the limited access as a consequence of Brexit has less of an impact on services than on the goods trade and that it is so far easier for service traders to get services to the desired destination, whether or not by way of an indirect route.

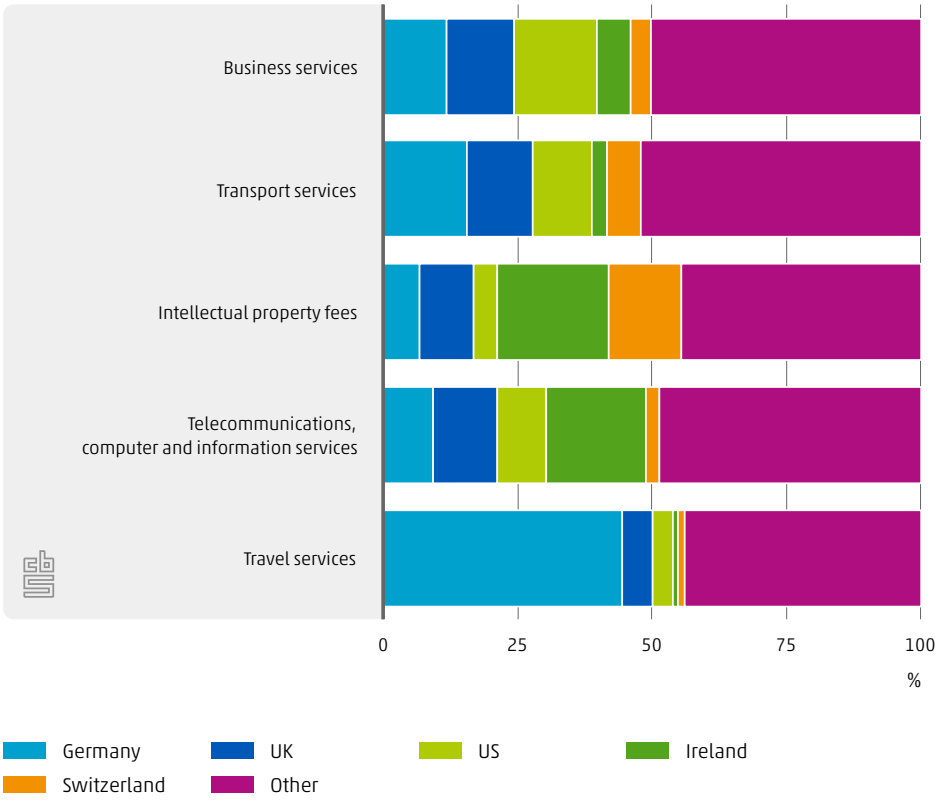
Business services, including legal and accounting services, were the most important category of service exports to the UK in 2022, with a value of €9.8 billion. Almost one-third of service exports to the UK consist of business services. Transport services are the second-largest type of service. Far more exports of transport services went to the UK in 2022 than in 2019 and 2021. Expenditure by British tourists and business travellers during their stays in the Netherlands totalled €876 million in 2022. That is over four times more than in 2021, but still 38% less than in 2019, before Brexit took effect and before the outbreak of the COVID-19 pandemic.

Large share in business services to the US

The share of exports to the largest partners varies according to the type of service. Figure 4.2.6 shows the shares of the top 5 trading partners in the largest types of services. The US was the largest market for business services, taking 16% of the total. Nearly half of all services exported to the US consisted of business services. Germany took the largest share in transport services, at 16%. This is not surprising, as many goods are transported from the Netherlands to Germany by road and especially by inland shipping (Creemers et al., 2020). Ireland remains a relatively important market for Dutch exports of intellectual property. Even after the changes in tax rules, Ireland accounted for nearly 21% of all fees for intellectual property in 2022. Switzerland obtained nearly 14% of the total export value of this type of services from the Netherlands. Ireland was also the largest market for exports of telecommunications, computer and information services, with 19% of the export value, followed by the UK.

Nearly 45% of all exports of travel services went to Germany in 2022, with the lion's share consisting of private travel services. The other major partners all took under €1 billion worth of travel services from the Netherlands. A large share in exports of financial services goes to the UK.

4.2.6 Exports of services by service type, top 5 destinations, 2022*

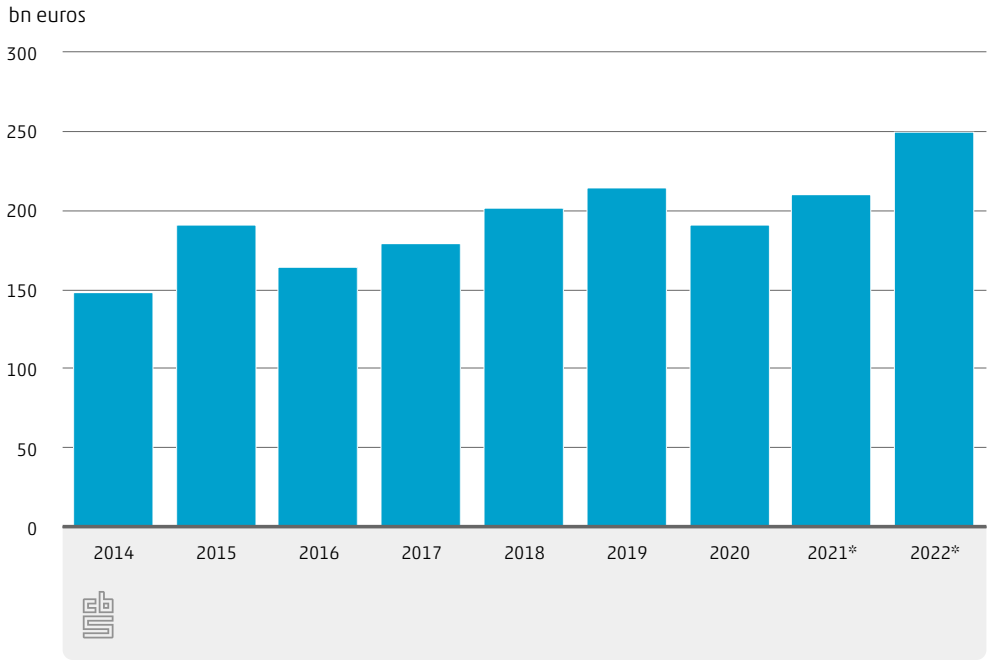


4.3 Services imports by type of service and country

In 2022, the Netherlands posted a trade surplus in the service trade. In the whole of 2022, exports of services exceeded imports by €10.7 billion. Consumers use part of the imported services directly, while another part is further processed by enterprises in their production processes. Chapter 7 of this publication examines the distribution of Dutch imports in more detail.

The value of Dutch services imports was some 19% higher in 2022 than the year before, with the total value being just over €250 billion (Figure 4.3.1). This is more than 16% above the 2019 level, so services imports have recovered completely from the dip experienced during the coronavirus crisis with regard to the trade value. In 2021, the import and export value of services were both still around €4 billion lower than in 2019. The growth in services imports, just as in exports, is mainly due to price rises. Compared to 2021, the volume of services imports grew by 10.5% in 2022, while the prices of services rose by 7.8% (CBS, 2023).
The importance of price increases becomes clearer if we look at the development of the import volume between 2019 and 2022. The import volume of services in 2022 was still 4.3% lower than in 2019, the last year before the coronavirus crisis. The price rises are thus the only reason for the increase in total Dutch services imports compared to 2019 (see box in section 4.2 for more context on price developments).

4.3.1 Imports of services

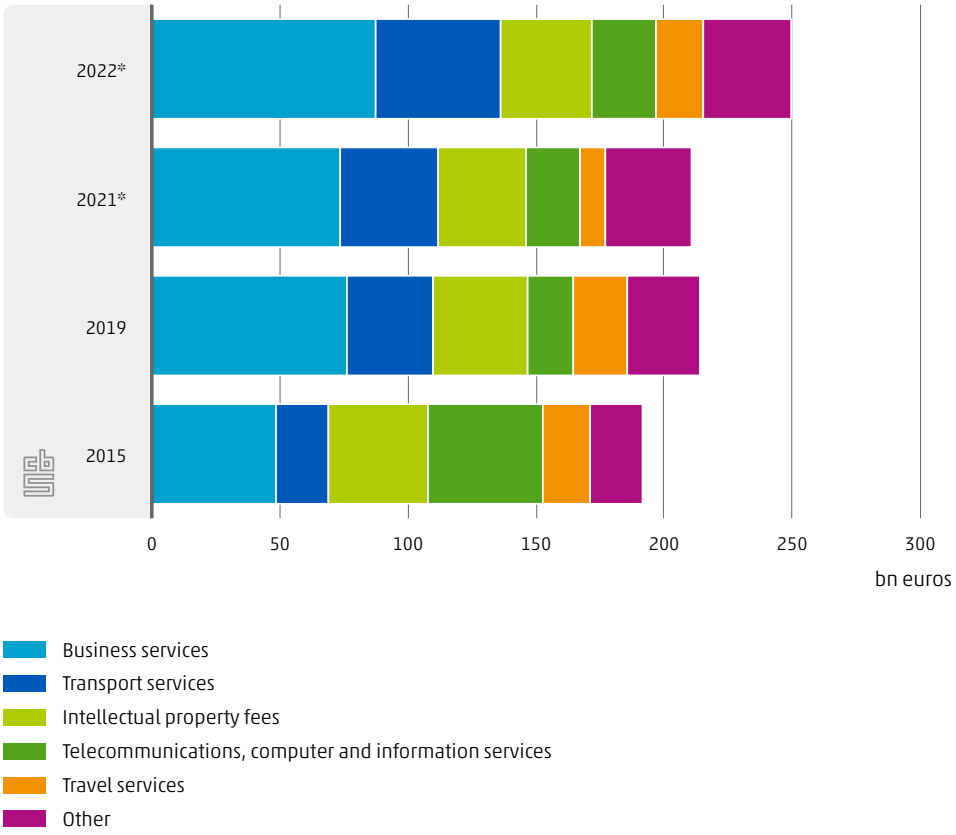


Over one-third of import value from business services

The five largest service types accounted for 86% of total Dutch service imports in 2022 (Figure 4.3.2). More than 35% of Dutch import value consisted of business services in 2022. Transport services were second-largest with 19%.

Imports of transport services grew at a fast pace in 2022; in percentage terms, compared to 2021 (+27%), slightly faster than business services (+19%). The import value of transport services grew strongly, partly due to the increased energy and fuel prices, which are of major importance in transport-related services. Travel services saw the highest relative growth in 2022 compared to 2021. However, despite the lifting of travel restrictions, the import value of travel services was still lower than before the coronavirus crisis. Financial services, still the fifth-largest type of service in imports in 2021, were imported less in 2022 and dropped back to sixth place, just as in the period before 2020.

4.3.2 Imports of services by service type

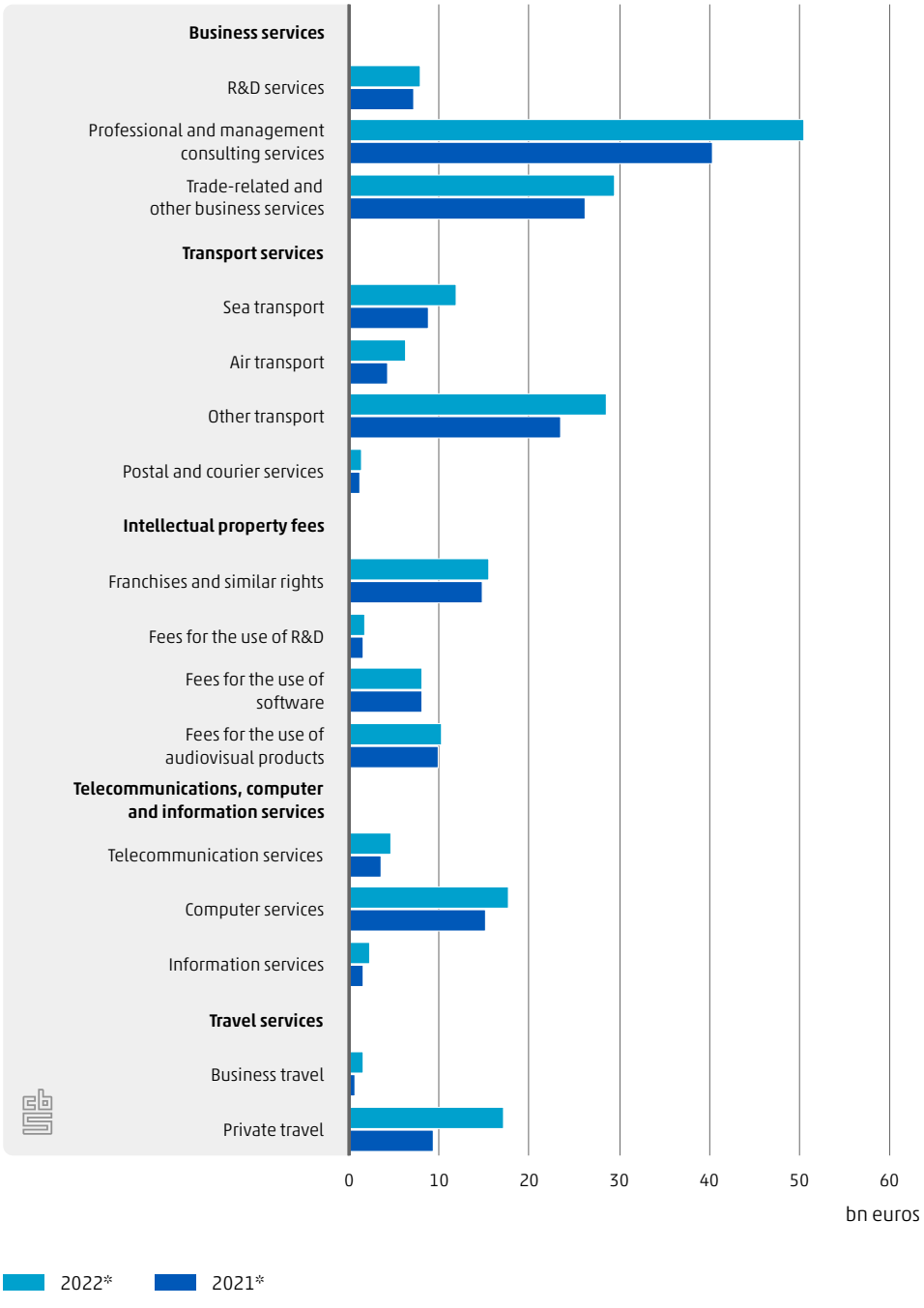


Strong absolute growth in imports of other transport services

Figure 4.3.3 provides a more detailed breakdown of the top 5 imported services, so that we can gain a better understanding of the specific services that play a key role in imports. In the case of business services imports, it is notable that professional and management services are the largest and they grew in importance in 2022 (25% higher import value than in 2021). R&D services play a smaller role, just as in the case of exports of business services. Within transport

services, all categories grew compared to the previous year. Imports of other transport services have the largest share here at close to €29 billion; these are mainly services supporting inland shipping, road and pipeline transport. Imports of sea and air transport services grew relatively faster than other transport services compared to 2021, with a 35% rise for sea transport services and 43% for air transport services.

4.3.3 Imports of services by service type, top 5



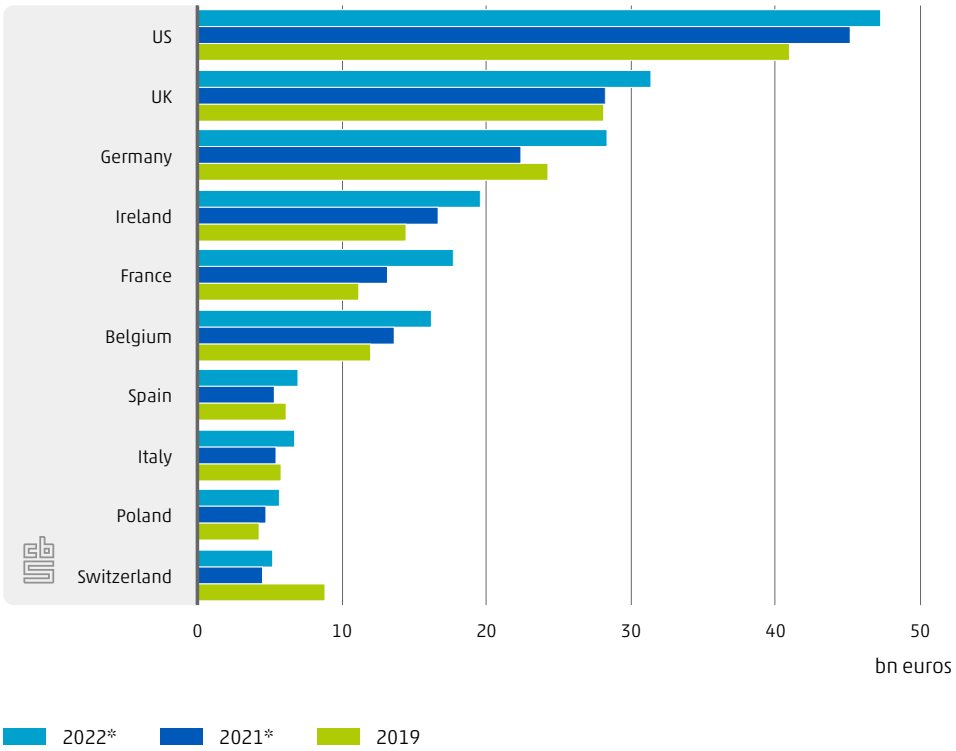
83% rise in Dutch tourism expenditure abroad in 2022 compared to 2021

Fees for the use of intellectual property were concentrated in franchises and similar rights in 2022. The import value of fees for the use of software, R&D and audiovisual products hardly changed compared to 2021. The low fees for the use of R&D are striking when compared to 2019, when the Netherlands paid €5.4 billion for imports of this type of services. As with exports of R&D services, there was an anomalous import pattern in 2018 and 2019, driven by fluctuations in the imports of a number of larger enterprises. The declining trend in the share of payments for intellectual property use was partly due to changes in the tax system and the subsequent shift of money and income flows by enterprises (Poulissen et al., 2022). After two years of strong contraction, imports of travel services increased again in 2022. Expenditure by Dutch tourists abroad exceeded €17 billion in 2022, growing by 83% compared to 2021.

United States by far the largest import partner

As in 2021, most services were imported from the US in 2022 (Figure 4.3.4). The level of imports from the US in 2021 was already 10% higher than in 2019, in contrast to other major partners such as Germany and the UK. Imports of services from Germany were lower in 2021 than in 2019, while imports from the UK remained at the same level. In 2022, imports from the US rose further to €47.3 billion, particularly due to increased payments for the use of intellectual property and more imports of business services. The value of services provided by the UK to the Netherlands in 2022 was €31.4 billion, putting the UK in second place as a supplier of services. The Netherlands imported 11% more in services from the UK than in 2021. The value of imports from Germany was still lower in 2021 than in 2019 because travel to Germany by Dutch tourists and business travellers plummeted in 2020 and 2021. The value of services imported from Germany grew by 27% from 2021 to a total of €28.4 billion in 2022: business services, travel services and transport services each contributed more than 20% to this growth in imports. For the other countries in Figure 4.3.4, the import value also increased between 2021 and 2022. It is notable here that imports from France, Ireland and Belgium in particular grew rapidly between 2021 and 2022. In 2022, imports from France, for example, were 35% higher than in the previous year. This growth was mainly driven by business services (+€1.8 billion). Switzerland ranked 10th as an origin country and, just as in 2021, it was less important to the Netherlands than in 2019. The shift in international money flows, which may be the consequence of changes in Dutch tax legislation, plays a role in this.

4.3.4 Imports of services by country

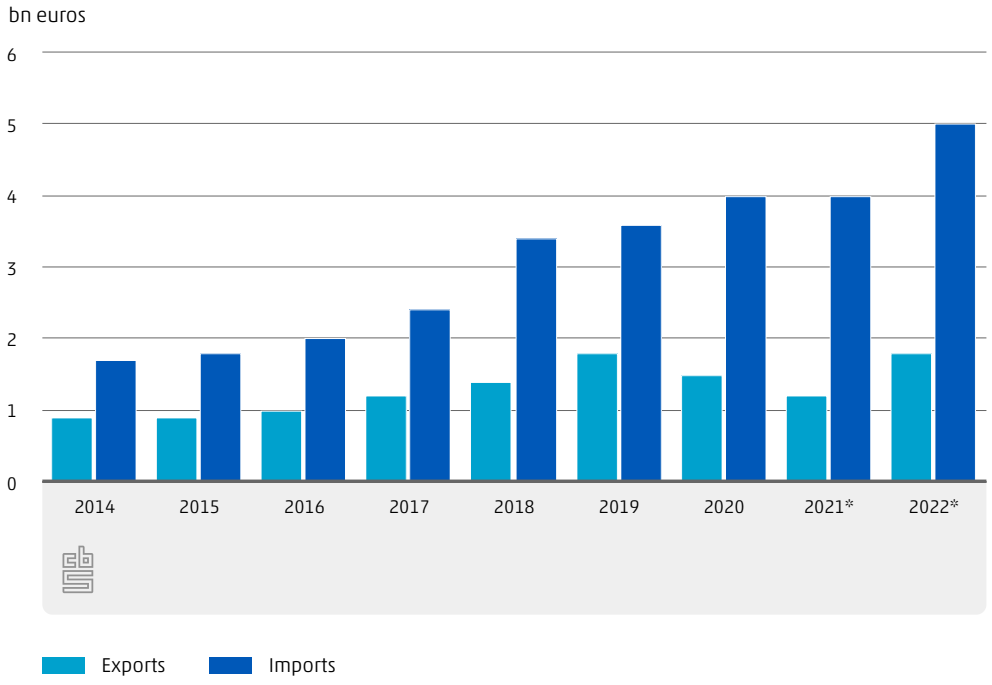


India is largest Asian import partner for the Netherlands

Since 2019, India has been the largest Asian supplier of services to the Netherlands, which put it in 11th place. Moreover, imports from India grew faster in 2022 than imports from other major suppliers and they were up by €1 billion compared to 2021, totalling €5 billion (Figure 4.3.5). This was €1.5 billion more than service imports from China, which was in 12th place. The Netherlands mainly imported more telecommunications, computer and information services from India. In 2022, imports of this type of service were €2 billion higher than in 2015, when India ranked 18th in the list of import partners.

For the Netherlands, India is principally a supplier of services, rather than an export market. In 2022, India was in 22nd place among the most important export markets for Dutch services, behind China (20th place) and Japan (15th place), for example. Dutch exports of services to India were €1.8 billion higher in 2022 than their average value between 2015 and 2021, but exports to India are growing at a slower rate than imports. With the start of the coronavirus crisis in early 2020, the growth in exports seen in 2018 and 2019 came to an end. The value of service exports in 2022 was back at the same level as in 2019 and 50% higher than in 2021 (for further details of the Dutch service trade with India, see Herbers et al., 2023).

4.3.5 Dutch trade in services with India

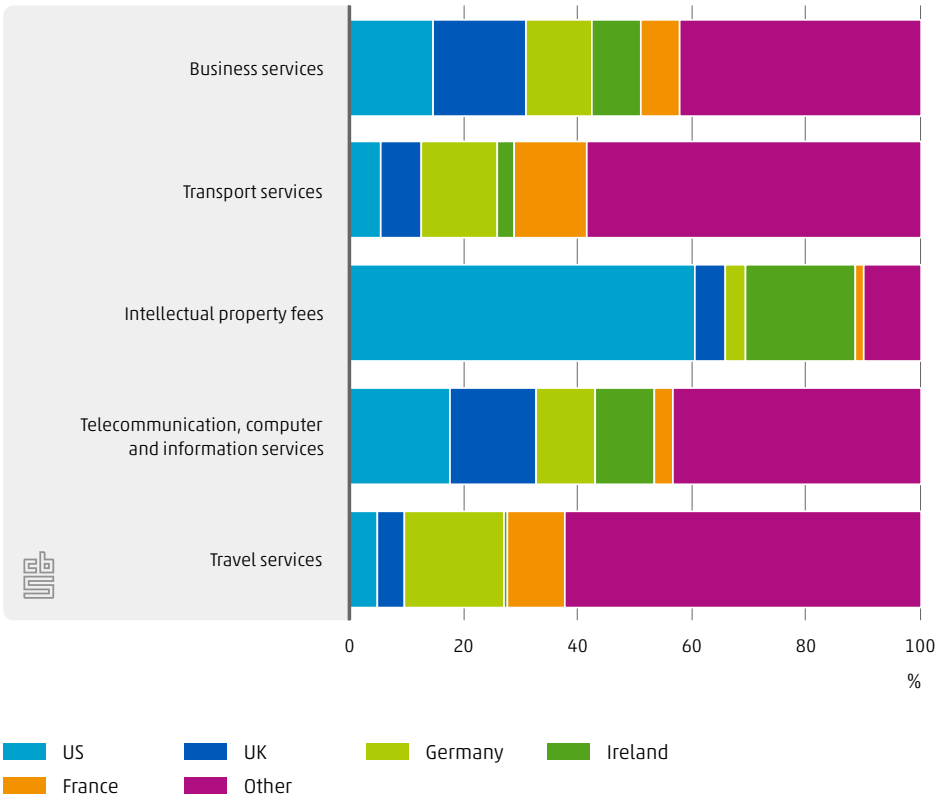


Compared to 2021, the share in total Dutch service imports of the three largest countries was slightly smaller in 2022. Just under 43% of all services imported in 2022 came from the US, the UK or Germany, whereas in the previous year, almost 46% originated from those three countries. Growth in imports from the US in particular and to a lesser extent from the UK was lower in percentage terms than for other major suppliers, such as France, Spain and Germany. Up to the end of 2018, imports were more spread out over various countries. For example, in 2017, less than a third of total imports came from the same three largest partners.

Large share in payments for use of intellectual property go to US

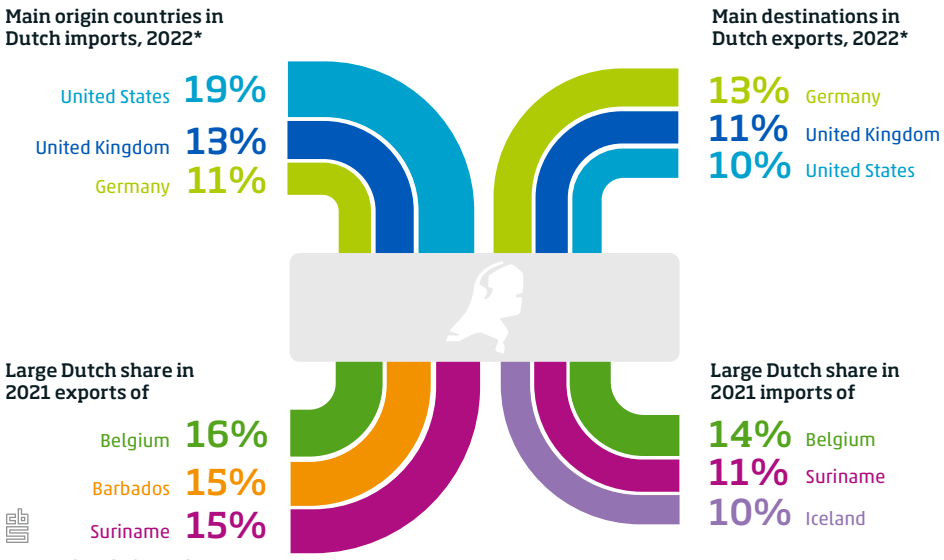
Figure 4.3.6 shows the shares of the five largest trading partners for each type of service. The UK accounts for 16% of business services but the Netherlands also imported a significant share in these services from the US (15%) and Germany (12%). Germany is the largest import partner for transport services, followed by France. Many goods are transported from the European hinterland to the Netherlands by road and inland shipping. Payments for the use or distribution of intellectual property are mainly made to the US (€21.8 billion) and to a lesser extent to Ireland (€6.9 billion). The five most important import countries together make up 90% of the import value of these services. For travel services, in particular private travel, 17% of the total originated from Germany in 2022. This type of services comes from many different countries, in contrast to the other major types. The Dutch enjoy travelling to Germany and France, but also to many other countries, and there are also a variety of destinations for business travel. The five largest suppliers were only responsible for 38% of travel services.

4.3.6 Imports of services by service type, top 5 origin countries, 2022*



4.4 Importance of the Netherlands as a supplier of services to other countries

4.4.1 The Netherlands in international trade in services



Source: CBS, OECD-WTO

The international service trade is on the rise and international figures show that the importance of services in a digitalising world is increasing faster than the contribution of the goods trade to the economy (Loungani et al., 2017). According to Baldwin (2022), intermediate services – services for an enterprise and not for a customer – are even the future of globalisation. Services are growing in importance due partly to the removal of digital barriers. Although the contribution of the service trade to global GDP (14% in 2019) is not yet close to that of the goods trade, the latter category does not seem to be returning to its 2008 peak. In that year, the trade in goods contributed 50% to global GDP and by 2019, the contribution had dropped to 43% (Baldwin, 2022). The service trade is thus important for the economy and the previous sections (4.2 and 4.3) and Figure 4.4.1 showed that the UK, the US and Germany are the main partner countries for the international service trade from the Dutch perspective. But how important is the Netherlands for other countries with regard to their international service trade? In which countries does the Netherlands have a large share in service imports, and has this share grown in recent years, or not? How important is the Netherlands to other countries as a supplier of services? In addition to the importance of the Netherlands, we also look at its position in the global service trade.

OECD and WTO figures are used for the analysis of the Netherlands' position in the international service trade (OECD, 2023a). Because the exports to Germany reported by the Netherlands are not the same as the imports from the Netherlands reported by Germany, the OECD and the WTO have created a balanced dataset (Fiallos & Liberatore, 2023). Further information on this data source can be found in section 4.6 Data and methods.

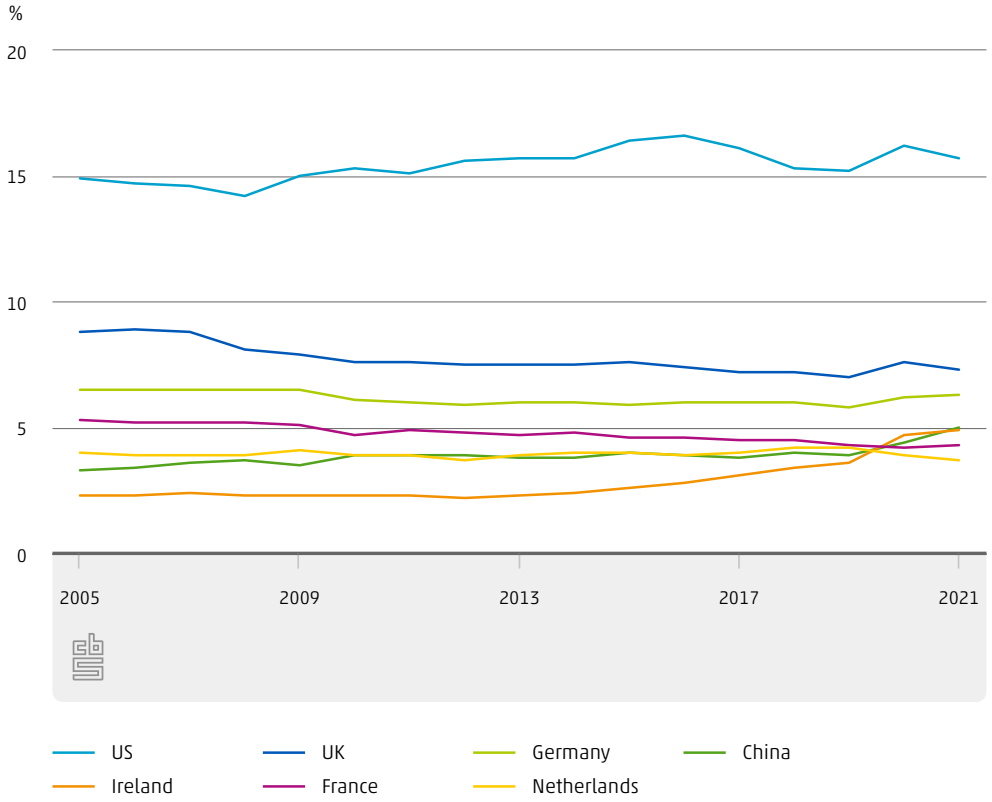
The Netherlands is world's seventh-largest exporter of services

In 2021, the seven largest service exporters accounted for 47.2% of global exports of services. The US, the UK and Germany are the world's largest service exporters (Figure 4.4.2). The UK's share has been declining over the years. This is linked to the limited growth in the trade in insurance services, fees for the use of intellectual property, and telecommunications, computer and information services, compared to the growth shown by the global trade in those service types. However, Brexit appears to have less of an impact on the service trade than on the goods trade (see box on Brexit in section 4.2). The share of Singapore, which is in eighth place, increased rapidly, because it has implemented reforms in recent years to reduce trade restrictions in the services sector (OECD, 2023b). The Netherlands was the world's seventh-largest service supplier in 2021. The Netherlands' service exports consist mainly of business services; transport services; telecommunications, computer and information services; and fees for the use of intellectual property (see section 4.2). The expertise of the Netherlands in these services makes our country a major service exporter.

With the start of the coronavirus crisis in 2020, service exports worldwide dropped in value by 17.4% compared to 2019. However, global exports recovered over the course of 2021, rising by 16.6% in relation to 2020. There is heterogeneity in the impact of the crisis on the service trade across countries and service types (Arriola et al., 2022). While most of the largest suppliers saw their shares in global exports increase from 2019, for Japan and the Netherlands, this shock led to a decline in their share in global exports in 2021.
The Netherlands' share in global service exports fell from 4.2% in 2019 to 3.7% in 2021.
The decline in the Dutch share may be partly related to the fact that some large multinationals that previously channelled part of their international financial flows through

the Netherlands have now shifted these flows abroad (see Poulissen et al., 2022, among others). In doing so, enterprises may have been responding to changes in the tax treatment of multinationals in the Netherlands that had either already been implemented or had been announced. These rules make it less attractive for multinationals to channel certain income flows through the Netherlands. The Netherlands saw China and Ireland pass it in the rankings of the largest service exporters. China's share in global exports rose by 1.1 percentage points and Ireland saw a rise of 1.3 percentage points compared to 2019.

4.4.2 Shares in global exports of services



Source: CBS, OECD-WTO

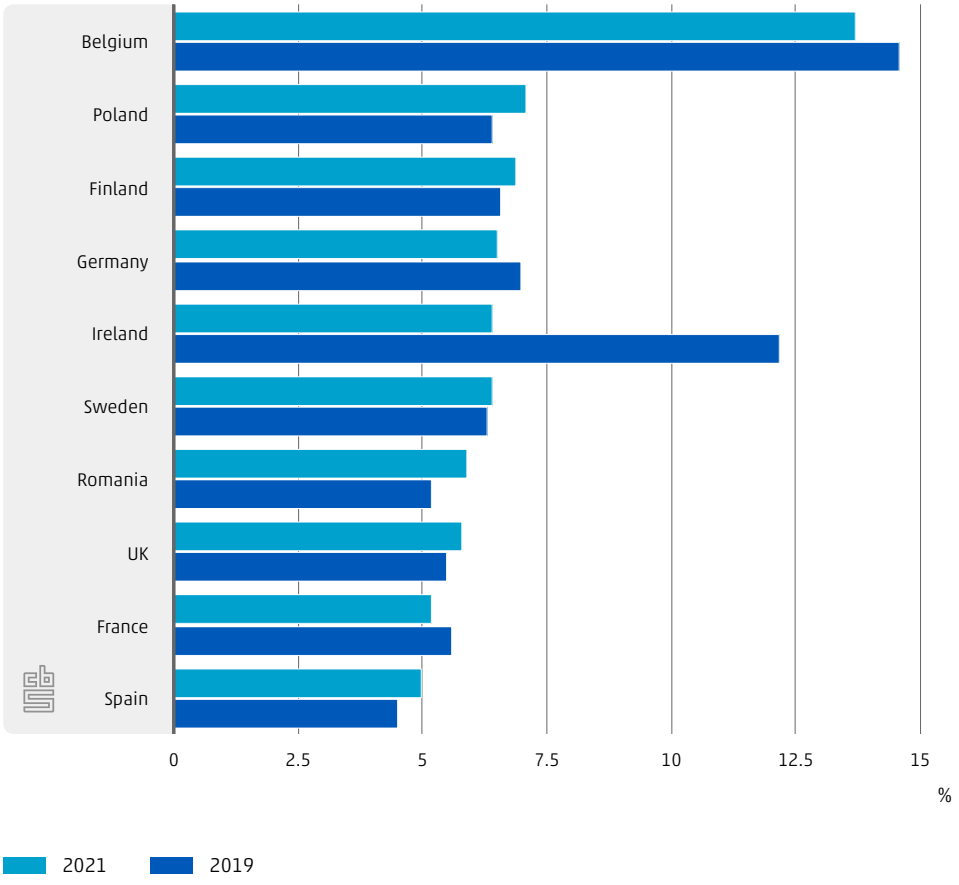
The Netherlands is very important for Belgium's service imports

In 2021, 13.7% of all services imported by Belgium came from the Netherlands. No other country with services imports of at least US$1 billion from the Netherlands sourced a larger share in total services imports from our country (Figure 4.4.3). This made the Netherlands the second-largest supplier of services to Belgium, after France. In 2021, 6.5% of total German service imports originated from the Netherlands, which made it Germany's third-largest import partner, after the US and the UK. However, this share was 0.5 percentage points lower than in 2019. In France and Ireland, too, the share in imports from the Netherlands fell between 2019 and 2021. From the Dutch perspective, the decline was connected with the reduction in travel, among other things. In addition, in the case of Ireland, the decline is probably overestimated because it appears that a number of large flows of exports to Ireland are wrongly considered to be service trade in the OECD-WTO figures up to and including 2019. In the CBS figures from 2020 onwards, a correction has been made for a number of flows which, upon closer inspection, should not be characterised as international service trade. This

correction has been made for longitudinal analyses in the figures up to and including 2019 but may not be reflected in the international OECD-WTO figures.

The steep decline in the importance of the Netherlands as a supplier to the Irish import market coincides with a reduction in Bermuda's importance and a doubling of the US share in Irish imports. This doubling is mainly due to a strong increase in fees for the use of US intellectual property. With the phasing out of the 'Double Irish arrangement' between 2015 and 2020, US multinationals (with Irish business establishments) were discouraged from providing intellectual property from tax havens such as Bermuda. Furthermore, the Tax Cuts and Jobs Act made it attractive for US multinationals to provide intellectual property from the US. As a result, Irish business establishments of US multinationals began more frequently to pay fees for intellectual property provided from the US, at the expense of payments through Bermuda (Coffey, 2021; Garcia-Bernardo et al., 2022).

4.4.3 Share of Dutch services in the imports of partner countries[1)]



Source: CBS, OECD-WTO
1) Countries with services imports from the Netherlands worth at least US$1bn in 2021.

The CBS figures show that Poland imported a higher value of transport services, fees for the use of intellectual property, and telecommunications, computer and information services from the Netherlands. This increased the Dutch share in Polish imports between 2019 and 2021 and the Netherlands was the second-largest supplier of services after Germany. In spite of Brexit taking effect in 2021, the Netherlands grew in importance for UK service imports. In section 4.2, we saw that from the Dutch perspective, Brexit did not cause any decline in exports of services to the UK. The rise in exports of Dutch services to the UK was

particularly in transport services and telecommunications, computer and information services, and was achieved in spite of a decline in private and business travel. The import value of freight transport services by road, maritime shipping and other transport services increased, due in part to the rise in freight container prices during the coronavirus crisis (Business Insider, 2021).

The Netherlands was not the largest supplier of services to any of the countries that imported at least US$1 billion worth of services from our country in 2021. It is striking that the Netherlands has a relatively small share in service imports from a number of major service exporters. Services originating from the Netherlands make up less than 3% of total imports of services by the US, China and Japan. Those three countries imported more services from at least nine other countries than they did from the Netherlands in 2021.

Dutch share in Bulgarian service imports grows

If we look at service importers with less than US$1 billion in imports from the Netherlands, we see that our country has an 11.2% share in Suriname's service imports (Figure 4.4.1). This makes the Netherlands that country's second-largest supplier of services. Suriname mainly imports travel services and transport services from the Netherlands, according to the CBS figures. The Dutch share in Surinamese imports rose because total imports of services by Suriname fell faster than imports from the Netherlands. Iceland sourced 10% of its service imports from the Netherlands in 2021, which was 2.1 percentage points more than in 2019. Although Iceland's total service imports declined over that period, imports from the Netherlands increased. This pushed up the Netherlands' share and made it the third-largest supplier of services, after the US and the UK. Dutch transport services are dominant in Iceland's imports and they have increased in value over the years. The Dutch position in Bulgaria's imports of services has improved: the Netherlands rose three places to the sixth position between 2019 and 2021. CBS figures show that Dutch enterprises mainly exported more business services, travel services and engineering services to Bulgaria.

4.5 Importance of the Netherlands as a service market for other countries

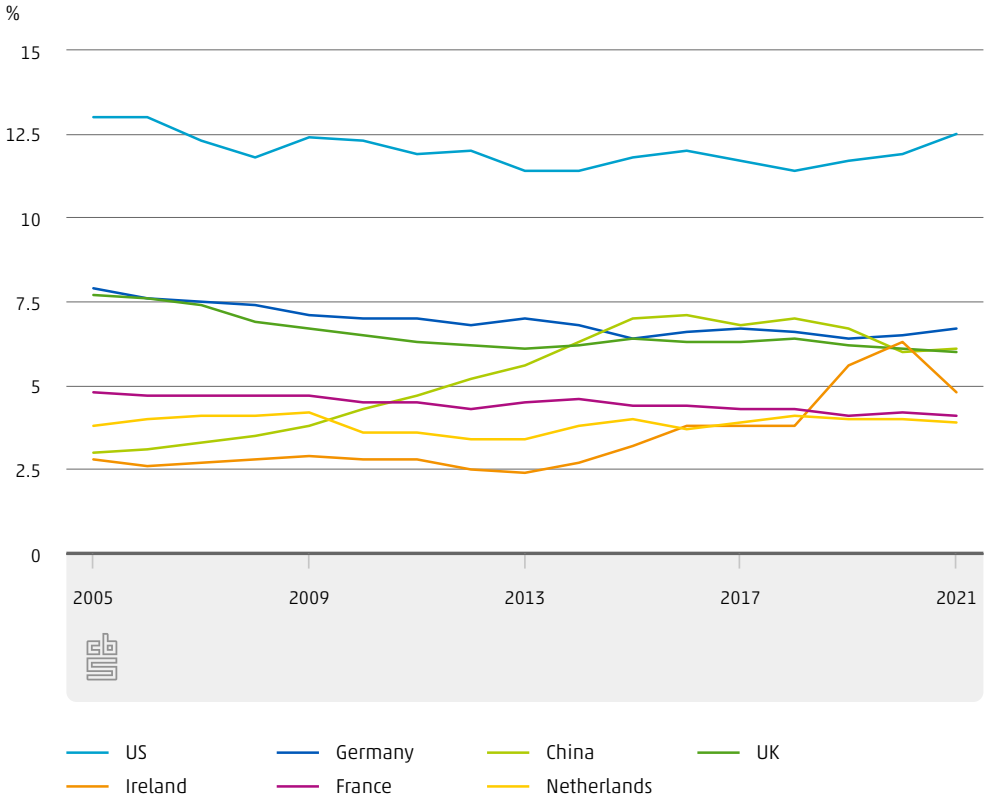
In this section, we set out how important the Netherlands is as a service customer for other countries. In addition to the importance of the Netherlands, we also consider its position.

The Netherlands is world's seventh-largest importer of services

Figure 4.5.1, featuring the largest importers of services, mainly shows the same countries as those that make up the seven largest service exporters in the world (Figure 4.4.2). With a combined share of 44.1%, these seven countries are slightly less important for global imports of services than for global exports (47.2%). The Netherlands was the world's seventh-largest importer of services in 2021, with a 3.9% share. The US is the largest importer of services. The UK, the world's second-largest exporter of services, is two places lower for service imports, ranking fourth. China and Germany outranked the UK in 2021 as importers of

services. It is also worth noting that service imports of both the US and the UK are substantially lower than their service exports, while China imports services to a significantly higher value. The Dutch share in global imports was 0.2 percentage points lower in 2021 than in 2019. While Ireland's share increased between 2019 and 2020, its share in global imports fell sharply in 2021 due to a decline in imports of business services. The share in global imports grew strongly for the two largest importers: the US (+0.5 percentage points) and Germany (+0.3 percentage points).

4.5.1 Shares in global imports of services



Source: CBS, OECD-WTO

The Netherlands is the largest market for Belgian services

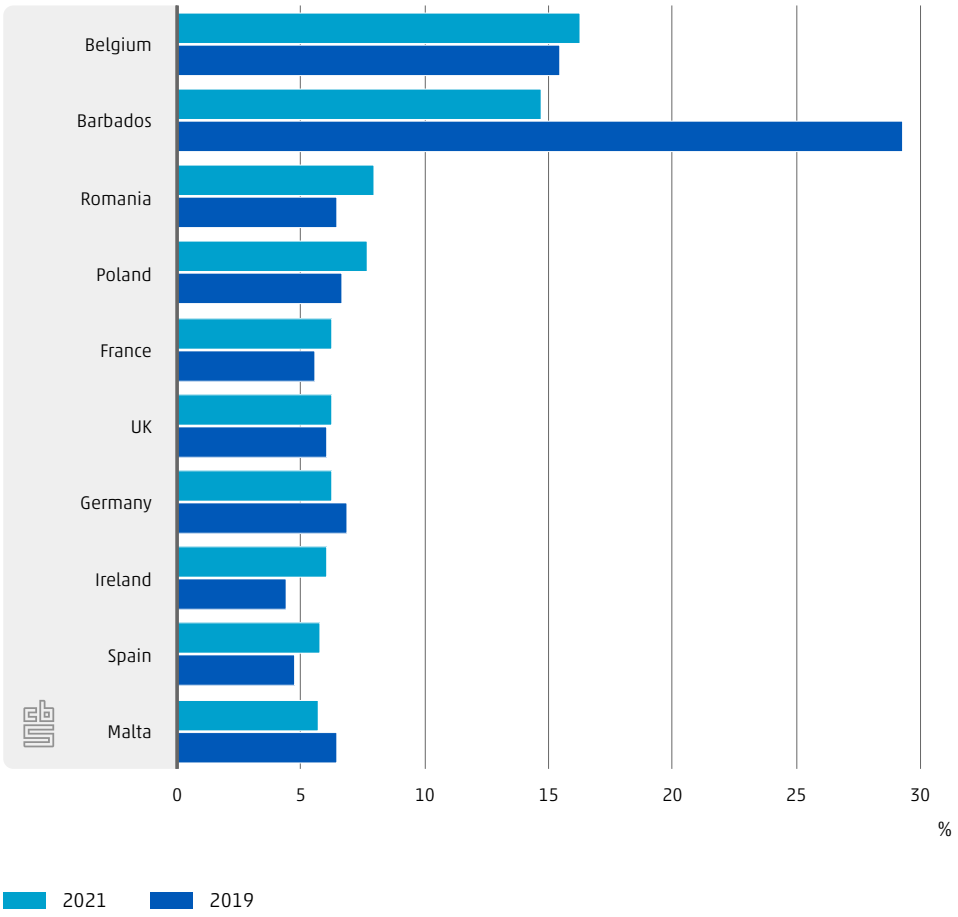
For Belgium, the Netherlands is the most important market for services. Belgian exports to the Netherlands mainly consist of transport services and business services, according to CBS figures. In 2021, the Netherlands was the destination for 16.3% of all the services exported by Belgium (Figure 4.5.2). Belgium is also the only country in Figure 4.5.2 for which the Netherlands is the largest market for services. In addition to Belgium, the Netherlands has a large share in the service exports of Barbados. This share declined to 14.7% in 2021, with the result that the Netherlands was overtaken by the US as the most important market for services from Barbados. The Netherlands has an 8% share in Romania's service exports. According to CBS figures, the Netherlands mainly imports transport services and business services from Romania. This makes the Netherlands the third-largest market for services from Romania, after Germany and the UK.

16.3% of the services that Belgium exported in 2021 were destined for the Netherlands

For many countries that export more than US$1 billion worth of services to the Netherlands, the share in services exports destined for our country was larger in 2021 than in 2019. However, Dutch imports of German services were 0.6 percentage points lower, which pushed the Netherlands down from third to fifth place on the list of the largest markets. This can be explained by, among other things, the travel restrictions imposed due to the coronavirus crisis, which resulted in a smaller flow of travel services from Germany to the Netherlands in 2021 than in 2019. In 2021, the Netherlands was the fourth-largest market for services from the UK, largely due to imports of business services and telecommunications, computer and information services. The provision of business, transport and travel services, as well as services linked to the processing and handling of goods, make the Netherlands the fifth-largest market for services from France. More than 6% of all services from the UK and France went to the Netherlands.

The share of Dutch service exports was under 3% in a number of other large importers of services, such as China, Japan, Singapore and Switzerland. The Netherlands plays a more important role in relation to US export figures than US imports. It was in 10th place among markets for US services, taking 4.1% of service exports from the United States.

4.5.2 Dutch share in service exports of trading partners[1)]



Source: CBS, OECD-WTO
1) Countries with services exports destined for the Netherlands worth at least US$1bn in 2021.

The Netherlands is a major customer for Aruba and Curaçao

For a number of countries that export less than US$1 billion worth of services to the Netherlands, the Dutch market was a major destination for service exports. In Suriname, the Netherlands was the largest market in 2021, with 14.7% of total service exports. However, that share did decline compared to 2019. Dutch imports of travel services from Suriname fell between 2019 and 2021, as a consequence of the travel restrictions in force. Due to the large share of Dutch travel services in total service exports from Suriname, the Netherlands' share in this market saw a relatively sharp fall of 2.8 percentage points. In addition, the Netherlands is the third-largest export partner for Curaçao, with 9.5% of total exports, and Aruba's second partner, with a share of 8.3%. In particular, the Netherlands sources travel services from these two islands. The main reason for the rise in the Dutch share is that expenditure by Dutch tourists on those islands declined less than the islands' total service exports.

4.6 Data and methods

Service flows are more difficult to observe than goods flows due to their intangible nature. Whereas the goods trade is physical in nature and border crossings are easily measurable, a cross-border service flow is less noticeable. This is even more the case when the service is delivered digitally (Fortanier, 2018; Liberatore & Wettsein, 2021). Due to this complexity, only 65 countries provide bilateral service trade statistics. Not all countries break this delivery down by type of service or trading partner (Fiallos & Liberatore, 2023). It is predominantly OECD countries, in particular EU countries, that report bilateral trade in services, rather than just unilateral imports and exports (Fiallos & Liberatore, 2023). This makes it difficult to form a picture of the Dutch share in international service trade outside Europe. This asymmetry in service trade figures is what the OECD's BaTIS dataset is trying to resolve, in cooperation with the WTO. BaTIS stands for 'Balanced Trade in Services' and aims to provide the best possible estimate of unreported service flows.

For BaTIS, the OECD and WTO collect data from the OECD, Eurostat, UN COMTRADE, National Statistical Institutes and additional national sources (Liberatore & Wettsein, 2021). This results in a matrix of bilateral trade flows. Missing flows are then estimated in various ways. Since the largest amount of information and the most reliable information can be found at the highest level of aggregation, a top-down approach is used to make estimates. This means that the flow of total service trade is estimated first and only afterwards differentiated by service types. In this way, consistency is maintained.

If some figures on trade with partner countries are known for a reporting country, the missing values are estimated via backcasting, interpolation and nowcasting (Liberatore & Wettsein, 2021). If there is no official information on trade with partner countries, flows are assigned via a gravity model based on the size of a country's economy (for instance, GDP and volume of service trade) and trading costs between the two countries (for instance, geographical distance and having a common language).

Finally, the asymmetry in values between the reporting country and the partner country is revalued based on a weighted average. This weighted average incorporates the degree of over/undervaluation of flows through countries via an asymmetry index. In this way, more importance is given to measured flows or a reliable estimate thereof (Liberatore & Wettsein, 2021). This averaging is also carried out using a top-down approach, resulting in a balanced and comprehensive dataset of global trade in services. It should be taken into account that these are estimates which, by definition, may be less accurate for small service flows and a lower level of aggregation.

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5 Foreign direct investment and multinationals

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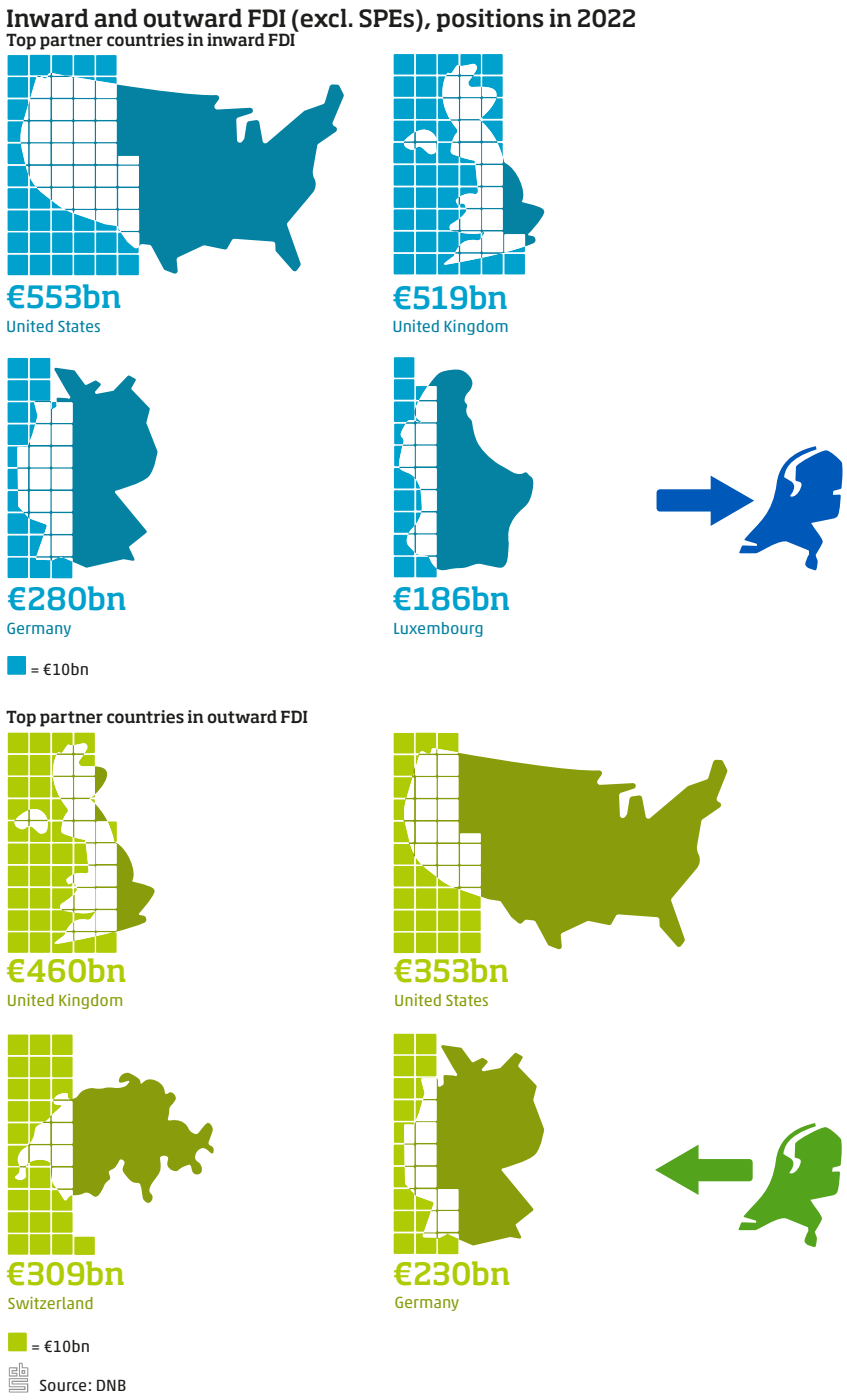


Internationalisation makes a positive contribution to a country's productivity and ultimately its prosperity. Foreign direct investment is an important tool in international economic integration as it brings in capital from one economy into another. Globally, the Netherlands is among the countries with the largest foreign direct investment, both inward and outward. Multinationals are important actors in foreign direct investment and are therefore interesting to study in more detail in this chapter. This chapter first discusses inward and outward direct investment into and by the Netherlands. It then zooms in on the multinationals, distinguishing between foreign-controlled and Dutch-controlled multinationals. Finally, it looks at how Dutch multinationals invest abroad.

5.1 Key findings

Foreign direct investment (excluding SPEs)

- As in previous years, in 2022 the Netherlands was one of the countries with the largest foreign direct investment (FDI) worldwide. This applies to both inward FDI and outward FDI.
- Just as in 2021, the US and the UK were the most important partner countries for both Dutch inward FDI and outward FDI. In 2020, the UK replaced the US as top recipient of outward FDI.
- The total inward FDI position of the Netherlands increased by 3% in 2022 compared to 2021. The total outward FDI position of the Netherlands decreased by 1%. The FDI position is still below the pre-pandemic level of 2019.

Multinationals in the Netherlands

- In 2021, the Dutch business economy had approximately 25.1 thousand multinational enterprises (MNEs), 64% of which were under foreign control and 36% under Dutch control. This amounted to 1.8% of the total Dutch business economy.
- MNEs provided work for almost 2.3 million people in the Netherlands, accounting for 35% of total employment in the Dutch business economy in 2021. Compared to 2019, multinationals had 26 thousand fewer employed persons in 2021.
- 35% of all MNEs are active in the wholesale and retail sector. With 666,000 employed persons, these MNEs provide almost 40% of employment in wholesale and retail trade.
- One in five foreign multinationals (almost 3 thousand firms) in the Netherlands were US-owned in 2021, followed by German control (almost 2.4 thousand firms). In 2021, the US was also the largest foreign employer in the Dutch business economy with approximately 250,000 employed persons.
- In 2021, MNEs were responsible for 78% of goods imports and 83% of goods exports. In service imports and exports, 91% of the value was accounted for by MNEs.
- Foreign-owned multinationals were on average 23% more productive than non-multinationals in 2020. Dutch-owned multinationals showed a gain in productivity of 17%.

Dutch multinationals abroad

- Dutch-owned multinationals have the most subsidiaries in Germany and that number even increased from 2018 to 2019.
- The manufacturing and agricultural sectors have the largest share of vertical investments in relative terms, in contrast to the trade and services sectors, where the share of vertical investments is significantly smaller.
- Of the firms investing horizontally, a relatively large proportion are non-exporters. Manufacturers, where investing and exporting seem to go hand-in-hand, form an exception. As a result, there are indications that the choice of investment is largely determined by the sector in which the parent company operates.

Outline

This chapter will consider foreign direct investment (FDI) in and by the Netherlands. Section 5.2 will discuss the direct investment position of the Netherlands, based on macro figures from the Dutch central bank (DNB) and OECD. Multinationals are key actors in international investment flows to and from the Netherlands. Foreign multinationals in the Netherlands are discussed in section 5.3 and Dutch multinationals with subsidiaries abroad are the focus of section 5.4. CBS figures on the *Inward and Outward Foreign Affiliates Statistics* are used for this purpose. Section 5.4 also further examines the relationship between international trade and investment. This will distinguish between horizontal and vertical investment, which may explain much of the issue of trade and investment complementarity.

5.2 Macro-level view of foreign direct investment

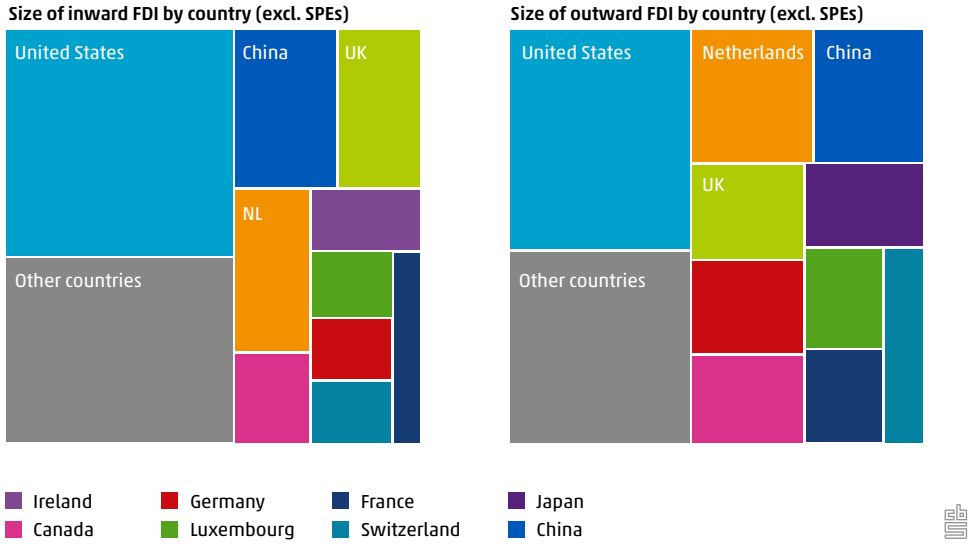
This section discusses the direct investment position of the Netherlands. An enterprise receiving direct investments from abroad is an enterprise in which a foreign investor holds at least 10% of the ordinary share capital or the voting rights, or the equivalent thereof. This involves having a controlling interest and gaining a substantial influence on the management of the enterprise, for example as a result of a merger, an acquisition, the construction of new facilities, reinvested earnings from foreign activities or loans between different elements of the enterprise.

Contrary to previous editions of Dutch Trade in Facts and Figures, the figures and rankings in this section relate to directional figures. This means that investments from the subsidiary to the parent company are netted against the investments from the parent company to the subsidiary ('reverse investments'). Previous editions of Dutch Trade in Facts and Figures published figures based on assets/liabilities. Since this method does not involve netting, positions can be artificially inflated, which is why international organisations recommend the directional approach for analysing direct investment relationships.

The Netherlands is among the largest countries in the world for investment

As in previous years, the Netherlands is globally among the countries with the largest foreign direct investment in 2022. This applies both to investment from abroad in the Netherlands (inward investment) and investment from the Netherlands abroad (outward investment). Excluding special purpose entities (SPEs), the Netherlands ranks fourth in terms of its inward direct investment position, following the US, China and the UK (Figure 5.2.1). As regards outward investment without SPEs, the Netherlands is the second-largest country, after the US (OECD, 2023).[1)]

5.2.1 Size of inward and outward FDI by country (excl. SPEs), 2022



Source: OECD

Globally, foreign investment transactions fell by 24% in 2022 relative to 2021. This decline follows a year of exceptional growth: following a drop in direct investment activity during the first COVID year, the value of global flows almost doubled in 2021 compared to 2020. As in 2021, the US and China were the most significant destinations of worldwide new foreign direct investment in 2022. Together, these two countries accounted for approximately 40% of new investments. The US was also the source of well over 30% of new investments in other countries, with Japan, China and Germany following far behind (OECD, 2023). As in 2021, 2022 witnessed negative inward and outward investment transactions in the Netherlands. As well as capital withdrawals (sale of existing interests), loan repayments of subsidiaries to the parent company, for example, can also create negative flows. A considerable part of the increase in the inward investment position of the Netherlands in 2022 relates to exchange rate developments and revaluations, since the investment position is affected not only by transactions, but also by revaluations, exchange rate changes and other volume changes.

Over the years, there have been large fluctuations in global direct investment transactions, heavily influenced by specific events such as major restructurings of multinationals and they may even be largely determined by a handful of enterprises. As an example, the global decline in 2022 compared to 2021 is largely due to capital withdrawals by only one

1) Given that throughput via SPEs makes no contribution to the real economy, SPEs are disregarded in OECD's global figures. Moreover, throughput also occurs via holding companies and non-financial enterprises, meaning that not all of these investments add value to the real economy either.

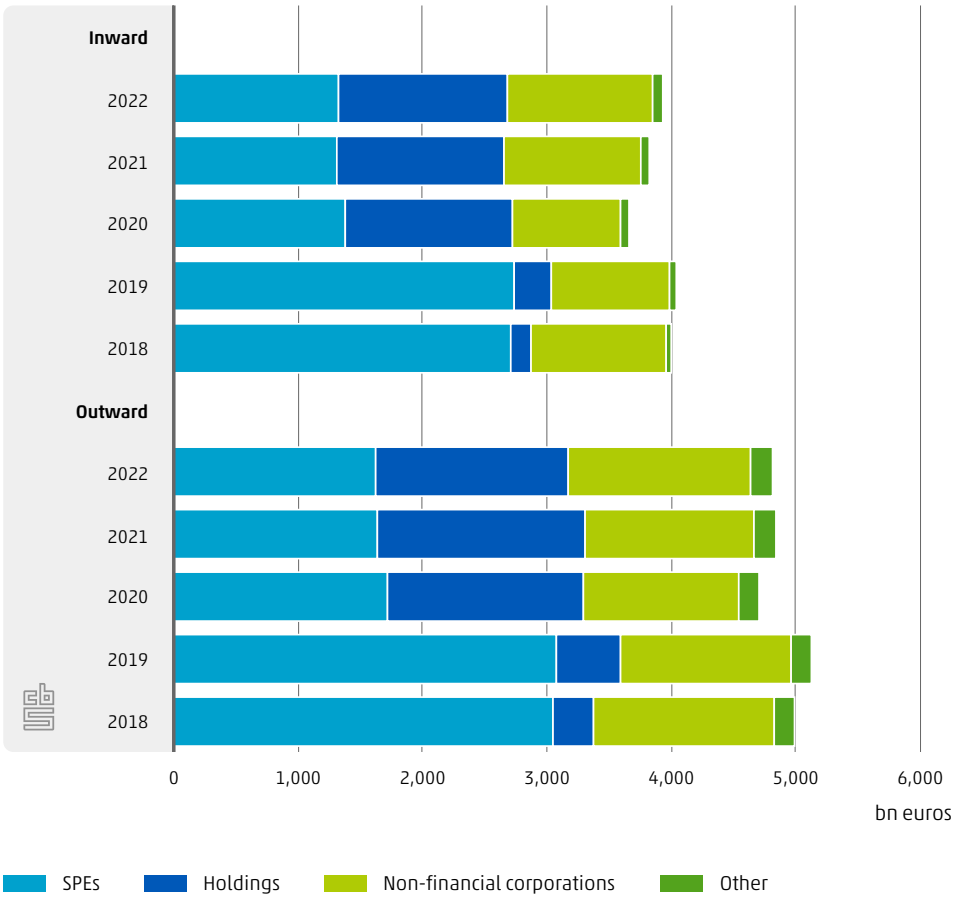
Luxembourg-based multinational. Excluding Luxembourg, global flows fell by 5% in 2022 (OECD, 2023).

The direct investment position of the Netherlands

Relative to 2021, the total inward investment position of the Netherlands rose by 3% in 2022 to €3,930 billion. Compared to the previous year, the total outward investment position of the Netherlands fell by 1% in 2022 to €4,818 billion. The investment position was thus still below the pre-coronavirus levels of 2019; the inward position was 3% lower than at the end of 2019 and the outward position lagged 6%.

Investments of the Netherlands are concentrated in three statistical sectors (Figure 5.2.2). In 2022, special purpose entities (SPEs) accounted for about a third of the inward and outward direct investment position of the Netherlands. SPEs are Dutch-based subsidiaries of foreign enterprises that serve as intermediaries for international money flows in mainly dividends and interest. The inward investment position of SPEs remained virtually constant in 2022, amounting to €1,327 billion by the end of the year, while the outward investment position saw a decline of 1%, to €1,635 billion. Holding companies, whose activity mainly consists of financial services within their own group of enterprises, also accounted for about a third of the direct investment position in 2022. Non-financial enterprises account for almost all other direct investments. In 2022, they were responsible for approximately 30% of the investments. Only 4% of the outward investment position and 2% of the inward investment position are accounted for by the remaining sectors, such as banks, other financial services providers, the government and households.

5.2.2 Investment position of the Netherlands by sector[1)]



Source: CBS, DNB

[1)] A shift is visible from SPEs to holdings between 2019 and 2020. This is because in 2020, the definition used for SPEs was aligned with that used by the IMF. Among other things, this definition prescribes that an SPE may have a maximum of five employees, is under the direct or indirect control of a foreign party as a subsidiary, has virtually no physical presence or production in the country of incorporation and is located there primarily to obtain specific (e.g. tax) benefits.

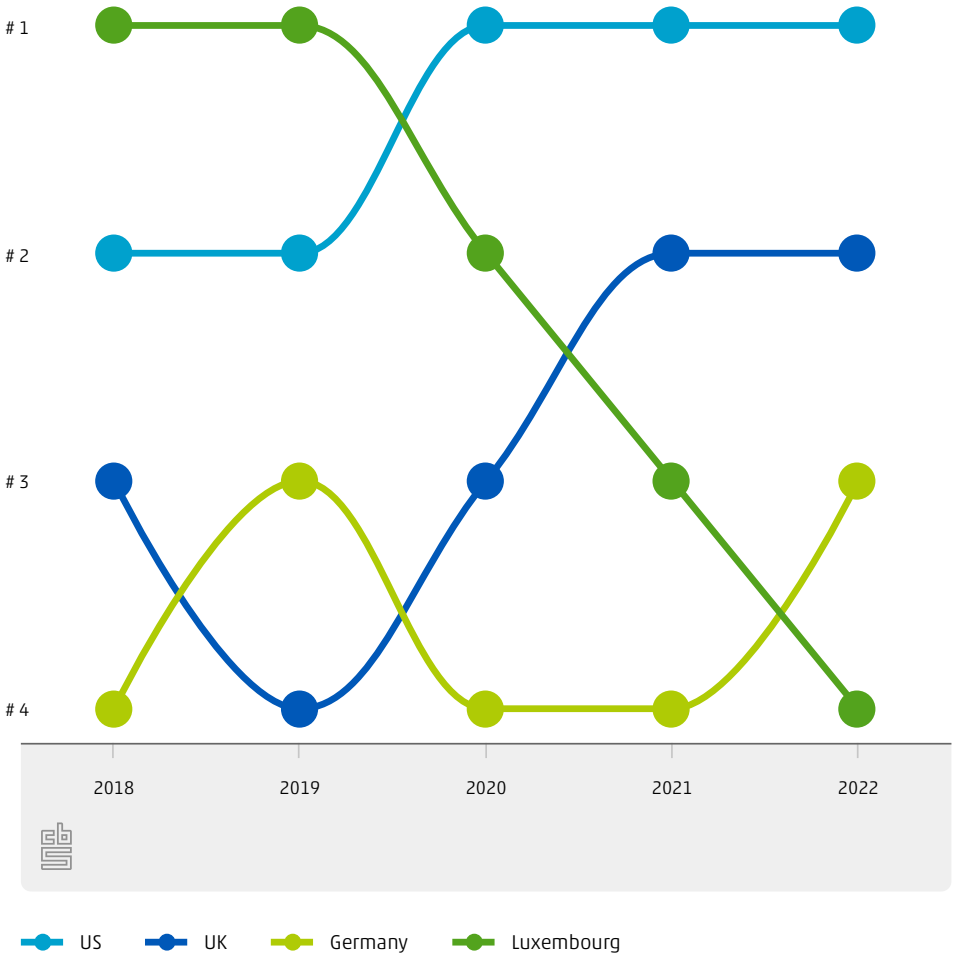
US and UK continue to be key investment partners

The United States invariably tops the Dutch ranking of inward investment partners. Excluding money flows via Dutch-based SPEs, the United Kingdom, Germany and Luxembourg complete the top 4 list (Figure 5.2.3). At the end of 2022, these four countries were responsible for approximately 60% of total investments in the Netherlands. For the past three years, the ranking of countries in which the Netherlands invests, excluding SPEs, has consistently included the UK, the US, Switzerland and Germany (Figure 5.2.4). In 2022, the top 4 accounted for more than 40% of Dutch outward direct investment.

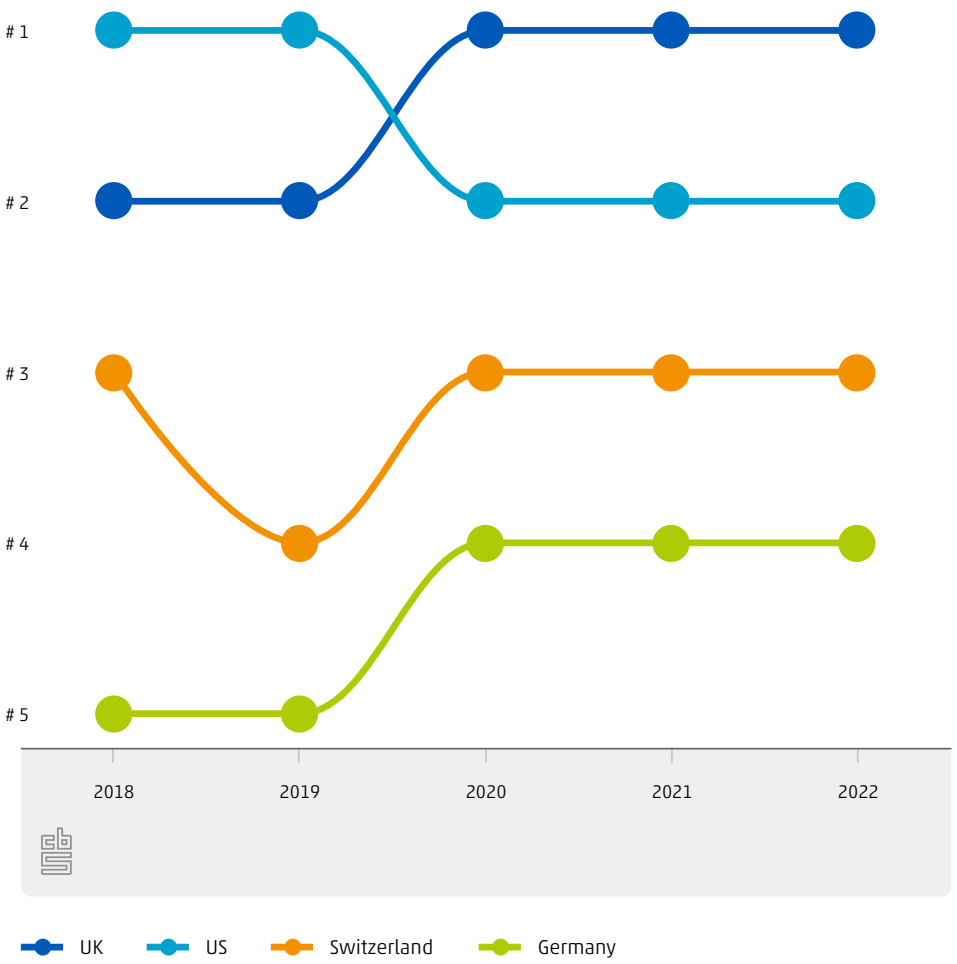
The changes in the ranking over time are attributed by events at individual enterprises. For example, the inward investment position's decline with Luxembourg in 2022 is largely triggered by the restructuring of a Luxembourg-based multinational and the UK's rise in 2021 is mainly attributable to Shell's relocation from the Netherlands to the UK. It should be noted that Luxembourg, like the Netherlands, owes its position partly to its role as a conduit country (DNB, 2022). That is because the rankings presented refer to the country where the

investment originates directly. There is often a disparity between the direct source of an investment and the original country where the direct investment actually originates.

5.2.3 Top 4 inward investment partners, excl. SPEs



5.2.4 Top 4 outward investment partners, excl. SPEs



5.3 Multinationals in the Netherlands

This section looks specifically at the enterprises that invest: the multinationals. How many multinationals are there in the Dutch business economy? What proportion of employment in the Dutch business economy is accounted for by multinational enterprises? Which industries are they active in? Which countries control the foreign-owned multinationals? And what is the impact of multinationals for Dutch goods and services trade?

What is a multinational?

A multinational is an enterprise with ultimate control over enterprises in two or more countries. A *Dutch-owned multinational* is an enterprise under ultimate Dutch control with at least one subsidiary (majority stake) abroad. A *foreign-owned multinational* is a subsidiary based in the Netherlands that is ultimately controlled from abroad. Agriculture, forestry and fishing are not included in the population of the non-financial Dutch business economy, nor are financial institutions, public administration, education, health care,

culture, sports and recreation, ideological and political organisations, wellness and funeral services, households, and extraterritorial organisations and bodies.

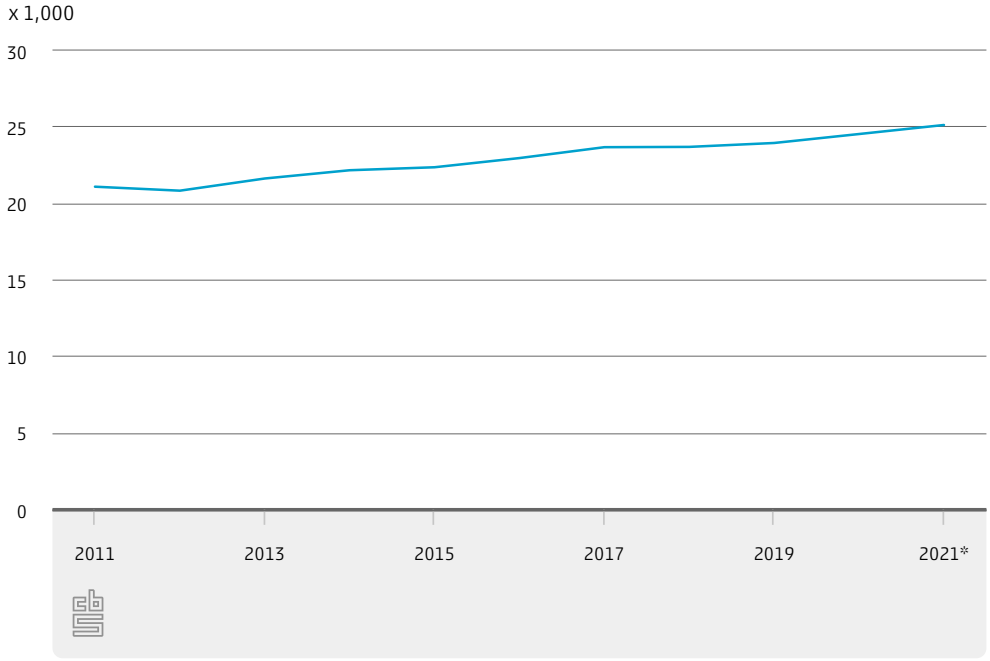
Foreign direct investment leads to capital inflows in the country of destination. For the vast majority of multinationals, foreign direct investment (FDI) serves one or more of the following motives: market expansion, gaining access to more efficient or cheaper factors of production, and the acquisition of knowledge and brand names (Freeman et al., 2022). Multinationals create jobs and contribute knowledge when they relocate to a new country through foreign direct investment. Multinational enterprises allocate relatively large resources to research and development, and technological innovation. Multinationals are therefore considered to be important gateways to international markets. They link the domestic value chain with the global value chain (Cadestin et al., 2019).

The number of multinationals has grown, though not as rapidly as non-multinationals

Figure 5.3.1 shows that the Netherlands has increasingly more multinationals. In 2021, the most recent year for which data are available, 25,100 multinationals were active in the Dutch business economy, representing 1.8% of the Dutch business economy as a whole. In 2021, there were about 5% more multinationals compared to 2019. Despite the growth in the number of multinationals, their share in the business economy slightly dropped in that same period, because the number of non-multinationals (especially self-employed persons) grew faster, i.e. by more than 10%.

CBS can make a distinction between Dutch and foreign-owned multinationals. Of the multinationals, 64% were under foreign control in 2021 and 36% were in Dutch hands. The Netherlands is among the top most dynamic and competitive knowledge economies in the world. In 2021, the Netherlands ranked fourth in the International Institute for Management Development rankings, making it one of the most competitive economies worldwide (IMD, 2021). In comparison with other EU countries, the share of foreign-owned multinationals in the non-financial Dutch business economy as a whole is similar to that for Germany (Eurostat, 2023a and 2023b). This share is significantly lower for countries such as France, Belgium and Italy: the Dutch position as a stable economic hub is an appealing position for foreign-owned enterprises. In turn, foreign-owned enterprises can contribute to strengthening Dutch innovation ecosystems and making the Dutch economy more sustainable and digital (Wiebes, 2020). There can also be a downside to the multinationals' investments, consider, for example, multinationals relocating their polluting activities to countries with weaker environmental regulations to avoid the compliance costs of their home countries (Narula & Pineli, 2019; Cuervo-Cazurra et al., 2021).

5.3.1 Multinationals in the Dutch business economy

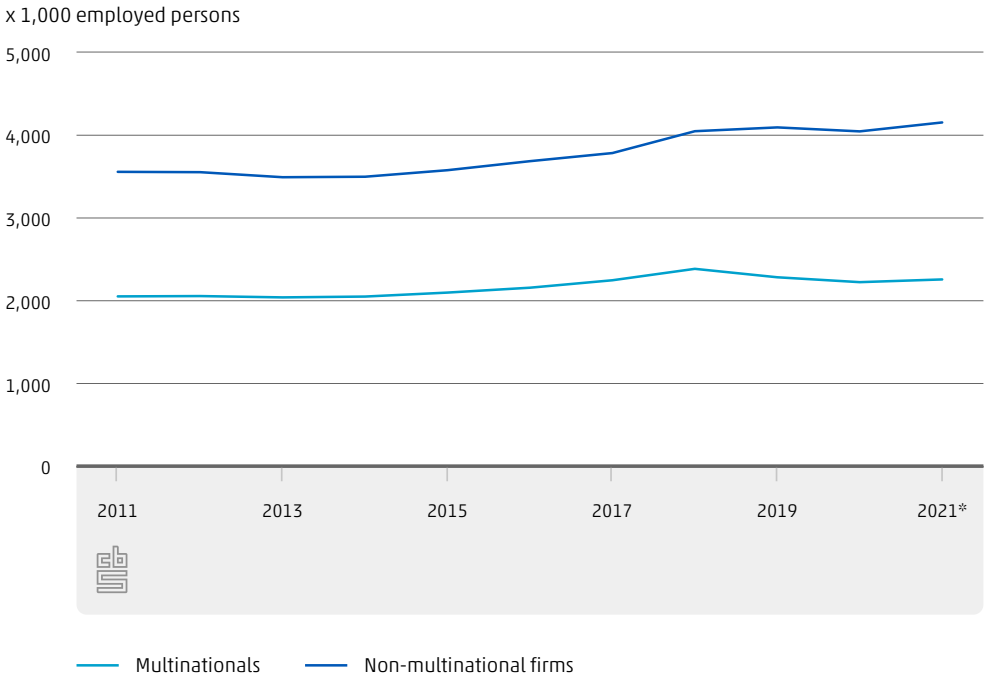


35 in 100 work at multinationals, but multinational employment boom stalled in 2018

Figure 5.3.2 shows that both Dutch-owned and foreign-owned multinationals employed nearly 2.3 million people in the Netherlands in 2021. They thus account for 35% of total employment in the Dutch business economy. In comparison with the previous year, multinationals employed net fewer than 26,000 people in 2021; a drop of 1.1%. Even though multinationals make up a very small proportion of the Dutch business population (approximately 2%), they do provide a substantial proportion of employment in the Netherlands.

Employment at multinationals increased by 19% in the period 2010–2018. Over the same period, the number of persons in employment working for non-multinationals increased by 15%. As of 2018, the two groups show the opposite trend. Employment among non-multinationals rose even further after 2018, while it fell among multinationals. In recent years (2018–2021), multinationals saw the number of employed persons decrease by a total of 128,000. Non-multinationals employed an additional 106,000 people during the same period. Particularly Dutch-owned multinationals saw a contraction in employment since 2018. The reason for this is international economic competition, as a result of which Dutch enterprises are increasingly focusing on and specialising in the more high-value activities in the value chain. (Wiebes, 2020).

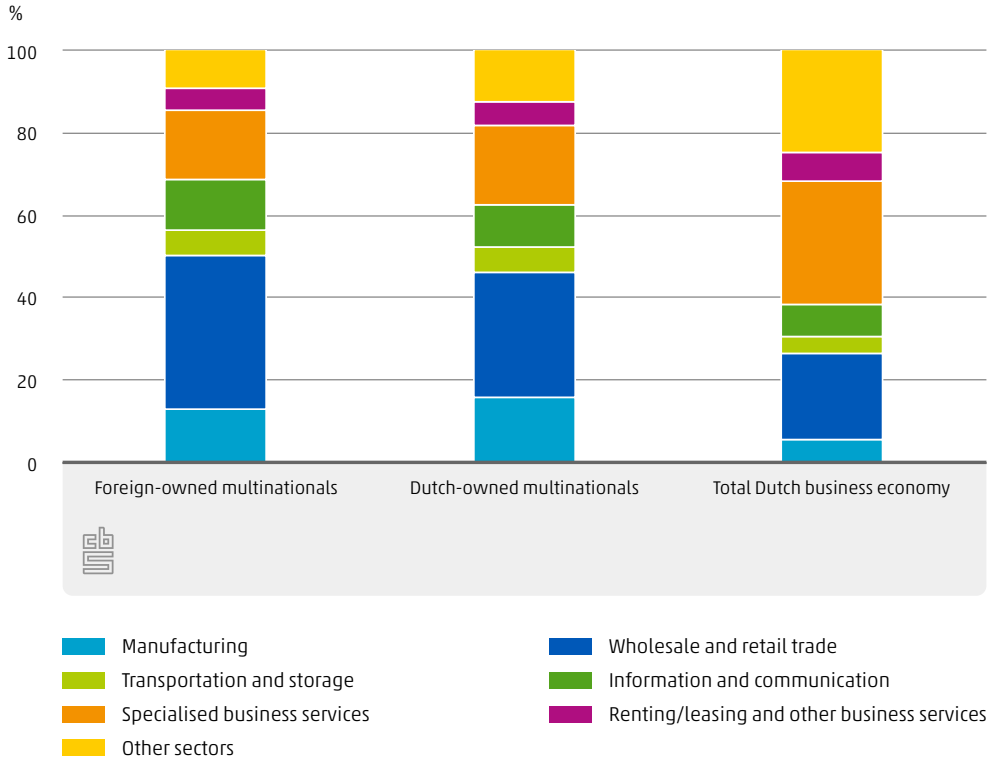
5.3.2 Employed persons in the Dutch business economy



One in three multinationals in wholesale trade versus one in five in Dutch business economy

As Figure 5.3.3 shows, the distribution of multinationals by industry differs significantly from the Dutch business economy as a whole. Approximately 35% of all multinationals were active in the wholesale and retail trade. This industry also has a considerable share in the Dutch business economy as a whole, albeit to a lesser extent (21%). Furthermore, in 2021, multinationals in the Netherlands were particularly represented in the specialised business services sector and the manufacturing sector. This composition is similar to that in 2020 and similar for foreign-owned and Dutch-owned multinationals.

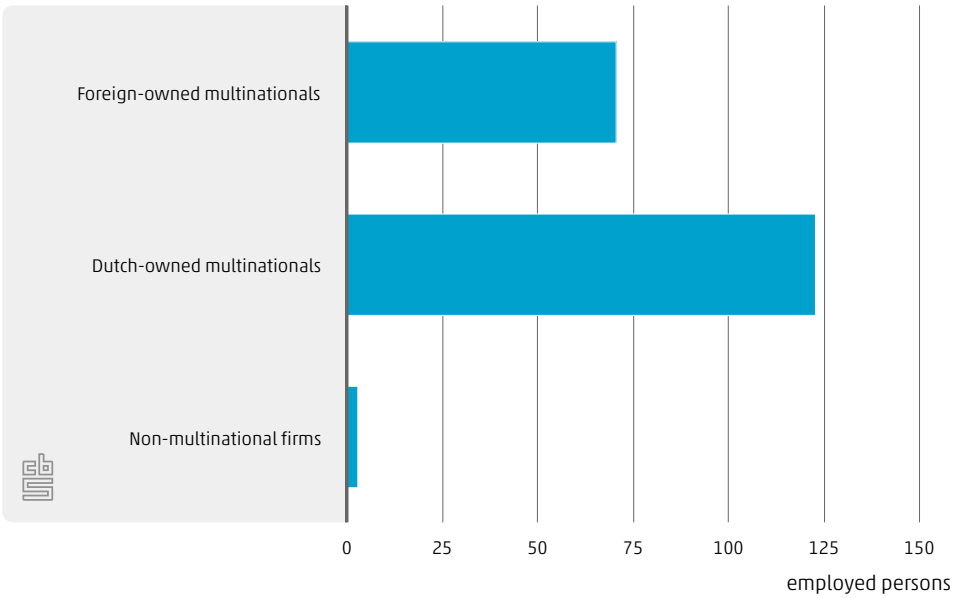
5.3.3 Distribution of enterprises by sector, 2021*



Dutch-owned multinationals largest employer on average

Figure 5.3.4 shows the average number of employed persons per different type of enterprise for 2021. Non-multinationals employed an average of four people in 2021. This number is significantly higher for multinationals, with an average of 71 persons working for a foreign-owned multinational. Approximately 123 persons were on the payroll of Dutch-owned multinationals. The large differences in employment between multinationals and non-multinationals are mainly driven by the large proportion of self-employed persons in the group of non-multinationals. Dutch-owned multinationals and foreign-owned multinationals encompass far fewer enterprises. However, these groups also contribute greatly to Dutch material prosperity and employment because they tend to be large in terms of turnover and number of employed persons.

5.3.4 Average employment [1], 2021*

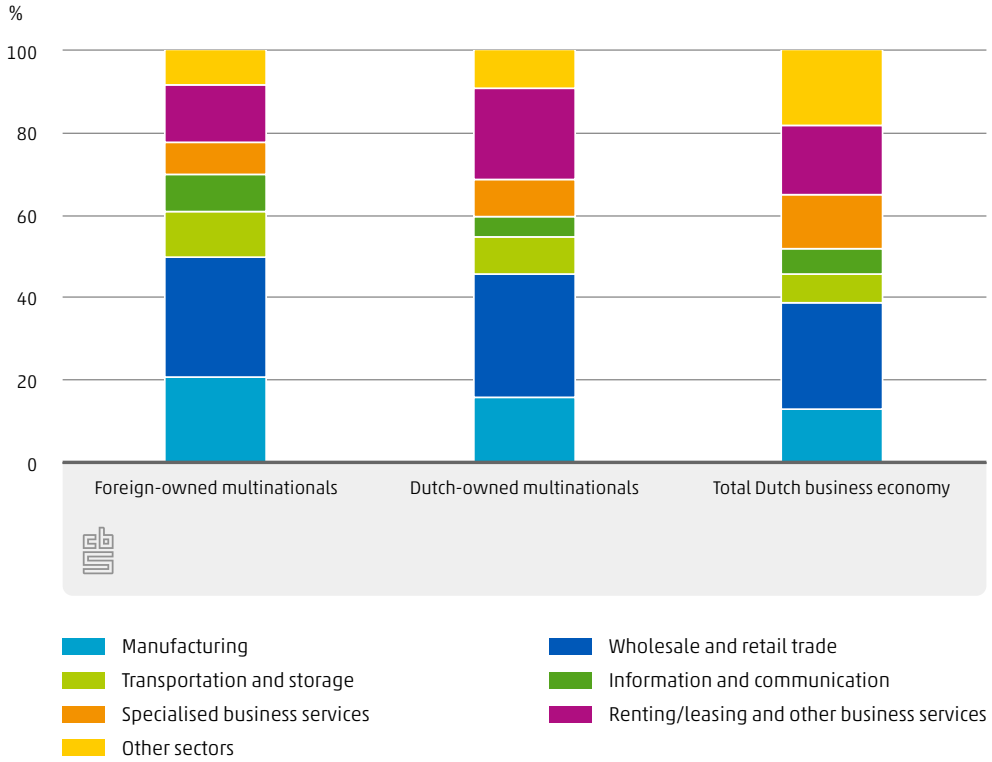


1) Was calculated by dividing the total number of employed persons per firm by the number of firms per type.

Half of the employment at multinationals realised in wholesale and retail trade and manufacturing

Figure 5.3.5 shows that wholesale and retail trade and manufacturing are the largest employers among the Dutch-based multinationals. Approximately half of all employed persons on the payroll of a multinational worked in either of these two industries. For the business economy as a whole, both industries accounted for just under 40% of employment. The distribution of employment by industry is comparable to that in 2020. The same industries return in the top three employment opportunities for Dutch-owned and foreign-owned multinationals in 2021, albeit in a different order than in the previous year.

5.3.5 Distribution of employment by sector, 2021*

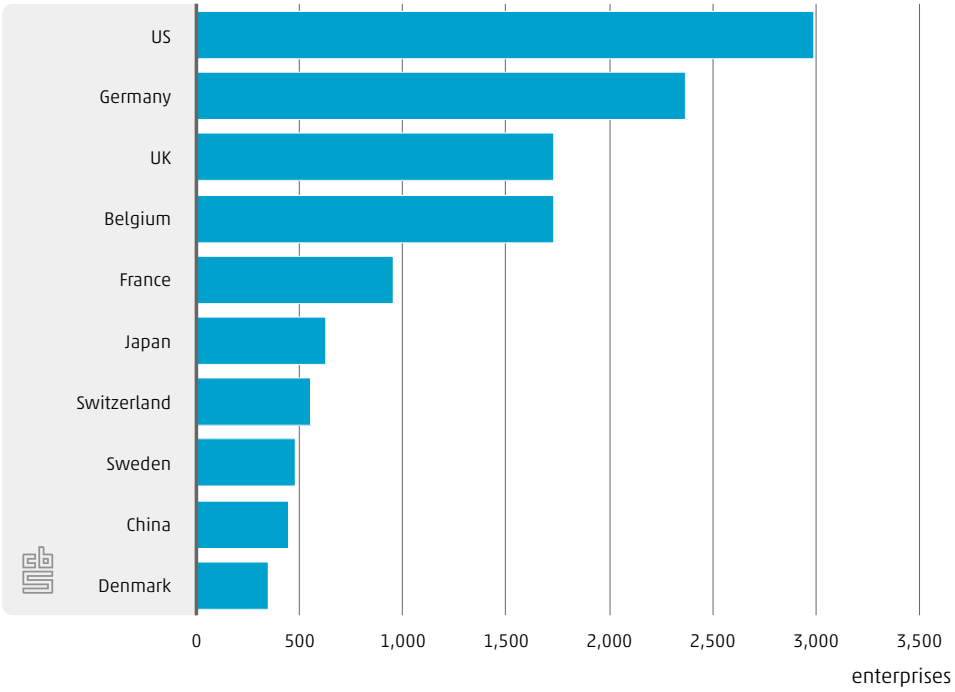


19% of foreign-owned multinationals under US control

Most foreign-owned multinationals in the Dutch business economy are under US, German, UK, Belgian or French control (Figure 5.3.6). The US is still our main investment partner in terms of the number of multinationals operating in the Netherlands. There were almost 3,000 US-controlled enterprises in the Netherlands in 2021, representing 19% of all enterprises under foreign control, followed by Germany, with almost 2,400 enterprises. There are various reasons for foreign-owned enterprises to locate in the Netherlands: the favourable location in Europe, the highly developed logistics and data infrastructure, the relatively well educated Dutch population, and the favourable business climate exert great pulling power on foreign investors.

The top 10 list of countries controlling most foreign-owned multinationals in the Netherlands has changed little over time. For all the countries in the top 10, we see that the enterprise population under their control rose compared to 2015. A striking point in the figures is that the number of Swedish-controlled enterprises grew by 130 in 2021 compared to 2015, to 480. Sweden thereby surpasses China as the eighth country of origin. The number of Chinese-controlled enterprises also increased, albeit less sharply than Swedish enterprises.

5.3.6 Foreign-owned multinationals in the Netherlands by top 10 countries of origin, 2021*



As in the past six years, the United States was also the largest foreign employer in the Dutch business economy in 2021. Some 250,000 people worked for enterprises with a US parent in 2021. The 955 French multinationals based in the Netherlands accounted for 150,000 jobs in 2021. As such, French multinationals employ 157 people on average. American and German multinationals provided employment for an average of 84 and 75 people, respectively. Japanese multinationals have seen an increase in employment by 53,000 additional employed persons.

British multinationals provided about 104,000 jobs in 2021, which results in 33,000 fewer jobs in comparison with 2015. Despite the decreasing number of employed persons, the number of British multinationals in the Netherlands did increase. Even with a Brexit deal in place, the Netherlands continues to be in demand by British enterprises. Many enterprises in the UK are experiencing issues such as extra administrative burden, customs and other procedures, delivery times and delays in access to the European market (Rijksoverheid, 2021). British SMEs in particular look to the Netherlands because of its good infrastructure, fast digital connections, and highly educated and well English-speaking workforce (De Wit, 2021; Ebbers, 2020). This may explain why employment in the Netherlands by British multinationals decreased while the number of British enterprises increased.

Multinationals and international trade: a good match?

The Netherlands is a true trading nation. External trade and investment are essential to Dutch economy. Therefore, the Netherlands cannot do without a properly functioning global economy. For a small country like the Netherlands, it is important for enterprises to export abroad as the domestic market is small. Multinational enterprises are the largest players in

international trade. They can use their foreign affiliates as export platforms (Wang, 2021) and are on average larger, more capital-intensive, more productive and they invest more in R&D (De Backer et al., 2019).

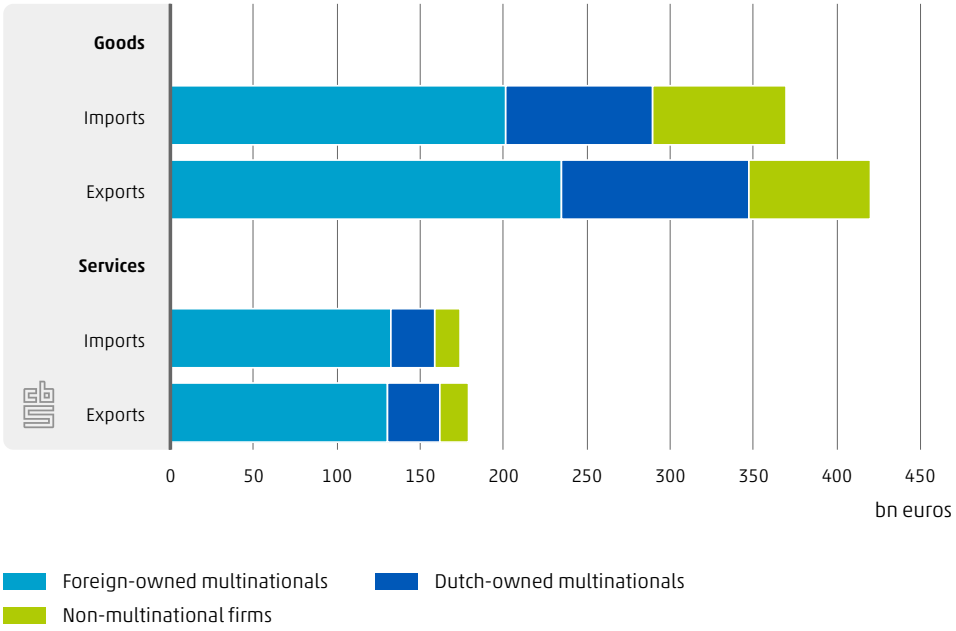
The group of international traders is significantly larger among multinationals than among non-multinationals. In delineating the multinationals, the only consideration is having a subsidiary. In other words, multinationals do not necessarily need to import or export goods and/or services. Whereas almost one in three non-multinationals did business abroad in 2021, this share was 90% for multinationals. This is a sector-related share: in manufacturing, 4% of multinationals do not trade with foreign countries; in real estate the share is 35%. Scientific literature has previously shown that an enterprise's sector determines the investment choice. Section 5.4 discusses the relationship between investment and international trade. Among multinationals, we see that 68% both export and import.[2)]

83% of the goods export value is on account of multinationals

In addition to the relatively large role that multinationals play in employment in the Netherlands, they also account for a large proportion of international trade. Whereas multinationals only take up around 1.8% of the Dutch business economy as a whole, they were responsible for 78% of imports and 83% of exports of goods in 2021 (Figure 5.3.7). Foreign-owned multinationals account for the majority of these goods imports and exports. The role of non-multinationals in Dutch goods trade was slightly larger in 2021 than in 2019. In the international trade in services, multinationals accounted for a total of 91% of the import and export value in 2021. Again, foreign-owned multinationals contribute the bulk of these imports and exports.

2) Internationally trading enterprises are divided into enterprises which exclusively import goods and/or services, those which exclusively export goods and/or services, and two-way traders of goods and/or services. This definition does not use a minimum threshold to filter out small traders.

5.3.7 Distribution of international trade in the Dutch business economy, 2021*



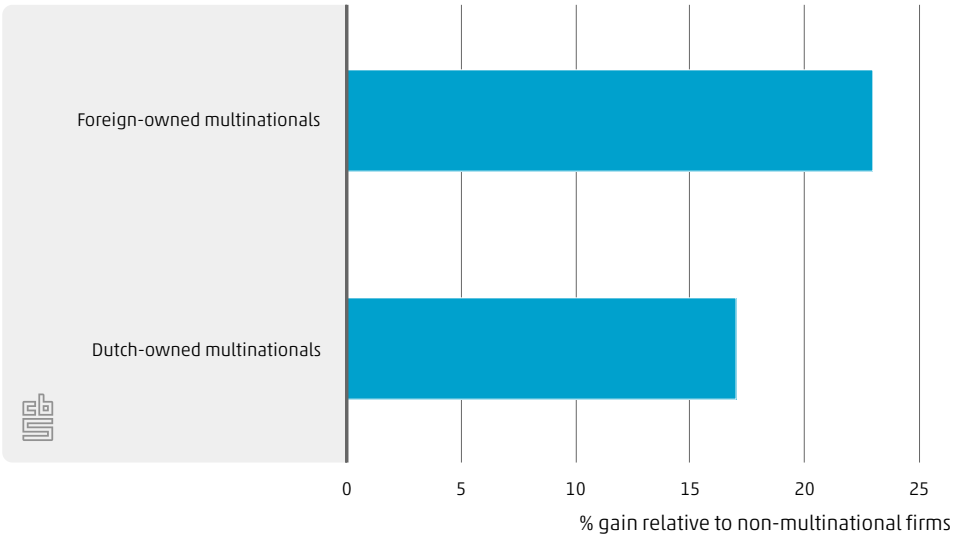
Multinationals, especially foreign-owned multinational enterprises, more productive than the rest

To survive on a foreign market, multinationals need to compensate their 'liability of foreignness' against local enterprises by means of additional competitiveness (Zaheer, 1995). These disadvantages of being 'foreign' are mostly in the costs incurred by foreign enterprises to learn the Dutch language, the regulations, culture and market, among other things. Foreign enterprises will only invest in the Netherlands if they are able to compensate these costs with, for example, better or cheaper products or production processes than Dutch enterprises (Fortanier, 2008; De Vaal et al., 2009).

The more productive enterprises are, the more value they can add to a country's economy. Productivity is one of the most important factors in economic success and prosperity. Productivity is measured here based on multifactor productivity (MFP). MFP is that portion of output volume changes not caused by changes in the use of inputs. It reflects the efficiency of combining different factors of production. The CBS Internationalisation Monitor Q4 2022 linked new productivity estimates to internationalisation, innovation and business dynamics (CBS, 2022).

On average, multinationals in Dutch business economy are more productive than enterprises not under the control of an international corporation (Figure 5.3.8). This has also been repeatedly demonstrated in literature (e.g. Greenaway and Kneller, 2007). We also see differences in average productivity within the group of multinationals. The average productivity of Dutch-owned multinationals is almost 17% higher than that of enterprises not under the control of an international corporation. For foreign-owned multinationals, this productivity gain is even as high as 23%.

5.3.8 Productivity premium relative to non-multinational firms in the Dutch business economy[1)]



1) Calculations of productivity differences took into account variations in sector composition between multinationals (foreign-owned and Dutch-owned) and non-multinational firms.

Size of enterprise, type of multinational, trading status and innovation all play a key role as explanatory factors for differences in productivity between enterprises. There are significant differences in productivity between enterprises, even within narrowly defined industries in which enterprises are fairly homogeneous in terms of activities (Syverson, 2011).
For example, the productivity premium of foreign-owned multinationals, relative to non-multinationals, is significantly higher in the Netherlands for enterprises operating in the food, beverages and tobacco industry.

5.4 Dutch multinational activity abroad

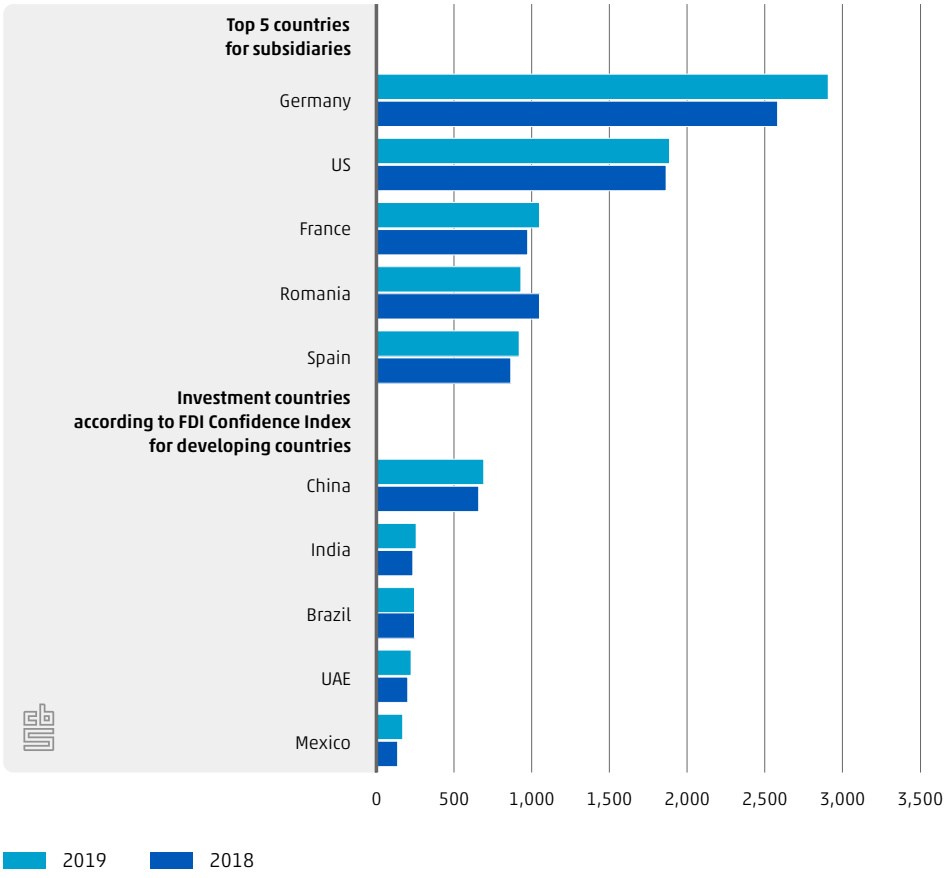
This section focuses on Dutch-owned multinationals abroad: in which countries do they operate and how many jobs are created through foreign subsidiaries? The section also sets out the trends of Dutch multinational activity abroad and looks at the types of investments made by Dutch-owned multinationals with subsidiaries in foreign countries. Finally, it explores the impact of a country's income level on the type of investment made by Dutch-owned multinationals.

Number of subsidiaries in Mexico increasing by one quarter in 2019

Figure 5.4.1 shows the number of foreign subsidiaries under Dutch control. Dutch-owned multinationals have the most subsidiaries in Germany and that number grew from 2,585 to 2,915 subsidiaries between 2018 and 2019. Dutch-owned multinationals were also well represented in the US in 2019, by 1,890 subsidiaries.

US research firm Kearney has been compiling the FDI Confidence Index annually since 1998, a ranking of countries likely to attract the most investments over the next three years (Peterson & Toland, 2023). For the first time in 2023, an FDI Confidence Index ranking was made specifically for developing countries. China, India and the United Arab Emirates top this list of future attractive developing countries in terms of investment. China has been an important partner for the Dutch business economy for years. The number of subsidiaries of Dutch-owned multinationals in that country rose to 695 in 2019, representing a 5% increase over the previous year. Dutch-owned multinationals were also increasingly setting up subsidiaries in India and the United Arab Emirates in 2019. Although investments by Dutch-owned multinationals in these countries are relatively small compared to large investment partners such as Germany, we do see an uptake of subsidiaries in these countries in 2019 compared to 2018, of 8% and 10%, respectively. Mexico ranks eighth on the FDI Confidence Index of developing countries and despite its relatively small number of subsidiaries, it does show strong growth in the number of subsidiaries among enterprises under Dutch control.
The number of subsidiaries rose by 25% in 2019 compared to 2018.

5.4.1 Foreign subsidiaries under Dutch control



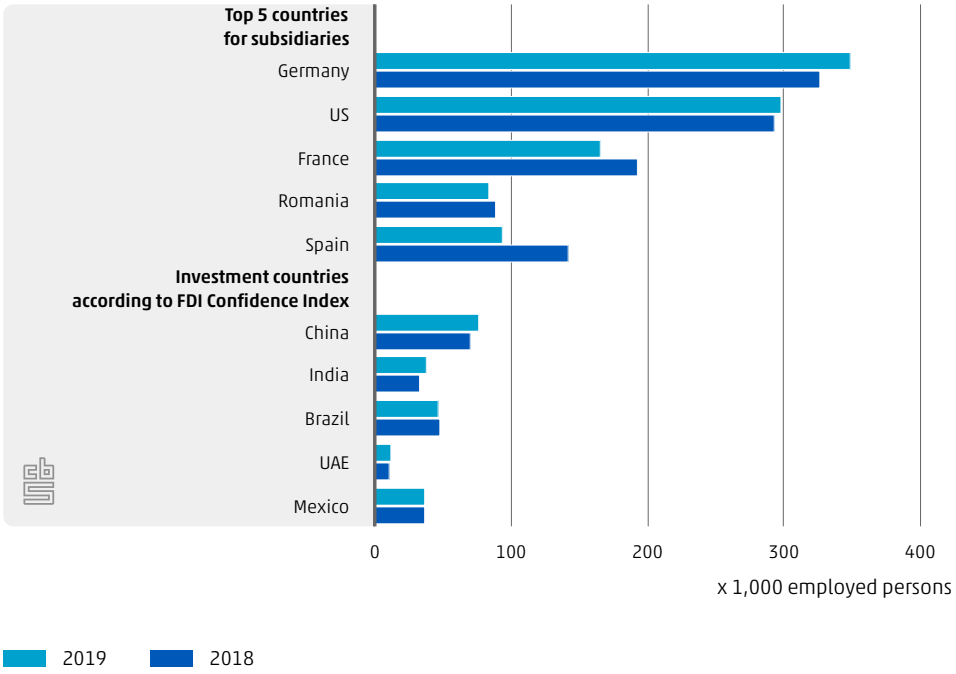
Source: CBS, Eurostat

Increasing number of employed persons working for German subsidiaries under Dutch control

In addition to the number of subsidiaries, the number of employees at subsidiaries in Germany also recorded a growth in 2019 compared to 2018 (Figure 5.4.2). While there were 327,000 employed persons in 2018, the figure rose to almost 350,000 in 2019. The number of employed persons working for Dutch-owned multinationals in China and India also grew by 7% and 14% respectively between 2018 and 2019.

The number of people working for subsidiaries of Dutch-owned multinationals in Mexico remained the same in 2018 and 2019, i.e. 37,000 employed persons. Relatively speaking, subsidiaries in Mexico do offer more employment per subsidiary on average than China and Germany. Whereas in 2019 there was an average of 111 employed persons per Dutch subsidiary in China and an average of 120 in Germany, the average for Mexico was 211. Given the rise in the number of subsidiaries in 2019 with no change in the number of employees, average employment per Mexican subsidiary did fall compared to the previous year.

5.4.2 Employment at foreign subsidiaries of Dutch-owned multinationals



Source: CBS, Eurostat

What is the relationship between a country's income level and the type of investment made by enterprises?

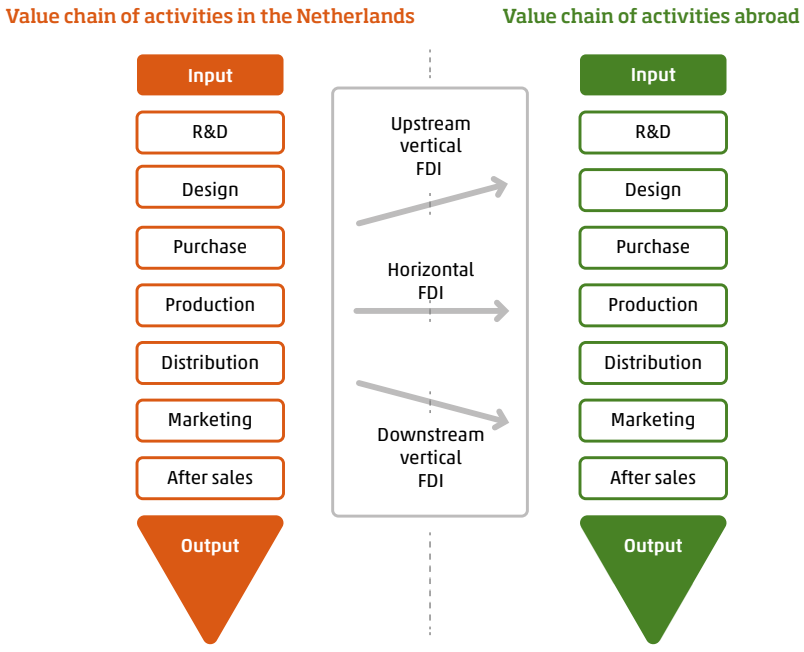
In order to determine the relationship between a country's income level and the choice of types of investment made by enterprises, it is important to first take a closer look at the different type of investment. We can divide investments made by parent companies in subsidiaries abroad into roughly two categories: horizontal and vertical investments. Figure 5.4.3 illustrates the value chain of a Dutch parent company with a foreign subsidiary.

Enterprise groups (parent company) with associated subsidiaries are determined based on OFATS 2019, where we analyse only extra-EU foreign direct investment.[3)]

We refer to horizontal investment if the foreign subsidiary carries out the same activities as the Dutch parent company. An example of a horizontal investment is when both the Dutch parent company and the foreign subsidiary manufacture cars. The comparison of activities is made on the basis of 2-digit SBI code.[4)] If the SBI codes of the parent company and the subsidiary match, we classify the investment as a horizontal investment.[5)]

If the foreign subsidiary carries out a different activity than the Dutch parent, this is referred to as a vertical investment. In that case, the SBI codes of the parent company and the subsidiary deviate from each other. When it comes to vertical investment, we can further distinguish between upstream and downstream vertical investment. Upstream vertical investment applies when the foreign subsidiary of the aforementioned Dutch car manufacturer produces parts for the production of cars by the Dutch parent company. An example of a downstream vertical investment is when the foreign subsidiary would be a distributor of the parent company's cars. However, in this section we will limit ourselves to the general split between horizontal and vertical investments.

5.4.3 Horizontal and vertical FDI



There are numerous motives to opt for horizontal or vertical investment. Matters such as trade barriers and import tariffs at the border can complicate enterprises' trading activities and may prompt horizontal investment. The market can then be served with domestically produced goods, rather than imported goods from elsewhere that may encounter trade barriers and import duties. Although the initial cost of investment is higher than that of exports, the variable costs are actually considerably lower, which is known as the proximity-concentration

3) Up to reporting year 2019, the OFATS only covered foreign direct investment outside the EU.
4) The standard business classification (SBI) is the Dutch hierarchical classification of economic activities which has been used by CBS since 2008 to classify business units by their main activity.
5) There are some enterprise groups of which the SBI cannot be determined, as a result of which approximately 15% of subsidiaries are not included in the analyses when split into types of investment.

trade off (Brainard, 1997). According to this theory, enterprises weigh up variable costs as trade barriers and transport costs on the one hand and investment barriers on the other hand. There is a wide variety of motives for both horizontal and vertical investment. A commonly discussed reason for (upstream) vertical investment is the reduction of production costs. Similarly, relocating part of the value chain to a region high in knowledge and expertise can also provide a reason for vertical investment. This is just a selection of motives. Control over a larger part of the value chain can be another motivation for vertical investment, where enterprises do try to keep variable costs as low as possible by investing locally.

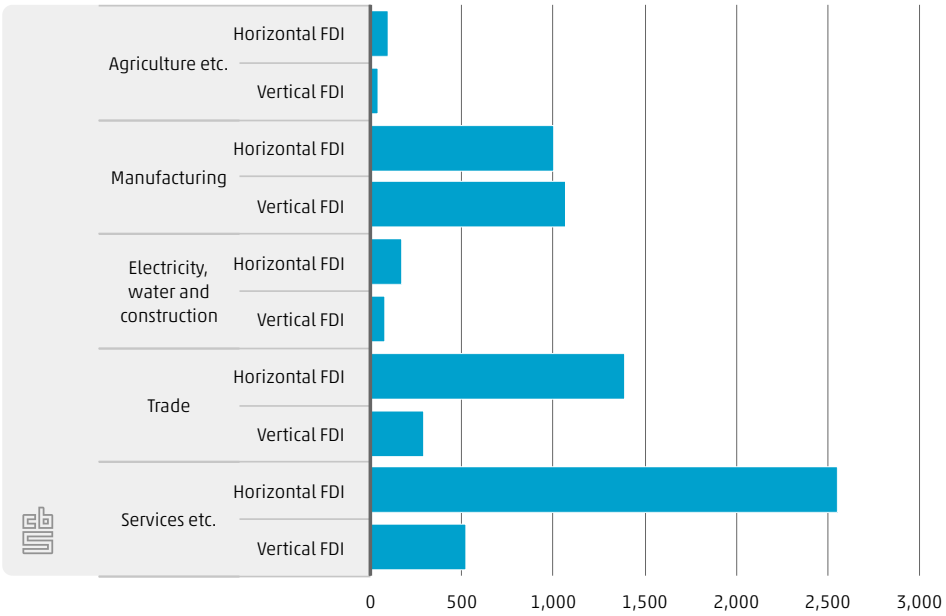
First, we will examine the sector's influence on the investment choice of an enterprise. For example, do the agriculture and manufacturing sectors invest more vertically than the service sector? Next, we will examine whether Dutch-owned multinationals invest more vertically in countries with lower income levels, for example, to minimise the wage costs (part of the production costs) or whether they in fact invest more vertically in countries with higher income levels to improve productivity, for example.

Relatively more vertical investment in agriculture and manufacturing

Figure 5.4.4 shows the number of subsidiaries of Dutch-owned multinationals in non-EU countries by type of investment and sector in 2019.[6)] Parent companies operating in the service sector had about 3,080 foreign subsidiaries in 2019, thereby mainly investing horizontally (2,555). Also, for parent companies active in the trade sector, foreign direct investment was mostly of a horizontal nature. The manufacturing sector had 2,080 subsidiaries. The horizontal and vertical distribution was about 50-50 in this. The large number of horizontal investments in figure 5.4.4 is consistent with the global perception of there being more horizontal foreign direct investment than vertical foreign direct investment (Phung, 2021).

6) The Electricity, Water and Construction sectors and Services sectors comprise an amalgamation of sections D to F and H to T of the Standard Business Classification, respectively.

5.4.4 Subsidiaries in non-EU countries by type of investment and sector, 2019



In percentage terms, the manufacturing and agriculture sectors have the highest share of vertical investment compared to the number of horizontal investments. Accounting for 51% and 32%, respectively, within the total investments of the respective sector, this seems to indicate a relatively high level of vertical investments within these sectors.

The share of vertical investment (18% and 17%, respectively) is significantly lower in the trade and service sectors. For manufacturing and agriculture, matters such as the reduction of production costs seem to be key in choosing vertical investment. Keeping control within the chain could also be a possible reason for investing vertically rather than outsourcing part of the operations. Components of the value chain may also be located in regions that have specific knowledge required for the production. Other matters such as minimising trade barriers or reaching out to other markets seem to play a central role in the trade and service sectors, which may be motives for the relatively high share of horizontal investment in these sectors. Another possible reason for the relatively low share of vertical investment in the trade and service sectors is that the value chain of a manufacturing company may be easier to divide into segments than the value chain of a service.

Little vertical investment in countries with a low income level

Figure 5.4.5 shows the share of horizontal and vertical investment by income group of the country in which the subsidiary is located and by the parent company's sector. This classification is from the World Bank. The World Bank classifies economies in four income groups: high income, upper middle income, lower middle income and low income. This classification is based on the gross national income per capita, calculated according to the Atlas method (World Bank, 2019).

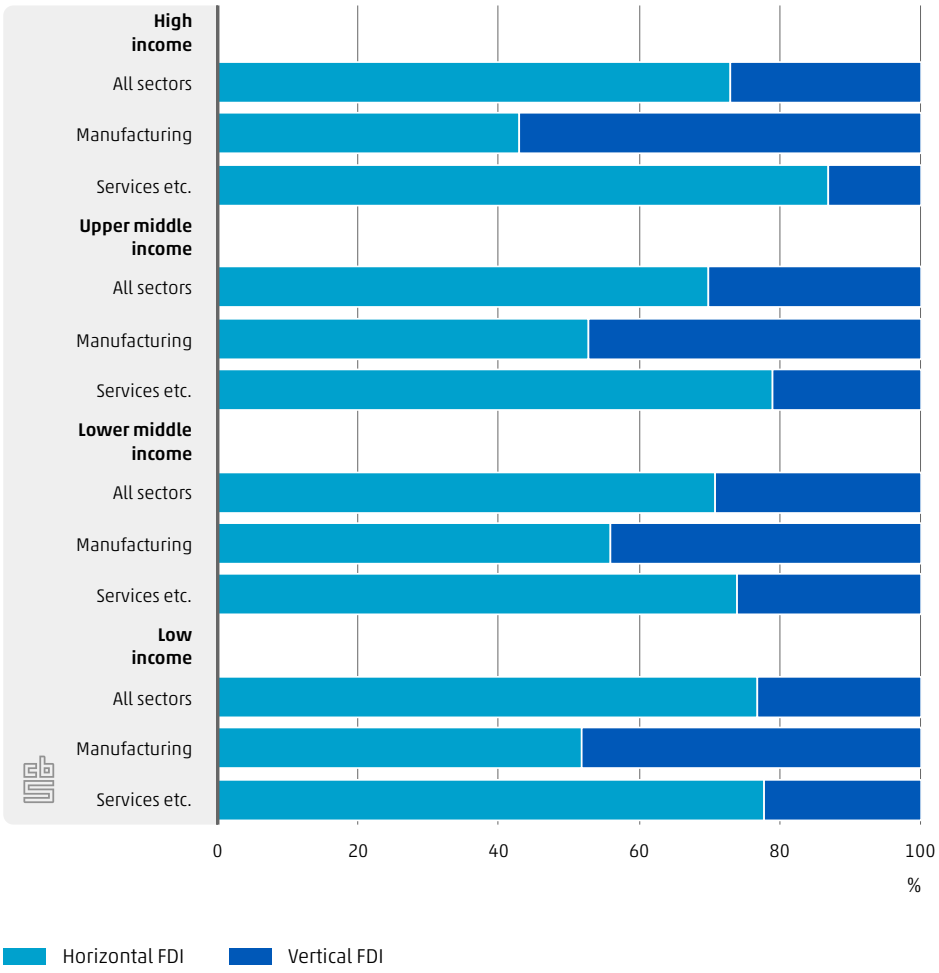
While it might be expected that the share of vertical investment would be relatively high in low-income countries in order to minimise production costs through lower wage costs, for example, Figure 5.4.5 shows that the share of vertical investment increases on average for the sectors as the income of the country of the subsidiary increases. On average for all sectors, the high-income category has a slightly lower share of vertical investment than the upper-middle income and lower-middle income categories. Although the reduction of production costs is described as a key motivation for vertical investment in scientific literature, there is also a broad palette of motives for investing vertically especially in high-income countries.

There may be activities within an enterprise's value chain that require specific knowledge or a high level of training (Jinji et al., 2022). Enterprises may therefore choose to set up a subsidiary in a country with a higher level of development. Low-income countries or countries with low levels of development also bring more uncertainty. Enterprises may therefore also choose to invest vertically in a more developed country to secure a higher degree of certainty within the chain (Aizenman & Marion, 2001). Geopolitical pressures could also be a reason for relocating parts of the chain closer to home or to relatively more reliable countries in the future (Ahn et al., 2023). Relocating production to a country nearer is also referred to as reshoring or nearshoring. An example of reshoring is Tesla, which opened a factory in Germany in 2022 in addition to the production sites in the US and China (Niewold, 2023). Parts of the value chain could also in fact take place more productively in higher-income countries.

The gravity model of Jan Tinbergen, a common model to analyse trade, theorises that as distance from a country increases, trade decreases. This distance can be interpreted in a multidisciplinary manner, such that as differences in culture and language with a country widen, trade with that country decreases. Although the gravity model is widely applied to trade, cultural and language differences could also contribute to the relatively low share of vertical investment in low-income countries.

Whether or not to invest horizontally or vertically in the different types of countries will largely be determined by the sector in which the parent company operates. In addition to the average for all sectors, Figure 5.4.5 also specifically shows the types of investment for the manufacturing and service sectors. The share of vertical investment is relatively high in manufacturing, with the share in low-income and high-income countries being the highest. This would suggest that for manufacturing, matters such as the reduction of production costs, maintaining control in the chain, as well as gaining expertise, for example, are relatively more important drivers than, for instance, gaining market access. The latter, on the contrary, seems to be an important driver for the service sector. The service sector is relatively heavily driven by horizontal investment, with most horizontal investment being made in high-income countries. Finally, it should be noted that the choice for vertical investment will also depend on the type of vertical investment – upstream or downstream. However, we will not elaborate further on the type of vertical investment. It requires extra research to gain a better understanding of the motives for upstream and downstream vertical investment.

5.4.5 Type of FDI by income group and sector, non-EU countries, 2019



Which countries are the most attractive to Dutch-owned multinationals per income group?

Table 5.4.6 shows which non-EU country has the most inward Dutch investments by income group, measured in numbers of subsidiaries. This is the total of horizontal and vertical investments. Most subsidiaries in the category of high-income and upper-middle-income countries are located in the US and China, respectively. Most investments in the lower-middle-income and low-income groups are in India and Ethiopia, respectively. Vertical and horizontal investments show a similar image, with the exception of the low-income group. Among the low-income group, most horizontal investments are found in Ethiopia and most vertical investments are in Tanzania.[7)]

7) Tanzania had a low-income status in 2019. On 1 July 2020, the World Bank announced that Tanzania had changed income groups, from a low-income status to a lower-middle-income status.

5.4.6 Ranking investment countries of Dutch-owned non-EU multinationals by income, 2019

Income group	Country
High income	United States
Upper middle income	China
Lower middle income	India
Low income	Ethiopia

The global market is becoming increasingly competitive and direct investment has grown strongly since the 1980s. Developing countries are seeking to attract foreign-owned enterprises to invest in their countries in a variety of ways. Tax-friendly legislation and regulations and improved infrastructure are just a few examples of ways to attract more foreign direct investment.

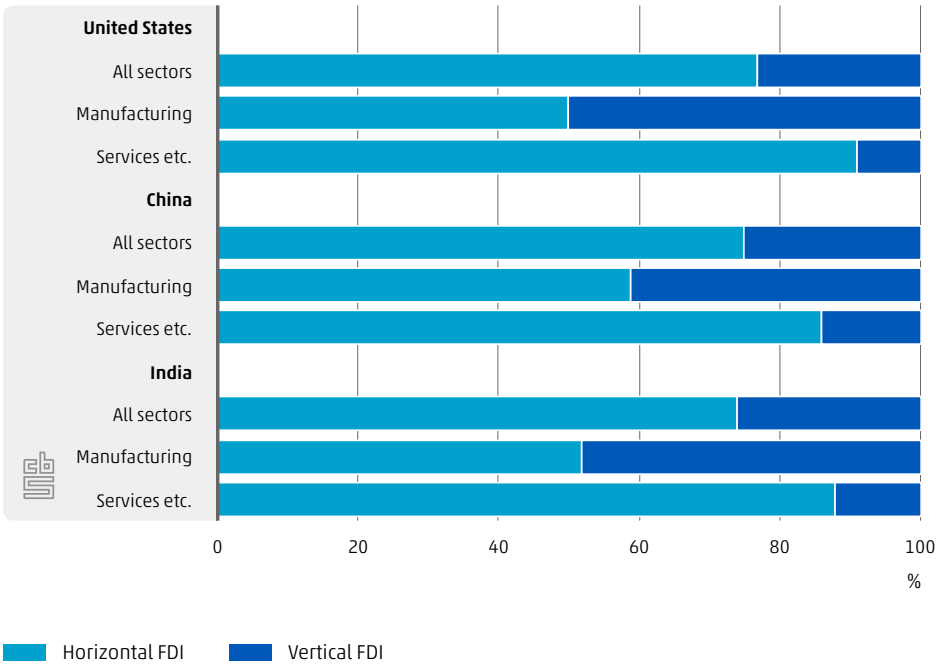
India is the most attractive investment country for the Netherlands within the lower-middle-income group. India has become more attractive to foreign direct investment following reforms by the government led by Prime Minister Modi in 2014, showing an increase in foreign direct investment especially in the last decade (Dohmen, 2023). Ethiopia has the highest level of investment in the low-income category. Ethiopia's Prime Minister Abiy Ahmed has also announced numerous reform plans, including plans to reduce the state's dominance in certain sectors in an attempt to become more attractive to foreign investors. Despite its relatively small economic size, Ethiopia is one of the strongest growing economies in the world and it is the second most populous country in Africa. Ethiopia's labour force is expected to make up a large proportion of the total population in the future, which will only make the country more attractive to foreign investors (Deloitte, 2019).

However, investment in Ethiopia was still very minimal in 2019. Even though investments in Ethiopia are about three times higher than the average investments in low-income countries, this is still less than 1% of the investments Dutch-owned multinationals have in, for instance, Germany. Given the very limited size of investments in Ethiopia, we do not include these investments in the following analyses.

Relatively many vertical investments in manufacturing in both high-income and low-income countries

Figure 5.4.7 shows the distribution by horizontal and vertical investment of the largest investment countries by income group in 2019, on average for all sectors and for the manufacturing and service sectors specifically. We can see that these three follow the general picture of the distribution by income group outlined in Figure 5.4.5. In Figure 5.4.7, we can once again see predominantly horizontal investments for all sectors on average. Manufacturing has a relatively high share of vertical investments, while in contrast, the service sector has a relatively high share of horizontal investments.

5.4.7 Type of FDI by country and sector, 2019



Again in manufacturing, the share of vertical investments is highest in both the lowest-income country and the highest-income country, which is consistent with Figure 5.4.5. This again suggests that the type of investment is heavily dependent on the parent company's sector. Moreover, a diversity of matters specific to the manufacturing sector seem to be important in selecting the investment country. On the one hand, the reduction of production costs and greater control in the chain seem to be key; on the other hand, matters such as the accumulation of knowledge and expertise also seem to play an important role for investments in high-income countries, for example.

Investment and trade: complementary or substitutable?

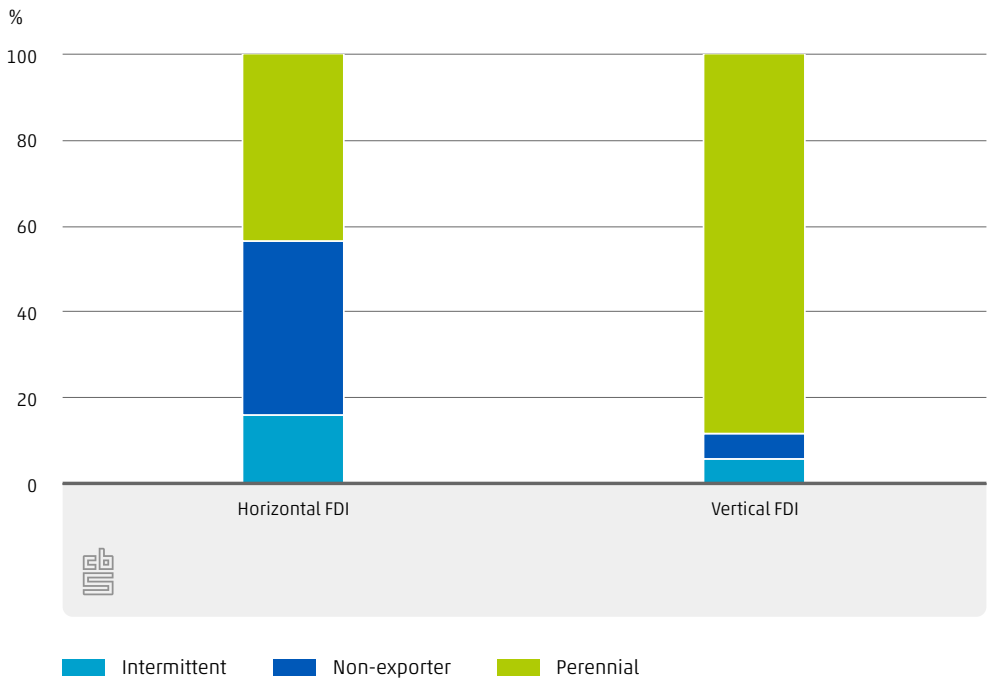
The large share of horizontal investments, which involve the parent company carrying out the same activity as the Dutch subsidiary, raises the much-discussed question within literature whether investment and trade are complementary or in fact substitutes. Figure 5.4.8 shows the exports status of Dutch-owned multinationals per type of investment in 2019. This involves enterprises that not only have a subsidiary abroad, but also export goods to foreign countries, irrespective of whether these exports go to the subsidiary's country. The export status distinguishes between perennial exporters, intermittent exporters and non-exporters. Enterprises are considered perennial exporters if they reported at least three years of goods exports in a four-year period. Enterprises are considered intermittent exporters if they reported at least one and at most two years of goods exports in a four-year period. Needless to say that enterprises that do not export are considered to be non-exporters.

40% of multinationals
investing horizontally are non-exporters

Among those enterprises investing horizontally, the relatively high share of non-exporters is notable (40%). Conversely, among enterprises investing vertically, we see that the majority of enterprises exported goods on a perennial basis (88%). We see that the share of intermittent exporters is lowest in both investment types.

Although large enterprises will often participate in both international trade and investment, the relatively high share of non-exporters among horizontal investment could be an indication that horizontal investment may be a substitute for exports. When it comes to vertical investment, exports and investments actually seem more likely to go hand-in-hand, with intermediate goods being traded between different countries in the value chain.
It should be noted that this section focuses on goods exports and not on service exports. Enterprises that do not export goods, may in fact be exporting services.

5.4.8 Type of FDI by export status, extra-EU, 2019



Specifically for the US, China and India, a relatively similar picture can be seen on average for all sectors to that shown in Figure 5.4.8. The majority of enterprises investing vertically in these countries are also perennial exporters.

Looking in more detail at the manufacturing sector, we see that enterprises that invest vertically in these countries are also fully perennial exporters. For the most part, enterprises in the manufacturing sector that invest horizontally in these countries are also perennial exporters, deviating from the average across all sectors. Again, in line with scientific

literature, this is an indication that the parent company's industry has an impact on an enterprise's investment choice (Demir & Sayek, 2008) as well as on whether or not to trade complementary to investing. More in-depth analyses will therefore be needed to resolve with more certainty the question of whether investing is a substitute for or complementary to trading.

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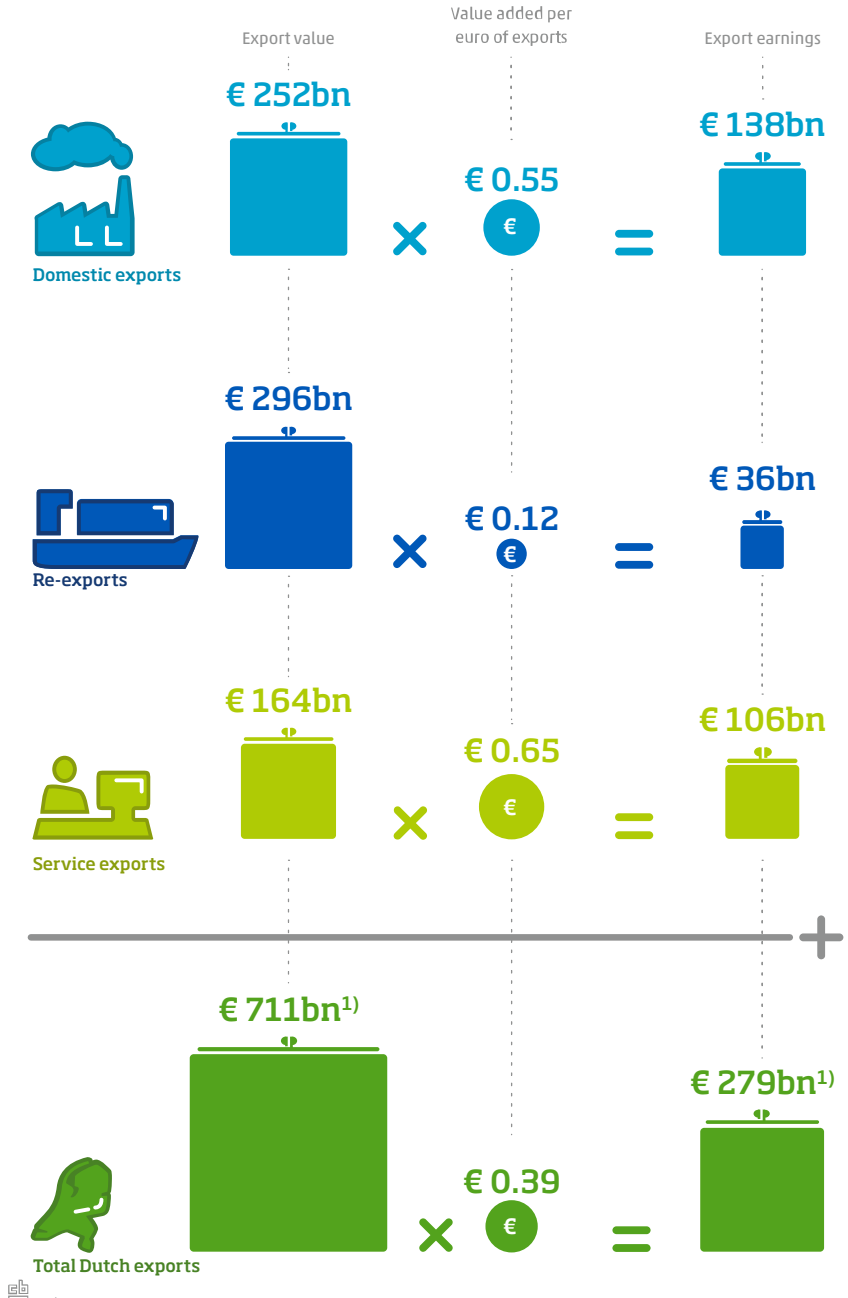
6 Dutch earnings from exports

Authors: Leen Prenen, Janneke Rooyakkers

Dutch export earnings (2021*)



1) Figures do not add up to total due to rounding

International trade plays a major role in the Dutch economy. Earnings from exports of goods and services account for almost a third of our GDP and over 30% of employment in the Netherlands. 2021 was a year of recovery for the Dutch economy: the coronavirus

pandemic had caused major contraction of the economy and also of international trade in 2020. By 2021, exports of goods were already above pre-pandemic levels; exports of services not yet. In earnings from exports, we see the same pattern. This chapter looks at export earnings and employment generated by exports of goods and services in 2021, and how that developed compared to previous years. It distinguishes between earnings from different types of exports, destination countries and industries.

6.1 Key findings

Contribution of exports to GDP

- The Netherlands exported €711bn worth of goods and services in 2021: 14% more than in 2020 and 5.9% more than in 2019. Exports of domestically produced goods were 8.7% higher than in 2019 and re-exports 14.7%. However, exports of services had not yet recovered from the coronavirus pandemic and were 10.3% lower in 2021 than in 2019.
- From the €711bn worth of exports, earnings were generated to an amount of €279 bn.
- Domestic exports yielded almost €138bn, re-exports almost €36bn and service exports more than €106bn.
- Total export earnings (€279bn) accounted for 32.6% of GDP in 2021. That share is smaller than in 2019, because the domestic components of GDP grew faster than export earnings.
- In 2021, export earnings averaged 39 cents per euro: with 55 eurocents per euro in domestic exports, 65 eurocents in service exports and 12 eurocents in re-exports.
- At around €71bn, the highest export earnings were generated in the manufacturing sector. The bulk was from exports of Dutch-manufactured goods (domestic exports). The top earners among the industries were machinery; food, beverages and tobacco, and chemicals.
- In 2021, export earnings averaged 39 cents per euro: with 55 eurocents per euro in domestic exports, 65 eurocents in service exports and 12 eurocents in re-exports.
- Business services earned less from exports in 2021 than two years previously. Just as it applies to the entire flow of service exports, the decrease was due to the slow recovery of travel and therefore of travel-related services on the one hand and changes in the Dutch tax system (as a result of which firms implemented restructurings) on the other.
- In 2021, the Netherlands earned the most from exports to Germany. Domestic exports yielded the most, but re-exports also played a relatively large role in total export earnings. This was also the case for other export destinations close to the Netherlands: Belgium, France, Spain and Italy. Earnings from exports to China mainly came from domestic exports.
- The Netherlands earns a relatively large proportion from the export of services to the US, the UK, Ireland and Switzerland. Earnings from re-exports to the UK were considerably lower than one year previously since Brexit became effective in 2021, but by contrast, domestic and service exports generated higher earnings than pre-Brexit.
- The Dutch economy grew by 4.9% in 2021. Of this, 2.3 percentage points were due to the export of goods and services. Domestic exports contributed 1.1 percentage point, re-exports 0.5 percentage point and service exports contributed 0.6 percentage point to GDP growth.

Export-induced employment

- In 2021, almost 2.4 million full-time jobs (FTE) in the Netherlands were related to exports: more than 1 million direct jobs and more than 1.3 million indirect jobs. Together, this was approximately 30.4% of total employment (in FTE) in the Netherlands. Domestic exports accounted for about 14.0% of total employment (+2.5% compared to 2019), re-exports 3.7% (–3.2% compared to 2019) and service exports 12.7% (–7.9% compared to 2019).
- Occupations that are largely dependent on the export of goods (measured in hours spent on exports compared to domestic expenditure) are agricultural occupations and transport-related occupations.
- The self-employed work relatively more hours for export (37% of the hours) than employees with a permanent contract (30%) and employees with a temporary contract (28%).

Outline

Section 6.2 discusses the earnings from exports in 2021[1)], and what share the different components of exports account for in Dutch GDP. We also show the average earnings per type of export (domestic exports, re-exports and exports of services). We then further break down these earnings by exporting sector and industry, and by country of destination. Finally, we further break down GDP growth between 2020 and 2021 by domestic expenditure and the three types of exports. Section 6.3 then highlights export-induced employment, where we distinguish between direct and indirect employment. We also break down employment due to domestic exports, re-exports and service exports. This is followed by the hours worked that are linked exports compared to domestic expenditure per occupational class, with finally the hours worked on behalf of exports per type of contract.

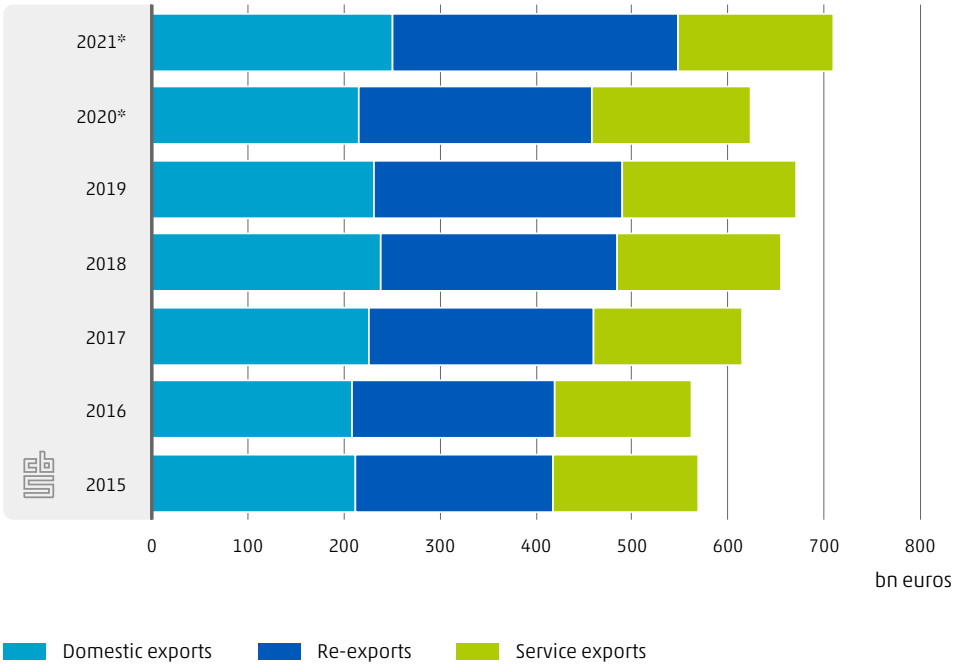
6.2 Contribution of exports to GDP

The Netherlands exported goods and services worth close to €711 billion in 2021, which, following a fall in exports of both goods and services in the COVID year 2020, represents a 14% growth over 2020 and a 5.9% growth over 2019. The gross export value consists of exports of goods and services combined. We also differentiate two types of exports within goods exports: domestic exports and re-exports. Re-exports consist of goods that are imported by resident enterprises and then re-exported after virtually no processing in the Netherlands. The re-exported goods are (temporarily) owned by a resident enterprise while in the Netherlands.

1) At the time of writing, 2021 is the most recent full year for which data are available from the National Accounts. The other chapters on international trade in goods (Chapters 2 and 3) and services (Chapter 4) use the source statistics International Trade in Goods and International Trade in Services, respectively, so 2022 can already be described in those chapters.

Domestic exports of goods amounted to €252 billion in 2021, re-exports amounted to €296 billion and the exports of services amounted to €162 billion (Figure 6.2.1).[2)] While domestic exports and re-exports were already well above 2019 levels at 8.7% and 14.7% respectively, trade in services had not yet recovered in 2021. Relative to 2019, the export value of services was still down by 10.3% in 2021.

6.2.1 Gross export value per export category



Chapters 2, 3 and 4 already showed that price increases have been playing an increasingly important role in recent years. The increase in export value in 2021 compared to previous years is therefore not only due to the growth in export volume, but also to the increase in export prices. This chapter not only addresses the gross export values, but also the exports relative to GDP and final earnings, which will provide a clear overview of the earnings from Dutch exports in 2021.

Export earnings in 2021 exceeding pre-coronavirus crisis levels again

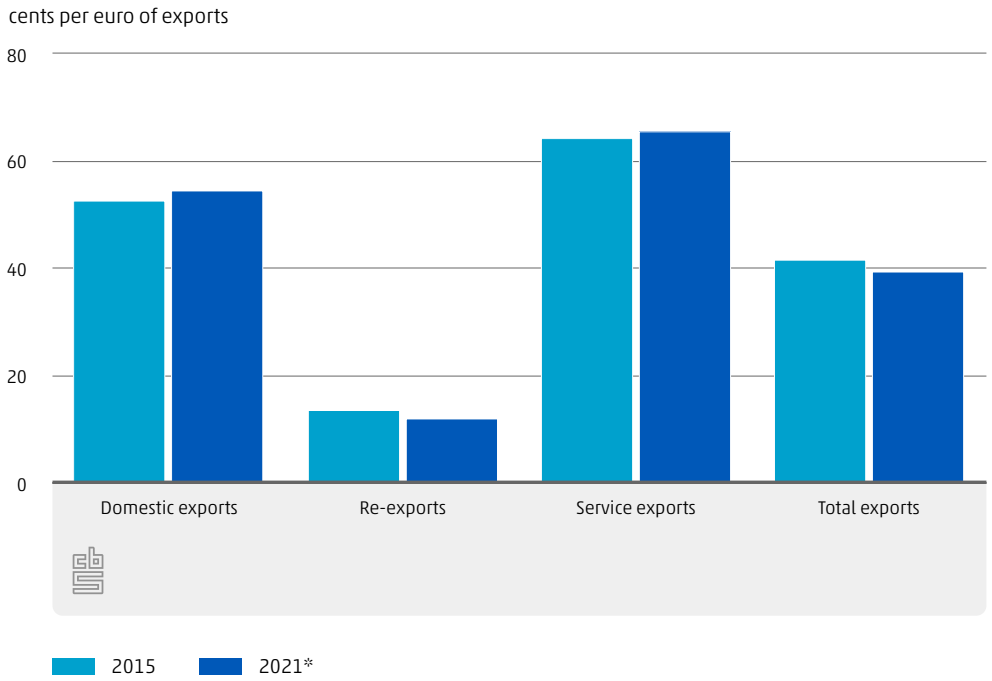
The exports from Figure 6.2.1 are gross values. To determine what the Netherlands earns from these exports, consumption of the imported goods and services required are deducted from gross export value. Of the €711 billion in gross exports, the earnings amounted to €279 billion in 2021. This is nearly 11% more than in 2020 and over 3% up on the last pre-COVID year 2019. Of those €279 billion, domestic exports amounted to almost €138 billion, re-exports amounted to almost €36 billion and exports of services amounted to well over €106 billion.

2) The figures presented in this chapter are based on figures of the National Accounts. The ownership criterion is central in the National Accounts, which means certain transactions abroad can be counted as Dutch imports and exports even if the traded goods have not physically entered the Netherlands. Partly because of this, the figures in this chapter and in Chapter 7 differ from those reported in Chapters 2, 3 and 4, which focus on the principle of border crossing.

Dividing earnings by gross export value yields a 39% share in gross export earnings, meaning that the Netherlands earned an average of 39 cents per euro of exports. Earnings per euro appear to be declining in recent years; in 2019 and 2020 it was still 40 eurocents, and in 2015 it was even as high as 42 eurocents. This is due to the fact that re-exports have become increasingly important in total Dutch (gross) exports: from a 36% share in 2015 to a 42% share in 2021. As it is, re-exports are overall the least lucrative of all types of exports for the Netherlands with an average earning of 12 cents per euro of exports in 2021. This is because the import content in this flow is very high and Dutch enterprises add only little value to these goods. Moreover, earnings from re-exports also declined in recent years: in 2019 it was still at 13 cents and in 2015 at 14 cents. Although the gross re-export value rose sharply in 2021 compared to 2019, total earnings from this flow were relatively smaller, as average earnings (per euro of gross exports) were smaller than in 2019. At the same time, there was also less employment linked to re-exports (Section 6.3). In addition to the nature of this type of exports, the type of goods being re-exported also plays a role. For instance, we know that there is a relatively large amount of mineral fuels in the flow of re-exports, which already witnessed considerable price increases in 2021 (CBS, 2022a). This may have impacted the low earnings of that year.

Domestic exports provided an average of 55 eurocents in 2021; service exports even arrived at 65 cents per euro of exports. Figure 6.2.2 also shows that earnings from domestic exports and service exports have increased in comparison with 2015, which means only the earnings from re-exports have dropped.

6.2.2 Earnings per euro of exports by export category



32.6% of Dutch GDP was earned by exports of goods and services in 2021

Dutch GDP is composed of earnings from domestic expenditure and exports of goods and services. In the first quarter of 2021, Dutch GDP was still falling compared to the same period the year before. There was particularly strong economic growth in the second and third quarter, contrasted of course with the massive contraction at the start of the coronavirus crisis in the second quarter of 2020 (CBS, 2023). Earnings from exports accounted for 32.6% of Dutch GDP in 2021, which is a slight contraction compared to 2019 (33.3%) and 2015 (34.4%), but still an increase over 2020 (31.7%). Export earnings were as much as 3.3% higher in 2021 than in 2019; domestic components of GDP have thus increased more strongly. One of the reasons may be that some components of exports had not yet recovered from the coronavirus crisis in 2021, including travel and travel-related services such as platforms for travel, accommodation or taxi bookings. Driven by travel restrictions, for example, people consumed and travelled more domestically and fewer business travellers and tourists came to the Netherlands than before the pandemic. (CBS, 2022b).

Earnings from service exports on a slower path of growth?

Total exports thus accounted for 32.6% of GDP. At that, service exports accounted for 12.4%, domestic exports for 16.1% and re-exports contributed 4.2%. In comparison with the pre-coronavirus year 2019, only the contribution of service exports and re-exports to GDP contracted, at –1.3 and –0.1 percentage points, respectively. In addition to the aforementioned components of service trade that have not yet recovered from the pandemic, such as travel and travel-related services, there have also been changes in Dutch tax legislation, or announcements thereof that make it less attractive for multinationals to channel certain flows of money and services via the Netherlands. A previous study by CBS already showed that a number of large enterprises, possibly as a result of (announced) tax legislation, have implemented restructurings that are partly responsible for the backlog of service trade in 2020 and 2021. This mainly affected exports of business services (R&D services and professional and management services) and royalties (Poulissen et al., 2022).

Manufacturing enterprises collectively responsible for highest export earnings

Figure 6.2.3 shows the composition of value added per industry. In this figure, we see large differences between sectors in earnings by domestic expenditure and export. Export earnings include both the earnings from an industry's direct exports and the earnings generated by an industry as a supplier to exporting industries.

Evidently, the government sectors public administration, education and healthcare add the most value through domestic expenditure. At a 75% share, domestic expenditure also serves as the major contributor to earnings for the financial services and the renting, buying, selling real estate sectors. Similarly, sectors such as the construction industry, the hotel and catering industry, and culture and recreation are also largely focused on the domestic market.

In trade, exports account for half of that industry's total earnings, while in manufacturing, three-quarters of value added comes from exports; almost €71 billion, of which over €61 billion comes from domestic exports. Also, transportation and storage, agriculture and mining and quarrying are highly dependent on exports in terms of their earnings. This is a comparable picture to the situation in 2019, before the coronavirus pandemic.

6.2.3 Value added per sector, by earnings category, 2021*

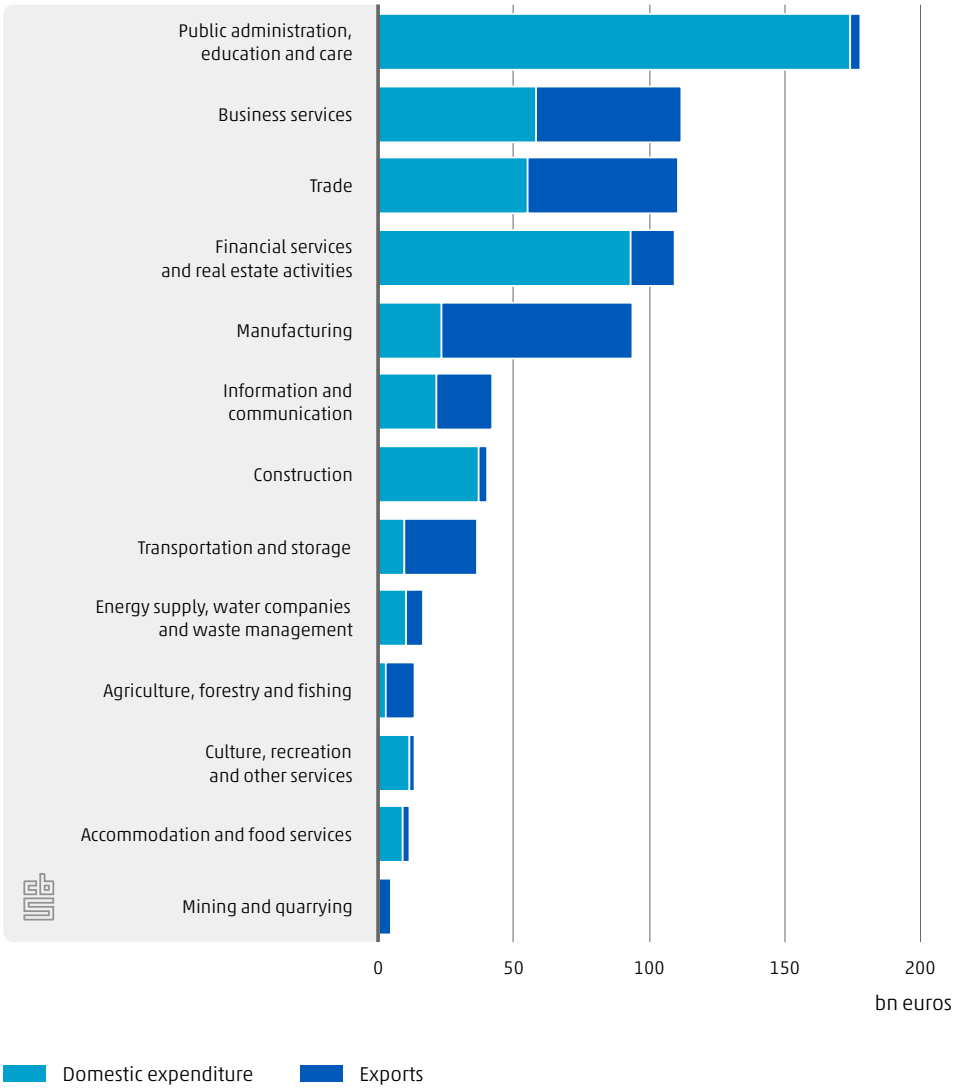


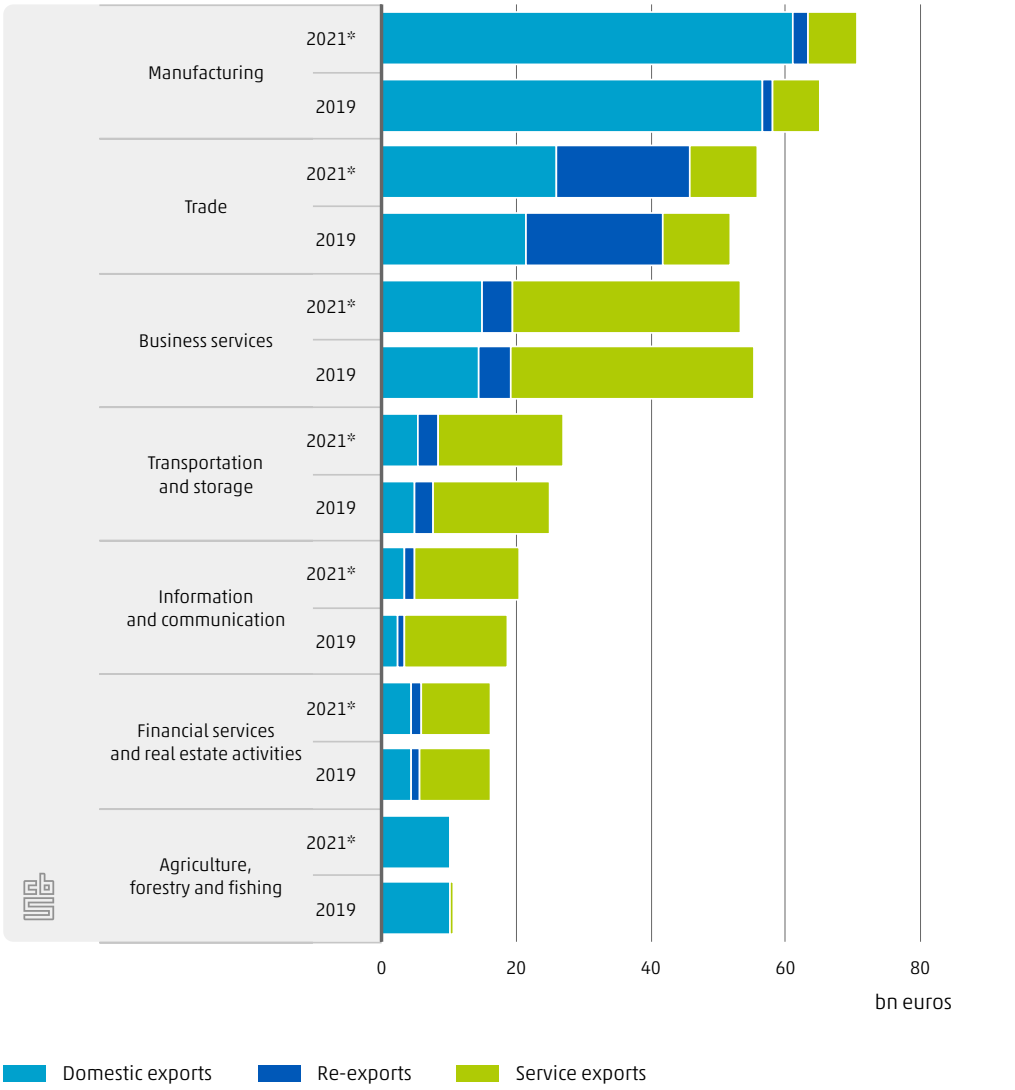
Figure 6.2.4 shows the export earnings of the seven industries that generated the most value added by exports in 2021, broken down by type of exports. We see major differences in types of exports by industry. Manufacturing, for instance, mostly generates earnings from domestic exports, as does agriculture. In most industries, re-exports do not play a significant role in generating earnings, except for those enterprises operating in the trade industry. Finally, we

see the importance of service exports for several industries: business services, transportation and storage, information and communication and financial services. Not only are these predominantly service sectors; it was shown earlier in this section that service exports are relatively high in terms of value added.

Export earnings from business services lagged behind in 2021

For most industries, earnings in 2021 are higher than in 2019, only business services earned less from exports in 2021 than in the two years before. Not only had enterprises in this sector not yet (fully) recovered from the coronavirus crisis, previous research also showed that a number of enterprises were no longer passing large service flows through the Netherlands because of changes in the Dutch tax system, which may be one of the reasons for the drop in earnings in this industry. The drop in export earnings within this industry came mainly from travel agencies and enterprises involved in subcontracting and secondment, and leasing activities.

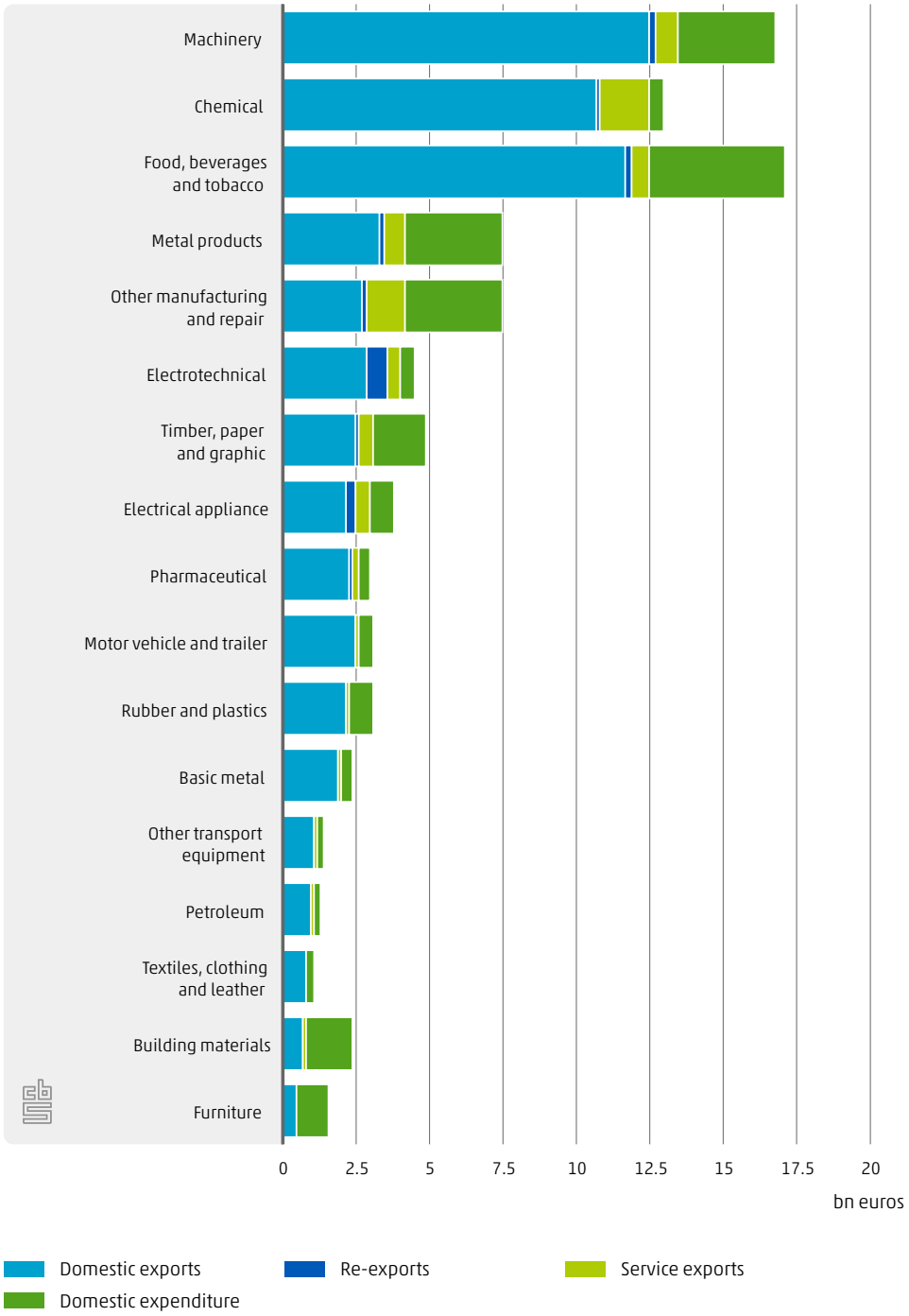
6.2.4 Sectors with the highest value added due to exports



Nearly three-quarters of value added from machinery industry is due to domestic exports

Over 75% of value added from manufacturing is generated by the exports of goods and services, especially domestic exports. Figure 6.2.5 therefore focuses on the value added per sector. In terms of earnings, we see that the three largest sectors also generate the most value added from exports. Over 40% of the total value added created by manufacturing is gained from the exports of goods and services in the food, beverages and tobacco industry, the chemical industry and the machinery industry. For most sectors, domestic exports generate the most earnings; this is not surprising since manufacturing enterprises are generally engaged in their own production as opposed to in re-exporting or producing services. Most sectors specifically focus on the international market; only the furniture industry and the building materials industry generate more earnings from customers in the Netherlands than from exports. About two-thirds of their earnings are generated from domestic expenditure.

6.2.5 Composition of value added by manufacturing industry, 2021*



Top 10 destination countries all reported growth in export earnings

Figure 6.2.6 lists the ten countries with the highest export earnings for the Netherlands in 2021. Of all these countries, earnings grew in 2021 compared to 2019, with the smallest growth for Spain at 3%, followed by Germany, Italy and China (all three +4%) and the UK and France (both +5%). Travel earnings in particular showed a contraction for these countries. Re-exports caused the contraction in exports to the UK. In the period between 2019 and 2021, there was a significant growth in earnings from exports to Belgium (+7%), the US (+12%),

Switzerland (+17%) and Ireland (+10%). While for exports to Belgium this was mainly due to growth in earnings from re-exports and domestic goods, for Switzerland, Ireland and the US, the growth was mainly attributable to service exports.

Although Poland ranked only just outside the top 10 in 2021, the Netherlands did earn substantially more from exports to that country than in 2019. The 19% growth was mainly attributable to an increase in the export earnings from domestic goods.

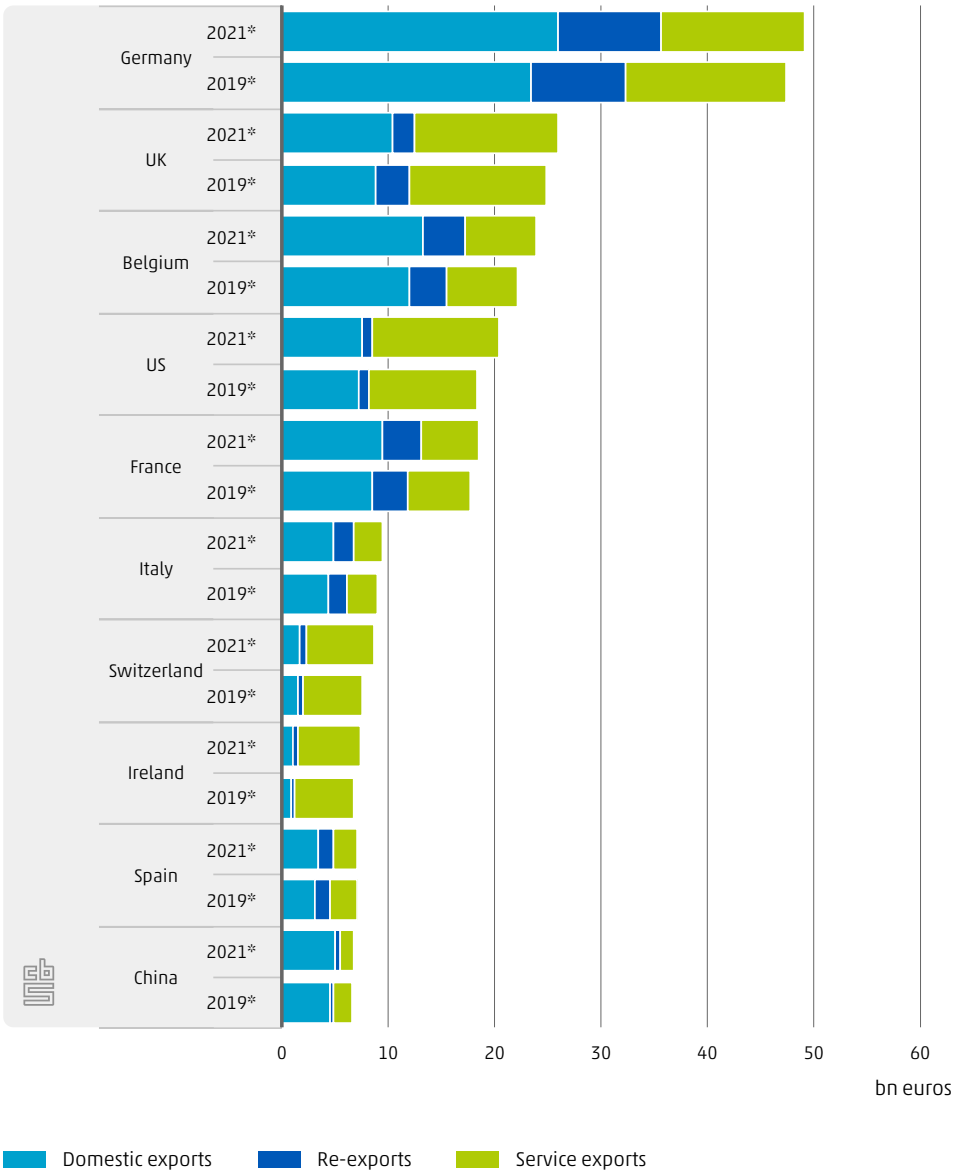
Value added by re-exports relatively high in export earnings from Germany

The Netherlands generates by far the most earnings from exports to Germany, which makes sense given Germany's major share in total Dutch exports of goods and services. Over half of the export earnings from Germany in 2021 related to domestic exports, more than a quarter to service exports, which includes tourist travel, day trip travel and business travel from Germany.

Even though re-exports are higher in terms of gross export value than domestic exports, re-exports only attribute about 20% to total export earnings from Germany. This is due to the fact that we earn less from this type of exports than from exports of domestic products or services: the value of the imports needed is in fact much higher. Moreover, the share of re-exports in earnings from exports to Germany is relatively high at almost one-fifth of total earnings: in total export earnings, re-exports account for just under 13%. The reason for this is that Germany is a major destination of re-exports from the Netherlands.

Dutch earnings from exports to Belgium, France, Italy and Spain are similar to those of Germany: highest earnings from domestic exports with a share of around 50%, earnings from re-exports of 15–20% and earnings from service exports of around 30%. In terms of exports to the US, services led the way, accounting for 59% of earnings.

6.2.6 Top 10 destinations based on export earnings



Fewer earnings from re-exports to the UK after Brexit...

The UK left the EU in 2020, but was still trading under the former terms with EU countries until 2021. Brexit was thus not effective in terms of trade until 1 January 2021. Comparing earnings on trade between 2020 and 2021, we can see that earnings on re-exports declined. Whereas value added by re-exports to the UK still accounted for 11.6% of the total in 2020, it had dropped to 7.9% in 2021. Not only did the share of re-export earnings in total export earnings to the UK decline, the absolute value also decreased by about 30%. Earnings from re-exports to all countries, however, grew by 14% between 2020 and 2021, as a result of which the figures for the UK show a starkly contrasting result. Post-Brexit, the Netherlands appears less attractive as a logistics hub for goods coming from elsewhere and going to the UK. An explanation can be seen in the fact that trade tariffs may have to be paid twice if the goods do not have a European origin: it is more advantageous to ship the goods directly to the UK (CBS, 2022c).

... yet exports of domestic products and services generated relatively high earnings

At the same time, the earnings from exports of domestic products to the UK rose by over 18% in 2021 compared to 2020, and the service export earnings (travel excepted[3]) rose by almost 15%. That rise was thus higher than the growth of earnings from these two flows in total Dutch exports. As a consequence, Dutch enterprises generated less earnings from re-exports to the UK post-Brexit, but did generate relatively high earnings from service exports and domestic exports.

Earnings from exports to China stemming mainly from domestic products

Destinations where service export earnings are highest are those having major service-based economies: the UK, the US, Switzerland and Ireland. In 2021, the UK, the US, Switzerland and Ireland were thus important destinations for Dutch service exports. These are particularly well represented in the exports of financial services, telecommunication and computer services and business services. Moreover, the US and Switzerland in particular are also somewhat further away from the Netherlands, as a result of which we do not export or re-export many goods to them.

Finally, China is the odd one out in the top 10 destinations for exports, representing a share of more than 74% for the earnings from domestic goods. Especially high-quality Dutch products are exported to China, while a decent value of re-exports or services also go to other countries. Most of the value added by domestic exports to China was created by the food industry, the chemical industry and enterprises making machinery and equipment.

Major contribution of re-exports to GDP growth in 2021, contribution of services limited

Exports have a major impact on the Dutch economy. In 2020, when the Dutch economy contracted by 3.8%, exports of goods and services contributed 2.2 percentage points to the contraction.[4]

In 2021, the Dutch economy grew by 4.9%, of which 2.3 percentage points were attributable to exports of goods and services (Figure 6.2.7). Among these exports, domestic products contributed 1.1 percentage points to economic growth, re-exports contributed 0.5 percentage points and service exports contributed 0.6 percentage points. Considering the low earnings from re-exports per euro of exports, the contribution of re-exports in 2021 was remarkably substantial. Although the earnings from these types of exports are relatively low, at 14.2% they rose more sharply in 2021 compared to 2020 than the earnings from domestic exports (+13.9%) and service exports (+5.9%).

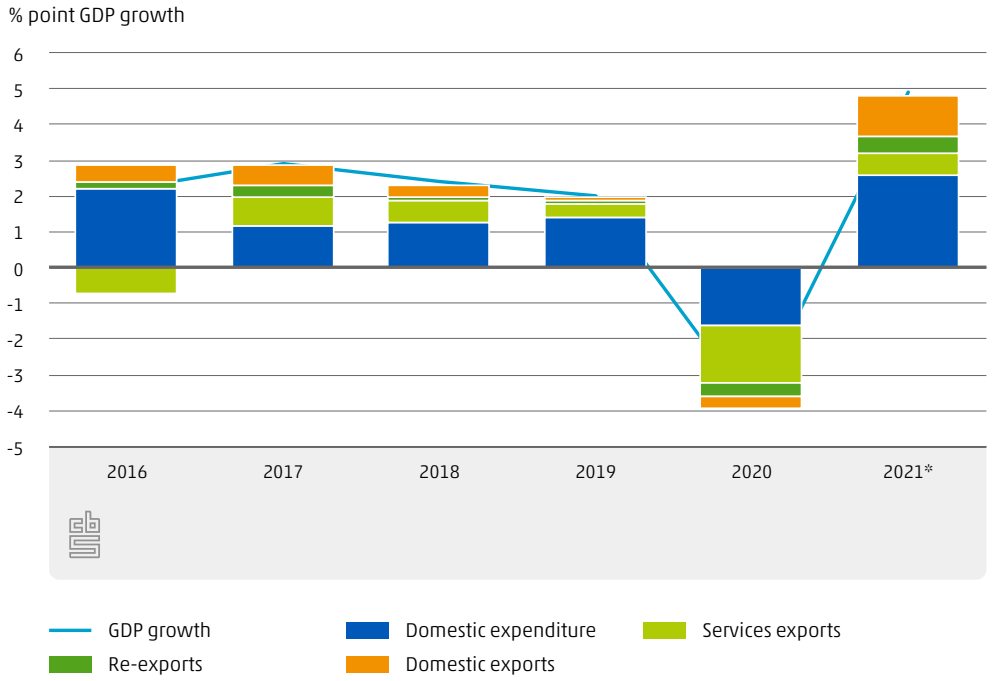
3) Given that travel plummeted in the period of the coronavirus pandemic, the comparison between 2020 and 2021 does give a distorted view of this type of service. By excluding travel, we can distil more clearly from the figures how trade has changed after Brexit. Travel is included in the remainder of the chapter.

4) Figures based on the method of Kranendonk and Verbruggen (2008), which attempt to provide a more accurate overview of the contribution to growth by type of exports, by taking imports into account that are allocated to all final expenditure categories. This reduces the underestimate of the contribution of exports to GDP as is the case with the internationally agreed method for compiling National Accounts.

Whereas GDP contraction in 2020 was also due to a fair share of the contraction in service exports, exports of services account for only a small share of GDP growth in 2021. This again suggests limited recovery in service exports in 2021. However, this was not only the case in the Netherlands. UNCTAD already reported that global goods exports recovered relatively quickly from the pandemic and that service trade was still lagging in 2021, partly due to travel and transport services (UNCTAD, 2021).

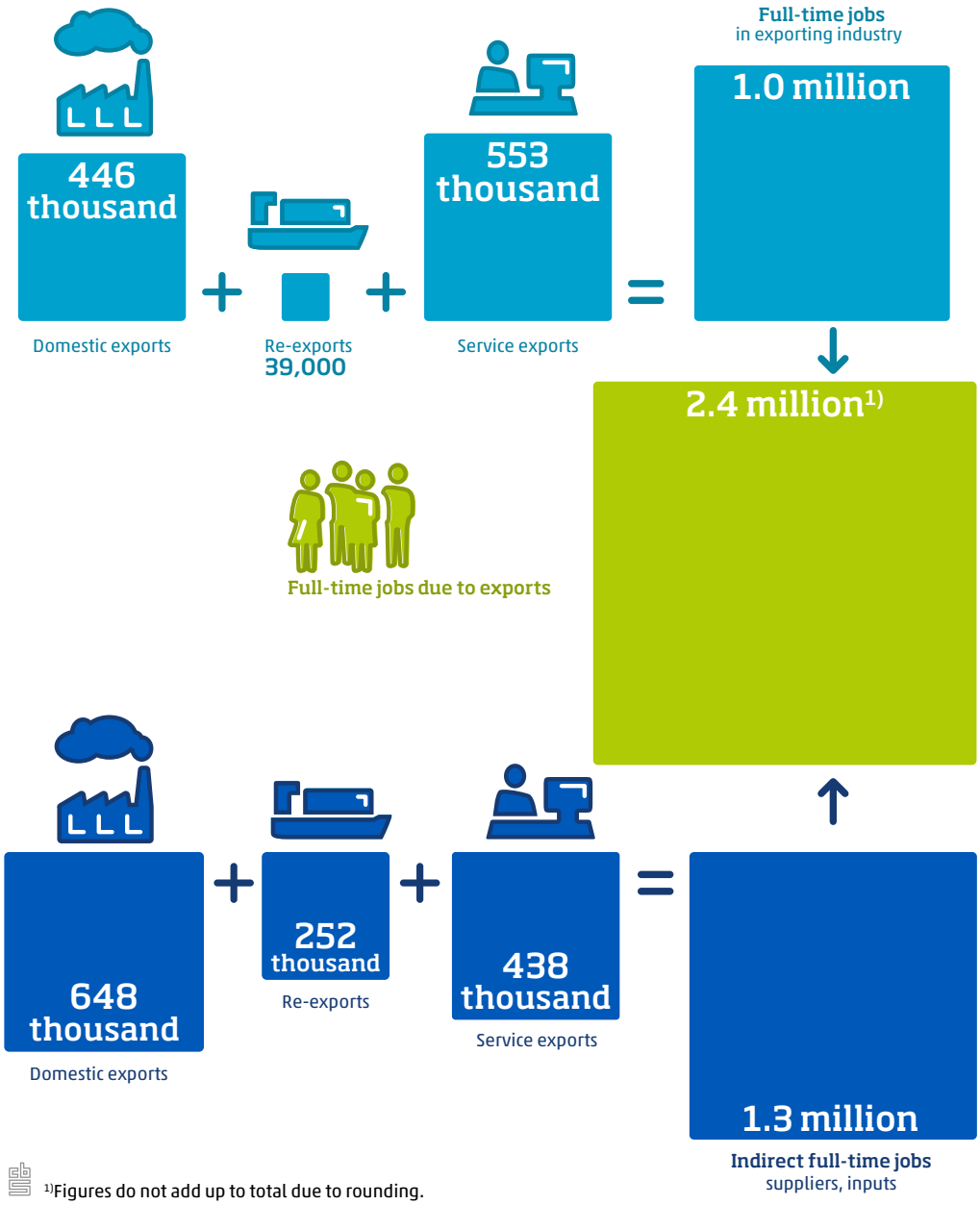
These data reiterate the importance of exports to the Dutch economy and show that changes in exports can have a significant impact on a country's economic growth or contraction.

6.2.7 Contribution of exports to economic growth



6.3 Export-induced employment

6.3.1 Export-induced employment (FTE), 2021*



1)Figures do not add up to total due to rounding.

The previous section showed that almost one-third of Dutch GDP is earned from exports of goods and services. In addition to value added, a key export consequence and measure of economic development is employment. This section examines the extent to which industries profit from exports in terms of employment, and which types of professions are linked to this.

In terms of employment linked to exports, consider, for example, producers of CNC (Computer Numerical Control) milling machines that are being exported. The enterprise employs installation mechanics, whose jobs are directly owed to exports. However, there are other jobs that are indirectly related to these exports: those of the IT workers who write the software used by the machine manufacturer, those of accountants at the accounting firm the manufacturer hires, and employees of enterprises that supply machinery parts.

In 2021, almost 2.4 million full-time jobs (FTE) in the Netherlands could be linked to exports; over 1 million direct jobs and over 1.3 million indirect jobs (Figure 6.3.1). That amounts to about 30.4% of total employment (FTE) in the Netherlands. Domestic exports account for 14.0% of total employment, re-exports for 3.7% and service exports contributed 12.7%. Re-exports generally do not involve in-house production processes, meaning that the employment created by this type of exports will mostly be in the wholesale trade and transport sectors.

2.4 million full-time jobs linked to the export of goods and services in 2021

Comparing the value added generated by Dutch exports (32.6% of GDP), we see that exports are relatively efficient: with 30.4% of total employment, 32.6% of GDP was generated by exports in 2021. Domestic exports top the list, accounting for 14% employment and more than 16% of the total value added. Re-exports also performed well with 3.7% and 4.2%, respectively. Only the exports of services showed the reverse: they needed 12.7% employment to generate 12.4% of GDP. The observation that exports require relatively few employees to add value may be related to the finding that exporting enterprises are on average more productive than those operating only in the domestic market (Bernard et al., 1995; Wagner, 2012). Higher productivity means exporters need fewer employees for their earnings than purely domestically-oriented enterprises.

Service exports created less jobs in 2021 than in 2019

Figure 6.3.2 shows the number of jobs linked to exports in 2021, and how this differs from 2019. In 2021, domestic exports created the most jobs, compared to service exports in 2019. Moreover, exports of domestic products are the only type of exports in which there has been an increase in employment: the rise in the number of jobs related to domestic exports was 2.5% over 2019. The number of FTEs attributable to re-exports and attributable to the exports of services fell by 3.2% and 7.9%, respectively. The biggest fall in employment due to exports of services occurred in enterprises engaged in staffing and secondment and in computer services.

Domestic exports mostly generate indirect jobs. Bohn et al. (2022) describe how 'boxed services' are increasingly starting to become part of Dutch exports. Indeed, a growing share of domestic products can no longer simply be called goods, but instead must be seen as a complex bundle of interactions between goods and services. This is increasingly creating jobs in upstream industries, which contribute to exports of finished products but do not export them themselves.

6.3.2 Employment linked to exports

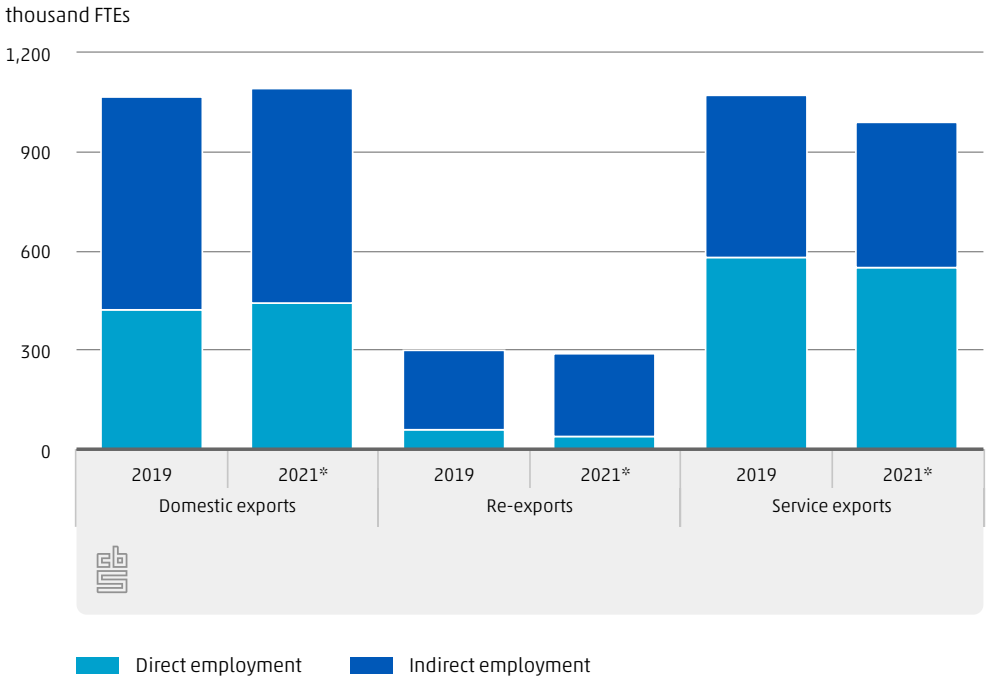
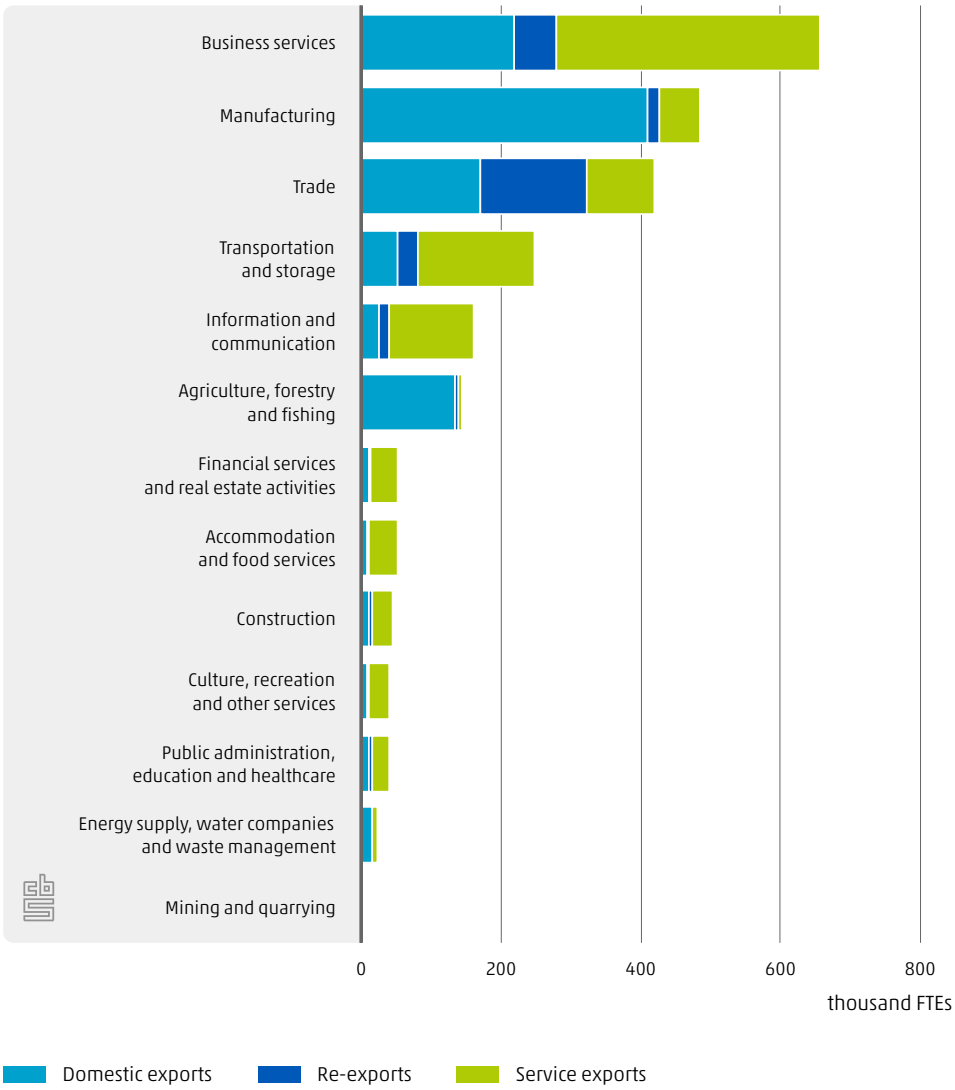


Figure 6.3.3 provides a breakdown of export-induced employment by industry. In absolute values, most export-generated jobs appear to be in business services enterprises, especially thanks to service exports. When it comes to this industry, there are also many indirect jobs involved in exports: many business services use other exporters in their production and operations. Examples include legal advice, accountants, administration, marketing or tax consultancy. The trade industry also creates a relatively large amount of indirect employment through exports, with all types of exports involved. Manufacturing enterprises, too, have much export-induced employment, especially with regard to domestic exports. Mainly direct employment thus applies to this industry.

6.3.3 Export-induced employment by sector, 2021*

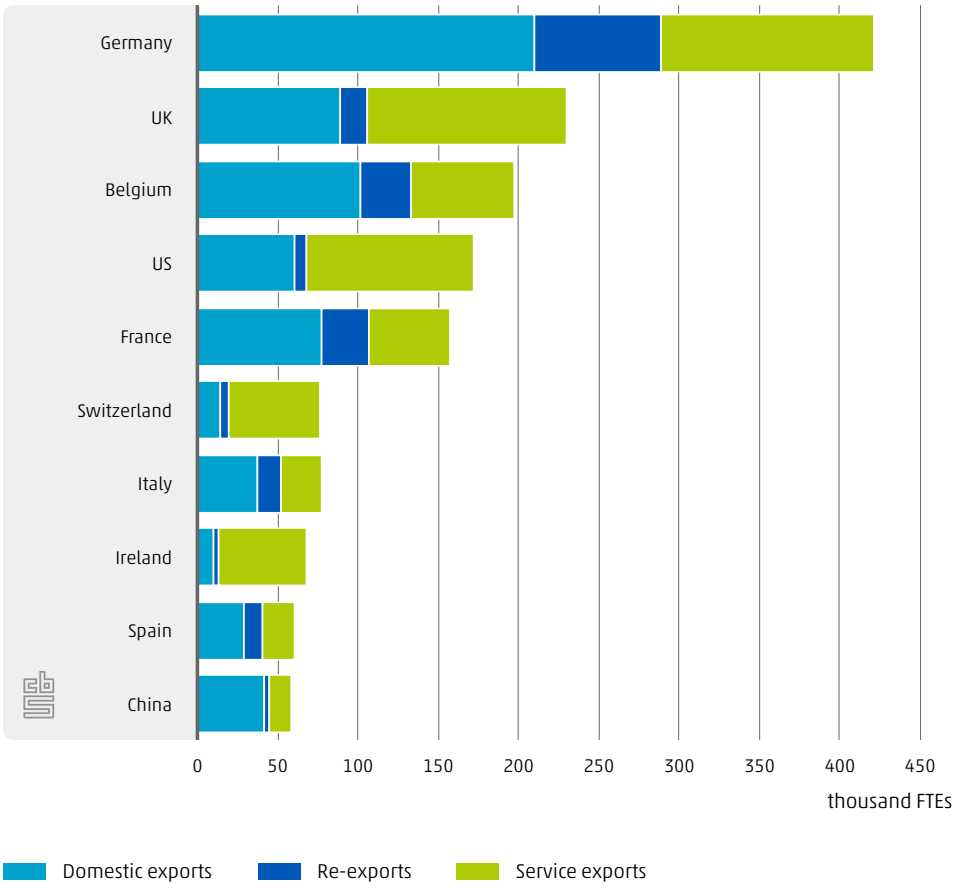


Fewer jobs in re-exports and service exports to the UK

Just as the Netherlands generates most earnings from exports to Germany, exports to our eastern neighbours also generated most employment in 2021. Figure 6.3.4 shows that nearly 422,000 FTE are directly or indirectly linked to exports to Germany, with domestic exports providing the most jobs at 210,000 FTE. Otherwise, the pattern is largely the same as for earnings: employment created through service exports is relatively high among exports to the US, the UK, Ireland and Switzerland; employment created through re-exports is highest in absolute figures among nearby countries (Germany, France and Belgium) and, finally, domestic exports generate relatively the most jobs among the countries where goods exports are most important (Germany, Belgium, France, Italy and China). The top 10 export partners, shown in Figure 6.3.4, account for 65% of the total employment attributable to exports in the Netherlands.

Despite total employment associated with exports declining, the number of jobs related to exports did not decline between 2019 and 2021 for all individual countries in Figure 6.3.4. Germany, the UK, Italy, Spain and China showed a slight contraction. Employment created through exports to the US, Switzerland and Ireland was in fact higher in 2021 than in 2019. Among these countries, it was particularly service exports that generated more jobs, though in contrast, it was not travel that accounted for the overall decline in employment due to service exports in Figure 6.3.2.

6.3.4 Top 10 countries with export-induced employment, 2021*



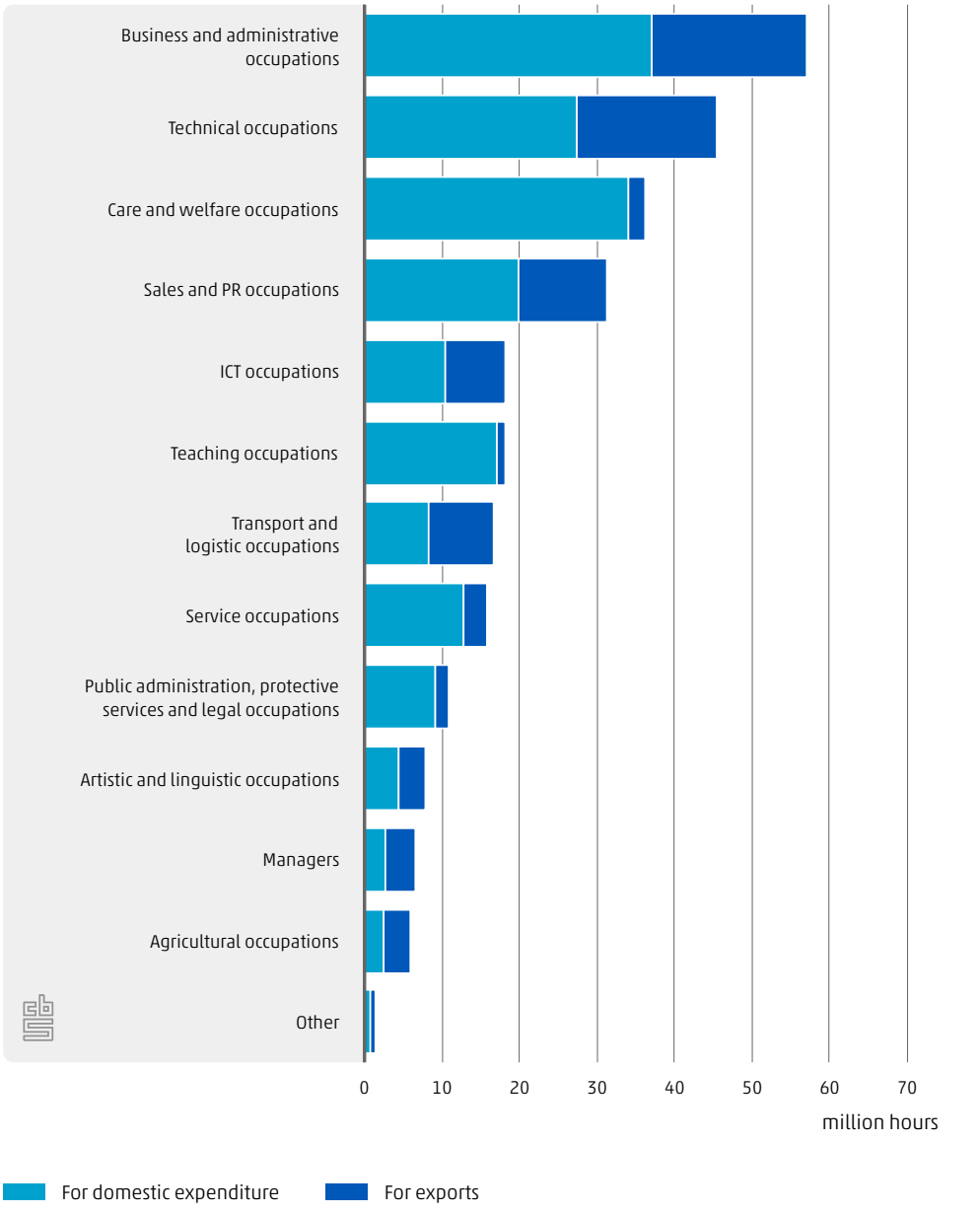
Occupations and their allocation of time for exports and domestic expenditure

Most hours per week, approximately 57 million, or one-fifth of all hours worked, are worked in business and administrative occupations. This occupational class also demonstrates significant involvement in exports, with about 20 million hours a week spent on activities related to exporting goods and services. See Figure 6.3.5 for a breakdown by occupation type. These occupations will often be linked to business services, which support high volumes of exports, especially indirectly. Technical occupations represent 16% of all hours worked and account for one-fifth of all hours worked for exports. As the industry creating the most value added by exports, manufacturing holds most of these occupations.

Agricultural occupations and transport-related occupations in particular depend heavily on exports. Approximately 58% of the hours worked per week in agricultural occupations are spent on activities to enable exports. These hours are worked for both exports by the agricultural sector itself and for exports by other sectors that use agricultural intermediate goods for their own production. Transport-related occupations work about half the time for exports. Examples include freight forwarders, who are responsible for the organisation and coordination of international transport and logistics activities, and lorry drivers, who transport the goods.

Conversely, educational and care sector occupations and occupations in the public administration are much less dependent on exports. These occupations are less directly related to international trade and have a smaller impact on exports of goods and services abroad.

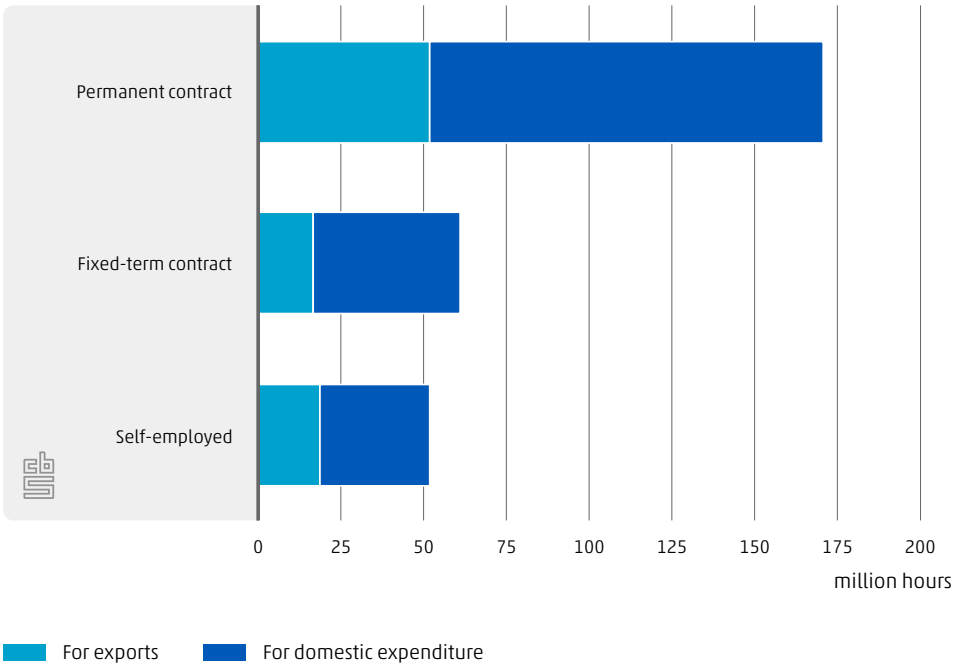
6.3.5 Hours worked by the Dutch labour force for domestic expenditure and exports, by occupation, 2021*



37% of the hours worked by self-employed people are for exports

Figure 6.3.6 compares the hours worked for domestic and foreign markets in 2021 by type of contract. This shows that self-employed people spend relatively the most time working for exports: 37% of the hours worked are related to exports. This is because self-employed people fairly often work in industries that are (directly or indirectly) dependent on exports. Most hours per week are worked by people on permanent contracts, where three in ten of the hours worked were for exports in 2021. In the case of people on fixed-term contracts, the share of hours worked for exports is somewhat smaller, at 28%.

6.3.6 Type of contract linked to exports, 2021*



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7 Use of imports in the Dutch economy

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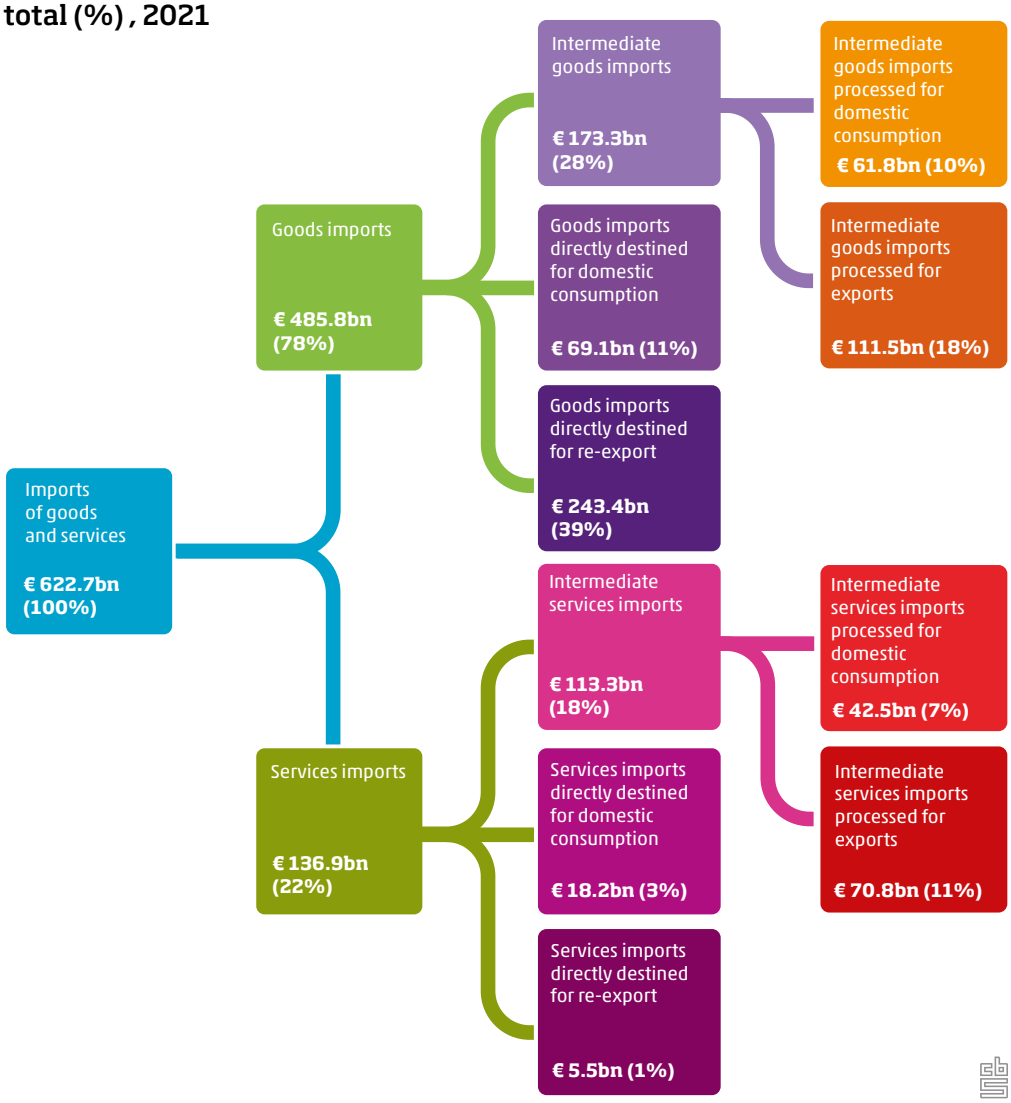
Destinations of goods and services imports, in bn euros and share in total (%) , 2021



By operating in global value chains, the Netherlands is strongly connected to foreign countries. The Netherlands usually plays an important role as a link in global trade, and especially in intra-regional trade within the single market. This chapter looks at the origin and composition of Dutch import flows in 2021. What happens to imports of goods and services in the Netherlands? Are they used within Dutch production processes or do they leave our country again without further processing? Dutch firms typically import many goods and services that are (more efficiently) produced abroad or they cannot produce themselves. A significant proportion of these goods and services appear to be essential for (competitive) exports. Finally, how large is the footprint of all Dutch imports and in which continent is most of this footprint generated?

7.1 Key findings

- In 2021, the total import value of goods and services amounted to €622.7bn, of which €485.8bn was related to goods and €136.9bn to services. This was 5.3% higher than in pre-pandemic year 2019. Imports of goods recovered strongly, while imports of services fell further.
- The Netherlands play an important role in European intra-regional trade. A large part of imports that are processed in exports (€38.5bn, representing 22.5% of total intermediate imports) came from within the EU-27 and went to the same or another EU-27 country. Much of the trade still takes place within the EU, but noticeably less than before Brexit.

Distribution of goods imports

- About half of goods imports (€243.4bn) in 2021 were destined for re-exports, and this share has been increasing in recent years. Goods imports directly for domestic expenditure had a value of €69.1bn in 2021, 1.6% more than in 2019. Intermediate goods imports amounted to €173.3bn in 2021: 36% of this was further processed by Dutch enterprises into goods or services that are sold on the domestic market and 64% ends up abroad after processing in the Netherlands. Intermediate goods imports are 12% higher than their pre-pandemic level in 2019.
- In 2021, electrical appliances were the most important category of goods imported for the purpose of re-exports. Crude oil and petroleum products were the largest category of intermediate goods imports: 84% were further processed into exported goods or services. Imports of goods for domestic expenditure were dominated by vehicles and computers.
- Imported goods for the purpose of re-exports in 2021 mainly came from Germany and China. Germany and Belgium were the largest import partners for intermediate goods imports and imports for domestic expenditure.

Distribution of service imports

- Nearly 4% of services imports (€5.5bn) in 2021 was destined for re-exports. Services imports directly destined for domestic expenditure had a value of €18.2bn, 32.1% less than in 2019. Intermediate services imports amounted to €113.3bn in 2021. 38% of this was further processed by Dutch enterprises into goods or services that are sold on the domestic market and 62% ends up abroad after processing in the Netherlands. Intermediate services imports are 8% below the pre-pandemic (2019) level.
- Business services was the largest category of intermediate services imports, with 61% further processed into exported goods or services. Services imports directly destined for domestic expenditure amounted to €4.7bn in ICT services and €4.3bn in business services.
- For intermediary services imports, the US and the UK were the most important import partners. Services intended for domestic expenditure mainly came from Germany and the US.

Unravelling export-related imports

- In 2021, a total of €33.1bn in imports of raw materials and mineral fuels and €16.9bn in industrial products were needed to realise exports.
- There is a high degree of dependence on the EU-27 for imports incorporated into exports where it concerns industrial products (69% from EU-27), chemical products (66%) and machinery and transport equipment (62%).
- In 2021, a total of €22.6bn in imports of business services and €11.4bn in transport services were needed to realise exports.
- Half of the imported services came from the EU-27 in 2021, an increase compared to 2020. The increased EU importance is mainly due to the sharp contraction of imported royalties from the US in 2021.

Footprint of Dutch imports

- The total GHG footprint of imports in 2021 was 441 megatonnes of CO_2 equivalents, slightly more than in 2019. The footprint of goods imports is almost fifteen times larger than that of services imports.
- Almost half of the import footprint is related to re-exports; services imports play a very minor role. Intermediate imports constitute 45% of the total greenhouse gas footprint of imports. The remaining 10% of the greenhouse gas footprint of imports is accounted for by imports for domestic expenditure.
- With 189 megatonnes of CO_2 equivalents (43% of the total), most of the import footprint is generated in Europe. Asia and the Americas follow with 30% and 15% respectively. Almost 60% of the total import value comes from Europe, which is considerably more than the share of the greenhouse gas footprint that is generated in Europe. The reverse is true for imports from Asia and Africa.
- Africa's import footprint mostly consists of methane, whereas this is CO_2 for Asia, Europe and the Americas.
- Energy supply, agriculture, mining and quarrying were the foreign industries that contributed the most to the Dutch import footprint in 2021.

Outline

In section 7.2, we describe the destination of Dutch imports of goods and services in 2021. Which imports are directly intended to be consumed in the Netherlands and which part leaves the country virtually unprocessed as re-exports? Which imports are used within Dutch production processes? Section 7.3 provides more details on the composition and origin of goods imports, while section 7.4 does the same for services imports. The importance of imports for Dutch exports is discussed in section 7.5. Section 7.6 further discusses the origin and composition of import flows processed for exports. Imports associated with exports are further unravelled in section 7.7. Section 7.8 finally examines the greenhouse gas footprint of Dutch imports in 2021. Does the footprint of imports differ between the various destinations of imports? Where has the GHG footprint of Dutch imports been generated? For more information on the data sources and methods used, we refer to section 7.9.

7.2 How imports are used

This section gives a description of the destination of goods and services imported into the Netherlands in 2021. What exactly happens with the goods that enter the Netherlands? Which part of the imported goods is directly intended to be consumed or invested? And which part of Dutch imports consists of raw materials, semi-finished products and support services used in production processes of Dutch enterprises? Also, what happens with these processed imports of goods and services? Are they sold in the domestic market or exported abroad? And which types of imported goods leave the country virtually unprocessed as re-exports? The year 2021 was characterised by the partial recovery from the coronavirus crisis of 2020. For a meaningful comparison, the figures are therefore compared not only with the COVID year 2020, but also with 2019, the last year before the crisis.

Goods imports recovered strongly, while services imports fell further

The import value of goods and services amounted to €622.7 billion in 2021 (Table 7.2.3), which was €79.5 billion or 14.6% higher than in the pandemic year 2020 (Table 7.2.2). Adjusted for price inflation, the imported volume of goods and services grew by 4.0% in 2021. Compared to 2019, the import value of goods and services jumped €31.3 billion, which is an increase of 5.3% (Table 7.2.1). Relative to 2019, the volume of imports of goods and services was still down by 0.9% in 2021. In 2021, €485.8 billion of the total import value of €622.7 billion related to the imports of goods. The value of goods imports rose by €88.3 billion, or 22.2%, compared to 2020. Compared to the pre-pandemic year 2019, the increase of the value of goods imports amounted to €55.6 billion, or, put differently, 12.9%. Services imports had a value of €136.9 billion in 2021, which was €8.8 billion less than in 2020 and €24.3 billion less than in 2019. The decline in services imports compared to 2020 was 6% and compared to 2019, the contraction was 15.1%. In 2017 and 2018 as well, the value of services imports was higher than in 2021.

Share of imports for the purpose of re-exports in total imports continues to rise

Table 7.2.3 and the infographic at the beginning of this chapter show that a considerable proportion of goods imports leaves the country again in a virtually unprocessed form as re-exports. About half of goods imports were destined for re-exports, and this share has been increasing in recent years. An example of imports for the purpose of re-exports is soybeans imported from Brazil by a Dutch wholesaler and then exported to Germany without any processing taking place (CBS, 2022a). Most of the goods imports from Asia are destined for re-exports to the European hinterland (Franssen et al., 2020). Representing 1% of total imports of goods and services, services imports for the purpose of re-exports are significantly smaller than goods imports for the purpose of re-exports (39% share). Re-exports of services consist mostly of royalty and licence payments to Special Purpose Entities (SPEs) registered in the Netherlands that manage intellectual property rights and transfer the payments they collect directly to parent companies abroad (Mellens, 2011; CBS, 2016).

7.2.1 Destinations of goods and services imports, 2019

	Imports for domestic consumption			Imports directly destined for foreign market (re-exports)	Total
	imports for intermediate consumption		imports directly destined for domestic consumption		
	domestic consumption	exports			
	€bn				
Goods imports	54.1	101.0	68.0	207.1	430.2
Services imports	41.9	81.4	26.8	11.1	161.2
Total	95.9	182.3	94.8	218.2	591.4

7.2.2 Destinations of goods and services imports, 2020

	Imports for domestic consumption			Imports directly destined for foreign market (re-exports)	Total
	imports for intermediate consumption		imports directly destined for domestic consumption		
	domestic consumption	exports			
	€bn				
Goods imports	50.8	86.9	62.9	196.8	397.5
Services imports	42.2	78.7	16.2	8.7	145.7
Total	92.9	165.6	79.2	205.5	543.2

7.2.3 Destinations of goods and services imports, 2021*

	Imports for domestic consumption			Imports directly destined for foreign market (re-exports)	Total
	imports for intermediate consumption		imports directly destined for domestic consumption		
	domestic consumption	exports			
	€bn				
Goods imports	61.8	111.5	69.1	243.4	485.8
Services imports	42.5	70.8	18.2	5.5	136.9
Total	104.3	182.3	87.2	248.9	622.7

Services imports intended for direct consumption significantly lower than pre-COVID-19

In addition to imports for the purpose of re-exports, the import flow of goods and services intended for direct domestic expenditure is also not subject to any significant processing by Dutch enterprises. In 2021, €87.2 billion worth of goods and services were imported that were directly consumed by Dutch households, government organisations and enterprises in the form of investments in fixed assets. Direct imports of goods intended for domestic expenditure had a value of €69.1 billion in 2021. This import flow rose by €6.2 billion, or 9.9%, compared to 2020. The increase relative to 2019 was equal to 1.6%. A bottle of cognac produced and bottled in France is an example of an import intended directly for Dutch households. A piece of agricultural machinery imported from the United States by a Dutch agribusiness, however, also falls into the category of imports intended directly for domestic expenditure (investments in fixed assets). Imports of services intended for direct domestic expenditure amounted to €18.2 billion in 2021, which is still €8.6 billion less than in 2019. Expenditure by Dutch tourists abroad makes up the majority of imports in this category.

Intermediate import value back to 2019 levels

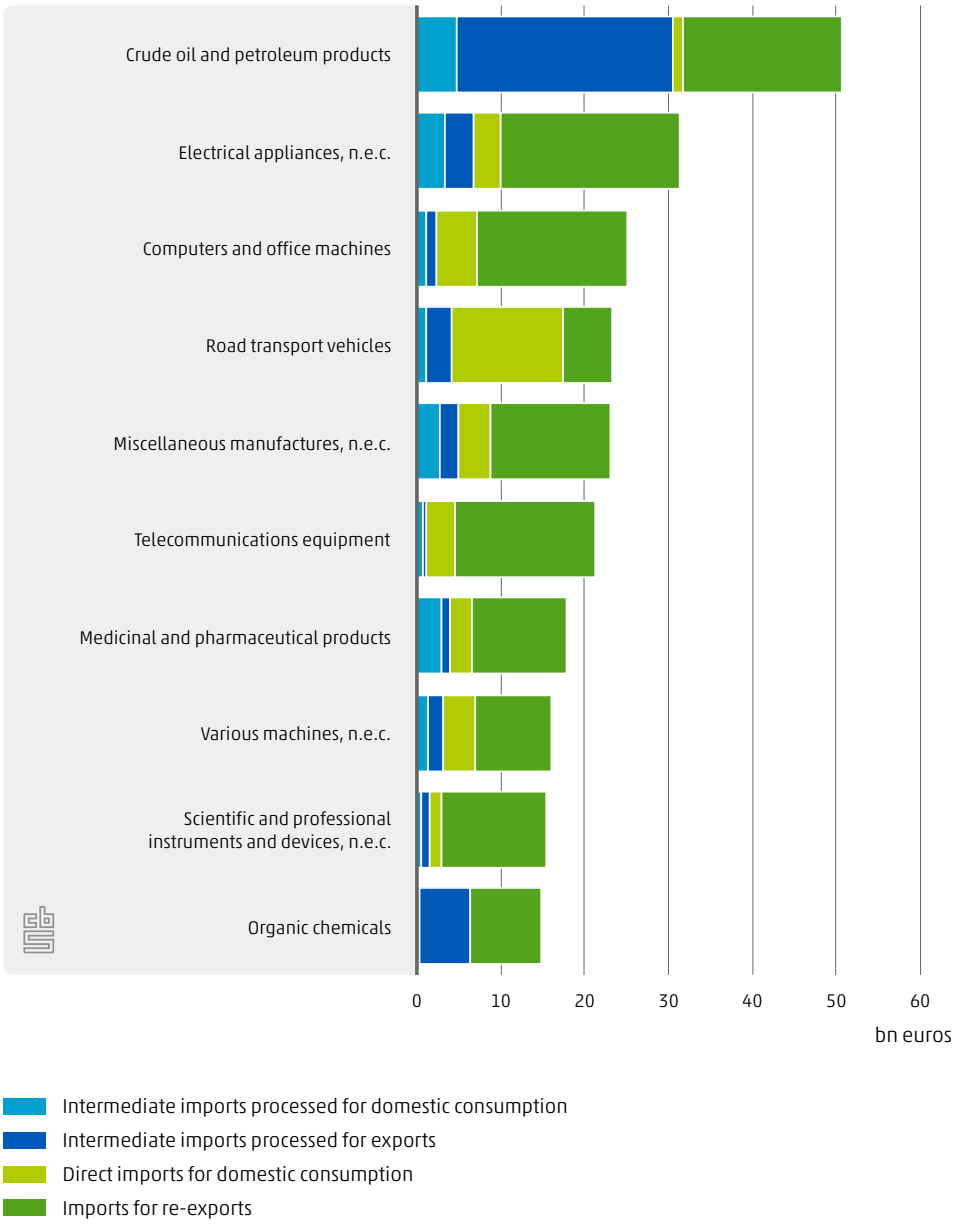
Approximately 46% of imported goods and services were intended for further processing by Dutch enterprises. These imports are referred to as intermediate imports and amounted to €286.6 billion in 2021. Intermediate imports can be subdivided into intermediate imports of goods and intermediate imports of services (Table 7.2.3). Intermediate imports are further processed by Dutch enterprises into goods or services that are sold on the domestic market or exported. In 2021, 63.6% of the intermediate imports were processed into goods or services that were sold abroad. Imports intended for processing in exports grew by €16.7 billion, or 10.1%, in 2021 and was virtually the same in 2021 as in 2019. Examples of goods imports incorporated in Dutch exports are semiconductors and microchips imported from Malaysia. Sections 7.5–7.7 further explore these import flows that are incorporated in exports.

Intermediate imports incorporated in goods and services sold on the domestic market amounted to €104.3 billion, of which €61.8 billion in goods and €42.5 billion in services. Coal from Australia is an example of an intermediate import destined partly for the domestic market. Energy companies use this coal to generate electricity, which is then used in the Dutch food products industry to manufacture food for Dutch households. Dutch enterprises in wholesale trade that hire foreign transport companies for land transportation are an example of imported services that are incorporated in services for the domestic market.

7.3 Composition and origin of goods imports

Figure 7.3.1 shows that crude oil and petroleum products again proved to be the most important import category in 2021. Compared to 2020, the imports of these types of goods increased by €18.1 billion, or 55.4%. This sharp rise was caused by an increase in oil prices due to the recovery in fuel demand. Imported crude oil and petroleum products are intended principally for re-exports or further processing in Dutch exports. Crude oil and petroleum products also have the largest import value in the flow of goods imports for further processing for domestic expenditure. The second largest category is electrical appliances, with an import value of €31.4 billion. A total of 68.2% were intended for re-exports. Compared to 2020, imports of electrical appliances grew by 17.6%. Computers and office machines are third in the ranking of goods imports. Another striking development is the increase of imports of organic chemicals by €5.3 billion or 54.1%. Imports of iron and steel also increased by more than 50%. Imported iron and steel is mainly further processed by Dutch enterprises.

7.3.1 Destination of goods imports by goods category, top 10, 2021*



Electrical appliances most important category of goods imported for re-exports

Imports for the purpose of re-exports, amounting to €243.4 billion, represented the main import flow entering the Netherlands in 2021 (Table 7.2.3). The largest product group in this category consisted of electrical appliances. Imports for the purpose of re-exports in this product group amounted to €21.4 billion, an increase of €3.3 billion compared to 2020. The second largest product group imported for the purpose of re-exports were crude oil and petroleum products. Office machines come third. Natural gas imported for the purpose of re-exports increased by €3.8 billion in 2021, more than tripling compared to 2020.

Import value destined for intermediate consumption exceeding pre-crisis levels

Intermediate services imports represented a value of €173.3 billion in 2021, which was €35.6 billion higher than in 2020. Also, goods imports for intermediate consumption were over €18 billion higher than in 2019. Imports of crude oil and petroleum products for intermediate consumption was by far the largest category in intermediate goods imports at €30.7 billion, of which imports to the value of €25.9 billion were further incorporated in exported goods and services. Examples of intermediate imports of petroleum and petroleum products are crude oil that is refined into petroleum products, but also serves as a raw material for the manufacturing of plastics. Fuels such as marine diesel oil and jet fuel are also covered by the intermediate imports of this category. Imports of chemical products for intermediate consumption amounted to €18.9 billion[1)], 70.4% of which were used in production processes aimed at exports. €6.9 billion worth of iron and steel were imported for intermediate consumption, an increase of 60% compared to 2020. This increase can be attributed to the sharp rise in iron and steel prices.

Imports for direct consumption in the Netherlands dominated by vehicles and computers

Imports intended for direct domestic expenditure in 2021, amounting to €69.1 billion, were significantly smaller than the two import flows discussed above. Among these imports, the largest product category comprised road vehicles (including spare parts and accessories), with an import value of €13.4 billion. This import flow accounted for 57.3% of total imports of road vehicles, which means that over half of the road vehicles, such as passenger cars and motorcycles, were thus intended directly for Dutch consumers or business operators.
In addition to road vehicles, more than half of the imports of other transport equipment (including aircraft, ships and boats) and furniture and accessories are intended for direct domestic expenditure.

Imports of computers and office machines for direct domestic consumption amounted to €4.7 billion, which is an increase of €0.4 billion. Other product categories with an import value of at least €3 billion intended for direct domestic consumption were miscellaneous manufactures, various machinery, telecommunications equipment, furniture and clothing.

Table 7.3.2 shows what ultimately happens to goods imports from particular countries. With an amount of €82.5 billion, Germany is the most important trading partner for goods imports, followed by China and Belgium. The EU internal market accounted for 46.2% of total goods imports into the Netherlands. Imports from EU countries intended for further processing by Dutch enterprises amounted to €78.1 billion, accounting for 45.0% of total intermediate goods imports. Although there was a slight decrease in the EU-27's share in 2021 compared to 2020, there seems to be an upward trend in the EU-27's share of Dutch intermediate goods imports, especially as it exceeds 2019 by 4.5 percentage points in 2021.

1) Chemical products comprise the sum of SITC 2 categories 51, 52, 53, 54, 55, 56, 57, 58 and 59.

7.3.2 Destinations of goods imports by country (groups) of origin, 2021*

	Imports for domestic consumption				
	imports for intermediate consumption		imports directly destined for domestic consumption	**Imports directly destined for foreign market (re-exports)**	**Total**
	domestic consumption	exports			
Countries and groups of countries	**€bn**				
Germany	13.2	17.7	15.2	36.4	82.5
Belgium	7.6	11.5	7.7	19.9	46.7
Other EU-27	12.5	15.6	15.5	51.7	95.2
United Kingdom	2.9	6.4	2.4	12.3	24.0
Ukraine	0.4	0.9	0.0	0.5	1.8
Russia	2.2	7.5	0.6	4.6	14.8
Other Europe	3.0	5.1	2.4	11.0	21.5
United States	3.1	7.1	3.3	21.2	34.7
Other America	1.7	4.2	1.3	11.1	18.3
China	4.4	4.0	7.4	32.7	48.6
Other Asia	4.4	8.5	6.9	37.7	57.5
Rest of the world	6.4	23.1	6.2	4.5	40.1

Fluctuating value of goods imports from the UK

The import value from the United Kingdom amounted to €24 billion in 2021, more than half of which consisted of imports for the purpose of re-exports. These re-exports are mainly destined for the European hinterland (Franssen et al., 2020). Imports increased by 29.7% compared to COVID year 2020. As such, imports from the UK in 2021 were also higher than in 2019, when they amounted to €22.5 billion (Table 7.3.3). The value of goods imports from the UK has been fluctuating since 2015. The run-up to and the possible exit of the UK from the European Union and the coronavirus crisis and the subsequent recovery play a key role in this.

7.3.3 Destinations of goods imports from the United Kingdom

	Imports for domestic consumption				
	imports for intermediate consumption		imports directly destined for domestic consumption	**Imports directly destined for foreign market (re-exports)**	**Total**
	domestic consumption	exports			
Years	**€bn**				
2015	2.1	4.2	2.3	9.1	17.7
2016	2.1	4.6	2.3	9.3	18.4
2017	2.3	5.3	2.6	9.9	20.1
2018	2.8	7.1	2.8	10.6	23.3
2019	2.8	6.0	2.7	11.0	22.5
2020	2.2	4.5	2.4	9.4	18.5
2021*	2.9	6.4	2.4	12.3	24.0

The product category with the steepest increase in 2021 was gas, natural and manufactured (+€1.5 billion or 2.8 times as much), followed by crude oil and petroleum products (+€0.8 billion or 17% increase) and other chemical products (+€0.6 billion or three times as much). The sharpest decline in 2021 was seen in product category medicinal and pharmaceutical products, –€0.5 billion or a 38% fall. The UK's share of total imports for intermediate consumption was 5.4% in 2021. This was 4.9% in 2020, and 5.7% in 2019 (Figure 7.3.4). The UK's share is responsive to oil price fluctuations because of the

relatively large share of petroleum and petroleum products in imports for intermediate consumption from this country.

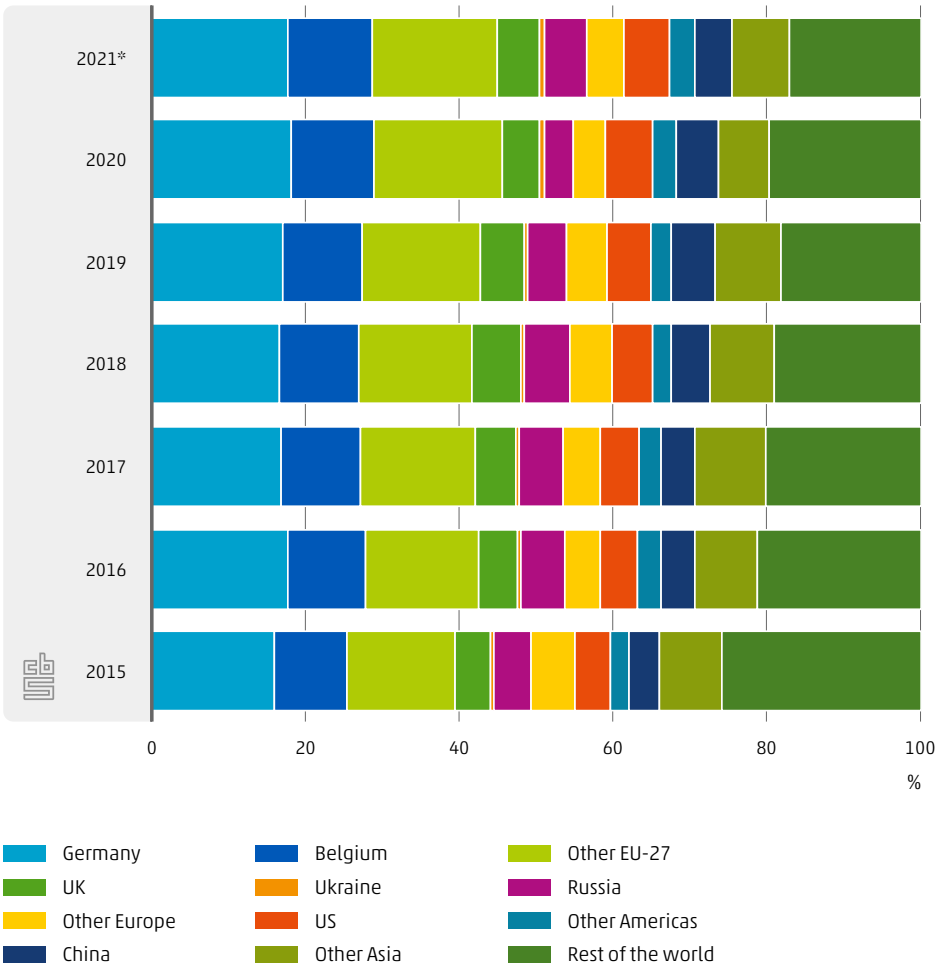
Value of goods imports from Russia responsive to price fluctuations

With regard to Russia, oil price fluctuations have an even greater impact on the import value and share of that country in the total Dutch goods imports. Together with natural gas, petroleum and petroleum products make up the bulk of imports from Russia. Also see Chapter 2 of this publication. In years characterised by high oil prices, Russia also has a relatively large share in Dutch goods imports, while in years marked by low oil prices such as 2020, Russia's share is significantly lower (Figure 7.3.4). Imports intended for intermediate consumption from Russia amounted to €9.7 billion in 2021, against €4.9 in 2020. Goods imports intended for intermediate consumption from the United States amounted to €10.2 billion in 2021. This was €1.8 billion up on 2020, representing a growth of 21.4%. Similarly, petroleum and petroleum product imports play an important role in the US because of price volatility. Imports in this category were €1.1 billion higher than in 2020.

On the other hand, goods imports intended for intermediate consumption originating from Ukraine have been on the rise for years. In 2021, the Netherlands imported €1.3 billion worth of goods intended for intermediate consumption from Ukraine. Ukraine's share in the total goods imports intended for intermediate consumption have increased from 0.4% to 0.7% since 2015. Imports consisted mostly of cereals and cereal preparations and vegetable oils, fats and waxes.

In 2021, the Netherlands imported €48.6 billion worth of goods from China, accounting for 10% of the total. More than two thirds of these goods left the Netherlands again in a virtually unprocessed form as re-exports. After Germany, China was therefore the Netherlands' main import partner for goods trade. Dutch enterprises have started importing relatively more Chinese raw materials and semi-finished products to produce goods and provide services. In 2021, the Netherlands imported €8.4 billion worth of intermediate goods from China. The total value still stood at 7.5 billion euros in 2020.

7.3.4 Shares in total goods imports for intermediate consumption, by country



7.4 Composition and origin of services imports

Business services were again the largest category of services imports in 2021 (Figure 7.4.1). In 2021, the Netherlands imported €48.6 billion worth of business services, representing an increase of €0.9 billion relative to 2020. The bulk of business services (91.1%) were imported by enterprises for further processing. Of this €44.2 billion worth of imported business services for intermediate consumption, €27.2 billion was used to again export goods and services from the Netherlands. Transport services were the second largest category. In 2021, the Netherlands imported €1.7 billion more of these types of services than in 2020, which were intended almost entirely (97.6%) for intermediate consumption. ICT services rank third among the most important categories of imported services. ICT services were imported at an amount of €15.1 billion. A total of 54.0% of the intermediate imports of ICT services were incorporated in exports of goods and services.

7.4.1 Destination of imported services by service category, top 10, 2021*

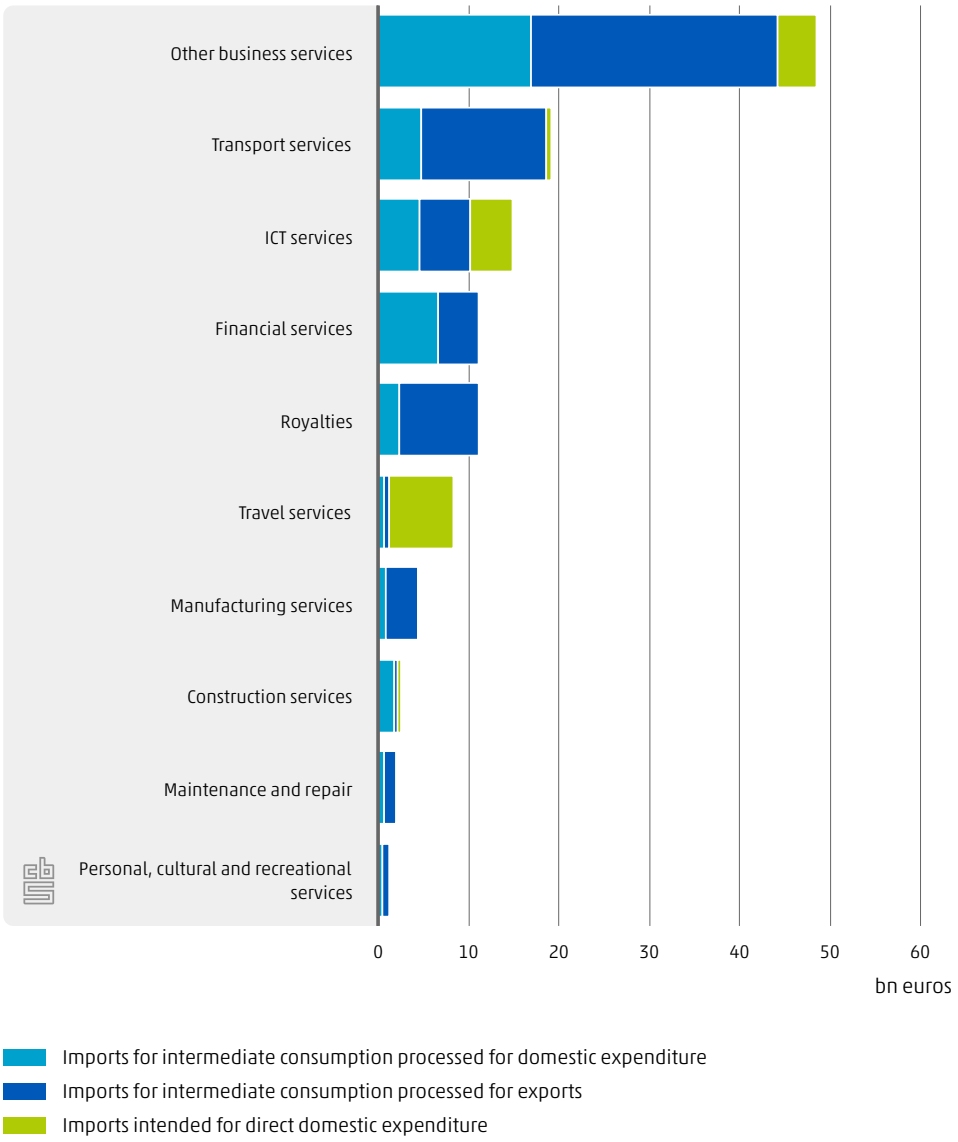


Table 7.4.2 shows from which countries or groups of countries services are imported and how they are used in the Dutch economy. The US was the largest import partner for services in 2021 (€23.5 billion), followed by the UK and Germany. The EU internal market as a whole accounted for €64.1 billion of imported services. Imports of services from the US fell by €4.5 billion in 2021, mainly due to a sharp drop in imports of royalties.

7.4.2 Destinations of services imports by country(group) of origin, 2021*

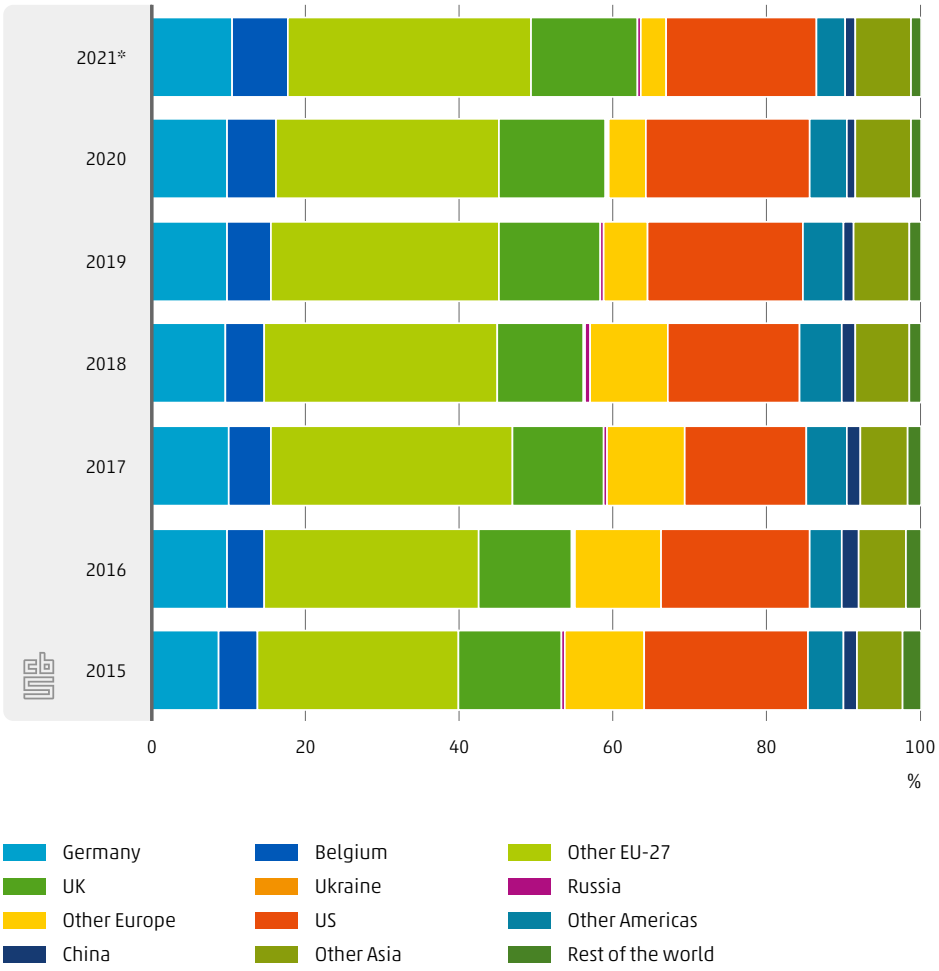
	Imports for domestic consumption			
	imports for intermediate consumption			
	domestic consumption	exports	imports directly destined for domestic consumption	**Total**
Countries and groups of countries	**€bn**			
Germany	4.3	7.2	2.9	14.3
Belgium	3.2	4.7	1.5	9.3
Other EU-27	12.4	21.8	6.4	40.5
United Kingdom	5.8	9.1	1.6	16.5
Ukraine	0.0	0.1	0.0	0.1
Russia	0.2	0.3	0.0	0.5
Other Europe	1.3	2.1	0.7	4.0
United States	8.5	12.7	2.3	23.5
Other America	1.6	2.6	0.3	4.4
China	0.5	0.9	0.3	1.8
Other Asia	3.2	4.5	1.7	9.4
Rest of the world	0.5	0.8	0.4	1.7

EU countries' share of total intermediate services imports growing solidly since 2015

Figure 7.4.3 shows the shares of different countries and groups of countries in the total intermediate services imports from 2015 up to and including 2021. The EU countries' share of total intermediate imports of services was 49.5% and has been growing solidly since 2015: the EU-27 is shown from the left vertical axis to the first light green bar. The growth of 4.2 percentage points between 2020 and 2021 was mainly at the expense of the share of other European countries (–1.8 percentage points), the US (–1.6 percentage points) and other countries in North and South America (–1.0 percentage points). The shares of Russia and China, on the other hand, both increased by 0.2 percentage points in 2021.

When it comes to imports of services from EU countries, business services and transport services dominate with an import value of €21 billion and €13.4 billion respectively. Almost half (48%) of total imports of business services and over 71% of total imports of transport services came from EU countries. When it comes to imports of services from non-EU countries, business services, too, formed the most important category with an import value of €23.2 billion. The UK and the US are the largest suppliers of other business services from non-EU countries. Second to business services, financial services are the most important category in services imports from non-EU countries at €7.7 billion, followed by remuneration for the use of intellectual property at a value of €7.6 billion. The US dominates both categories with approximately half of the imports. The majority of imports of ICT services (55%) also came from non-EU countries, with a prominent role for the US and the UK. 17% of imports of ICT services came from Asian countries.

7.4.3 Shares in total services imports for intermediate consumption, by country



7.5 The importance of imports for Dutch exports

The previous sections have already shown that the Netherlands, which is generally an active participant in global value chains, exports goods and services that in turn require large quantities of goods imports and service imports in their production process. While the coronavirus pandemic severely hampered imports of goods and services in 2020, 2021 showed first signs of recovery. See also CBS, 2021a; 2021b; 2021c. Particularly, goods imports managed to rapidly recover, but also service imports from the EU-27 have grown in 2021 – imports that were partly processed by Dutch enterprises in their production for the foreign market.

Imports incorporated in exports: research questions

Among other things, this section explores both the extent to which there has been a (gradual) recovery from the coronavirus pandemic from a value chain perspective and the characteristics of this recovery. Were more imported goods as well as imported services incorporated in Dutch exports in 2021?

Section 7.6 looks in more detail at the origin and composition of the import flows incorporated in Dutch exports. It examines, for instance, which imports from which countries are incorporated in exports to certain major trading partners. For example, did imports mainly come from the EU-27 in 2021 or did they in fact come from non-EU countries? Has the geographical composition of these imports changed compared to a year earlier?

Section 7.6 further focuses on Brexit's role in imports from the UK incorporated in Dutch exports. It compares the required imports from the UK in 2020, just before Brexit, with those in 2021, after Brexit's formal start. Moreover, for the first time, this section looks at the imports from Africa incorporated in Dutch exports, a continent that has received a lot of consideration in Dutch development cooperation. Finally, in addition to the geographical breakdown in Section 7.6, Section 7.7 adds a product dimension to the analysis of imported products and services incorporated in Dutch exports.

Imports incorporated in exports held a relatively larger proportion of goods in 2021

In 2021, each euro of domestic goods exported required approximately 45 cents of imported goods and services. This 'import content' was 35% in the case of Dutch service exports.

In 2021, goods exports depended heavily on goods imports[2], as was also the case in previous years. Goods made up over 80% of total imports intended for goods exports (Table 7.5.1).[3] A similar pattern can be seen in imports used for services exports: in 2021 the majority (74%) of total imports for services exports consisted of services. Goods imports used as input for both goods exports and services exports increased sharply in the 2020–2021 period, i.e. from €84 billion to €108 billion (+29%), while services imports contracted from €71 billion to €63 billion (–11%). This means that the imports, which are to a large extent incorporated in Dutch exports, include a relatively larger proportion of foreign goods. This can partly be explained by the surge in demand for oil and oil prices. Oil is a major input for many different export products.

The reverse was seen in 2020: the importance of services imports relative to goods imports had actually increased slightly in 2020 compared to 2019. (See Bohn et al., 2022b). Initially, the coronavirus crisis had a huge impact on goods trade, including on imports of intermediate goods. Consider, for example, the shutdown of cargo transport in the early stages of the

2) This section only concerns imports used by enterprises for exports of domestic goods and services; it therefore does not include re-exports.
3) The figures in this chapter were obtained by combining the data from the National Accounts with the International Trade in Goods and International Trade in Services statistics, with the data from the National Accounts taking precedence. Because of differences in definitions and methods, these figures differ from the other data shown on StatLine or in the other chapters of this publication, which are both based on the trade statistics.

coronavirus pandemic and the global container shortage. Services imports may have been more resilient during the pandemic.

At the same time, it appears that the services imports incorporated in exports of both goods and services in 2021 were below pre-pandemic levels. This may seem surprising at first given that the total export value in 2021 was already close to the 2019 figure again. The fact that services imports incorporated in exports were €10 billion less in 2021 than in 2019 may be related to the changed composition of Dutch exports. Expenditures on intellectual property, for example, declined sharply, thereby reflecting restructurings of money and service flows by multinationals due to new tax legislation (Dahlmans et al., 2022; Poulissen et al., 2022). Domestic goods exports were over €20 billion higher in 2021 than in 2019, while services exports actually fell by almost €20 billion. Considering that goods exports mainly require imported goods and services exports mainly use imported services, this naturally leads to less services imports incorporated in these exports. Moreover, the share of services imports in the services exports and goods exports was also about 3 to 4 percentage points lower in 2021.

7.5.1 Composition of Dutch exports, 2019-2021*

			Imports required				
	Total exports	Value added	total	goods		services	
Goods exports	**€ million**				**%**	**€ million**	**%**
2019	232,015	124,716	107,300	83,001	77	24,299	23
2020	216,008	120,787	95,221	71,804	75	23,417	25
2021*	252,211	137,548	114,664	92,985	81	21,678	19
Services exports							
2019	180,790	117,641	63,149	14,680	23	48,469	77
2020	164,212	104,453	59,758	12,109	20	47,650	80
2021*	162,200	105,701	56,500	14,923	26	41,576	74

7.6 International interrelatedness via Dutch imports and exports

Table 7.6.1 illustrates the interrelatedness of the global economy via the Dutch production chain[4)] in 2021. To what extent are imports of goods and services from one country or region incorporated in exports to another country in 2021? For example, Dutch enterprises imported a total of €23.0 billion worth of goods and services from Germany (column 'Total', row 'Germany'), of which about 10% is incorporated in the exports of Dutch enterprises to America (column 'America', row 'Germany'). At the same time, Dutch enterprises used €22.5 billion worth of imports to export goods and services to the Asian continent (column 'Asia', row 'Total'). Of these imports, €11.1 billion came from the EU-27, which is the sum of Belgium, Germany and other EU-27 in column 'Asia', €2.7 billion from the Asian continent and €3.8 billion from America.

4) It should be noted that this chapter only looks at the Dutch/domestic chain. This means that Dutch interrelatedness with various countries relates only to direct imports and exports between the Netherlands and export markets. Of course, the Netherlands may also be connected to other countries through global value chains, such as with China or the US through an imported product from Germany. The CBS source data used do not allow an examination of such indirect dependencies between the Netherlands and other countries through other links in the chain. An analysis of indirect dependencies and global chain analyses requires an analysis with multiregional input-output tables instead of CBS source data.

7.6.1 Imports as input for exports[1], bn euros, 2021

Origin of imports	Destination of exports: EU-27	America	Asia	Elsewhere[2]	Total
EU-27					
Belgium	8.5 (56%) (11%)	1.5 (10%) (9%)	2.1 (14%) (9%)	3.0 (20%) (6%)	15.1 (100%)
Germany	12.2 (53%) (16%)	2.4 (10%) (14%)	4.1 (18%) (18%)	4.4 (19%) (8%)	23.0 (100%)
Other EU-27	17.8 (53%) (23%)	3.9 (12%) (22%)	4.9 (15%) (22%)	6.8 (20%) (13%)	33.4 (100%)
Ukraine	0.6 (63%) (1%)	0.1 (6%) (0%)	0.1 (13%) (1%)	0.2 (18%) (0%)	0.9 (100%)
Russia	3.9 (51%) (5%)	0.9 (13%) (5%)	1.1 (14%) (5%)	1.6 (22%) (3%)	7.5 (100%)
UK	7.3 (52%) (9%)	1.8 (13%) (10%)	2.0 (14%) (9%)	3.0 (21%) (6%)	14.1 (100%)
Africa					
Africa	2.4 (52%) (3%)	0.6 (12%) (3%)	0.6 (14%) (3%)	1.0 (22%) (2%)	4.5 (100%)
America					
US	8.9 (49%) (11%)	2.5 (14%) (14%)	3.0 (17%) (13%)	3.8 (21%) (7%)	18.2 (100%)
Other America	3.5 (56%) (5%)	0.7 (11%) (4%)	0.8 (13%) (4%)	1.2 (20%) (2%)	6.3 (100%)
Asia					
China	2.3 (51%) (3%)	0.5 (12%) (3%)	0.7 (17%) (3%)	0.9 (20%) (2%)	4.5 (100%)
Other Asia	6.9 (53%) (9%)	1.4 (11%) (8%)	2.0 (16%) (9%)	2.6 (20%) (5%)	12.9 (100%)
Elsewhere[2]	4.3 (14%) (6%)	0.9 (3%) (5%)	1.1 (3%) (5%)	24.4 (79%) (46%)	30.7 (100%)
Total	78.6 (100%)	17.2 (100%)	22.5 (100%)	52.9 (100%)	171.2 (100%) (100%)

1) Both goods and services which are processed in exports are reflected in this table.

2) The group 'Elsewhere' comprises all other countries worldwide including a group 'unknown'. A portion of the import and export value cannot be allocated to any country when data from the National Accounts are linked to statistics on international trade in goods and services (ITGS).

European production chains continue to be essential but EU trade less important after Brexit

Once again, the figures in Tables 7.6.1 and 7.6.2 show that the Netherlands plays an important role in intraregional trade within the European internal market. Also see Baldwin & Lopez-Gonzalez (2013) and Bohn et al. (2022b). A substantial proportion of the imports incorporated in exports came from the EU-27 and went to another (or the same) EU-27 country (€38.5 billion, equivalent to 22.5% of total imports for exports). At first glance, this seems to be a sharp drop from 2020 when the share from and to the EU was 28.9%. However, the UK has exited the EU in 2021. Were the UK not to be included in the intra-EU figures of 2020, and thus only the EU-27 as in 2021, we would actually see a slight increase in the share of imported services and goods from the EU incorporated in Dutch exports to the same group of EU countries, i.e. from 20.6% in 2020 to 22.5% in 2021. A lot of trade therefore still takes place within the EU, but noticeably less than before the UK's exit. This emphasises the UK's importance to Dutch imports.

With 41.8% (€71.5 billion), the importance of imports from the EU-27 destined for total Dutch exports is approximately double the intermediate imports only destined for the EU-27. Again, this is a decline relative to 2020 for the EU-28 as a whole (by 47.2%), but in fact a slight upturn when we apply the correction for the UK (38.9%). In particular, the Netherlands needed a lot of imports from Germany, i.e. nearly a third of the total required imports from the EU-27, followed by Belgium with 21.1%. The UK's exit has also given the other EU countries greater relative importance. Altogether, the imports used from all EU countries except Germany and Belgium amounted to the other €33.4 billion (46.7%).

7.6.2 Imports incorporated in exports

		Exports to			
	Imports from	EU-27 (excluding the UK)		non-EU	
		€bn	**%**	**€bn**	**%**
2020	EU-27 (excl. the UK)	31.9		28.4	
	non-EU	33.9		60.8	
2021*	EU-27 (excl. the UK)	38.5		33.0	
	non-EU	40.0		59.6	
Change 2021* relative to 2020	EU-27 (excl. the UK)	6.7	20.9	4.6	16.2
	non-EU	6.2	18.2	-1.2	-2.0

A closer look at imports from the UK

Back in 2020, when the UK was still part of the EU, the Netherlands imported €12.9 billion worth of goods and services that were processed in exports. In 2021, this import value from the UK reached €14.1 billion, accounting for 8.2% of total processed imports. Therefore, even post-Brexit, the UK continued to be an important trading partner for the Netherlands. The UK was almost as important as the Netherlands' neighbouring country Belgium. In 2021, over 55% of the UK's imports needed for our exports consisted of service imports.

The moderate growth in processed imports from the UK (post-Brexit) requires context. First, services imports had dropped by more than €1 billion (-12%), particularly driven by a sharp 43% contraction in royalty imports incorporated in exports. This was roughly equivalent to the 42% contraction in royalties from all countries. It thus concerns a pattern that is not specific to the UK. Second, despite the fact that the value of imported goods needed for exports rose sharply by 56%, this growth was mainly explained by price increases and growing imports of crude oil. Petroleum was thus responsible for more than half of total growth of goods imports processed in Dutch exports. The growth of petroleum imported from all countries and processed in our exports was even more pronounced, at 88%. Imports of natural gas from the UK incorporated in exports also grew significantly, at +131%. This did greatly exceed the growth from all countries (+28%).

The relative importance of the UK in terms of total imports incorporated in exports has remained a constant 8.2% between 2020 and 2021. If mineral fuels are not included, we even observe a drop in the total value of imported goods and services from the UK processed in Dutch exports in 2021 as well as a drop in the UK's relative importance in the total, i.e. from 7.9% to 7.5%. In other words, without mineral fuels, the intermediate imports growth from the UK in 2021 proved less strong compared with the average growth from all other partner countries.

In addition to petroleum and natural gas, organic chemicals (€340 million), iron and steel (€209 million) and inorganic chemicals (€175 million) were the primary imported goods from the UK needed to achieve our exports. Important for services were business services (€3.6 billion), royalties (€943 million), transport services (€834 million) and manufacturing services (€826 million). The main markets for exports that used imported services from the UK were Germany at a 14.5% share, the US (9.7%), the UK itself (7.7%) and Belgium (7.5%).

Recovery of services imports incorporated in exports only visible in EU countries

Section 7.5 showed that while the value of imported goods incorporated in exports rose sharply in 2021, the value of imported services for exports slightly contracted. The growth of processed goods imports may be explained by a higher import value from all regions and countries represented separately in Table 7.6.1. Goods imports from Russia grew most rapidly at 127% and the growth also exceeded 50% for other America, the UK and other Asia.

On the other hand, the overall decline in services imports incorporated in exports can mostly be explained by a sharp contraction in services imports outside Europe. This may also be linked to the general contraction in services exports, which is mainly due to royalties;these require many imported services as inputs. Services imports from the EU-27 even increased slightly. This is contrary to the trend that services imports from the EU fell in 2020 compared to 2019 and non-EU countries (Bohn et al., 2022b). This could possibly be seen as a slight recovery of the services imports from the EU-27. As explained in section 7.7, this recovery appears not to apply to the services imports from non-EU countries. Section 7.7 examines this in greater detail and also describes the patterns at product level.

€4.5bn worth of imports from Africa processed by Dutch exporters

Modest amount of imports from Africa incorporated in exports, and mostly relating to goods

Africa is an interesting region given the (vital) raw materials originating from it, such as petroleum, coffee, iron ore and copper. Africa is also a region of focus in Dutch development cooperation, which is aimed at promoting trade and fostering economic integration with partner countries (Ministry of Foreign Affairs, 2022; Schreinemacher, 2022). Imports from Africa incorporated in Dutch exports were relatively limited in 2021 and accounted for more than €4.5 billion (Table 7.6.1). This represents an increase of 26% compared to pandemic year 2020. For the purposes of comparison, this is more or less the same amount as imports from China that have been processed in exports. Approximately half of Africa's imports incorporated in Dutch exports go to EU-27 countries. More than 90% of those imports from Africa needed for exports involved imported goods, such as petroleum, but also coffee, tea, cacao, organic chemicals, and fruit and vegetables. It is important to note that these figures

only pertain to direct imports; exports from Africa that are first shipped to China and incorporated in Chinese exports to the Netherlands are thus not included.

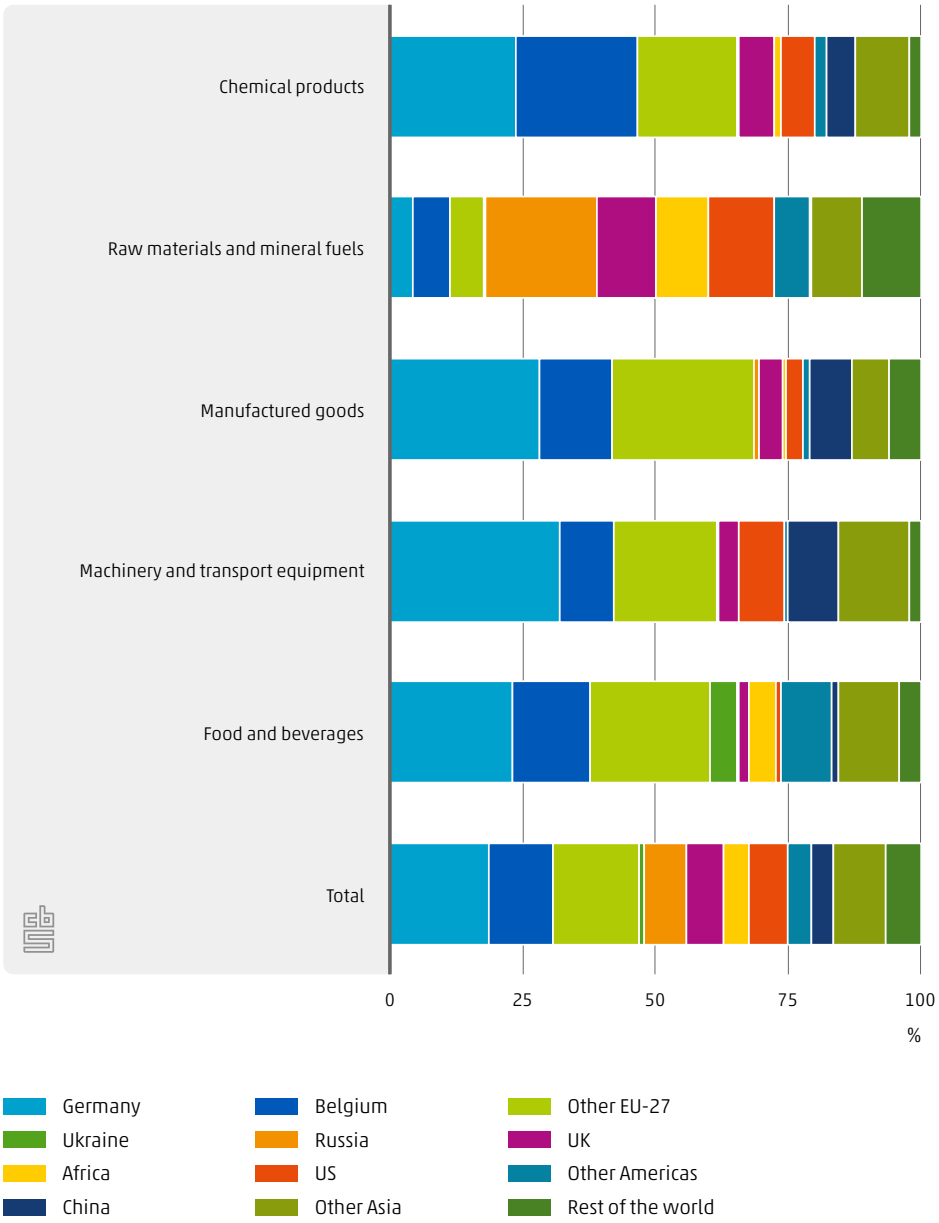
7.7 Unravelling export-related imports in more detail

Goods imports incorporated in exports

Figure 7.7.1 shows the composition of goods imports[5] used in the production of Dutch exports in 2021. In comparison with Table 7.6.1., imports of services do not form part of the import categories. The distinction is made between chemical products, raw materials and mineral fuels, manufacturing products, machinery and transport equipment, and food and beverages.[6] Imports of raw materials and mineral fuels with a total value of €33.1 billion were required to produce exports in 2021. Dutch enterprises used, meaning imported, €16.9 billion worth of manufacturing products, €13.6 billion worth of machinery and transport equipment, €13.5 billion worth of chemical products, and €12.4 billion worth of food and beverages, of which €2.3 billion were for cereals and cereal preparations; a commodity which, similar to mineral fuels, is also the focus of much attention due to the war in Ukraine.

5) This section only concerns imports used by enterprises for exports of domestic goods and services; it does not include re-exports. The chart only reflects part of the figures presented in Table 7.6.1., first, as it only concerns goods imports and second, as a small portion of the goods imports presented in Table 7.6.1. cannot be linked to products.
6) The various product categories are based on the SITC 1 classification.

7.7.1 Composition of goods imports incorporated into exports, by country of origin and goods category, 2021*



Almost half of goods imports destined for export come from the EU-27

The EU-27 appears to be responsible for slightly less than half (47%) of the imported goods required for Dutch exports. In Figure 7.7.1, the 27 countries making up the EU are represented by Germany, Belgium and other EU-27. In the previous year, the figure was 51%, excluding the UK. However, the EU's share was higher than 50% in every product category except raw materials and mineral fuels. Of this largest import category, 82% came from countries *outside* the EU (including the UK). The Netherlands is most dependent on EU countries when it comes to imports for exports of industrial products, 69% of which coming from the EU-27 followed by chemical products (66%) and machinery and transport equipment (62%). By contrast,

Dutch dependency on EU countries is often less than 50% when it comes to the main types of services (Figure 7.7.2).

In general, mineral fuels are particularly incorporated in exports of the same category (mineral fuels), but also in exports of organic chemicals, plastics in primary forms, manufacturing services and transport services. An example of this is crude oil imported in the Netherlands, processed into final products in oil refineries (e.g. petroleum, kerosene, diesel and LPG) or in semi-finished products (e.g. as a raw material for plastics destined for the processing of toys and packaging materials) for distribution to other countries.

Dependence on imports from Africa concentrated in two product categories

Apart from the EU-27, China and the US generally play an important role in Dutch imports for export production. Their combined share is between 11% and 18% in each of the product categories, except for cereals and cereal preparations (only 0.2%) and other food and beverages (3%). Dependence on the UK and the African continent was less distributed across the different product categories. In the case of the UK, our dependence on imports for exports was highest for chemical products and industrial products. When it comes to Africa, the Netherlands mainly depends on imports of raw materials and mineral fuels and food and beverages, excluding cereals. Food and beverages mainly involved coffee, tea and cocoa, fruit and vegetables, and fish.

2021 recovery after pandemic year widely visible in goods imports

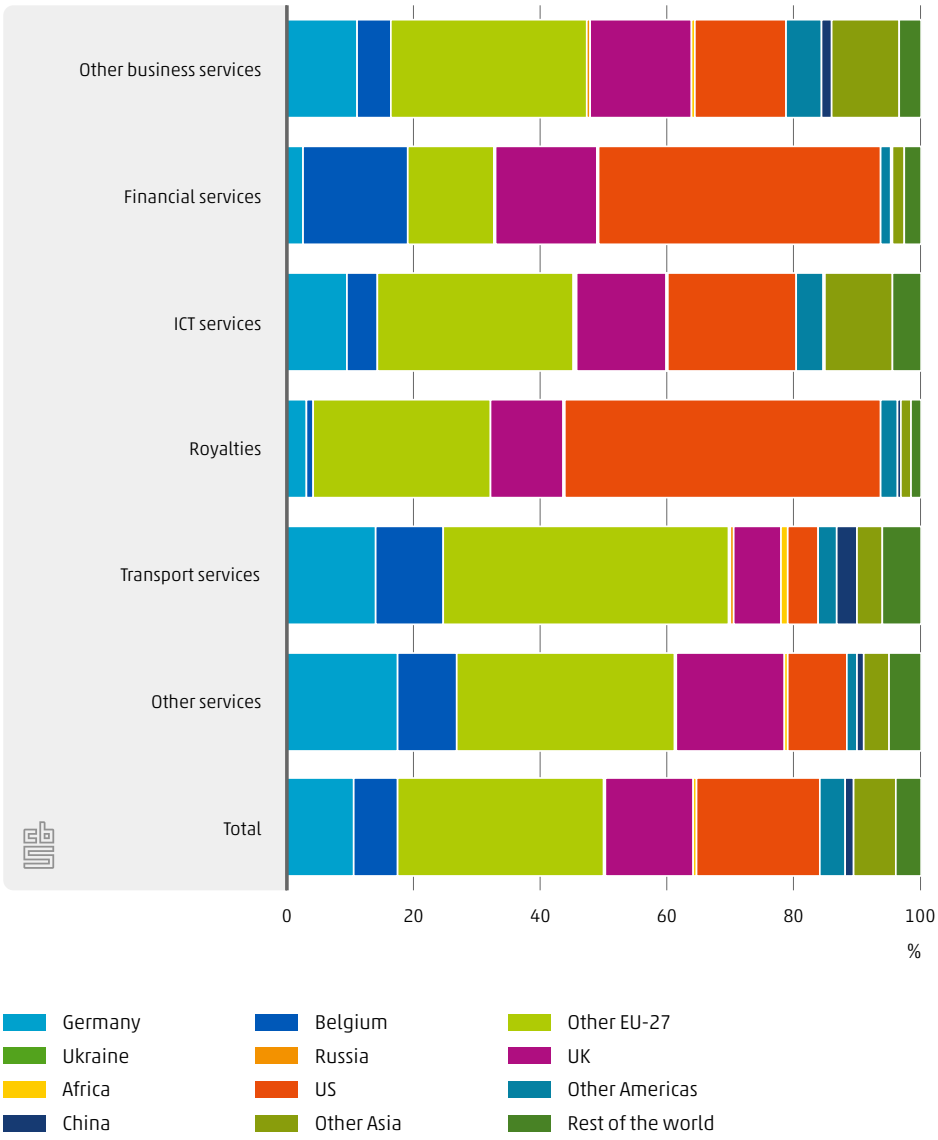
The recovery of imports and exports after the COVID year 2020 is well reflected in the figures. Imports of nearly all product categories incorporated in exports grew in 2021 compared to 2020. This confirms that 2021 was a year of recovery with an increasing demand for many different intermediate goods inputs to achieve the growth in exports. The least growth was seen in imports of machinery and transport equipment. When it comes to the export market, the EU has gained in importance: in 2020, the EU was the destination for 42% of imported goods incorporated in exports and by 2021, that share grew to 46%.

20% **fewer imported ICT services processed for exports in 2021**

Sharp fall in 2021 in royalty imports incorporated in exports

Figure 7.7.2 shows the top 5 imported services needed for Dutch exports in 2021.[7)] The service category 'Other business services' came first, with an import value of €22.6 billion, followed by imports of transport services, with a value of €11.4 billion. Imports of royalties (intellectual property remuneration) amounted to €8.1 billion and imports of ICT services to €4.9 billion. These four categories collectively made up 82% of total service imports used to produce Dutch exports in 2021. Relative to 2020, there was a drop in the share of imported royalties and ICT services incorporated in exports.

7.7.2 Composition of services imports incorporated into exports, by country of origin and service category, 2021*



7) These imported services are used not only to facilitate exports of incorporated services, such as software or consulting services, but also in the production of various export goods such as cars, chemical products and machinery; this shift towards services is related to the outsourcing of service activities by industrial enterprises (Bohn et al., 2022).

Post-Brexit, half of services imports incorporated in exports come from non-EU countries

Half of the imported services in 2021 came from the EU-27; an increase compared with the 43% that came from the EU-27 in 2020. The EU share increase is mainly due to the sharp contraction of imported royalties from the US in 2021. The EU-28 share in 2020 (including the UK) was higher though, at 58%. However, the UK's share in the total services imports incorporated in exports dropped from 21% in 2020 to 14% in 2021. In addition to an increasing share, the value of the services imports for exports from the EU-27 also increased in 2021, in contrast to the general contraction of services imports (Table 7.5.1). For four of the six service categories, the import value grew; only ICT services (–18%) and manufacturing services (–14%) recorded a decline in value. Among non-EU countries, the import value incorporated in exports actually contracted by 20% and the decline hit every service category except transport services and manufacturing services.

The EU-27 had a large share in transport services and the EU-27 share was lowest in terms of royalties, i.e. 32%. Despite the contraction in royalty imports from the US and the UK, those two countries still continued to be major players when it comes to these services. This is due to the major role of the US and the UK in imports of intellectual property (Aerts et al., 2020). This includes cases where, for example, a Dutch enterprise purchases a licence to use a software product developed in the US. Other examples are payments of royalties for movies and music, and franchise fees in the commercial sector and accommodation and food services sector. Second to the EU-27, the US and the UK are also the main suppliers of services as a whole.

Almost half of services imports incorporated in exports are destined for the EU-27

Looking at the export markets, it turns out that 46% of services used in total Dutch exports in 2021 were destined for one of the other EU-27 countries, which slightly exceeded the 43% share in 2020. The main export markets for the incorporated services imports were Germany (15%), the US (10%), the UK (8%), Belgium (7%) and France (6%). Among the main imported services (other business services, royalties, transport services and ICT services), the top 5 export markets were all similar, with Germany slightly more important as a market in transport services with a share of 20%. Ireland accounted for above-average imports of ICT services and royalties incorporated in exports, ranking fifth as a destination in both. Germany was invariably at the top as the most important market in each service category, followed by the US in three categories and followed by the UK in the case of transport services.

7.8 Footprint of Dutch imports

The Netherlands aims to achieve climate neutral status in 2050 and has set the ambition to emit 55% less greenhouse gases in 2030 than in 1990, as set out in the Climate Plan, which is based on the Climate Agreement (Central Government, 2022). Since 2019, the Netherlands Environmental Assessment Agency has been annually recording the quantities of greenhouse gases emitted by the Netherlands and setting out the expected emissions in the coming years in order to monitor whether the Climate Agreement will be met. The Netherlands is a trading

nation and ranks in the top 10 globally for both imports and exports of goods and services (see Chapter 3 in relation to goods trade and Chapter 4 for trade in services). In addition to greenhouse gas emissions within the Netherlands, it is therefore vital to also look at emissions in other countries caused by products imported by the Netherlands.

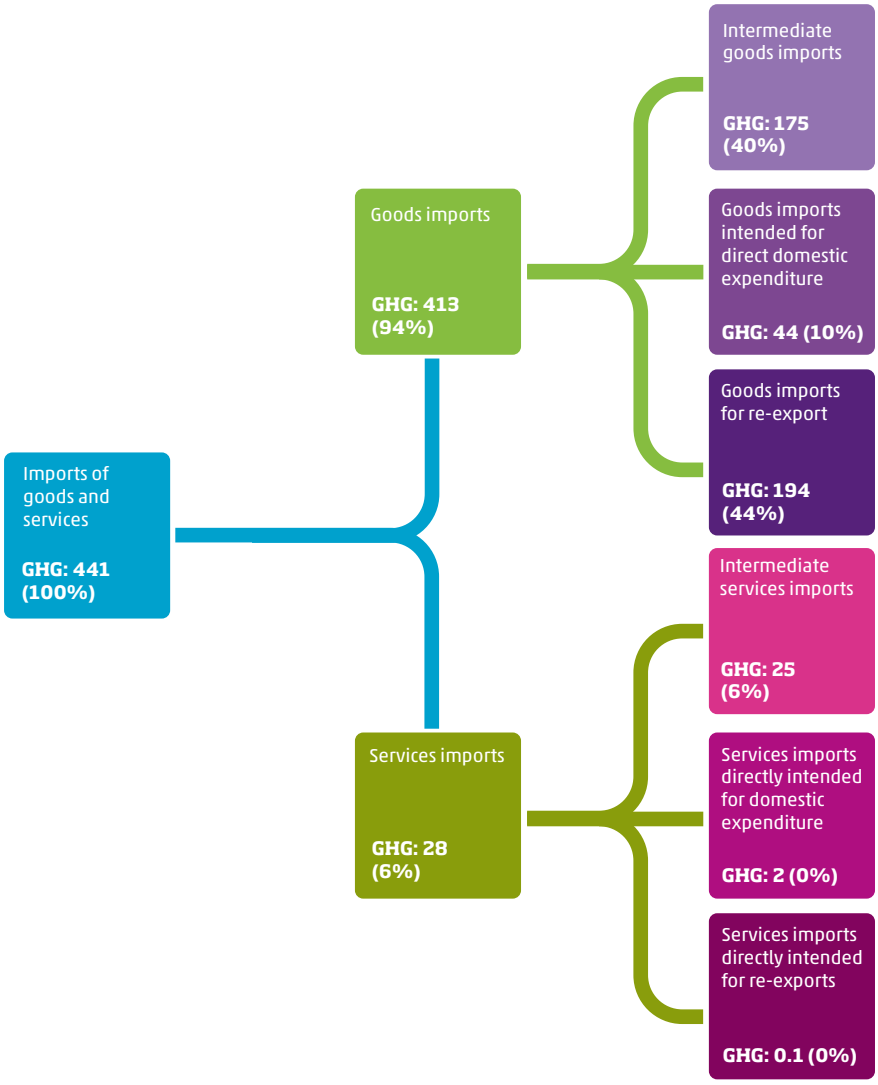
Compared to 2008, both emissions by the Dutch economy and the Netherlands' emissions trade balance have decreased (CBS, 2022b). Emissions trade balance is the balance of the footprint of imports minus the footprint of exports. Although the greenhouse gas emissions by the Dutch economy decreased in 2021 compared to 2019 (CBS, 2022c), the footprint of imports in fact increased in 2021. The Netherlands' emissions trade balance – imports minus exports – was positive in 2021. This means that Dutch imports have a more substantive greenhouse gas footprint than Dutch exports. The Netherlands thus conforms to the global pattern whereby developed economies tend to be net importers of greenhouse gas emissions and developing countries tend to be net exporters (WTO, 2021).

This section explores the greenhouse gas footprint of Dutch imports in 2021, thereby focusing on the following greenhouse gases: carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). The footprint of Dutch imports includes the total emissions caused throughout the chain of a product until it reaches the Netherlands. Subsequent processing and movements in the Netherlands or in other countries have not been taken into account. The analysis uses the GLORIA MRIO table and international trade data from CBS (Section 7.9 Data and methods). These are provisional data, making all results in this section also of a provisional nature.

Research questions

The following questions are discussed in this section: What is the size of the footprint of imports? Does the footprint of imports differ between the various destinations of imports? For example, is the footprint of goods imports for re-exports higher or lower than the average? The next question focuses on the location of the footprint: which continent contributes most to the footprint of Dutch imports and which foreign industries contribute most to this footprint? In the remainder of this section, footprint always refers to the greenhouse gas footprint of imports, unless specifically stated otherwise.

7.8.1 GHG footprint of imports by destination of goods and services imports, Mt CO_2eq and share in total (%), 2021



Distribution of footprint of imports by use

Figure 7.8.1 represents the footprint of Dutch imports in 2021, divided by use of the imports, as shown at the beginning of this chapter for the import value. Contrary to the emissions trade balance, this section does include the footprint of imports for re-exports. Within the framework of the emissions trade balance (CBS, 2022b), the footprint of imports for re-exports is not included in the footprint for imports. Given the fact that these imports leave the Netherlands again, this footprint appears on both the positive and the negative side of the emissions trade balance and can thus be omitted. However, the emissions in the Netherlands of the actions to these imports for re-exports are included in the footprint for exports in the emissions trade balance.

Figure 7.8.2 shows the production chain of flour used in a Dutch bakery as an example to clarify the components of the footprint of imports. All components of this chain that take place up to the Dutch border contribute to the footprint of flour imports, meaning that there

are industries that mainly produce services that contribute to the footprint of goods imports. The transport sector is one example. The footprint of the imports of goods thus contains the emissions of the production chain of each product within goods imports and the footprint of the service imports contains the emissions in the production chain of services imported by the Netherlands.

7.8.2 Footprint of imports: emissions throughout the production chain up to the Dutch border

The total greenhouse gas footprint of imports in 2021 was 441 megatonnes of CO_2 equivalents, which is slightly higher than in 2019 when it amounted to 424 megatonnes of CO_2 equivalents. For more information on CO_2 equivalents, see CBS, 2022d. For the purposes of comparison: the footprint of Dutch consumption[8)] equalled 279 megatonnes of CO_2 equivalents in 2021 (CBS, 2023). More than half of the total footprint of imports consisted of CO_2 emissions. For service imports, the CO_2 share was as high as 79%. As a whole, however, service imports bear little contribution: the footprint of goods imports is almost fifteen times larger than that of service imports. It should be noted in this context that part of the footprint of goods imports does come from, for example, transport services: everything in the production chain of goods that are eventually imported into the Netherlands falls under the footprint of those goods. These emissions of transport services for the purpose of imported goods are thus not included in the footprint of services imports. For each euro of imports, goods imports contribute more to the footprint of imports than services imports. This is in keeping with the intuition that the production of goods generally has a larger impact than the production of services.

Imports for re-exports have a lower than average footprint

The footprint of imports by destination shows that almost half relates to imports for re-exports. The Netherlands acts as a global hub in which the port of Rotterdam holds a key position. On a global scale, the port of Rotterdam ranks among the top 10 container transit ports (UNCTAD, 2022) and most of the port transhipment worldwide takes place in Rotterdam (Botlek Europoort, 2023). Goods imports for re-exports are responsible for the largest share of the footprint of imports: 44% of the total and over 47% of only the footprint of goods imports. Though it may be argued that these products leave the Netherlands again after having first been imported, it could also be argued that the Netherlands indirectly contributes to these emissions. After all, for each euro of re-exports, the Netherlands made 12 cents in 2021 (see Chapter 6 of this publication). Despite the relatively low contribution for each euro of re-exports to the Dutch economy, it involves substantive flows such that these earnings nevertheless represent a significant interest. As a comment, however, trade can also

8) The Dutch footprint of consumption includes total Dutch emissions plus the footprint of imports minus the footprint of exports.

contribute to a greenhouse gas footprint reduction if the emissions in the origin country are lower in production than the emissions of the production from another country, provided this reduction is sufficient to also offset transport emissions (WTO, 2021). Approximately 50.1% of total Dutch goods imports are destined for re-exports (Section 7.2). Thus, imports for re-exports contain relatively fewer high-footprint products than average in total goods imports, such as petroleum and petroleum industry products, which are mainly used for domestic production. As a result, the footprint per euro of goods imports for re-exports (0.80 kg CO_2 equivalents per euro) is lower than the average footprint per euro of goods imports (0.85 kg CO_2 equivalents per euro).

The footprint of imports destined for domestic expenditure, or in other words for direct consumption within the Netherlands, is lowest among goods imports. Approximately 10% of the footprint of imports relates to the goods imports intended for domestic expenditure, which is close to the percentage in terms of value: 11%. Goods imports destined for domestic expenditure have relatively fewer products with a high footprint than total goods imports (e.g. a smaller share of agricultural products, minerals and chemical industry products). The footprint per euro of goods imports destined for domestic expenditure is 0.63 kg of CO_2 equivalents per euro, which is indeed below average.

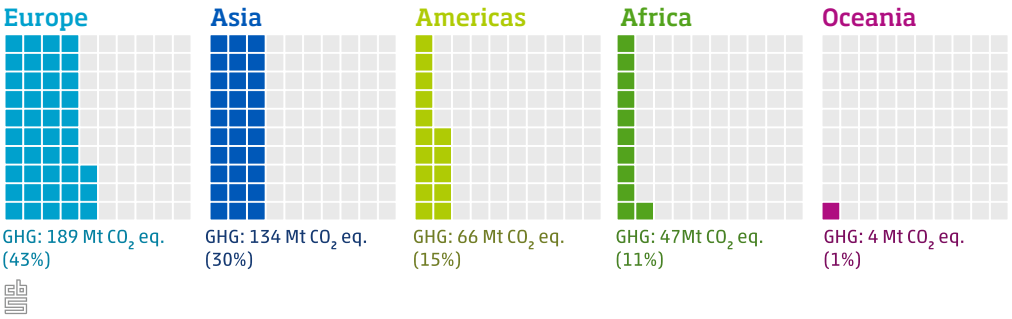
With 0.20 kg CO_2 equivalents, the footprint per euro of services imports is much smaller than the footprint per euro of goods imports. More than 92% of the footprint of services imports is caused by services imports intended for intermediate consumption. Since almost 85% of services imports by value are destined for intermediate consumption, it is not very surprising that most of the footprint of services imports also relates to this category. With 0.22 kg CO_2 equivalents per euro, the footprint of services imports intended for intermediate consumption is slightly higher than average for services imports. This is mainly due to the fact that these imports involve relatively more transport services that cause more emissions than many other services. Again, not all emissions of the transport sector for Dutch imports are included in the footprint of services imports. In fact, the main part is included in the footprint of goods imports. On a worldwide scale, the international transport sector accounts for 12% of global greenhouse gas emissions (WTO, 2021). From a consumption footprint perspective, this is almost entirely attributed to the consumption of goods.

Where is the footprint of imports located?

We have already seen that the GHG footprint of Dutch imports is extensive. This raises the question as to where this footprint is located. In which continent is the largest part of the footprint of Dutch imports generated? Figure 7.8.3 shows the share per continent. With 189 megatonnes of CO_2 equivalents, which is 43% of the total footprint, the largest part of the footprint of imports is generated in Europe. Asia and America are a distant second and third with 30% and 15%, respectively. The GHG footprint distribution of imports by continent is similar to the GHG footprint distribution of Dutch consumption[9)] by continent (see, for example, Figure 4.3 in Wilting, 2021).

9) The Dutch footprint of consumption includes total Dutch emissions plus the footprint of imports minus the footprint of exports.

7.8.3 Where was the GHG footprint of Dutch imports generated in 2021?



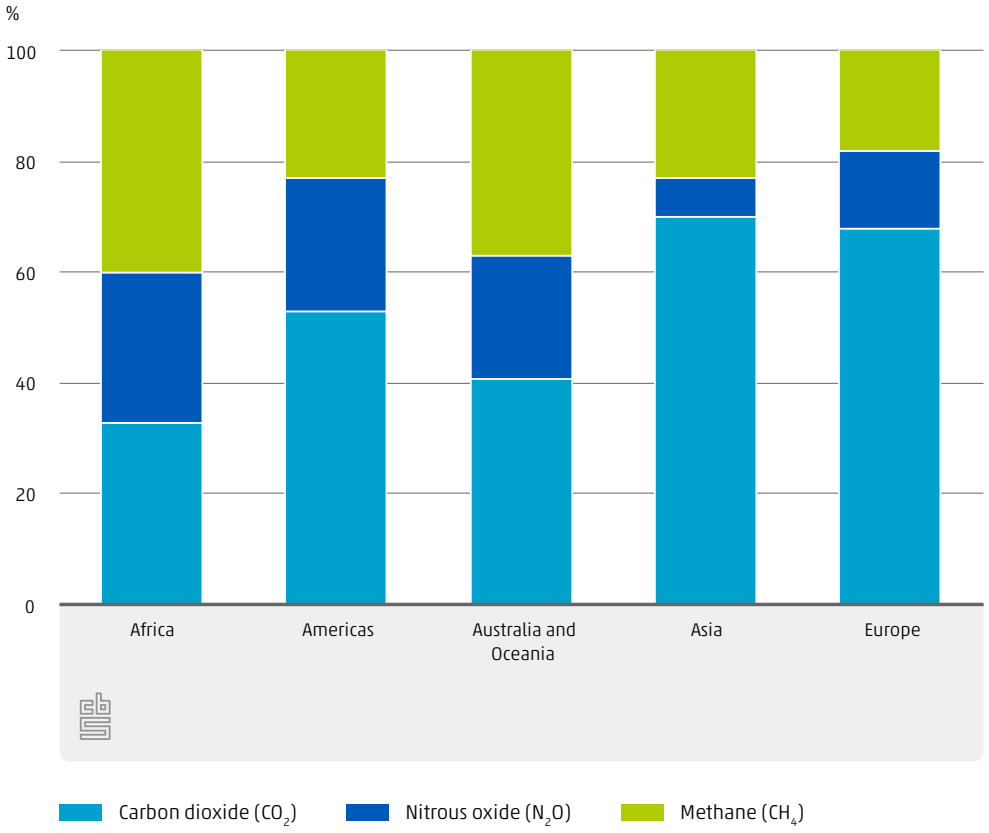
The distribution of the import value by continent differs greatly from the distribution of the footprint of imports by continent. Almost 60% of the total import value comes from Europe, significantly more than the share of the greenhouse gas footprint generated in Europe, which is at 43%. Conversely, the share of import value from Asia and Africa is smaller than the share of the footprint. About 20% of the direct import value comes from Asia, while it has 30% of the Dutch footprint of imports. For Africa, this is 2% of the import value and 11% of the footprint, respectively. This shows that the most polluting part of the production chain of imports coming from Europe to the Netherlands is not in Europe itself but in Africa or Asia, for example. In terms of greenhouse gas emissions, there is thus a larger part of the production chain of Dutch imports in Africa and Asia than the direct import value would suggest.

Footprint of imports in Africa for the most part consisting of methane

The Dutch footprint of imports generated in Asia consists of 70% CO_2. These emissions are particularly caused by the energy supply in Asia (Figure 7.8.4). This does not come as a surprise as energy supply on a global scale contributes significantly to the greenhouse gas footprint within international trade (WTO, 2021). A small number of sectors, including the energy supply sector and the transport sector, cover 75% of the global greenhouse gas footprint within international trade. The footprint generated in Europe and America also holds CO_2 as its main component, at 68% and 53%, respectively.

Africa shows a different picture: methane is the main component in the footprint of imports. Industries responsible for methane emissions in Africa include mining and quarrying, agriculture and waste management. Methane is a powerful greenhouse gas with a global warming potential eighty times greater than that of CO_2 during the first twenty years after its release (UNEP, 2023). The oil and gas industry is a major emitter of methane. Methane can be released, for example, during natural gas exploration and extraction, but also, for example, by leaking pumps or pipelines during transportation or leaking during natural gas storage. Reducing methane emissions is one of the most effective measures the energy sector can take to address the climate crisis (UNEP, 2023).

7.8.4 Shares[1)] of various greenhouse gases in the Dutch import footprint, by continent, 2021



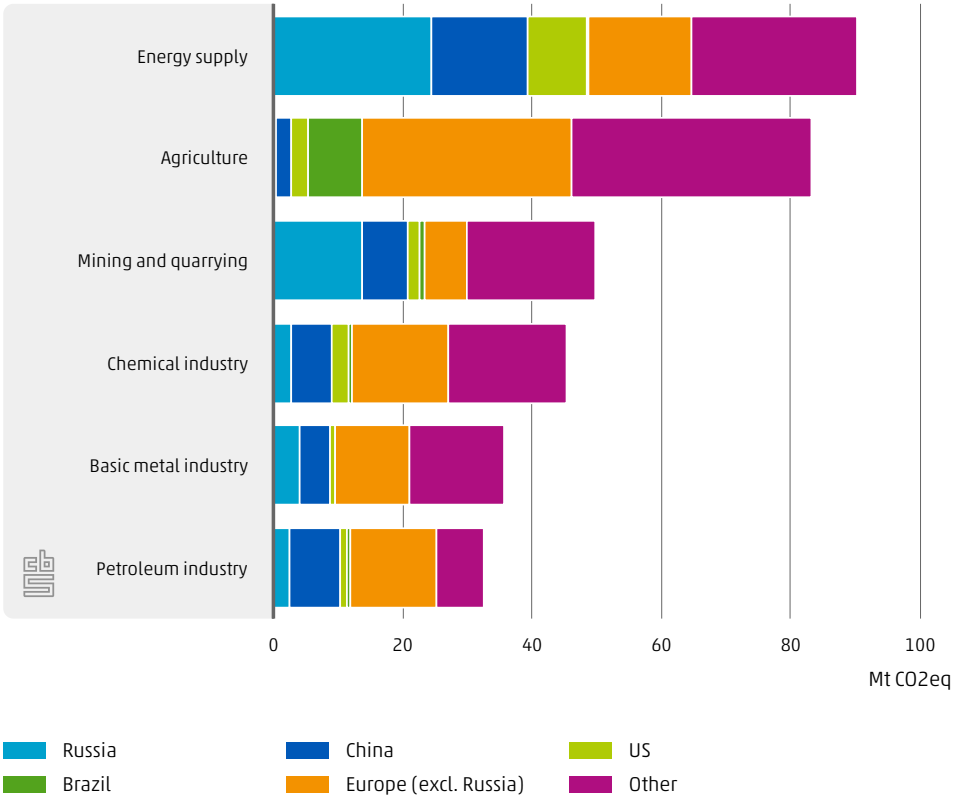
1) This is the share in the total of CO_2eq per continent. First, nitrous oxide and methane emissions are converted into CO_2eq, after which the shares are calculated.

Energy supply worldwide bears 20% of the Dutch import footprint

Figure 7.8.5 represents the six industries worldwide, distributed across all countries outside the Netherlands, bearing most of the Netherlands' footprint of imports. The energy supply sector has the most CO_2 emissions worldwide (IEA 2022). It goes without saying that this sector bears a large part of the Dutch footprint of imports. As known, the global agricultural sector is also a major contributor to the greenhouse gas footprint, which this figure again shows. Although the Netherlands is known as an essential export country for agriculture (Jukema et al., 2023), many agricultural products are also imported from elsewhere. This is consistent with the observation that the total amount of land for Dutch consumption in 2017 was three times the area of the Netherlands (Van Oorschot et al., 2021a), so both domestic consumption and exports will also require imports from elsewhere. For example, the Netherlands imports many soybeans and soybean meal from Brazil (CBS, 2022e), which is partly needed to feed livestock on Dutch soil.

The mining and quarrying sector, chemical industry, basic metal industry and oil industry all consist of processes that release high levels of greenhouse gases. Also, as virtually no raw materials are extracted in the Netherlands, many raw materials and semi-finished products of these raw materials are thus imported.

7.8.5 Sectors in the global economy bearing the largest portion of the Dutch import footprint, 2021



7.9 Data and methods

CBS calculates the footprint of imports for domestic expenditure and production as part of the emissions trade balances (CBS, 2022b). However, only the total value is reported. Different sources were brought together to provide detail on the footprint of imports and also to calculate a footprint of imports for re-exports.

First, we calculated a footprint per country, per sector and per unit of production by means of an MRIO (Multi-Regional Input Output table). We used the MRIO from release 057 from the GLORIA global environment-extended multi-region input-output database (Lenzen et al., 2021a), developed in the Global MRIO lab (Lenzen et al., 2017). There are two important reasons to opt for GLORIA. First, this database represents a large number of sectors and countries, which will make the footprint of imports available at a more detailed country level. Second, this database has emission data, eliminating the need for additional steps to link the correct emission data to the MRIO. As an additional advantage, GLORIA is very quickly available and up to date; at the time of writing, there is already an MRIO for 2021.
We regularly check the offer of MRIOs to see which is most suitable for specific purposes. A different MRIO may be chosen in the future and this will lead to different results.

Calculating emissions per unit of production is done by means of an input-output analysis. First, the emission coefficient is calculated by dividing the total emissions of a sector in a country by the total output of that sector. Next, these coefficients are placed in a diagonal

matrix and multiplied by the Leontief inverse to calculate the required input. The Leontief inverse describes the input coefficient required for one unit of final demand in a sector. To determine the footprint of products up to the Dutch border, the Leontief inverse is rendered from the MRIO after the Netherlands has been removed from it.

The data for the Netherlands is removed from the MRIO to avoid double counting. Imagine a product going from Belgium to the Netherlands, then to Germany and then back again to the Netherlands where it is consumed. In that case, the emissions in Belgium would be counted twice: i.e. the first time the product enters the Netherlands and the second time the product enters the Netherlands. If the Netherlands is removed from the MRIO, the emissions emitted in the intermediate steps in the Netherlands are not counted. This type of chain is also referred to as *feedback-loop* and it is a known fact that the share of emissions settling in the consuming country is small. For example in Moran (2018), the share of CO_2 emissions in the Netherlands, from imports for domestic consumption, is estimated at 0.3%.

For the conversion of the different emission coefficients to CO_2 equivalents, we made use of the GWP (Global Warming Potential) factors for methane and nitrous oxide. Due to new IPCC rules, new GWP factors are in use from mid-September 2022. Methane (CH_4) now counts more heavily (factor 28 as opposed to 25), while nitrous oxide (N_2O) counts less heavily, i.e. a factor 265 instead of 298. This chapter still makes use of the old factors in order to be consistent with previously published values for the footprint of imports.

The GLORIA MRIO cannot be directly deployed due to the presence of large negative values in the 'changes in inventories' column. These negative values are a result of the balancing procedure for the MRIO. While this is not an unusual method of balancing an MRIO, it does result in an MRIO that must be processed before the Leontief inverse can be calculated. In this study, we chose to convert the negative values in 'changes in inventories' to positive primary inputs, also known in literature as 'mirroring' (see, for example, Section 3.3 in Lenzen, 2021b). A drawback of this method is that it may have an impact on a country's GDP that is determined using this MRIO. However, the effect of this conversion on the footprint is minimal. Moreover, there are already differences between GDP calculated with this dataset and GDP as reported by the IMF.

To subsequently calculate the footprint of Dutch imports, the emissions per unit of production must be multiplied by the number of units required for Dutch imports. The required units are determined by scaling the Dutch import figures to total imports to the Netherlands as provided in the MRIO. This final step is needed because of the use of different units in the different datasets, for example US dollars and euros.

The Dutch import figures were obtained by combining the data from the National Accounts with the International Trade in Goods and International Trade in Services statistics, with the data of the National Accounts taking precedence. Because of differences in definitions and methods, these figures differ from the other totals shown on StatLine. By combining these statistics, imports can be divided by use and by origin country (Lemmers & Wong, 2017; Aerts et al., 2022). These import figures are then combined with the emissions per unit of production of an industry in a country to determine the footprint of an imported product.

Finally, the footprint of imports for the production in the Netherlands and for final domestic expenditure is scaled to the footprint of imports in the emissions trade balance. The resulting ratio is used to determine the footprint of imports for re-exports.

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Glossary

Control of enterprises
The control of enterprises is determined on the basis of the country where strategic decision-making takes place. This control lies with the Ultimate Controlling Institutional Unit (UCI). Foreign control means that the country of residence of the UCI is a country other than the Netherlands.

Domestic exports (Dutch-manufactured exports)
Exports after production in the Netherlands, or after significant processing of foreign-produced goods (taking into account the level of adjustments in the product's HS code). Re-exports and domestic exports combined constitute the basis of total Dutch export figures.

Dutch business economy
The General Business Register (ABR) is based on the Dutch Standard Industrial Classification (SBI) which classifies business units according to their main activity. The business economy in the Netherlands comprises all enterprises listed in the Standard Industrial Classification (Dutch SBI 2008) sections B up to and including N, exclusive of K plus S95. This classification is referred to internationally as non-financial business economy.

This category is composed of the following sectors:
B Mining and quarrying
C Manufacturing
D Production and distribution of and trade in electricity, gas, steam and air conditioning supply
E Water supply; sewerage, waste and wastewater management and remediation services
F Construction
G Wholesale and retail trade; motor vehicle repair
H Transportation and storage
I Accommodation and food service activities
J Information and communication
L Renting, buying and selling of real estate
M Consultancy, research and other specialised business services
N Renting and leasing of tangible goods and other business support services
S95 Repair of personal and household goods

Enterprise
The actual transactor in the production process, characterised by self-sufficiency with respect to the decisions about that process and by offering its products to third parties. An enterprise comprises one or several legal entities. A distinctive feature is the autonomy in the decision-making with regard to production taking place within this composite entity. The Dutch component of an entity whose activities extend across multiple countries is considered an enterprise in itself for the sake of national statistics.

Enterprise group
The statistical unit acting as the financial transactor. In operational terms, the enterprise group is defined as the most comprehensive collection of legal units established in the Netherlands over which control can be exercised and which is homogeneous by institutional sector. An enterprise group may consist of one or more business units. See also: Enterprise.

Enterprise trading internationally (or international trader)
An enterprise that imports and/or exports services and/or goods.

Entrepreneur
A person who works for his/her own account and risk in his/her own company or practice (self-employed) or as a salaried director of his/her own company (director-major shareholder).

Export earnings
The value of gross exports minus the consumption of imported raw materials, intermediate products and support services.

Exports
The sum of Dutch domestic exports and re-exports.

Foreign Direct Investment (FDI)
An enterprise receiving direct investments from abroad is an enterprise in which a foreign investor holds at least 10% of the ordinary share capital or the voting rights, or the equivalent thereof. This involves having a controlling interest and substantial influence on the management of the enterprise. Direct investment consists of share capital, participating interests in group companies abroad and credit lending.

Foreign subsidiary
If a Dutch company holds a majority stake in a foreign company, this company is a subsidiary of a Dutch company, or a foreign company under Dutch control. There is no minimum amount of investment or minimum share of voting rights in the foreign company. Such investments abroad, made by a company in the Netherlands and under Dutch control (Dutch multinational), are aimed at building up a lasting interest in a foreign company.

FTE
A measure of labour volume, calculated by converting all full-time and part-time jobs to full-time jobs. Two half-time jobs (0.5 FTE each) add up to a labour volume of one labour year.

Gross domestic product (GDP)
GDP is a measure for the size of a country's economy. This is calculated from the sum of the value added by enterprises, households and governments to the goods and services they have used in their production activities. This sum is referred to as the value added at basic prices. To arrive at GDP at market prices, the balance of taxes on production plus other subsidies is added as well as the difference between the attributed VAT and paid VAT.

Import intensity
The import intensity ratio is an indicator of the degree of international competitive pressure in the local market. It is expressed as a percentage share which shows to what extent domestic demand for goods or services depends on foreign imports. The higher the import intensity ratio, the larger the contribution of imports in meeting the total demand for goods and services.

Imports
The sum of imports for domestic use and imports for re-export.

Imports for domestic use/expenditure
Goods, destined for Dutch residents, transported from a foreign country into the economic territory of the Netherlands. Included are raw materials needed for processing in the production process, semi-manufactures, fuels and fixed assets earmarked for investment.

Imports for re-export
Goods entering the Netherlands which are (temporarily) owned by a resident of the Netherlands and subsequently leave the Netherlands without having undergone any significant industrial processing.

Intellectual property
A collective term for rights granted on detailed ideas and concepts, for example patents, trademarks and copyrights.

Intermediate goods
Inputs in the production process, such as raw materials, semi-manufactures and fuels.
An intermediate product is used during the production process. It is often transformed and then incorporated into the end product. Intermediate goods are therefore used to make other products.

Intermittent exporter
An enterprise is an intermittent exporter when it exports for at least one year and maximum two years in a four-year period. See also: perennial exporter.

Internationally trading entrepreneur
An internationally trading entrepreneur is an entrepreneur at the helm of an enterprise that imports and/or exports services and/or goods.

International production chain (global value chain)
An international production chain comprises all activities – in more than one country – that are required to deliver a product or service from the concept phase through the various production stages to end users and post-use processing.

International trade in goods
International trade in goods involves Dutch residents who deliver goods to locations outside the Netherlands, and residents abroad who deliver goods to locations in the Netherlands. In intra-EU imports, this is the value of the goods including freight and insurance costs up to the Dutch border. In extra-EU imports, this is the value of the goods including freight and insurance costs up to the external border of the European Union. The export value is including freight and insurance costs up to the Dutch border. This is in line with the International Trade in Goods (ITG) statistics. The IHG source statistics use different concepts from National Accounts. For instance, source statistics assume cross-border movement of goods and economic ownership is leading for National Accounts. Integration into National Accounts also produces additional differences.

International trade in services
International trade in services occurs when a resident of one country provides economic services to residents of another country. Services are products that are generally not tangible, such as transportation, business services and personal, cultural and recreational services. Dutch residents refer to enterprises and individuals that engage in economic activities from any location in the Netherlands that has been in use for more than one year.

Investments in tangible fixed assets
Goods acquired or produced in-house, with the aim of being used as capital goods in the production process. These are goods with a useful life of more than one year such as buildings, dwellings, machinery, means of transport and the like.

Multifactor productivity (MFP)
Multifactor productivity is a measure of production (output) per unit of all inputs. This is different from labour productivity, which only presents output per hour worked. MFP thus measures how efficiently the various production factors are combined to account for economies of scale, capacity utilisation rate and technological developments, for instance.

Multinational
An enterprise with a parent or subsidiary abroad. See also: Foreign subsidiary. A *Dutch-owned multinational* is an enterprise under (ultimate) Dutch control with at least one subsidiary (majority shareholding) abroad. A *foreign-owned multinational* is a subsidiary located in the Netherlandsover which the ultimate control lies abroad.

Non-multinational
An enterprise without a parent or subsidiary abroad.

Perennial exporter
An enterprise is a perennial exporter when it reports goods exports for at least three years in a four-year period. See also: intermittent exporter.

Quasi-transit trade
Import of foreign goods that undergo little or no processing upon arrival in the Netherlands and are then forwarded again to a foreign country. The goods are owned by a foreign company while they are in the Netherlands (as opposed to re-exports). Furthermore, at least one of the following administrative tasks must be completed in the Netherlands in order to be deemed quasi-transit:

- Upon arrival in the Netherlands, goods from outside the EU are cleared through customs;
- The goods leave the Netherlands and the EU and an export document is drawn up by customs;
- The international goods are stored in the Netherlands for at least one day. This makes the owner subject to VAT and therefore the owner has to register for VAT.

The quasi-transit is not part of the Dutch trade figures, but is included in the European trade figures (Eurostat).

Re-exports
Goods which, after being imported into the Netherlands, undergo little or no significant processing before being exported from the Netherlands again. Unlike in quasi-transit trade, the goods are (temporarily) owned by a resident enterprise while in the Netherlands. Re-exports and domestic exports combined constitute the basis of total Dutch export figures.

Royalties
Remuneration payments for the ongoing use of someone else's intellectual property rights. Examples include copyrights, trademark rights and patent rights.

Special Purpose Entity
Special Purpose Entities (SPEs) are subsidiaries of foreign enterprises which are established in the Netherlands that act as cross-border financial intermediaries between various composite entities of the group in which they operate. The receivables and liabilities of these institutions usually concern direct investments from one country to another via the Netherlands, or channelling of resources collected abroad to the foreign parent. In this respect, SPEs are dedicated legal entities concerned with securitisations. As part of the securitisation transaction, an SPE takes over assets and/or credit risks and issues securities, securitisation fund units, other debt instruments and/or financial derivatives, or is the owner of any underlying assets. An SPE is safeguarded against the risk of bankruptcy or other default of the initiator (also referred to as 'originator', for example the institution transferring assets and/or credit risks to the SPE).

Two-way trader
An enterprise or business establishment which both imports and exports either goods or services. This is unlike what is called a one-way trader, which is either a one-way importer or a one-way exporter.

Value added
The gross value added equals the production (in basic prices) minus intermediate consumption (excl. deductible VAT).

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