



ISSN 2443-8030 (online)

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ECONOMIC BRIEF 082 | NOVEMBER 2024

EUROPEAN ECONOMY

*Economic and
Financial Affairs*



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Luxembourg: Publications Office of the European Union, 2024

PDF ISBN 978-92-68-12538-0 ISSN 2443-8030 doi:10.2765/29992 KC-BE-24-004-EN-N

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Recent Developments in Dutch Exports to Germany

Philip Unverzagt, Dirk Kamps, Johannes Schuffels

Abstract

GDP growth correlations and different recovery paths from recent economic shocks suggest a divergence in economic outcomes in the Netherlands and Germany in the past decade. While there may be several possible explanations, this brief investigates recent developments in Dutch exports to Germany and differences in the export structure (economic activity and geographical diversification) of the two countries. The brief mainly looks at these issues from the perspective of the Netherlands, aiming to assess the dependence of the Dutch economy on Germany as an export market. The brief notes that the value of Dutch goods exports to Germany as a share of Dutch GDP has been increasing since 2000, which is in line with the increase in Dutch goods exports to the rest of the world as a share of GDP. However, Dutch trade with Germany is lower than predicted by a gravity model of trade based on the size of the German economy and its close geographical location. In addition, we observe that re-exports are outgrowing exports of domestically produced goods to Germany and, since 2012, account for more than half of total exports to Germany. Due to the value added per euro of re-exports being much lower than that of domestically produced goods, the value added of all Dutch goods exports to Germany as a share of GDP has been on a slightly decreasing path since 2012. We also find that Dutch exports are less concentrated in specific industries than those from Germany and the Netherlands has increased the geographical diversification of its exports significantly.

JEL Classification: F10, F12, F44.

Keywords: Bilateral trade relations, international trade, trade in value added, trade diversification, trade shares, re-exports, gravity model, business cycles, globalisation, economic resilience.

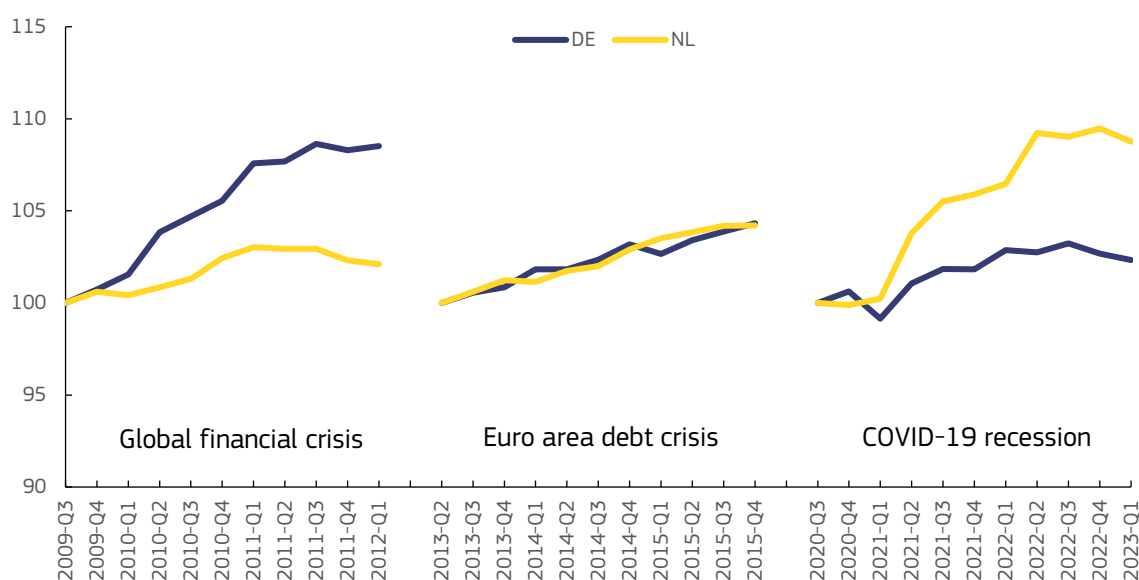
Acknowledgements: This brief benefited from valuable comments by Emiel Afman, Kai-Young Weißschädel, Jakob W. Friis, Valerie Vandermeulen, Joern Griesse, Willem Kooi, and Joep Schoenmakers.

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INTRODUCTION

The Dutch economy is heavily export-oriented, and Germany is by far the largest market for Dutch goods and services. The two countries have one of the largest bilateral trade relations in Europe, with €210 billion in goods exported from the Netherlands to Germany, and €111 billion imported from Germany in 2023. While there are strong trade linkages between the two countries and historically strong correlations in economic performance, recent data also shows some divergence in economic outcomes in both countries. The two economies have reacted differently to the three most recent external economic shocks. The Netherlands recovered more quickly from the most recent recession following the COVID pandemic compared to Germany and the euro area, while the reverse was true in the aftermath of the 2008 Global Financial Crisis (GFC) (Graph 1). This is in part due to the different nature of the shocks but could also reflect changes in the transmission of shocks between the countries or in the reaction of the two countries to similar shocks.

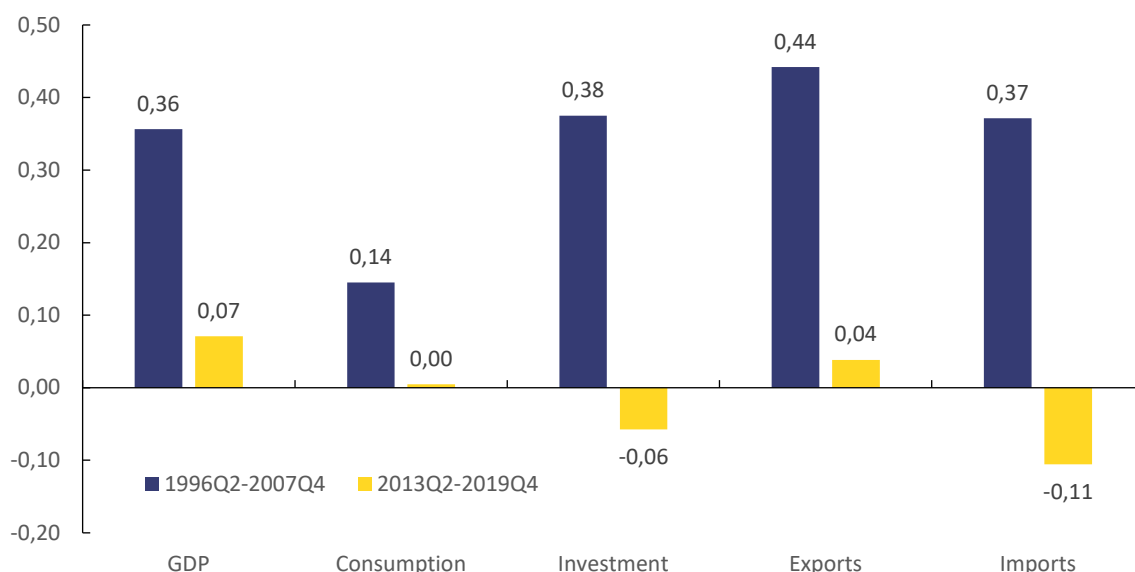
Graph 1: Indexed real GDP following the three most recent Euro Area (EA) recessions



Note: The examined time periods are 12 quarters following the end of a recession period as defined by the Euro Area Business Cycle Network (EABCN). The three EA recessions are the Global financial crisis, Euro area debt crisis, and COVID-19 recession.

Source: Eurostat, GDP and main components (namq_10_gdp).

To investigate a possible divergence in economic outcomes further, we compare the correlations of several macroeconomic variables (GDP, consumption, investment, exports, imports) between the Netherlands and Germany. This is done for two time periods, covering a period before the 2008 GFC, and before the 2020 recession (Graph 2). For all variables, the correlation between the Netherlands and Germany decreased notably from the first period 1996Q2-2007Q4 to the second period 2013Q2-2019Q4. A caveat regarding these observations is that the second period is a relatively short period of time that may have been affected by temporary factors.

Graph 2: Correlations between the Netherlands and Germany for selected macroeconomic variables over two periods

Source: Eurostat, GDP and main components (namq_10_gdp) and authors' calculations.

The business cycle synchronisation literature has identified several determinants of GDP correlations, including bilateral trade, industrial specialisation, and the effect of currency unions. There is empirical evidence that increased trade integration is associated with more synchronised economic growth (Pentecôte, Poutineau, and Rondeau, 2015; Monnet and Puy, 2016; Nguyen, Hoang, and Nguyen, 2020). Some articles also confirmed this relationship for specific regions or groups of countries, such as for members of the Economic and Monetary Union (EMU) (Azcona, 2019) and for European economies (Azcona, 2022). The relationship is also stronger when using data on trade in value added (Duval et al., 2016) instead of gross trade data.

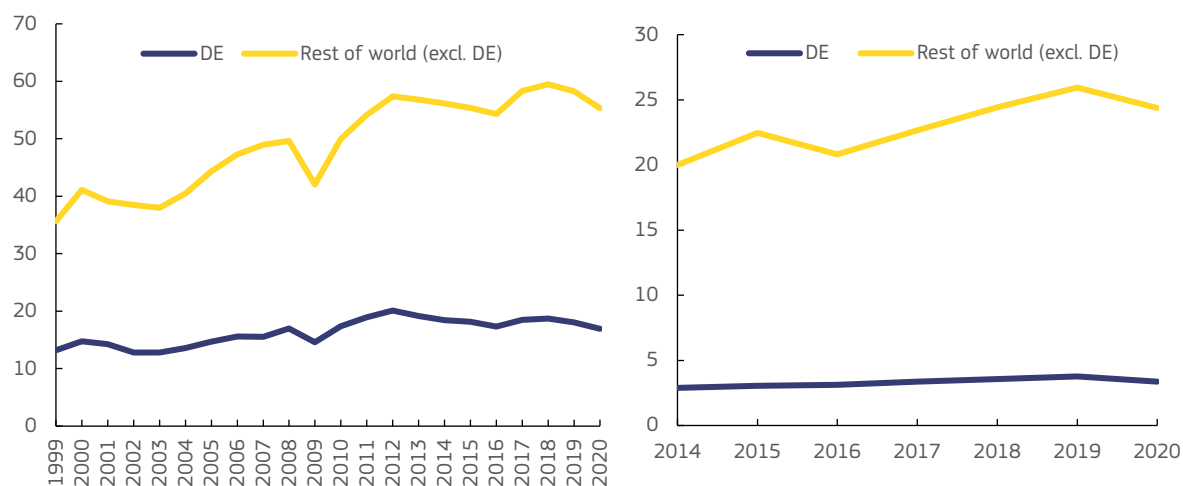
Building on this, the brief looks at developments in Dutch exports to Germany to see whether the dependence of the Netherlands on Germany as an export destination has changed, as the trade relations of the Netherlands have gradually become more diversified in the past decade with the weight of markets outside of the EU in Dutch trade increasing¹. We look at both absolute and relative changes in the importance of Germany as an export destination. In addition, a distinction is made between re-exports, which have been growing in importance for the Netherlands (Mellens, Noordman, and Verbruggen, 2007; CBS, 2016; van der Wal, Ligthart, and Wache, 2023), and domestically produced exports. Differences in trade structures are examined through the geographical and economic activity diversification of exports for both countries, as this may provide some insight into changes in sensitivities to economic shocks. For example, a meta-study (Sarin, Mahapatra, and Sood, 2020) of articles published until 2020, covering developed and developing economies, found that export diversification increased resilience to economic downturns and has positive effects on growth. In addition, models for economic growth provide a theoretical link between export diversification and increased human capital accumulation, and thus growth (Aghion, Akcigit, and Howitt, 2014).

¹ The high level of integration of the Netherlands with Germany and non-EU partners, and the implications for spillovers resulting from economic developments in these economies was noted in the latest in-depth review of the Netherlands (European Commission, 2024)

EXPORTS TO GERMANY HAVE INCREASED, BUT LESS THAN THOSE TO THE REST OF THE WORLD

In absolute terms, the importance of Dutch exports to Germany relative to Dutch GDP increased in the past decades. The export value of Dutch goods going to Germany as a share of Dutch GDP has increased from 13% in 1999 to 17% in 2020 (Graph 3)². This increase is relatively smaller than the increase in the value of Dutch goods to the rest of the world as a share of Dutch GDP, which went from 36% to 61% over the same time frame. For the period during which we can observe both goods and services exports, Dutch exports of services to Germany and the rest of the world have evolved relatively similar to goods exports: between 2014 and 2020, the export value of Dutch services to Germany as a share of Dutch GDP increased slightly from 2.9% in 2014 to 3.3% in 2020, while the value of services exports to the rest of the world increased from 20.0% to 24.3%.

Graph 3: Value of goods (left) and services (right) exports to Germany and the rest of the world as a share of Dutch GDP (%)



Source: Eurostat EU trade since 1999 by SITC (ds-018995), GDP and main components (nama_10_gdp), CBS International trade; Imports and exports of services 2014-2020 (82616ENG).

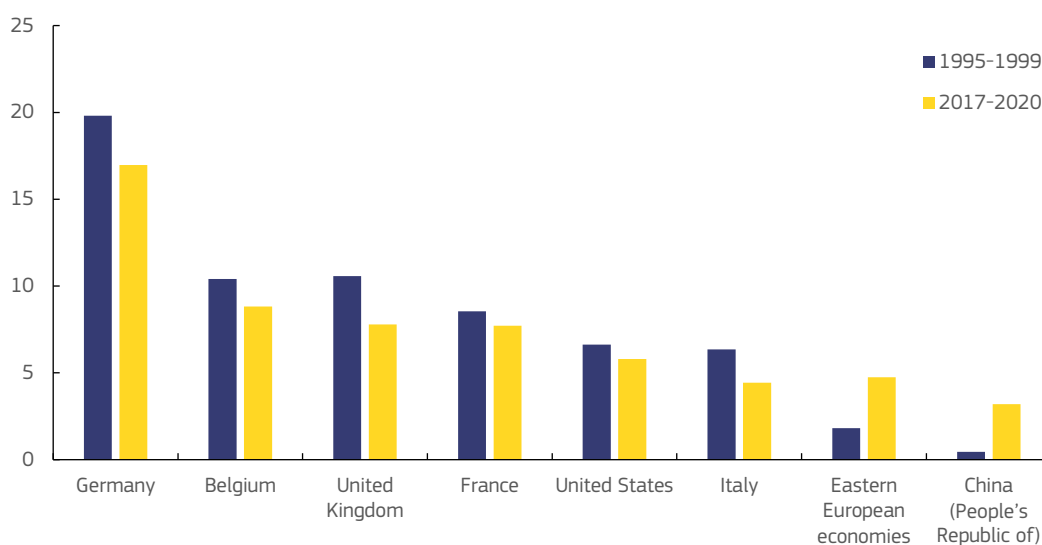
In relative terms, the importance of Germany as an export destination has decreased somewhat compared to other export destinations. Exports of Dutch origin goods and services³ to

² We excluded the years following 2020 from the analysis due to strong energy price movements. This brief mostly relies on value estimates of trade between the countries, which includes price developments. The CBS is developing price indices for international trade that distinguish between the main trading partners and products groups, based on the border crossing method (CBS, 2023). This would allow for the construction of more accurate trade volume estimates with Germany.

³ Using data from the OECD Trade in value added database, we can consider only goods that were domestically manufactured in the Netherlands. Trade in Value Added indicators (TiVA) are published by the OECD and derived from the latest 2023 release of the OECD Inter-Country Input-Output tables for the years 1995-2020. Total gross exports and imports differ from official National Accounts data due to the removal of estimates of re-exports and re-imports, the use of basic prices, and other reasons.

Germany as a share of total Dutch exports decreased from 19.8% in 1995 to 16.9% in 2020 (Graph 4). Germany did remain the largest destination for Dutch origin goods and services exports. The Netherlands exported EUR 210.1 billion worth of goods to Germany and imported EUR 111.1 billion worth from Germany in 2023. Other large European trading partners also decreased in share, including Belgium, the United Kingdom, France, and Italy. The largest gains in share are found in eastern Asia and eastern Europe. Even though Europe remains the predominant destination for Dutch goods exports accounting for around 70% of all exports, the share decreased by around 6 percentage points between 1995 and 2020. This indicates that the Netherlands is diversifying its trading partners, which could have implications for changes in sensitivities to shocks and is further explored below.

Graph 4: Shares of exported Dutch origin goods and services by destination (% of total exports)



Note: Average annual values for 1995-1999 and 2017-2020 are shown. Eastern European economies consist of Bulgaria, Croatia, Czechia, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. Exports to Ireland are excluded in the share calculations due to the activities of foreign controlled enterprises and their impact on services export statistics.

Source: OECD Trade in value added (TiVA).

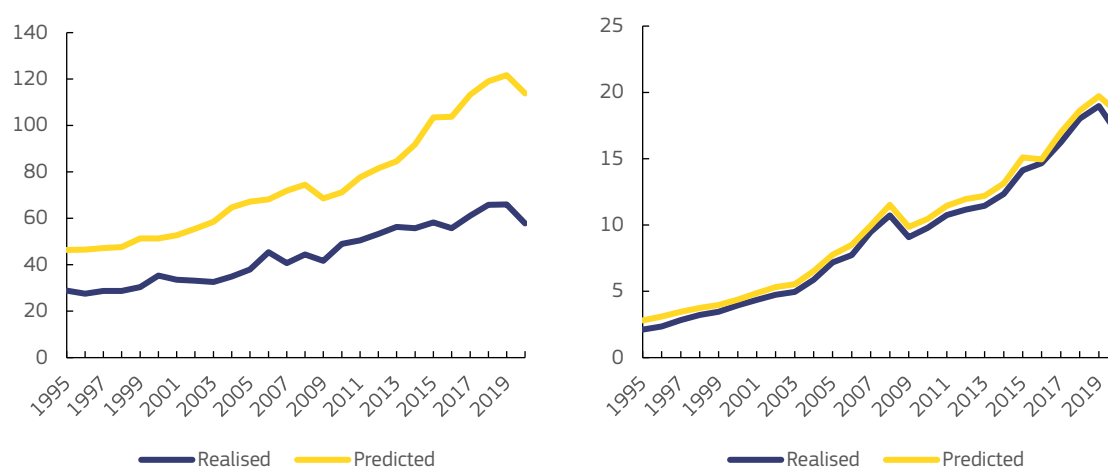
To further assess whether exports from the Netherlands to Germany have changed structurally, it is useful to compare actual trade figures to what trade between the two countries is expected to look like given the countries' characteristics. A suitable framework to analyse this question are gravity models of trade. We estimate a simple gravity model, in which exports from the Netherlands to other EU countries are a function of the size of the destination country's GDP and the distance between the two countries. The model explains over 90% of the variation in exports to other EU countries. While there are certainly other characteristics that determine trade, this simple analysis is therefore nonetheless a useful starting point. We regress exports from the Netherlands to all 26 other EU member states on destination-country GDP and the distance between the Netherlands and the destination country. We use data for the period between 1995 and 2020 on domestically produced exports from the OECD TiVA database that exclude re-exports.⁴ In addition, we control for contiguity of

⁴ Estimating gravity models on data that includes re-exports has been shown to deliver biased estimates of trade (Lankhuizen and Thissen, 2019).

borders and year fixed effects. The results allow us to compare actual exports to Germany with those predicted based on overall Dutch trade with the rest of the EU.

Actual exports from the Netherlands to Germany in the period between 1995 and 2020 were significantly below those predicted given how big the German economy is and how close to each other the two countries are located. Graph 5, also shows that this discrepancy is increasing over time and especially since around 2013. Contemporaneously, we observe that exports from the Netherlands to Eastern European economies are fairly close to their predicted values over the full time period (see the right panel of Graph 5). This suggests that the sensitivity of Dutch exports to German GDP decreased over time while exports became more dependent on economic activity in other parts of the EU.

Graph 5: Exports (EUR billions) to Germany (left) and Eastern European countries (right) realised and predicted by gravity model



Source: OECD Trade in value added (TiVA), GDP and main components (nama_10_gdp), and authors' calculations.

Overall, Germany remains the most important export market for the Netherlands, both in absolute and relative terms. However, it is also clear that exports to other destinations have grown more than exports to Germany, leading to an overall lower share of total Dutch exports going to Germany. The next section further breaks down Dutch exports to Germany by differentiating between re-exports and exports of Dutch origin goods and looking at the value added of exports to Germany.

RE-EXPORTS WITH RELATIVELY LOW VALUE ADDED ARE GAINING IMPORTANCE

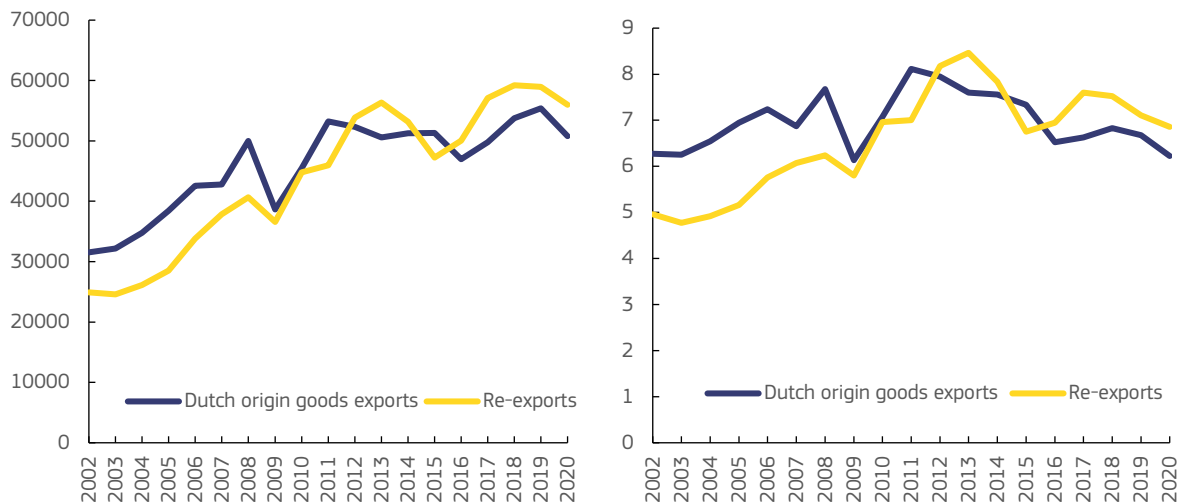
The share of re-exports as a share of total exports to Germany has been growing since 2015.

Data on the international trade in goods from Statistics Netherlands (CBS) differentiates between two types of exports, domestically manufactured goods and re-exported goods⁵. Examining the share of

⁵ The Netherlands compiles statistics on international trade in goods using two methods: change in ownership and border crossing. Data according to the border crossing method are more comparable to figures published by Eurostat on international trade in goods and are used in this Brief.

domestically manufactured goods exports and re-exports to Germany reveals the importance of distinguishing between the two export types. Graph 6 shows that there was higher growth in re-exported goods to Germany compared to domestically manufactured goods. The share of re-exports in total exports to Germany increased from 44% in 2002 to 52% in 2020. Breaking down total exports into re-exports and goods of Dutch origin is furthermore important as the value added of Dutch origin goods is on average much higher than that of re-exports (see Box 1).

Graph 6 Types of Dutch goods exports in total Dutch export value to Germany (€ millions and as a share of Dutch GDP)



Source: CBS, Imports, (re)exports, SITC (1 digit), countries and groups, 2002-2022 (83028NED) and authors' calculations.

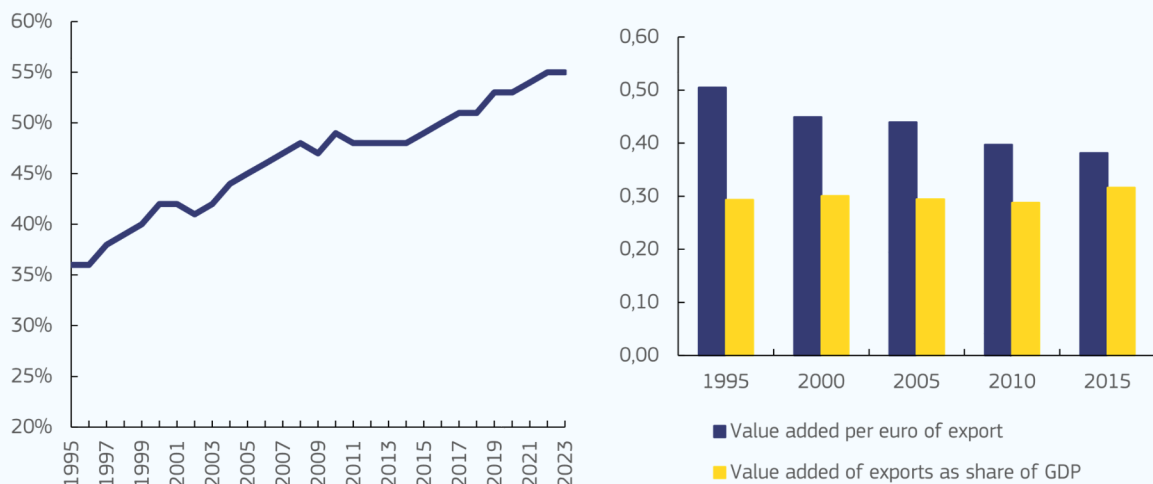
The product group composition differs between re-exports and goods of Dutch origin.

Machinery and transport equipment, the largest product group for overall exports in terms of value, made up 24% of all re-exports and 15% of domestically manufactured goods that are exported in 2023. This product group accounted for most of the re-export growth from 2015 to 2020. Food and live animals was 10% of all re-exported goods and 19% of all domestically manufactured goods exported in 2023. Miscellaneous manufactured articles made up 14% of all re-exported goods and 4% of all domestically manufactured goods exported in 2023. The product group composition of both export types did not change substantially in the same period, apart from a decline in the share of mineral fuels for re-exports domestically manufactured goods from 2019. Other large product groups of re-exports to Germany are mineral fuels (26% of all re-exports), chemicals and related products (14%), and manufactured goods classified by material (8%).

BOX 1: THE IMPORTANCE OF RE-EXPORTS FOR THE NETHERLANDS

In part due to the presence of the port of Rotterdam, re-exports make up a substantial part of total Dutch goods exports. With more than half of all exported goods being re-exported goods in the Netherlands, this share is the highest among European countries. In terms of the total value of re-exported goods, the Netherlands falls behind only Hong Kong and the United States globally. Re-exports are defined as goods that are first imported, then processed only to a limited degree and finally exported again to other countries. The share of re-exports in Dutch total goods exports has grown strongly in recent decades, as shown in Graph 7. One of the main reasons for this increase in re-exports is the establishment of free movement of goods within the EU and the progressive strengthening of the EU's internal market. Furthermore, the strong growth in trade with for example China has also contributed to the increased re-exports. In 2023, re-exports made up about 55% of the total value of Dutch exports.

Graph 7: Re-exports as a share of total exports (left) and the value added per euro of export and as a share of GDP (right)



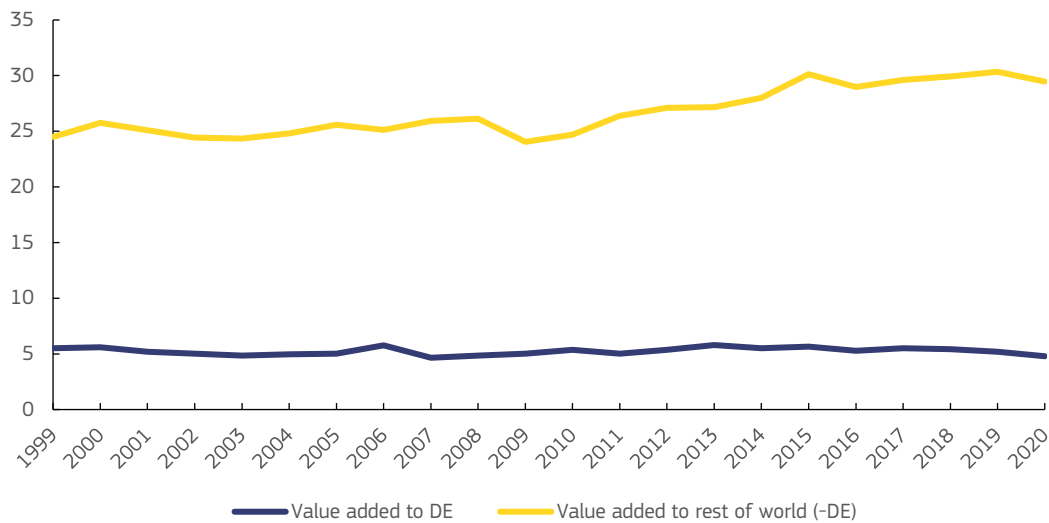
Source: CBS, GDP, output and expenditures; value, QNA, 1995- Q1 2024 (84105ENG).

Re-exports typically have lower value added than exports of Dutch origin as re-exported goods are only processed to a limited degree in the transit country. The most important activities in the Netherlands that add value to re-exports are resale, re-packaging, storage and transport services. The value added per euro of exports was €0.12 for re-exports in 2021 compared to €0.55 for exports from domestic production (CBS, 2023). Due to the strong increase in re-exports relative to goods of Dutch origin, the average value added per euro of export has decreased gradually in the past decades (Graph 7). However, the decrease in value added per euro of export is compensated by an increase in the value of total exports relative to GDP. The value added of exports as a share of GDP has therefore remained stable or even increased a bit. The total added value of re-exports was 24 billion euros per year in 2020, that of exports from own production at 120 billion euros.

The value added of Dutch origin exports (goods and services) to Germany as a share of GDP decreased slightly. At the same time, the value added of Dutch origin exports as a share of GDP to the rest of the world (excluding Germany) increased.

The value added of Dutch exports of goods and services to Germany, only considering Dutch origin goods, decreased slightly from 5.5% of GDP in 1999 to 4.8% of GDP in 2020 (Graph 8). On the other hand, the value added of Dutch exports to the rest of the world (excluding Germany) increased from 24.5% to 29.5% of GDP in the same years. In absolute terms, the value added of Dutch origin exports to Germany increased by 64.6% from 1999 to 2020 while Dutch origin exports to the rest of the world (excluding Germany) increased by 128.3%.

Graph 8: Domestic value added of Dutch origin goods and services exports to Germany and rest of the world as a share of Dutch GDP (% share)

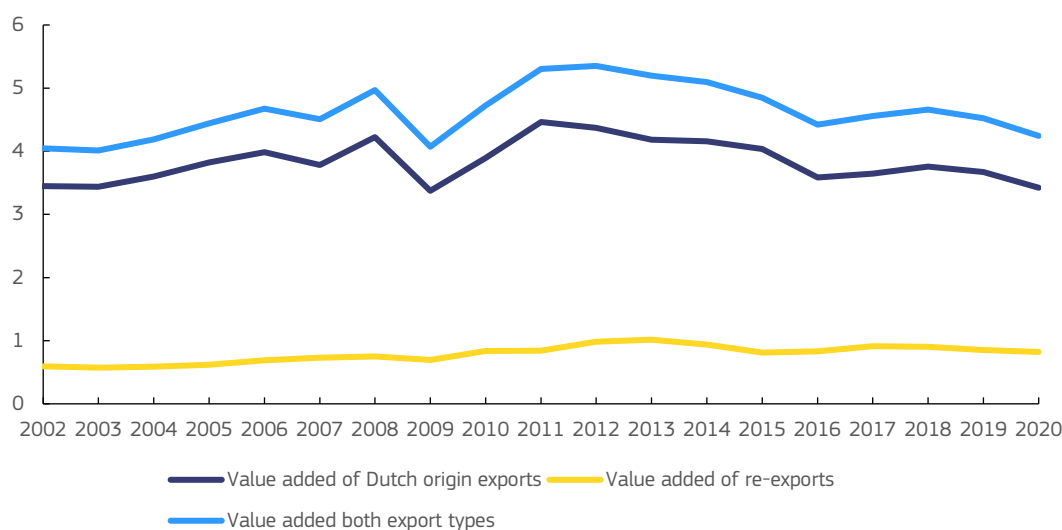


Source: OECD Trade in value added (TiVA), and Eurostat, GDP and main components (nama_10_gdp).

The composition of sectors involved in the value added from Dutch goods and services exported to Germany only changed in minor ways. Services accounted for 51.6% of the total value added of exports to Germany in 2020, which is an increase from 47.7% in 1995. The share of industry (except construction) of 42.3% in 2020 was close to the share in 1995, but substantially lower from when the share reached 51.8% in 2006. Large increases in share between 1995 and 2020 are found in wholesale and retail trade (18.3% to 22.9%) and information and communication (11.3% to 15.3%), while transport and storage decreased (15.2% to 9.9%).

To assess the change in the total value added of Dutch exports to Germany we also need to consider the contribution from re-exports. Since there is no value-added data available for re-exports per export destination, we use the simplified assumption that the value added of re-exports to Germany is in line with the average value added of total Dutch re-exports (as mentioned in Box 1, this is 12 cents per euro of re-exports). Using these assumptions, Graph 9 shows that as a share of GDP the value added of total Dutch goods exports to Germany declined since 2012. This is mainly driven by the decrease in the value added of Dutch origin goods to Germany, while the value added of re-exports to Germany are relatively stable. Zooming out a bit more however, it can be seen that the total value added of exports to Germany in 2020 was roughly at the same level as in the early 2000s. There was thus a clear downward trend since 2012 but in the longer run the value added of Dutch exports to Germany appears to be relatively stable.

Graph 9: Value added of re-exports and Dutch origin goods exports to Germany as a share of Dutch GDP (% share)



Source: CBS, Imports, (re)exports, SITC (1 digit), countries and groups, 2002-2022 (83028NED) and authors' calculations.

DIFFERENCES IN TRADE STRUCTURE AND DIVERSIFICATION

The Netherlands is less diversified than Germany in the distribution of export destinations for goods and services. The Herfindahl-Hirschman Index (HHI) can be used to measure the geographical dispersion of a country's exports, where a lower number indicates more diversification⁶. It shows that the Netherlands is less diversified than Germany in the number of export destinations of goods and services. The geographical export HHI of Dutch exports stood at 0.06 in 2020, higher than the German HHI of 0.04, and higher than other major trading partners apart from Belgium (Graph 10). The primary reason for this difference is the relatively large share of Dutch exports going to Germany, while the largest export destination for Germany was the United States with a share of less than 10% of total German exports. However, the Netherlands is on a trajectory towards diversifying its export destinations, where the geographical HHI fell from 0.09 in 1995 to 0.06 in 2020.

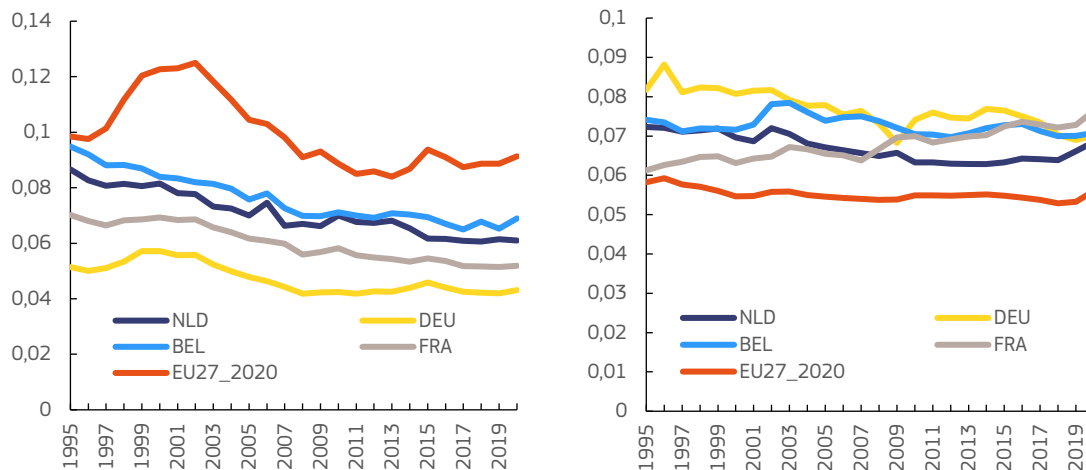
The Netherlands is slightly more diversified in the economic activity of exports than Germany. The HHI can also be applied as a measure of economic activity diversification of exports, where again a lower score reflects higher diversification⁷. The average HHI from 1995-2020 was somewhat lower for the Netherlands (0.067) compared to Germany (0.076) indicating slightly more diversification in economic activities, and more diversification compared to Belgium, France, and the EU over the same period (Graph 10). This difference is largely due to the lower share of exports in the largest aggregate category, namely machinery and transport equipment, in the Netherlands compared to Germany (31% vs. 46%). Other economic activities with larger differences between the export shares of

⁶ It is defined as the square root of the sum across destinations of the squared export shares for the selected country to all destinations. The HHI was calculated using OECD TiVA data with 77 economies.

⁷ The of HHI of economic activity diversification was calculated using 45 industries based on ISIC Rev. 4.

the Netherlands and Germany are mineral fuels and related materials (12.4% vs. 2.8% respectively), and food and live animals (10.5% vs. 4.6%).

Graph 10: Geographical (left) and economic activity (right) diversification of exported goods and services as measured by the HHI

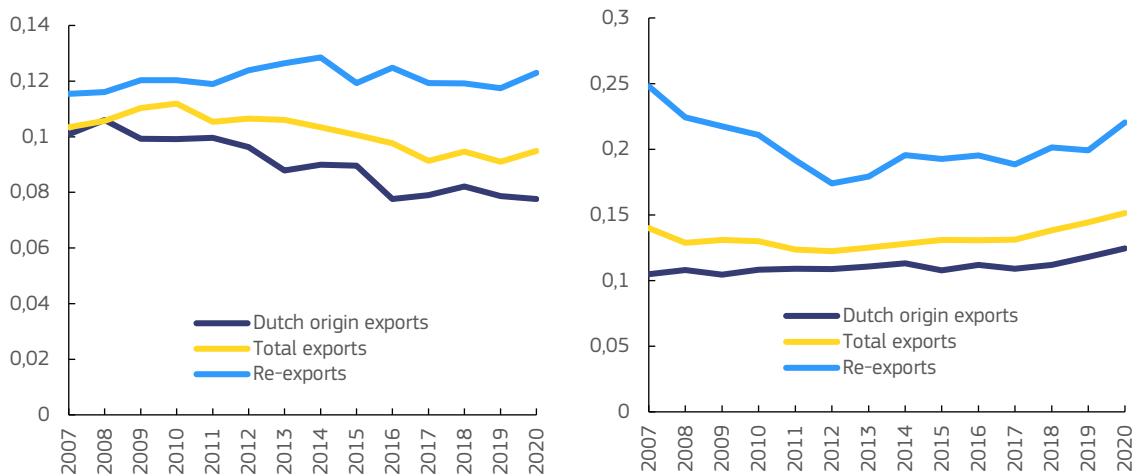


Source: OECD Trade in value added (TiVA) and authors' calculations.

Re-exports in the Netherlands are less diversified geographically and less diversified in terms of product groups compared to exports of Dutch origin goods. Trade data from the Dutch national statistics institute (CBS) can be used to differentiate the HHI diversification for goods that are re-exported and exported goods of Dutch origin⁸. The geographical diversification decreased for re-exports, increased for Dutch origin goods, and increased slightly for overall exports, which matches the development for overall export diversification from the OECD TiVA data (Graph 11). While the diversification in product groups for re-exports was significantly lower in 2007 compared to Dutch origin exports, it increased to almost reach the same diversification of overall exports in recent years.

⁸ We use international trade and transit trade data, which is based on the integration of the international trade in goods statistics and transport statistics. Due to the integration method and definition differences, the international trade and transit trade figures can differ. This data contains less export product groups (20) compared to the economic activities from the OECD TiVA data. There is also less disaggregation in the number of countries and geographical regions in the CBS trade data (36). Therefore, the values of the HHI are not comparable for the overall exports.

Graph 11: Geographical (left) and product group (right) HHI diversification of exported goods for the Netherlands



Source: CBS, International trade and transit trade; value, weight, goods, transport mode (84668ENG).

CONCLUSIONS

Germany remains the single most important trading partner for the Netherlands and the importance of exports to Germany for Dutch GDP remains largely unchanged. However, since 2000, the value of Dutch goods exports to Germany has increased less strongly than to the rest of the world. We also observe that since 2012, the share of re-exports to Germany has been increasing, while the share of domestically produced exports has been declining. The overall growth in exports to Germany is driven almost entirely by the increase in re-exports. Given the lower value added per euro of re-exports, the change in the composition of exports has resulted in the value-added of Dutch exports to Germany as a share of GDP decreasing since 2012. Over a longer period however, the value added of Dutch exports to Germany as a share of GDP appears to be relatively stable.

This shift in the composition of exports to Germany (and the rest of the world), may have effects on economic outcomes in the Netherlands. An increasing dependency on re-exports to the largest trading partner for the Netherlands could imply a higher susceptibility to global shocks, given that re-exports originate mostly outside of the EU. We furthermore find that Dutch re-exports are less diversified geographically and in terms of product groups than exports of Dutch origin, which could lead to lower resilience to economic downturns.

Results from a simple gravity model of trade show that exports from the Netherlands to Germany are lower than predicted by the size of the German economy and the close geographical location and that this discrepancy has grown over the last ten years. This reflects that Dutch exports to Germany have become less sensitive to economic conditions in Germany over time. For other European economies, especially Eastern European ones, this is not the case. An analysis of the destinations of Dutch exports confirms this. The share of exports to Germany in total Dutch exports has fallen, with an even sharper decline when considering goods of Dutch origin only.

Overall, the developments in Dutch exports to Germany likely only explain a small part in the observed divergence in economic outcomes in the past decades. This analysis has mainly looked at the importance of exports to Germany for Dutch GDP and is thus by nature limited in scope. The differences in the structure of the Dutch and German economy are likely to be a more important element in explaining differences in economic outcomes. In relation to Dutch export performance, for example, it should be noted that the German car industry (which is one of the sectors with especially weak performance in

Germany in recent years), is of relatively minor importance for Dutch exports. The focus on goods trade in this analysis over services trade is mainly due to the better data availability for goods trade between the countries and to show the effect of re-exported goods. However, it is widely noted that for advanced economies like the Netherlands the importance of services is increasing faster than the contribution of the goods trade to the economy.

A further analysis could look more closely into a sectoral breakdown while taking into account other structural characteristics of the German and Dutch economy. The business cycle synchronisation literature also identifies financial integration and industry specialisation as determinants of co-movement between the GDP growth rates of countries. Models from this literature would make it possible to quantify the effect of bilateral trade on the business cycle co-movement, while controlling for the other determinants of synchronisation. Other possible research areas include accounting for large companies doing business in both countries, how the countries are integrated into global production chains, and cross border labour market developments.

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