DNB Occasional Study
Volume 18 - 3

Changing international landscape and the Dutch economy:

trends, drivers and consequences

DeNederlandscheBank
EUROSYSTEEM

Changing international landscape and the Dutch economy:
trends, drivers and consequences

Authors
Minke van der Heijden, Yannick Hemmerlé, Bahar Öztürk, Ilona van Schaik, Camiel Schuijren

De Nederlandsche Bank N.V.
P.O. Box 98
1000 AB Amsterdam
Internet: www.dnb.nl
Email: info@dnb.nl

Changing international landscape and the Dutch economy:
trends, drivers and consequences

Minke van der Heijden
Yannick Hemmerlé
Bahar Öztürk
Ilona van Schaik
Camiel Schuijren[1]

1 The authors would like to thank Johan Verbruggen, Maurice Bun, Jakob de Haan, Harry Garretsen, Tjerk Kroes, Fabienne Fortanier, Christiaan Pattipeilohy and various representatives of CPB Netherlands Bureau for Economic Policy Assessment, Statistics Netherlands, the Ministry of Economic Affairs and Climate Policy and the Ministry of Finance for comments on previous versions of this study, and Wilko Bolt and Kostas Mavromatis for their valuable input. Statistical support was provided by Peter Keus and René Bierdrager.

Contents

Introduction 7

1 From multilateralism to regionalism and protectionism 15
1.1 Multilateralism reigns supreme after World War II 15
1.2 Shift to regionalism and increasing protectionism 16
1.3 Drivers of regionalism and protectionism 21

2 Global value chains and protectionism 30
2.1 The development of global value chains 30
2.2 Drivers behind the stagnation of participation in global value chains 41
2.3 Increasing protectionism and global value chains 42

3 The Netherlands in global trade: vulnerability to increased protectionisme 46
3.1 Regional nature of Dutch trade 46
3.2 Vulnerability of Dutch exports to protectionism 51
3.3 Vulnerability at sector level 53
3.4 Vulnerability to US-China trade war 56

4 Macroeconomic impact of deglobalisation: a scenario analysis 60
4.1 A scenario analysis of deglobalisation 60
4.2 Assumptions underlying the scenario 62
4.3 Economic consequences of deglobalisation 63
4.4 Impact on the Netherlands versus the rest of the euro area 63

5 COVID-19 and the Dutch trade landscape 67
5.1 Vulnerabilities of global value chains 67
5.2 Solutions to reduce vulnerabilities 70
5.3 Impact COVID-19 crisis on globalisation 74

Appendix Full set of deglobalisation scenario variables 75

References 77

Introduction

Background

The international landscape has changed greatly in recent decades. After World War II, the new world order was characterized by a relatively small, homogeneous group of Western countries with similar levels of development and political interests. Multilateralism was on the rise, resulting in a growing number of multilateral treaties and institutions. This "global governance" reached its peak around the establishment of the World Trade Organization (WTO) in the mid-1990s. Under the WTO banner – previously the General Agreement on Tariffs and Trade (GATT) – trade barriers were significantly lowered for several decades. This nurtured trade between countries regardless of their geographical proximity and differences in the level of economic development. The emergence of digital technologies made it possible for firms to fragment their production processes across borders, stimulating productivity worldwide. The widely held consensus was that this so-called globalisation fostered global prosperity. The tide has turned, however, and the current international landscape is characterised increasingly by power struggles, stagnant multilateral cooperation and growing protectionism.

The current world order no longer comprises a group of homogeneous Western countries with similar economic and political interests. Thanks to globalisation, more and more countries with significant differences in their level of development and economic structure are now integrated into the global economy. While the GATT had only 18 members in 1947, the WTO currently has 164 members. The increasing number of countries with different levels of economic development makes it a challenging task to reach trade agreements. Consequently, the last multilateral trade agreement dates from 1994. Since then new trade agreements have more often been limited to small groups of countries. At the same time, a number of Western countries have started to increasingly reject multilateral institutions and

advocate economic nationalism in their policies. Brexit and the "America First" policies of the United States are clear illustrations of this. This threatens a rules-based, open and level playing field in international trade.

The increased heterogeneity of the world economy has not only made collective cooperation more difficult but has also put international relationships under strain. An example is the rise of China. In 1980 China accounted for 2.3% of global gross domestic product (GDP), and over four decades this share has grown to 18%, making China the second largest economy in the world. China's state-controlled economy was expected to convert to the Western system after joining the WTO, while in reality this has only happened in part. China's foreign policy objective is to play a proactive and dominant role in world politics, and Chinese state intervention in business in particular is creating frictions with the West. These frictions have recently led to a string of trade disputes with the United States. At a more fundamental level people seem increasingly to be questioning the benefits of free trade, even within the European Union (EU). Protectionism is consequently gaining ground.

These developments pose a threat to global trade and may unleash a trend towards deglobalisation, which could be accelerated by the COVID-19 crisis. This would be bad news for the Netherlands. As a small, open economy, the Netherlands is heavily dependent on international trade and cooperation. Exports of goods and services accounted for 34% of Dutch GDP in 2018, and generated 2.4 million full-time jobs, around one-third of total employment. This Occasional Study examines these developments from a Dutch perspective and provides insights to address the challenges involved. We do this in the first place by assessing the main trends and shifts in the global trading system and by identifying the underlying drivers. We then analyse the macroeconomic consequences of these shifts for the Dutch and European

economies. Finally, we come to a number of policy recommendations based on our findings. It is important to note that our analysis focuses only on the trade aspect of globalisation and does not address the role of multinationals, FDI flows and political-strategic considerations in trade policy.

Section 1 describes two global trends in international trade policy, namely the shift from multilateral to regional trade agreements and increased protectionism, and identifies the main drivers of these trends. Section 2 examines in greater detail the developments in global value chains (GVCs) and how these interact with protectionism. Section 3 studies the vulnerability of Dutch and European economies to protectionism while taking a closer look at the most vulnerable Dutch sectors. It also addresses the question of whether the Dutch economy is more sensitive to trade restrictions stemming from the US or China. Section 4 presents a scenario analysis mapping the impact of deglobalisation on the Dutch, European and global economy. Section 5 addresses the recent COVID-19 crisis. It identifies the vulnerability of GVCs brought to light by the crisis and discusses its implications for globalisation.

Findings

The shift towards regional trade liberalisation and the emergence of protectionism are not temporary phenomena, but manifestations of deep-rooted socioeconomic and institutional developments. We identify three underlying drivers. First, multilateral cooperation has been challenged in recent decades by a growing number of players in an increasingly complex trade environment. Second, the WTO and its trade agenda have not adapted sufficiently to these developments. Third, free trade has been increasingly subject to scepticism in the last decade, partly due to growing income inequality.

Increased protectionism affects world trade through GVCs among other channels. Within GVCs intermediate products are shipped across national borders several times before the final product reaches the consumer. Despite the name, most trade through GVCs is regional and has been losing ground since 2011. This reflects, on the one hand, the challenges posed by the fragmentation of production processes, which increasingly exposes firms to foreign supply shocks. On the other hand, it reflects growing protectionism. In the medium term, lower participation in value chains due to protectionism may lead to a fall in productivity growth, while in the long term it may result in reduced economic potential and slower global growth.

Dutch trade through global value chains is largely regional in nature, with just over half of Dutch value added in exports eventually ending up in the EU. This shields a large part of Dutch trade from protectionism, as countries in the European single market are in principle not permitted to impose trade barriers on each other. Still, roughly 40% of Dutch value added in exports is vulnerable to protectionism from outside the EU, as this concerns trade with countries with which the Netherlands has no trade agreement. The sectors that are vulnerable for protectionism concern mainly services such as transport, storage and other business services. Trade in services is also still subject to remaining trade barriers in the European single market. Among trading partners, the Netherlands is more vulnerable to protectionist measures from the United States than from China. A number of service sectors in particular are vulnerable to US protectionism, while industrial sectors are more vulnerable to protectionism from China.

A scenario analysis in which global trade is characterised by structurally higher trade tariffs reveals that Dutch, European and global GDP would be severely impacted by deglobalisation. Dutch GDP, for example, would fall by around 3% in the medium term if the United States, China and the euro area

were to impose long-term tariff increases of 10% on each other. The analysis also shows that the effect on the Dutch economy of structurally higher global tariffs would be larger than the effect on the rest of the euro area.

The vulnerabilities of global value chains revealed by the COVID-19 crisis may further worsen sentiment towards free trade and globalisation. These vulnerabilities exist because companies generally hold limited stocks, have a limited overview of the supply chain that they are a part of and because governments can impose measures restricting trade. The frequently cited solutions in the public debate to these vulnerabilities involve government intervention in the production processes, such as reshoring production. The organisation of the production processes should in principle be left to the market itself. An exception applies to cases where trade through value chains produces external effects that conflict with public interests. For certain essential goods, such as medical face masks, government intervention may be desirable to ensure sufficient supply.

Policy recommendations

The trend towards protectionism poses major challenges for a small, open economy such as the Netherlands. These are challenges that we cannot meet alone and that call for a strong Europe. The Netherlands can, however, influence the course of action that needs to be taken to meet these challenges. The following policy recommendations, developed primarily from the Dutch economic perspective, focus on this objective. The recommendations are based on two key points. First, the continuing integration and strengthening of the EU in the field of trade is important for the Dutch trading position and economy. Second, it is important for the Netherlands that the EU combats protectionism by addressing its underlying drivers.

It is in the interest of the Netherlands that the EU actively pursues reforms of the WTO and the WTO trade agenda. This will ensure that the WTO remains an effective multilateral negotiating platform. The EU can thereby also help protect the interests of the least developed economies. Reform of the WTO should primarily be aimed at a better reflection of the economic power in the world, for example by granting countries a development status on the basis of an objective criteria rather than leaving the choice of such status to countries themselves, as is currently the case. Such a development status in the WTO confers special rights on countries, for example the right to erect trade barriers to protect their economy from foreign competition. An alternative is to determine whether a development status applies for each sector in a country. Reform of the WTO trade agenda should focus mainly on modernising and enforcing regulation, including in the areas of state subsidies and intellectual property. More emphasis should also be placed on fast-growing sectors such as e-commerce and services. Moreover, in order to ensure the effectiveness of the WTO, it is vital that the Dispute Settlement System is reactivated.

Although further trade liberalisation at the multilateral level would be ideal, its feasibility seems unlikely in the near future within the current trading system. The Netherlands would therefore benefit from an EU that is committed to a flexible, multilateral trading system, with a reformed WTO continuing to function as a multilateral negotiating platform. Such flexibility can be achieved by supporting and continuing plurilateral trade agreements, which involve a subset of WTO members agreeing on specific issues. This is in contrast to traditional multilateral negotiations, where all WTO members have to agree on every aspect of the negotiations before the treaty can be enacted. Plurilateral agreements can thus enable faster and more targeted adaptation to WTO rules.

In a world of shifting power relationships, it is important for both the Netherlands and the EU to strengthen their own trading positions. As an insurance against global protectionism, it is therefore advisable for the EU to continue signing regional trade agreements, provided these agreements support the multilateral trading system. Such agreements should therefore be designed in a way that avoids trade discrimination towards third countries. This can be done in part by concluding in-depth agreements focusing, for example, on regulatory alignment. The resumption of negotiations on the transatlantic trade agreement with the United States is particularly important in this regard. Moreover, given the interdependence of European trade, it is desirable for European integration to continue. Further integration of the single market for services is an important trade objective. A strong, well-integrated EU will be able to exert influence on the world stage more effectively.

In order to address the scepticism towards free trade within its own borders, the EU must make clear that redistribution problems associated with free trade should be tackled through more targeted domestic policies on the part of Member States. The degree to which European Member States conduct targeted labour market policies (retraining, social safety nets etc.) to address the adjustment costs of free trade varies greatly. This allows for sufficient room for improvement. A more proportionate distribution of economic growth between providers of capital and labour can help in tackling the redistribution problems associated with free trade.

In particular, the EU must ensure that the COVID-19 crisis does not result in stronger protectionist and nationalist tendencies. The vulnerabilities of GVCs brought to light by the COVID-19 crisis should be addressed as part of a strategic European approach, which should include holding stocks of essential (e.g. medical) goods at the European level to ensure the security

of supply. This would limit market distortions, as firms' participation in GVCs would be unaffected. A coordinated European approach would also prevent inefficiencies due to one Member State having shortages of essential goods while others have surpluses. A complementary European strategic contingency plan could help with the rapid conversion of existing production lines for essential goods that cannot be stockpiled for long periods.

1 From multilateralism to regionalism and protectionism

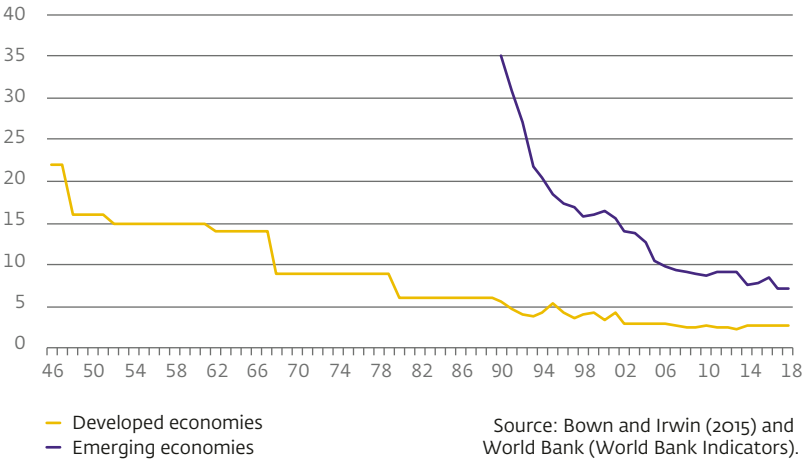
1.1 Multilateralism reigns supreme after World War II

Countries greatly liberalised their trade policies after World War II, a trend that was driven by a conviction that free trade would promote economic growth and improve living standards worldwide. The establishment of the General Agreement on Tariffs and Trade (GATT) in 1947, replaced by the World Trade Organization (WTO) in 1995, played an important role in this process. The GATT and the WTO organised several rounds of trade negotiations over recent decades. The main objective of these rounds was to set rules for international trade and to dramatically reduce trade barriers on a multilateral level. As a result, these trade negotiations delivered substantial cuts in average import tariffs in both developed and emerging economies (Bown & Irwin, 2015) (see Figure 1.1).

The multilateral nature of these trade negotiations was a vital factor. Multilateral trade liberalisation involves trade agreements between all or the vast majority of the countries in the world. In practice, this means establishing agreements between all WTO members, whose number has risen steadily over the years to 164 in 2020 (WTO, 2020a). Every country applies equal trade measures to all its trading partners, thereby preventing trade discrimination and creating a level playing field. According to standard trade theory, this ensures the most efficient allocation of resources and growth of global prosperity (Irwin, 1996; Costinot & Rodriguez-Clare, 2014).

Figure 1.1 Trade tariffs in developed and emerging economies

Unweighted average percentages



Source: Bown and Irwin (2015) and World Bank (World Bank Indicators).

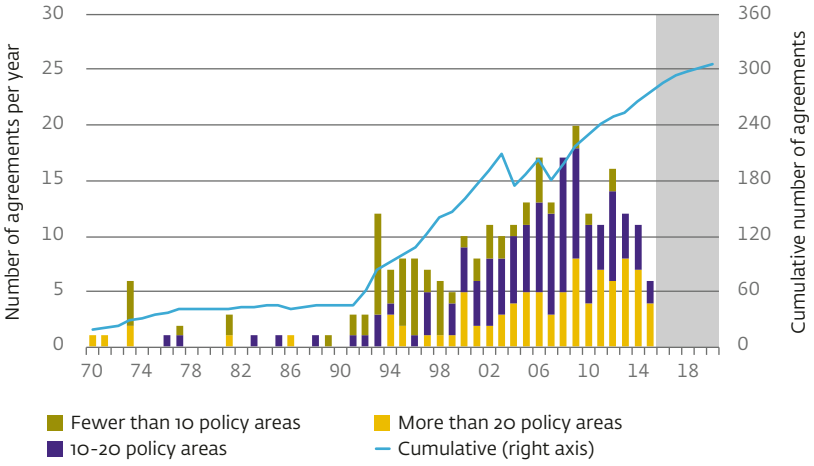
Notes: Aggregated based on the 14 largest countries in the world (according to PPP GDP weight in 2010). Developed countries include: United States, Japan, Germany, France, United Kingdom, Italy and Spain. Emerging countries include: China, India, Russia, Brazil, Indonesia, Mexico and South Korea.

1.2 Shift to regionalism and increasing protectionism

From the mid-1990s, countries' trade policies increasingly shifted from multilateralism to regionalism. Since then, more and more countries have signed regional trade agreements that are limited to a particular group of countries or a region, such as the former North American Free Trade Agreement (NAFTA) or the EU's single market (see Figure 1.2). The growth of regionalism is largely a response to the declining success of multilateral trade negotiations in the WTO, particularly from the start of this century, as illustrated by the failed negotiations during the last multilateral trade

round, the Doha Round of 2001-2013. During the Doha Round, WTO members failed in their attempt to further liberalise trade in agricultural products and services. The most recent multilateral trade agreement consequently dates from 1994.

Figure 1.2 Number and size of new regional trade agreements



Source: World Bank Content of Deep Trade Agreements Database and WTO Regional Trade Agreements Information System.

Notes: The vertical bars show how many policy areas were covered when new trade agreements were concluded. The yellow bars, for example, show that the relevant regional trade agreement covers more than 20 policy areas.

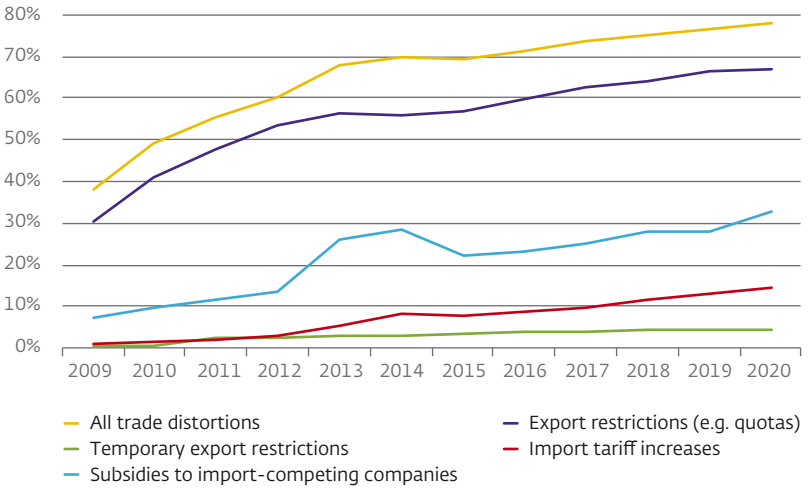
Regional trade agreements are permitted within the WTO under specific conditions, but are in principle discriminatory (WTO, 2020b). The agreements within NAFTA do not apply, for example, to European companies.

Regionalism can thus be detrimental if trade is diverted to less efficient producers or if it replaces trade with third countries (trade diversion). A multiplicity of regional agreements can also give rise to overlapping, inconsistent and fragmented regulation. Multinational corporations may thus face higher transaction costs from having to comply with different agreements. Conversely, a regional trade agreement promotes trade between the signatory countries, and positive spillover effects to third countries can occur, for example because these countries become integrated in global value chains (trade creation). The literature is ambiguous about the net welfare effect of regionalism. Clausing (2001), for example, finds more evidence of trade creation, whereas Romalis (2007) and Karacaovali & Limão (2008) find evidence of trade diversion. In addition, effects seem to depend greatly on specific factors, such as the depth of the agreement (Mattoo et al., 2017). It is clear, however, that regionalism can undermine a level playing field.

Today, more than 50% of global trade takes place under regional trade agreements, and more than 300 regional trade agreements are in force (OECD, 2020a). In recent years, fewer and fewer new regional trade agreements have been concluded, but new agreements do cover an increasingly wider range of policy areas (see Figure 1.2). This reflects the need for countries to enter into trade agreements that go beyond tariff reductions, such as agreements on product standards and regulation (Baldwin, 2016). The most recent major regional trade agreement at the time of writing is the Regional Comprehensive Economic Partnership (RCEP), a treaty between China, Japan, Australia and ten other Southeast Asian countries, which was concluded in November 2020 after eight years of negotiations. The agreement covers almost one-third of global GDP, and removes 90% of existing import tariffs between the participating countries (Harding & Reed, 2020).

A second global trend in trade policy is growing protectionism, which has been particularly evident in the last decade. The recent trade war between China and the United States is an obvious example, although various countries have been imposing an increasing amount of protectionist measures for a longer time. The share of world trade subject to trade barriers increased steadily in the years prior to the trade war (Baldwin & Evenett, 2020) (see Figure 1.3). Protectionist measures are permitted within the WTO under certain circumstances, for example when they serve a public interest or when a country is disadvantaged by unfair trade practices. Furthermore, the WTO has not established trade rules in all policy areas, leaving some leeway for protectionist measures.

Figure 1.3 Share of world trade subject to different trade restrictions

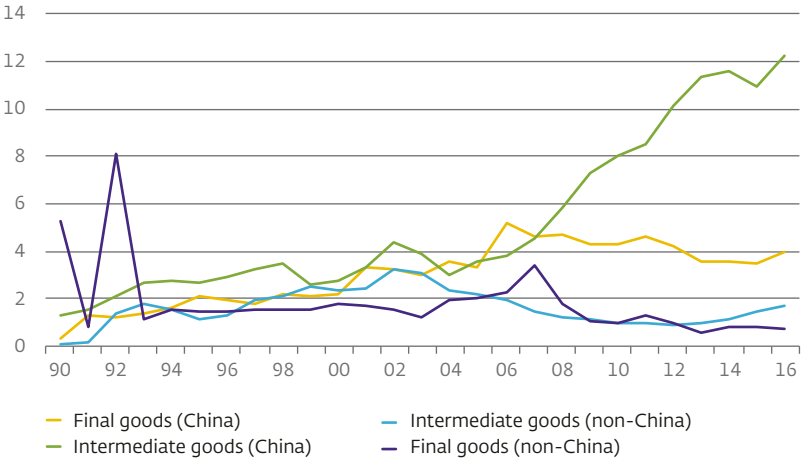


Source: Baldwin & Evenett (2020).

Protectionist non-tariff measures (NTMs) in particular have increased over the past decade, especially in services trade (IMF, World Bank & WTO, 2017). In the broadest definition, NTMs include all measures other than tariffs that restrict or distort trade flows, e.g. export and other subsidies and temporary protective barriers, such as anti-dumping measures.[2] Export restrictions account for most of the increase in trade restrictions (see Figure 1.3).
In China, intermediate goods in particular are increasingly subject to temporary trade barriers (Bown, 2018). In 2016, 12.2% of Chinese intermediate goods were subject to protectionist measures from the most advanced G20 countries[3], whereas only 4% of final goods were affected (see Figure 1.4).

Figure 1.4 Temporary trade barriers erected by high-income G20 countries

Percentage of imports



Source: Brown (2018).

2 Anti-dumping measures are import duties on imported products for which international price discrimination arises. In other words, when the imported goods are sold in the destination country at much lower prices than in the source country.
3 Australia, Canada, Japan, the EU, South Korea and the United States.

Despite the fact that NTMs may hamper trade, they also have positive aspects. NTMs also cover measures related to, for example, product regulations and standards, and sanitary and phytosanitary measures. In some cases these so-called technical NTMs serve a public interest, for example, when they protect public health. NTM agreements can also promote trade, for example when countries make uniform agreements on product standards (OECD, 2020b).

1.3 Drivers of regionalism and protectionism

The shift to regional trade agreements and the emergence of protectionism are not temporary phenomena but expressions of deep-rooted socioeconomic and institutional developments. The three main drivers underlying the shift, namely an increasing number of players in a more complex trade environment, greater scepticism towards free trade and insufficient adjustments within the WTO, are discussed below.

1.3.1 Increasing number of players in a more complex trade environment

In recent decades, multilateral cooperation has been hampered by an increasing number of players in an increasingly complex trade environment. After World War II, trade was mainly conducted between a fairly small, homogeneous group of Western countries (the United States, European countries and Japan). These countries had relatively similar economic and political interests, making multilateral cooperation relatively easy during that period (Ikenberry, 2018). Gradually more and more countries, with major differences in levels of development, economic structure and political interests, became integrated into the global economy (Wu, 2016; Pisani-Ferry, 2018). Whereas the WTO had only 18 members in 1947, by the start of the 1990s there were more than a hundred. At the end of 2020, the WTO had 164 members.

The increased diversity of countries is an additional factor that complicates international cooperation (Alesina et al., 2005). This is particularly true of the rise of China's state-controlled economy. China's ambition is to become a global economic and technological superpower (Dutch Ministry of Foreign Affairs, 2019; European Commission, 2019). The various strategies that China uses undermine a level playing field and therefore clash with the Western economic system. For example, the Chinese state provides cheap funding and subsidies to private Chinese companies, while some Western companies have to contend with forced technology transfers and infringements of intellectual property rights. A lot of criticism is also directed towards China's Belt and Road Initiative, which puts developing countries in particular at risk of becoming economically dependent and politically subordinate to China (see Box 1.1). Such frictions have strained the relationship between China and other global powers in recent years, which has also made multilateral cooperation more difficult.

In addition, negotiations on trade agreements have become more complex. Countries not only have a desire to further reduce tariffs, but also to reach agreements on NTMs, which are often more difficult to identify than tariffs and cover a variety of issues, making compromise more difficult.

Box 1.1 China's Belt and Road initiative

China aims to strengthen its dominance and its trading position by promoting economic links with Asia, Europe and Africa. To that end it launched the Belt and Road Initiative (BRI) in 2013. To a large extent, this initiative is embodied in major infrastructure investments, such as the construction of roads, railways, ports and airports, but also in the facilitation of trade and investment, financial cooperation and cultural

exchanges. China is building both a belt – overland routes extending from Central Asia to Europe – and a road – a maritime network of shipping routes leading to Europe via Southeast Asia and Africa. It is also developing a Digital Silk Road, based in part on internet technology and online banking. China promotes the BRI as a win-win situation: countries can easily borrow money from China for new infrastructure, without onerous conditions, while China strengthens its dominance and trading position. In particular, developing countries are receiving considerable Chinese investment, although the Netherlands is involved in China's BRI, too. A railway line directly connecting Rotterdam and Beijing has been in operation since 2015.

Because of China's BRI, developing countries run the risk of becoming economically dependent on and politically subordinate to China. The large sums that China invests in developing countries cause these countries to become massively indebted to China. Horn et al. (2019) show that over a hundred developing and emerging countries collectively have at least USD 400 billion of debt to China. On average, this translates into an amount of debt equal to 17% of these countries' GDP, while they are not always in a position to repay their debt. In 2017, for example, Sri Lanka was forced to grant China a 99-year lease on a new port, as the country was unable to meet the USD 1.4 billion of payments for the project. The risk of economic dependence and political subordination has now been exacerbated by the fact that many developing countries are being hit hard by COVID-19 and are therefore having great difficulty meeting their payment obligations towards China. There is also concern about the extent to which China is using the infrastructure projects for military purposes (Dutch Ministry of Foreign Affairs, 2019).

1.3.2 Increased scepticism towards free trade

The golden promises of free trade have been increasingly called into question in recent decades, particularly in developed countries. A growing number of US, Japanese and European citizens believe that although free trade and the associated globalisation are good for their country as a whole, these do not affect their personal well-being in a positive way (Stokes, 2014; Eurobarometer, 2017). Also in the Netherlands a significant number of people believe they are negatively affected by globalisation (Den Ridder et al., 2018).

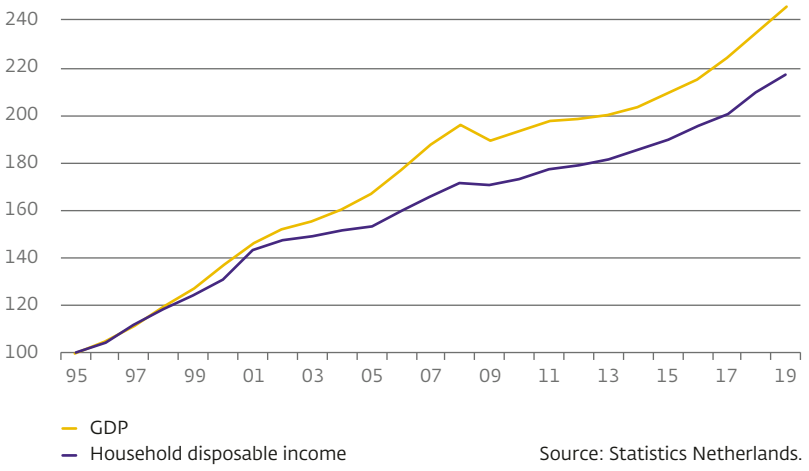
This perception goes hand in hand with increased income inequality and relatively low income growth of the global middle class. In recent decades, both the lowest incomes in countries with high labour intensity (e.g. China and India) and the highest incomes in capital-intensive countries (particularly in the United States) have risen sharply. Hence, the global middle class has been lagging behind (Lakner & Milanovic, 2013). A similar trend is evident in the Netherlands, where households' disposable income has grown in recent decades more slowly than the economy as a whole (see Figure 1.5).[4] There is a common perception that free trade has played a role in this as well as in the loss of jobs to low-wage countries. This fuels support for protectionist policies. For example, support for protectionist policies is found to be strongest in regions where Chinese import competition increased most (Cerrato et al., 2018; Colantone & Stanig, 2018). Research shows, however, that demand shocks, technological changes and domestic competition shocks lead to higher job losses than international trade (Rodrik, 2018). Acemoglu et al. (2016) show, for example, that only

4 Apart from the possible contribution of globalisation, another major cause of the decoupling between GDP growth and household income growth is the increase in the collective tax burden on households since the turn of the century. This has been offset by higher public spending, however, for example on healthcare and education, which benefits individual households.

10% of job losses in US industries between 2000 and 2007 were due to Chinese import competition. In addition, most studies ascribe the bulk of the increased income inequality to technological developments (Jaumotte et al, 2013).

Figure 1.5 Dutch household income grows more slowly than economy

Index 1995 = 100



Source: Statistics Netherlands.

One of the reasons why scepticism towards free trade has increased is that the adjustment costs accompanying trade liberalisation can in reality be high and long-term. According to economic trade theory, free trade creates not only winners at the individual level but also losers, at least in the short run. Increased import competition, for example, may temporarily cause the losers to become unemployed or face pay cuts. Empirical research does indeed show that free trade can lead to job losses. Extensive literature reveals the labour market impact of increased Chinese exports since China's

accession to the WTO. Autor et al. (2013) find that increased Chinese import competition in the United States has led to rising unemployment along with lower wages and lower labour market participation. Acemoglu et al. (2016) also estimate that between 2.0 and 2.4 million US jobs were lost between 1999 and 2011 as a result of increasing Chinese import competition. Feenstra & Sasahara (2017) and Caliendo et al. (2019) show similar results. A number of European countries, including Norway, Spain and Germany, have also recorded job losses due to Chinese import competition (Balsvik et al., 2015; Donoso et al., 2015; Dauth et al., 2014).

These losses are recognised in economic trade theory, but are primarily viewed as a temporary, transitional problem, since additional jobs are created in the export sectors. If a person loses his or her job in import sector x, that person 'in theory' simply switches to another job in export sector y. Research does indeed show job gains in the export sector which in some cases even offset the number of jobs lost in the import sector (Feenstra et al., 2019). This is also found to be the case for the Netherlands (Euwals et al., 2019). In reality, however, the adjustment costs of free trade can be high and long-lasting (Autor et al., 2016). It has been found, for example, that people who lose their job are much less willing to move to another place or another sector than was generally assumed (Glaeser & Gyourko, 2005; Yagan, 2014). This applies particularly to low-skilled workers and may explain part of the scepticism towards free trade (Malamud & Wozniak, 2012; Diamond, 2016; Van Schaik, 2020).

The emergence of global value chains has also increased the adjustment costs of free trade. Thanks to the participation in GVCs, countries increasingly specialise in very specific tasks rather than in sectors. This implies that globalisation affects specific professions rather than entire sectors (Brakman & Garretsen, 2020). The adjustment costs have

consequently increased, since the cost of transition to another profession is higher than to the same profession in another sector.

Finally, the scepticism towards free trade is fuelled by asymmetric standards and rules between countries, which can create a sense of unfairness. For example, losing a job to someone who is subject to less stringent rules on working conditions, safety and climate, as is the case in some developing countries, is perceived as being more unfair than losing a job to a person operating under the same rules (Di Tella & Rodrik, 2019). Hence it is not only job losses that matter, but also the way in which the jobs are lost.

1.3.3 Insufficient adjustments within the WTO

While the WTO is the most important global body promoting multilateral cooperation, it has not adapted sufficiently to the changing international context and global economy. For example, countries that ascribe to themselves the status of a developing country such as China, still receive preferential terms within the WTO, although this status does not always reflect the economic reality. The WTO has also fallen short in its protection of intellectual property, leading both the United States and the EU to complain to the WTO about the infringement of intellectual property by China. Almost a third of the value of goods comes from intangible assets, which underlines the importance of intellectual property for the global economy (World Intellectual Property Organization, 2017).

Moreover, the current WTO rules no longer reflect the current global economy (Rodrik, 2018). Most of the WTO rulebook dates from trade negotiations that took place between 1986 and 1994. This was a world in which trade mainly consisted of final goods, services trade was limited, ICT had only just begun to emerge and it was assumed that China would transform into a market economy (Baldwin, 2016; Wu M., 2016). Next to

the rules on the protection of intellectual property, the rules on services and e-commerce are also obsolete. Due to its failure to adapt sufficiently to changed circumstances, the WTO is losing both effectiveness and influence at a time when it should be ensuring the continuity of multilateral cooperation. This loss has been exacerbated by the fact that the WTO's Dispute Settlement System has ceased to function (see Box 1.2).

Box 1.2 Dispute Settlement System no longer functioning

The Dispute Settlement System (DSS) was established as part of the formation of the WTO in 1995. It was created to ensure compliance with the trade agreements reached within the WTO and to enable WTO Member States to challenge other Member States' protectionist measures. Within the DSS, a panel first examines the dispute and issues a legal judgement. If either party does not accept this judgement, it can appeal to the DSS Appellate Body. At least three of the seven judges in this body must be professionally active.

At the end of 2019, the Appellate Body ceased to function as the United States blocked new appointments and reappointments of judges, leaving only one judge currently active. The United States is particularly critical of the body's procedural issues, such as the speed of the dispute settlement process. Trade policy motives probably also play a role, since the Appellate Body was an obstacle to the Trump administration's protectionist policy.

The stance towards the WTO is likely to soften with Biden's recent election as President of the United States. In order to minimise damage in the meantime, the EU, together with 19 other WTO Member States[5], announced at the end of April 2020 that an alternative appeals procedure would be established to settle legal disputes on appeal. The Multiparty Interim Arbitration Agreement (MPIA) will provide a temporary solution until a reformed Appellate Body is fully operational. Despite these cautiously positive developments, the WTO is losing effectiveness and influence due to the non-functioning Appellate Body. The current situation has also increased uncertainty around the rules-based multilateral trading system.

5 In addition to the EU the participants are: Australia, Brazil, Canada, China, Chile, Colombia, Costa Rica, Guatemala, Hong Kong, China, Iceland, Mexico, New Zealand, Norway, Pakistan, Singapore, Switzerland, Ukraine and Uruguay.

2 Global value chains and protectionism

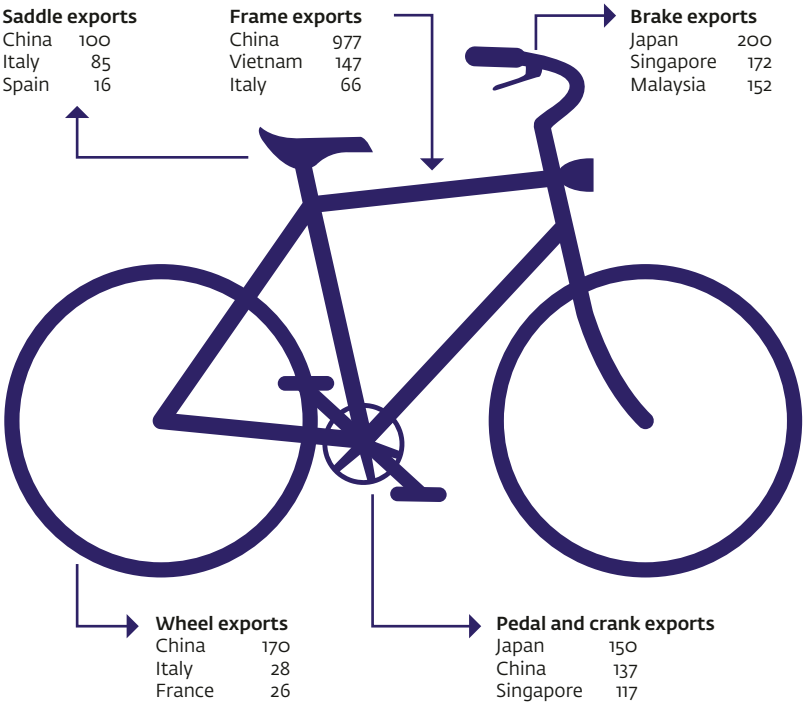
2.1 The development of global value chains

Globalisation has been accompanied by the emergence and deepening of global value chains in the post-war period. Whereas international trade previously mainly consisted of final goods, around two-thirds of international trade now consists of intermediate goods (World Bank & WTO, 2019). The emergence of global value chains was stimulated by international trade agreements, but was facilitated mainly by the rise of ICT in the 1980s and falling transport prices, as a result of containerisation among other factors. These trends made it easier to distribute knowledge and products over long distances and at relatively low cost. Production activities therefore no longer had to take place locally, but could be spread across different countries (Baldwin, 2012). The international fragmentation became profitable due to international differences in production costs and the liberalisation of world trade (Baldwin, 2006).

In a global value chain, the production process is divided internationally into different parts. For example, a Bianchi bicycle is designed in Italy, its brakes come from Japan and final assembly takes place in China before it arrives at the store in the Netherlands (see Figure 2.1). Since all these phases of the production process take place in different countries, intermediate goods cross national borders several times before they reach the consumer as part of a final good. This means Dutch exports consist not only of Dutch value added but also of foreign value added. Traditional gross export figures thus present a distorted picture of international trade relations, as they only show how much a country exports to other countries. They do not provide information on how much value is created in the Netherlands, where the end consumer of this Dutch value added is located, where the intermediate products come from and hence where the greatest vulnerabilities to protectionism lie. This study therefore uses value added figures based on the OECD international input-output tables (TiVA, 2018) for the period

Figure 2.1 Where do bicycles come from?

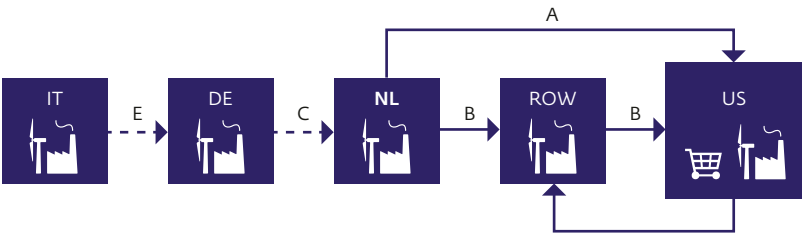
USD millions



Source: World Bank (2020).

2005 to 2015 (OECD, 2020c).[6] Using the methodology of Borin & Mancini (2019)[7], we gain insight into the international integration and earning capacity of Dutch exports. As an illustration, Figure 2.2 gives a schematic representation of an international value chain.

Figure 2.2 Schematic representation of a value chain



Note: ROW = Rest of the World

The traditional trade variant is flow A: the Netherlands manufactures a good and exports it, for example, to the United States, where it is consumed directly, for instance Gouda cheese. In an economically interconnected world, however, a value chain may include links B to E. In that case, the product will already have crossed several national borders (C and E) before the Netherlands produces part of it and it will do so again after the Netherlands has exported it (B and D). As a result, not all the profit made during the whole of the production process ends up in the Netherlands, and gross export figures give a distorted view of actual international trade.

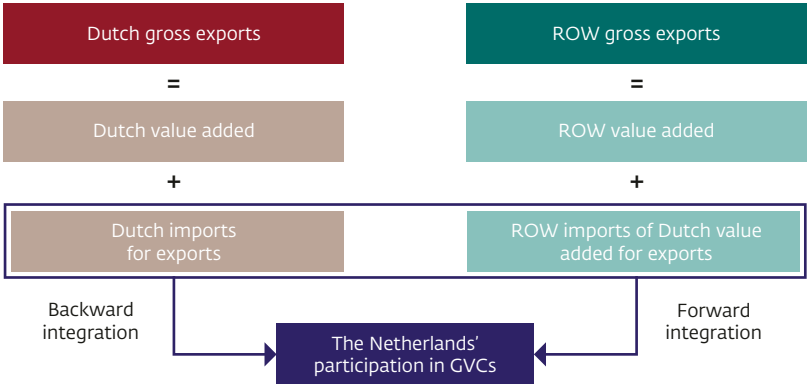
6 As far as possible TiVA applies a correction for re-exports, which account for 4% of Dutch GDP. The correction may not be optimal, however, because hardly any re-exported goods data are publicly available. The importance of certain countries for Dutch trade may therefore be somewhat underestimated or overestimated. Services related to re-exports (such as transport services) are included, however.

7 Based on Koopman et al., 2014, with an additional sector breakdown and bilateral flows.

2.1.1 Participation in global value chains

Participation in global value chains is often measured as the domestic value added incorporated in exports from other countries (forward integration), plus the imported foreign value added that is exported (backward integration) (Ignatenko et al., 2019; World Bank, 2020a). See Figure 2.3 for an illustration of Dutch participation in GVCs. Figure 2.4 shows that participation in global value chains has increased significantly since the mid-1990s.[8] As the Netherlands is a small, open economy, Dutch participation is relatively high, while the participation of a large and more closed economy like the United States is relatively low.

Figure 2.3 The Netherlands' participation in global value chains



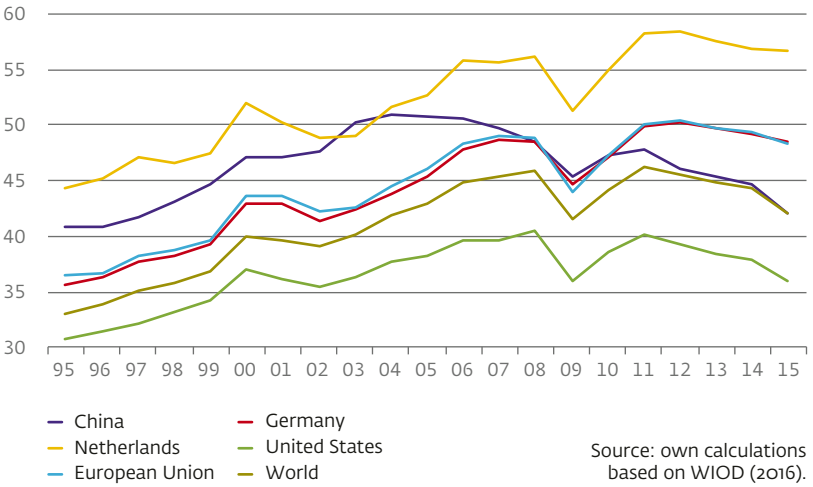
Note: ROW = Rest of the World

8 This figure is based on WIOD (2016) data (Timmer et al., 2015), as this database goes back to 1995. TiVA (2018), which is used in the remainder of this Occasional Study, is only available from 2005. TiVA (2016) does go back to 1995, but is based on the 1993 System of National Accounts (SNA) and Standard Industrial Classification (ISIC) Revision 3, whereas TiVA (2018) is based on SNA 2008 and ISIC Rev. 4.

By contrast, the participation of China, the world's second-largest economy, was relatively high until 2004. China's participation has declined since then, as the country has started to produce more itself instead of importing products (including high-grade supplies) from abroad. As a result, more links have been added to domestic value chains, making them longer, while China's participation in global value chains has decreased (World Bank & WTO, 2019).

Figure 2.4 Participation in global value chains

Percentage of gross exports



Source: own calculations based on WIOD (2016).

The rise of global value chains gave emerging economies in particular the opportunity to industrialise. These countries were able to specialise in one or more production components and did not have to set up a complete value chain themselves (Baldwin & Lopez-Gonzalez, 2015). Developing countries' participation in global value chains increased by 48% between 1995 and 2011.

In 2011, developing countries accounted for around a third of trade through global value chains (Kummritz & Quast, 2017). Participation in global value chains has reduced unemployment and poverty and increased prosperity in most emerging countries (World Bank, 2020a). On the other hand, increased participation in global value chains also has environmental impact, as discussed in Box 2.1.

Box 2.1 Trade through global value chains and environmental impacts

The international fragmentation of the production process implies that some goods (or intermediate goods) travel around the world before they reach the end consumer as part of a final product. These transport movements by sea, air and road entail greenhouse gas emissions (Cezar & Polge, 2020). In addition, a relatively large amount of packaging material is used for this type of trade, as intermediate goods are repackaged for transportation several times. International trade accounts for a quarter of total global carbon emissions. The outsourcing of production can also put pressure on the producing country's natural resources. There is a risk of biodiversity loss, especially for the least developed economies that export relatively large volumes of raw materials (Lenzen, et al., 2012).

The carbon emissions associated with international trade are not confined to national borders. A global approach is therefore required to combat these emissions. This can be done, for example, through trade agreements, agreements on sustainable production or carbon pricing. While we do not address such sustainability issues in this study, they are relevant for follow-up research.

Participation in global value chains declined across the globe during the 2009 financial crisis but then recovered rapidly to pre-crisis levels. Since 2011, however, participation in global value chains has stagnated and the traditional form of international trade, i.e. trade in final goods, and national production to meet domestic demand have been gaining ground (World Bank & WTO, 2019). This implies that goods now cross national borders less often before they reach the consumer. On this basis, and based on the drivers that threaten global trade as referred to in Section 2, the trend of globalisation in trade appears to have turned into deglobalisation.[9] Although it would be premature to speak of a definitive trend reversal as our data only go up to 2015, World Bank & WTO (2019) do show that the levelling off of participation in GVCs also continued in 2016 and 2017.[10]

Part of this levelling off also reflects the normalisation of trade growth. The average ratio of global trade growth to GDP growth, referred to as world trade elasticity, fell to 1.3% between 2012 and 2015, whereas it was at 2.3% between 1995 and 2007. This is partly explained by the fact that structural factors boosting world trade growth, such as tariff reductions in the 1990s, recently started to lose their effectiveness (IRC Trade Task Force, 2016; Timmer et al., 2016). The factors behind the stagnating participation in global value chains will be discussed further in Section 2.2.

9 Antràs (2020), on the other hand, concludes that the current evidence is more consistent with a trend of slowbalisation (stagnation of globalisation) rather than deglobalisation. His main argument is that many globalisation indicators are still at historic highs. Unlike this study, however, his paper uses the broad definition of globalisation, including migration, FDI flows and the role of multinationals.

10 Based on the Asian Development Bank (ADB) 2018 MRIO tables (2007 to 2017). At the time of the research for this study, these tables were still mainly focused on Asian countries. These are now available for 63 countries.

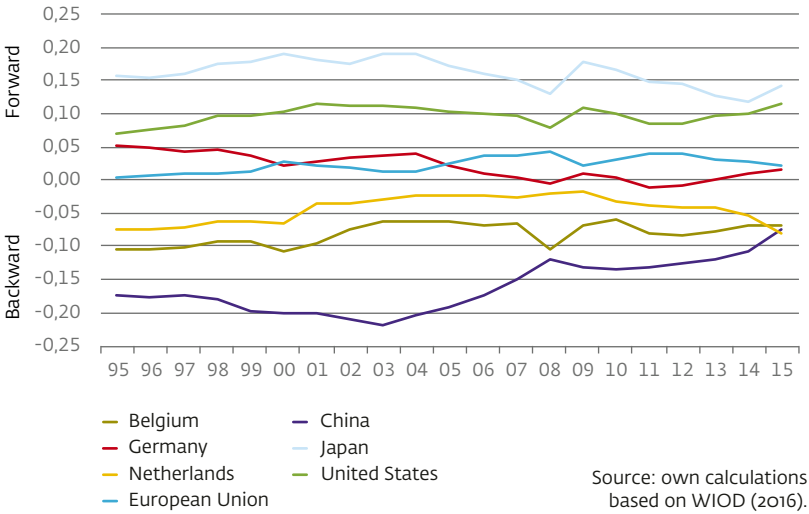
2.1.2 Position within value chains

The position countries take in value chains has changed over the last decade. This is particularly true for China. For some countries, exported value added comprises mainly domestic value added (forward integration) (see Figure 2.3). This applies, for example, to countries that supply high-grade intermediate products to other countries (Japan or the United States) or export raw materials (Russia). For other countries, the exported value added consists mainly of foreign value added (backward integration). This is mainly the case for countries that specialise in the labour-intensive parts of the production process (China) and import a large volume of intermediate goods from abroad. A small country such as the Netherlands also uses relatively more foreign value added and is therefore more backward integrated, as there are fewer resources available in the country itself (Ignatenko et al., 2019).

Figure 2.5 shows the GVC position index, defined as the difference between forward and backward participation over the last twenty years. The Netherlands is close to the EU average, but has become more backward integrated since 2009. The EU's position is relatively stable and the differences within the EU are large. For example, small countries such as Belgium, Ireland and Luxembourg, and Eastern European countries such as Hungary and Bulgaria, are mainly backward integrated, while Germany is slightly forward integrated. China's rising GVC position index stems from the fact that, since 2003, China has been steadily adding more domestic value to its exports, and other countries have started to use more Chinese value added in their exports. China has achieved a high level of technological development over the past twenty years and has increasingly become a knowledge economy (Yue & Evenett, 2010).

Figure 2.5 Position within global value chains

GVC position index (difference between the natural logarithm of forward and backward integration)



Source: own calculations based on WIOD (2016).

2.1.3 The regional character of value chains

Global value chains are generally not as global as the name suggests. Many value chains are in fact regional (Baldwin & Lopez-Gonzalez, 2015; World Bank & WTO, 2019). Most trade within GVCs takes place in one of three regional trading blocs: North America, Asia and Europe. Within these trading blocs, trade is concentrated around a number of countries. North America's value chain trade, for example, is concentrated around the United States, while China, Japan and South Korea have the largest share of value chain trade in Asia. In Europe, Germany is the most important link in trade through value chains. These countries are also responsible for most intercontinental trade in value chains between these regions. The regional character of value chains can be explained in part by the sharp increase in

regional trade agreements since the mid-1990s, which are often concluded within a geographic region (Estevadeordal et al., 2013). In addition, countries in greater proximity trade more with each other, as described in the Tinbergen gravity model (Tinbergen, 1962).[11]

Of the three regions mentioned, the European value chains are the most regional in nature, due to the single market within the EU. In 2015, about 45% of the total European value chain trade consisted of value chains involving only European countries (World Bank, 2020a). On the other hand, around 10% of the total European value chain trade is mainly global (apart from one European country, only non-European countries are involved). Seen in this light, European value chains are four times more regional than global. This ratio has more or less been stable between 1990 and 2015. The accession of several Eastern European countries to the EU has made value chains more regional. At the same time, large Western European countries, such as Germany, France and the United Kingdom, have started to trade more outside the EU, for example with China and India.

Figure 2.6 shows the origin of the value added in the three most globally integrated sectors in three trading blocs (North America, EU and East & Southeast Asia) in 2005 and 2015. Even in the three most globally integrated sectors, most of the value added came from within these regions in 2005 and 2015. The figure does show, however, that more and more countries outside the region are involved in North American and European value chains. This is mainly because more intermediate goods are imported from China. In contrast, the industrialisation of China and other Asian economies is making trade in Asian value chains more regional (World Bank & WTO, 2019).

11 The Tinbergen gravity model describes the bilateral trade between two countries, in which the smaller the distance between two countries and the larger their GDP, the more those countries trade with each other.

Figure 2.6 Origin of value added per trade bloc for the three most globally integrated sectors

Origin of added value consumed by region (percentage)

Source: own calculations based on TiVA (2018).

2.2 Drivers behind the stagnation of participation in global value chains

On the basis of the literature, we identify four drivers behind the observed stagnation of participation in global value chains: i) increasing protectionism; (ii) materialisation of supply risks; (iii) increased complexity of value chains; and (iv) digitalisation. We discuss these drivers in more detail below.

Protectionist measures increase the cost of participating in a global value chain, influencing companies' decision to fragment their production process internationally. Companies may decide to invest less abroad or even reshore part of their production process. Empirical research on 57 countries between 1995 and 2012 shows that import tariffs reduce participation in value chains, principally in the low-tech industry (Cheng et al., 2015). At the same time, companies can also choose to import intermediate goods from another country that is not subject to tariffs.

In addition, the fragmentation of production processes increases companies' interdependence and exposes them to foreign supply shocks, such as natural disasters, political unrest or virus outbreaks. For example, the earthquake and tsunami in Japan in 2011 caused delays in automotive production around the world, as the companies in the affected region were unable to supply some parts. During the recent COVID-19 crisis, such vulnerabilities have also come to light. Companies have increasingly had to cope with such risks in the last decade (De Backer & Flaig, 2017). Many companies know who their direct supplier is, but not who their supplier's supplier is. The risks of participating in a GVC are therefore often difficult to ascertain. The COVID-19 crisis has made companies more aware of this factor, which might lead to a further decline in the participation in GVCs in the years ahead. Companies' participation in global value chains can also make the production process increasingly complex due to higher monitoring, communication and coordination costs than

previously anticipated. Operational and quality problems, for example, have sometimes led to unforeseen costs (Contractor et al., 2010; Kumar, et al., 2009), potentially raising the cost of outsourcing production (ex post) and making participation in value chains less profitable.

Finally, recent developments in the digital transformation are having an impact on the levelling off of growth in trade through GVCs. Although earlier stages of the digital transformation contributed greatly to the growth of these value chains, recent developments may have slowed their subsequent growth (Baldwin, 2012; De Backer & Flaig, 2017). Technologies such as robotisation, artificial intelligence (AI) and 3D printing make it easier to bring different phases of the production process back together at a single location, shortening value chains. This transformation can also make the production process more efficient in the home country, making outsourcing of production to low-wage countries less attractive (Timmer et al., 2016). On the other hand, some new technologies (e.g. Blockchain, Internet of Things and big data applications) can also help reduce coordination and monitoring costs in value chains, thereby stimulating participation. Looking forward, it is therefore not yet clear what effect further digitalisation will have on GVCs on balance.

2.3 Increasing protectionism and global value chains

2.3.1 Effects of tariff increases on value chain trade

Tariff increases have a bigger impact on production costs in a value chain than on trade in final goods. This is because intermediate goods cross national borders several times and tariffs are imposed on the total value of products rather than on the value added in a particular country (Rouzet & Miroudot, 2013). The value added at the beginning of the chain can therefore be taxed again, and sometimes several times, further along the value chain. As a result, an increase in import tariffs today has a bigger impact on production

costs than in 1995, when participation in GVCs was more limited (Yi, 2003). Bun & Öztürk (2020) find that the (first-round) effects in the euro area of an increase in US import tariffs on European cars and car parts are 25% higher when global value chains are included in the calculations (see Box 2.2).

Box 2.2 The economic impact of a higher US import tariff on European cars[12]

In early 2019 President Trump announced that, in the interests of national security, he was considering raising the import tariff on European cars and car parts from 2.5% to 25%. The economic impact of this tariff increase is calculated using a multiregional input-output (IO) model based on WIOD (last available year 2014).

Assumptions

First, it is assumed that the tariff increase is passed on fully in the prices of the products concerned. This covers both intermediate goods (car parts) and exports of finished goods (cars) from the EU to all US sectors. Second, the impact of higher prices on demand for these products (US imports from the EU) is calculated on the basis of import price elasticities. Based on the literature, the import price elasticity is assumed to be -2. This implies that demand for imported cars and car parts decreases by 2 percent for every percentage point increase in the import price. Empirical estimates of import price elasticity in the automotive industry vary considerably from -1.5 to -6, so this analysis gives a conservative estimate of the expected effects. Third, a multiregional IO model is used to calculate the changes in production due to the loss of demand. The general equilibrium effects of a change in relative prices are not taken into account.

12 This box is based on Bun and Öztürk (2020).

Results

In this model, a US tariff increase of 22.5 percentage points on imports of European cars and car parts leads to a decrease of 45% in European car exports to the United States. As expected, the biggest effects are seen in countries with a relatively large automotive industry (see Table 2.1). For the Netherlands the effects are limited, with total automotive industry exports decreasing by 0.8% and only 0.7% in terms of total production.

Table 2.1 Effects of a 22.5 percentage point increase in US tariffs on European cars and car parts

Country	Decrease in car exports to the US	Total car exports	Total car production	Total car production incl. IO effects	Total exports	GDP
	USD millions*	(%)	(%)	(%)	(%)	(%)
Germany	-18579	-6.44	-4.17	-5.06	-1.10	-0.39
France	-419	-0.80	-0.60	-1.28	-0.06	-0.04
Italy	-2253	-5.90	-3.58	-4.20	-0.38	-0.11
Spain	-895	-1.76	-1.37	-1.80	-0.23	-0.05
Netherlands	-60	-0.76	-0.67	-1.21	-0.01	-0.06
Euro area	-23916	-4.68	-3.23	-4.04	-0.44	-0.16
European Union	-28288	-4.24	-2.87	-3.66	-0.39	-0.14

Source: Bun and Öztürk (2020).

* In 2014 prices.

A higher tariff on US imports of cars affects not only the automotive industry, but also the suppliers along the production chain. In the case of the Netherlands, the higher tariff will lead to a decline in production in the Dutch basic metal industry of 0.6% and in the rubber and plastics sector of 0.4%. Important to note is that the decrease in the production of the

European automotive industry is more than 25% greater if the impact on suppliers is taken into account. For the Netherlands, the decrease in total production is even almost twice as large (from 0.7% to 1.2%) when the entire production chain is included in the analysis.

2.3.2 Economic consequences of reduced participation in GVCs due to increased protectionism

Lower participation in global value chains due to protectionism leads to a less efficient allocation of production factors, lower productivity and less product variation. Within GVCs, companies can specialise in the production component in which they have a comparative advantage, thereby increasing their productivity (Baldwin & Yan, 2014). Companies in global value chains also obtain access to foreign markets, enabling them to reduce their production costs, improve the quality of their intermediate products and increase product variation through a wider choice of domestic and foreign suppliers (Grossman & Rossi-Hansberg, 2006; Goldberg et al., 2010). Finally, domestic intermediate producers have an incentive to produce more efficiently to compete with foreign suppliers of semi-finished products (Amiti & Konings, 2007). Import tariffs impede the productivity gains that can be achieved through these channels (Ignatenko et al., 2019).

In the long term, lower participation in global value chains as a result of protectionism inhibits the spread of technology and thus reduces the economic potential. This is because GVCs facilitate technology spill-overs between countries, allowing learning effects to take place as foreign technology is incorporated into imported intermediates (Grossman & Rossi-Hansberg, 2006; Amiti & Konings, 2007). Countries participating in GVCs therefore innovate more than countries that do not (Ignatenko et al., 2019). This spread of technology contributes to overall innovation, raising productivity growth and increasing economic potential (Wang et al., 2017).

3 The Netherlands in global trade: vulnerability to increased protectionisme[13]

3.1 Regional nature of Dutch trade

Dutch exports are largely regional. With a share of around 13%, Germany is by far the largest foreign consumer of Dutch value added (flow A or B in Figure 2.2), see Table 3.1. After Germany, the United States and the United Kingdom are the main consumers of Dutch value added, and it is notable that Brazil's share (almost 5%) is larger than that of China (4.3%). The Dutch value added that ends up in Brazil is almost entirely generated in the service sectors, as the manufacturing industry uses these services in its production process (for exports). Most of these are other business services and wholesale and retail trade. The list of final consumers for Dutch exported value added is headed largely by European countries. As much as 51% of Dutch exported value added is ultimately consumed in the EU.[14] The single

Table 3.1 Origin of demand for Dutch value added

Percentage of total Dutch value added exported; 2015

Country	Percentage	Size of economy (GDP in USD billion, 2015)
Germany	13.4	3193
United States	9.9	17662
United Kingdom	8.2	2721
France	6.2	2288
Belgium	5.5	433
Brazil	4.9	1652
China	4.3	10485
European Union	51	15463

Source: own calculations based on TiVA (2018).

13 In this section, the focus is on exports as exports are particularly vulnerable to protectionism from other countries. Imports are particularly vulnerable when the EU itself imposes import tariffs. A description of the data used can be found in Section 3.1.

14 Including the United Kingdom, since Brexit had not yet taken place in 2015.

European market is therefore important for Dutch trade. On the other hand, the United States, which is similar in size to the EU, accounts for only 10% of demand for Dutch exported value added.

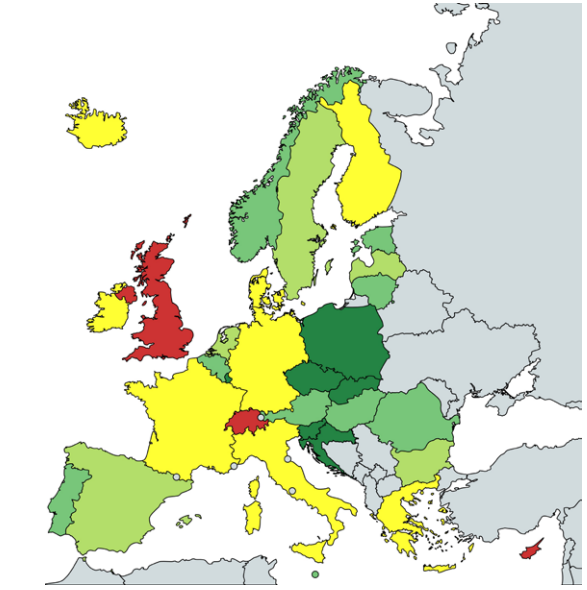
The EU's share as a consumer of Dutch exported value added is slightly higher than the weighted EU average (45%) and higher than that of large European economies such as Germany (41%), Italy (41%) and the United Kingdom (36%) (see Figure 3.1 for the EU as a whole). The bulk of the value added ultimately consumed in the EU is part of an almost entirely European value chain. For example, in 2015, only 0.36% of European value added consumed in the EU crossed at some point the Chinese border and only 0.3% crossed the US border at some point.[15] These percentages barely changed between 2005 and 2015, although China's share increased slightly over the years. In short, European trade through value chains was and remains largely regional.

The regional nature of Dutch trade did decrease, however, between 2005 and 2015. Figure 3.2 shows that, for the Netherlands, the percentage of value added consumed in the EU in 2005 was still around 60%. In 1995, this percentage was even higher at around 63% (CBS, 2018).[16] The trend of decreasing regionalisation is not unique to the Netherlands, as every EU Member State shows the same trend to a greater or lesser extent during the same period. This is mainly due to the emergence of the BRICS countries, which are consuming more and more European value added. The 'rest of the world'[17] also became more important during this period. The countries that consumed the largest share of exported Dutch value added in 2005, such as the United Kingdom, the United States and Italy, lost some ground to a larger group of (then) smaller consuming countries.

15 Only 1.33% of European value added consumed in the EU was at some time in the United States, China, Japan, Brazil and the 'rest of the world'.
16 This concerns the EU15, since at the time there were considerably fewer EU Member States (CBS, 2018)
17 The TiVA database contains 64 countries and a 'rest of the world' category.

Figure 3.1 Share of exported value added with the EU as final destination

Percentage of total exported value added per country; 2015



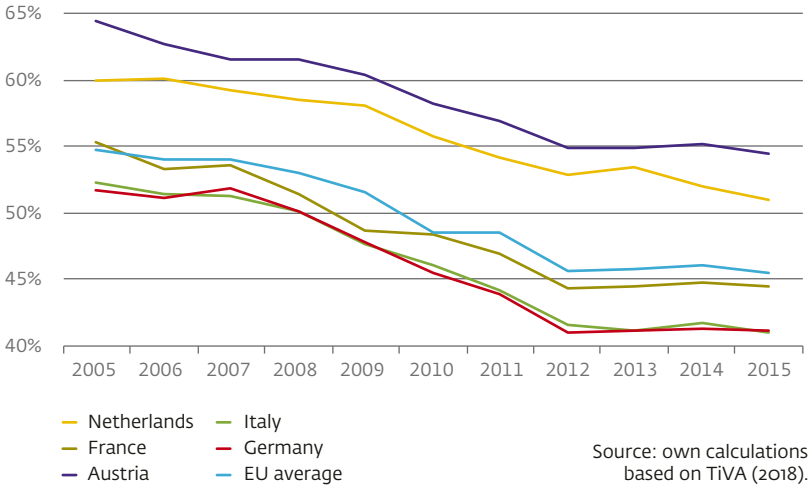
Source: own calculations based on TiVA (2018).

Europe is not only important for the Netherlands as a sales market, but also as a supply market. For example, 44% of imported intermediate goods in the Netherlands come from the EU (flow C in Figure 2.2[18]), versus the EU average of 51%. In this respect, the Netherlands is less regionally oriented than the other EU Member States. The Dutch percentage is also lower compared to

18 Flow E is not included in the analysis in this section.

Figure 3.2 Exported value added with the EU as final destination

Percentage of total exported value added



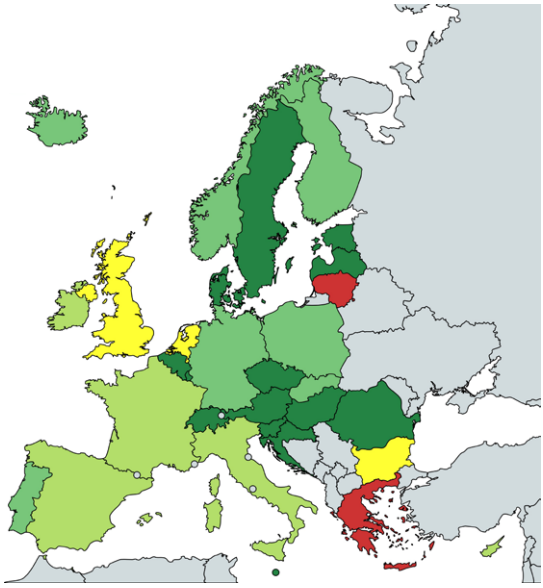
Source: own calculations based on TiVA (2018).

the large European economies: Germany (50%), France (51%) and Italy (48%) score slightly higher (see Figure 3.3 for all EU Member States).

As on the export side, imports has become somewhat less regional compared to 2005. From 2012, however, there was an increase in imports of intermediate products from the EU. Since then, the EU's share of the supply of intermediate products has rebounded somewhat in almost all countries (Figure 3.4).

Figure 3.3 Share of imported goods used for export from the EU

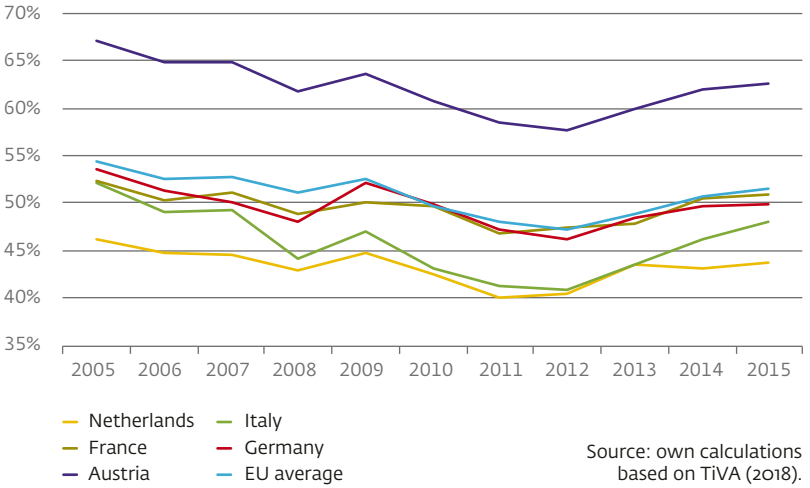
Percentage of total imported value added used for export; 2015



Source: own calculations based on TiVA (2018).

Figure 3.4 Share of imported value added used for export from the EU

Percentage of total imported value added used for export



Source: own calculations based on TiVA (2018).

3.2 Vulnerability of Dutch exports to protectionism

Countries in the European single market are in principle not permitted to impose trade barriers on each other. As a result, intra-EU trade is in principle free from protectionism, although there are still barriers in the services market. Nevertheless, trade with the EU is relatively 'safe' for the Netherlands, as only a negligible part of the value added destined for the EU flows through other major economies, such as the United States and China. The EU has also signed comprehensive trade agreements with various countries[19], which also limits susceptibility of Dutch exports to protectionism.

19 For example, Norway, Turkey and South Korea. Since 2015, trade agreements have also been concluded with countries such as Canada, Japan and Australia, which have not yet been included in the 'safe' group.

The value added consumed in these countries and the EU together accounts for around 60% of total exported Dutch value added. This means that about 60% of exported Dutch value added has no or only limited susceptibility to protectionism.[20] At the same time, this also implies that around 40% of the value added exported by the Netherlands (around 14% of Dutch GDP) is susceptible to trade restrictions.[21] However, this exported value added is spread across a large number of markets since the number of countries in this group is large. As the UK used to be a part of the EU in 2015, it is considered as such in these calculations. While the EU and the UK reached a trade agreement recently, trade between the two blocks will not be frictionless as it used to be, possibly leading to an increase in the share of Dutch exports susceptible to trade restrictions (see Box 3.1).

Box 3.1 Dutch vulnerability to Brexit

The United Kingdom is an important trading partner for the Netherlands. With the trade agreement between de UK and the EU, trade between the two blocks will in principle be without quotas and/or tariffs. However, trade between the United Kingdom and the EU is now subject to non-tariff barriers and border controls, from which goods trade was previously fully exempt.

In 2015, the year before the Brexit referendum, 8.2% of Dutch exported value added was directed to the UK. In addition, around 9% of Dutch exported value added crosses the UK border at some point during the production process in a value chain (flow A+B+D in Figure 2.2),

20 A very small part of this added value may at some time be in a country with which no trade agreement has been concluded and may therefore be susceptible to protectionism. This is therefore an estimate.
21 This includes the 'rest of the world'. The EU has signed trade agreements, however, with a number of non-TiVA countries, such as Surinam and several Balkan countries.

and 10% of foreign intermediate goods for Dutch exports come from the United Kingdom. This trade will be potentially susceptible to protectionism from 1 January 2021 onwards.

However, CBS (2020) shows that growth in the gross export value of Dutch goods trade to the United Kingdom has lagged behind that of total Dutch goods exports since the Brexit referendum. It therefore seems that Dutch companies have already started trading less with the United Kingdom in anticipation of Brexit.

In the December 2019 Economic Developments and Outlook, DNB calculated what a no-deal scenario would mean for the Dutch economy. The calculation shows Dutch exports decreasing by 1.7 percentage points in the first year after a no-deal Brexit, and by 1.3 percentage points in the second year. Partly for this reason, GDP growth is 0.7 percentage points lower in the first year and 0.6 percentage points lower in the second year (DNB, 2019).

3.3 Vulnerability at sector level

Sectors trading mainly within the EU are relatively less vulnerable to protectionism than those that are more globally oriented. The most EU-oriented industries are textiles, electrical equipment, agriculture, transport equipment, and coke and oil refining. At least 60% of the demand for value added produced by these sectors comes from the EU. Although, some of these sectors have become less EU-oriented since 2005 (Table 3.2). Furthermore, these six most EU-oriented sectors are also all industrial sectors, which are almost entirely immune to protectionist measures within the European single market, unlike the services sector (see Box 3.2 for a discussion on the European single market for services).

Table 3.2 Most EU-oriented sectors

Percentage of sector-specific exports

Sector	To EU (2005)	To EU (2015)	Sector share of Dutch exports (2015)
Textile, apparel and leather products	73.6%	70.9%	0.3%
Electrical equipment	69.3%	70.2%	0.7%
Agriculture, forestry and fisheries	73.9%	65.6%	3.5%
Motor vehicles, trailers and semi-trailers	75.8%	63.0%	0.8%
Coke and oil refining	63.1%	62.7%	1.0%
Extraction of energy minerals	61.2%	62.4%	4.8%

Source: own calculations based on TiVA (2018).

Box 3.2 Lagging integration in the European services market

European integration in the services market is lagging behind integration in the goods market. As around two-thirds of Dutch exported value added is generated in this sector, the services sector is essential for the Dutch economy. The European Services Directive was introduced in 2006 to make it easier for firms to provide services in other EU countries. The implementation of this Directive is still far from complete in 2020, and there are still barriers to trade in services in the European single market (Pelkmans, 2019). Many of these barriers stem from differences in regulations between EU Member States, and about 80% of European service providers are adversely affected by these differences (Eurochambres, 2019). Full implementation of the Services Directive would increase the GDP by around 1.7% the EU (Pelkmans, 2019).

Sectors which primarily trade with countries with which the EU has not signed a comprehensive trade agreement are potentially susceptible to protectionism.[22] For the Netherlands, this mainly concerns service sectors, as shown in Table 3.3. Some services are traded directly, but a large proportion of service activities are traded indirectly as inputs to the exports of the manufacturing sector.

Table 3.3 Most globally oriented sectors (2015)

Percentage of sector-specific exports

Sector	To countries without trade agreement (2005)	To countries without trade agreement (2015)	Sector share of Dutch exports (2015)
Transport and storage	60.8%	61.6%	9.0%
Other business services	50.1%	60.6%	19.7%
Other transport equipment	52.9%	57.4%	0.6%
Other machinery and equipment	39.7%	55.4%	3.0%
IT and information services	39.6%	54.6%	3.7%
Financial activities and insurance	45.3%	53.5%	6.6%

Source: own calculations based on TiVA (2018).

22 Here too the 'rest of the world' has been included. The market share of this category ranges from 0% to 18% depending on the sector.

3.4 Vulnerability to US-China trade war

Although the trade war has so far only involved the United States and China, third countries, such as the Netherlands, may also be affected. Dutch value added flowing through both the United States and China is affected by the tariffs which the United States and China have imposed on each other. However, the share of Dutch value added that goes through both the United States and China is almost negligible at 0.3%. As a result, the Netherlands has limited vulnerability to the trade war between the United States and China. Yet, individual firms operating in a value chain involving the US and China might be significantly affected. Various companies, including Philips, have previously issued profit warnings as a result of the trade war. The Netherlands can also be indirectly and negatively affected by the ensuing uncertainty, as this might lead to delays in business investment. On the other hand, the EU, and hence the Netherlands too, may benefit temporarily from the same trade war due to a trade diversion to the EU (Bolt et al., 2019).

If the trade frictions between the US and China spread to the EU, the Netherlands will be more vulnerable to protectionism from the US than from China. More than 10% of Dutch exported value added crosses the US border at some point (flow A+B+D in Figure 2.2), whereas in the case of China the share is only 5.2%.[23] The share flowing through the US decreased between 2005 and 2015, however, while China's share increased. In addition, 17% of foreign value added in Dutch exports stems from the US, whereas for China the share is only 6%. This means that the Netherlands could also be hit hard if the EU imposes retaliatory tariffs in a possible trade dispute with the United States. For a comparison, see Box 3.3 on the vulnerability of German exports to protectionism.

23 Some services do not actually cross the border, but are consumed by US citizens, as in the case of spending in the hospitality industry by US tourists. For the sake of convenience we also describe this as a border crossing.

Box 3.3 Germany more vulnerable to protectionism than the Netherlands

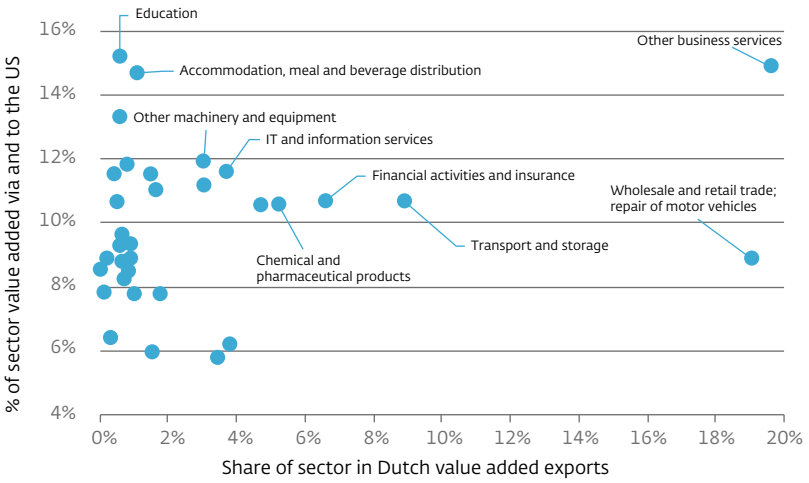
The German export market is less regional than the Dutch export market. 41% of Germany's exported value added is destined for the EU, compared to 51% in the case of the Netherlands (Figure 3.1). Germany's two largest trading partners are the United States and China. Roughly 14% of Germany's exported value added is destined for the United States, and, unlike the Netherlands, Germany trades intensively with China: more than 9% of German export value is directed to China. As such, Germany appears more vulnerable to protectionist policies from the United States and China when compared to the Netherlands.

Not only does Germany trade more with these countries in relative terms, but German trade is also predominantly in goods. By contrast, Dutch value added exported to the United States and (to a lesser extent) China is mainly produced in services sector. As a result, Germany is in principle more vulnerable to traditional protectionist measures, such as tariffs, as these relate mainly to goods. Yet, services can also be impacted by tariffs directly as well as indirectly when they are embedded as inputs in the exports of the manufacturing sector. In addition, non-tariff barriers affect both goods and services.

Among Dutch sectors, the services sector is in particular vulnerable to a trade dispute with the United States. The value added that crosses the US border at some point is concentrated mainly in the services sector, such as other business services and wholesale and retail trade (Figure 3.5).

Figure 3.5 Exports via and to the US

Dutch value added in exports

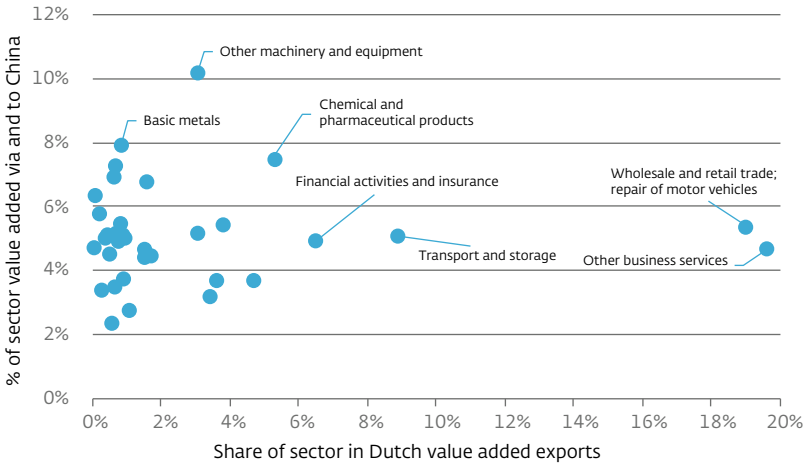


Source: own calculations based on TiVA (2018).

It is important to note, however, that these sectors are not entirely dependent on the US and still export more to the EU than to the US. By contrast, sectors vulnerable to restrictions stemming from China mainly concern industrial sectors, such as other machinery and equipment, basic metals and chemical and pharmaceutical products (Figure 3.6). China's share in these sectors has grown sharply, particularly in the other machinery and equipment sector. Whereas China accounted for over 3% of the foreign demand for Dutch value added produced by this sector in 2005, by 2015 that share had increased to more than 10%. The Chinese share has also grown considerably in the chemical and pharmaceutical industries.

Figure 3.6 Exports via and to China

Dutch value added in exports



Source: own calculations based on TiVA (2018).

4 Macroeconomic impact of deglobalisation: a scenario analysis

4.1 A scenario analysis of deglobalisation

In this section, a scenario analysis is used to simulate the introduction of global trade tariffs in order to analyse the consequences of further deglobalisation.[24] In practice, deglobalisation can occur in many ways, for example through the imposition of non-tariff barriers or the shortening of global value chains. The results described here are therefore purely illustrative.

In the deglobalisation scenario, it is assumed that the United States, China and the euro area impose 10% tariffs on each other's imports of all goods and services for a prolonged period. In the simulation we use the EAGLE multiregional general equilibrium model, which has been expanded to include import tariffs specifically for this purpose.[25] The EAGLE model covers the entire world economy, divided into four trading blocs, with bilateral trade flows and relative prices explicitly modelled for each region, including exchange rates. Although EAGLE takes trade in intermediate goods into account, global value chains are not explicitly modelled. A more detailed description of EAGLE can be found in Box 4.1 and in Bolt et al. (2019).

The imposition of tariffs affects the economy through various channels. For example, a drop in employment due to tariffs reduces household consumption. At the same time, relative prices change as companies raise their prices in response to actual or expected tariff changes. The central bank's response to rising inflation in turn triggers different real interest rate effects. The decline in economic activity subsequently weighs on investment, and exports suffer from appreciating exchange rates. Such general equilibrium effects have not been accounted for in previous sections, but they have been explicitly modelled in EAGLE. This makes it possible to quantify the economic effects of deglobalisation in the medium term.

24 We would like to thank Wilko Bolt and Kostas Mavromatis for their contribution to this section.
25 See Bolt et al. (2019).

Box 4.1 Description of the EAGLE model

The EAGLE model is a macro model that takes account of macroeconomic interdependencies between countries (Gomes et al., 2012). It is a Dynamic Stochastic General Equilibrium (DSGE) model, which endogenously describes the behaviour of households, businesses, and monetary and fiscal authorities. The model consists of four regions: the home country (the Netherlands), the rest of the euro area (REA), the United States (US) and the rest of the world (RoW). The RoW region consists largely of China.

The model has two categories of consumers, one with full access to the capital market and one with limited access. Consumers in the latter category can only adjust their ongoing consumption to the extent that their bank deposits allow, whereas consumers with access to financial markets can buy and sell domestic and internationally tradable bonds, for example, to maintain their level of consumption. On the production side, the model includes finished and semi-finished products. Manufacturers of semi-finished products consist of producers of tradable and non-tradable goods. Both use physical capital and labour. Only a fraction of producers adjust their prices within a given period, resulting in price rigidity.

Manufacturers of finished products are in perfect competition and combine tradable and non-tradable semi-finished products with CES technology to produce final products.[26] Manufacturers of semi-finished products operate in a monopolistic competition market.

Monetary policy follows a Taylor rule in each area, focusing on domestic inflation, production growth and – in China and the rest of the world – exchange rates. Fiscal policy is determined in each region per country by the respective fiscal authority.

26 CES technology implies that substitution elasticity between the different production factors is constant.

4.2 Assumptions underlying the scenario

The imposition of an import tariff translates into a distortionary tax on exporters (backward shifting of tariffs), as they initially absorb the full tariff in their profit margins. Depending on supply and demand elasticities faced by monopolistically competing companies, the tax burden resulting from a higher import tariff is ultimately shared between the consumer and the exporter. A foreign exporter who has less market power has to shoulder a greater share of the burden, but one with more market power can shift the burden more to domestic consumers and importers in the tariff-imposing country. Each government distributes the proceeds of the tariffs to households through current transfers.

In the scenario, we assume that the ECB is completely free to lower or raise its policy interest rates to influence inflation. With regard to monetary policy in other regions, we assume that their central banks will be able to adjust the policy interest rates as soon as inflation deviates from the publicly announced target. It is assumed that the three trading blocs impose import tariffs of 10% on each other, and that these will remain in force for five years. The chosen tariff rate is in line with that of other studies investigating the long-term effects of tariffs (Lindé & Pescatori, 2019; Fajgelbaum et al., 2019).

The results are discussed below. We focus on the effects of deglobalisation on GDP, investment, exports and imports. The appendix shows the results for a more extensive set of variables. First of all, we consider the general mechanisms that are triggered when the three trading blocs impose tariffs on each other. In doing so, we show how the tariffs imposed affect the global economy. We then compare the effects on the Dutch economy specifically with those on the rest of the euro area.

4.3 Economic consequences of deglobalisation

The scenario has various consequences, both domestically and internationally, which are more or less applicable to each trading bloc. First of all, the tariffs imposed lead to a higher price of imported goods, shifting domestic demand from imported to domestic products and resulting in lower global demand for (internationally) tradable goods, reducing in turn the profits of multinational corporations. This negative effect largely outweighs the positive effect on local companies, whose short-term profits rise as a result of increased demand for domestic goods.[27] The net decrease in operating profit then results in lower demand for labour, thus reducing total employment in the tradable goods sector. At the same time, higher import prices put upward pressure on inflation. In response, the central bank raises its policy interest rate, which increases real interest rates. The higher real interest rates dampen investment. Combined with lower employment, this leads to a contraction in economic activity. Figure 4.1 shows that the tariff increases cause global production to decrease by around 1.5% over the medium term compared to the steady-state equilibrium level without the simulated tariff increase.

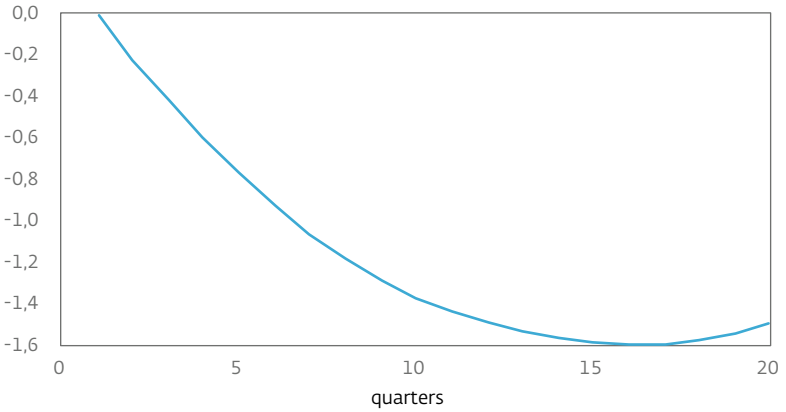
4.4 Impact on the Netherlands versus the rest of the euro area

The deglobalisation scenario has a somewhat larger impact on the Dutch economy than on the rest of the euro area (see blue lines in Figures 4.2 and 4.3). One explanation for this is the openness of the Dutch economy, which results in a more pronounced deterioration of the Netherlands' trade balance compared to that of other euro area countries. As tariffs increase, demand for Dutch goods and services falls sharply as a result of lower global activity. Manufacturers of (internationally) tradable goods consequently

27 This negative impact is reinforced when the distortionary effects of tariffs on global value chains are taken into account.

Figure 4.1 Development of global production following a 10% tariff increase for all regions over 20 quarters

Percentage deviation from the equilibruim level

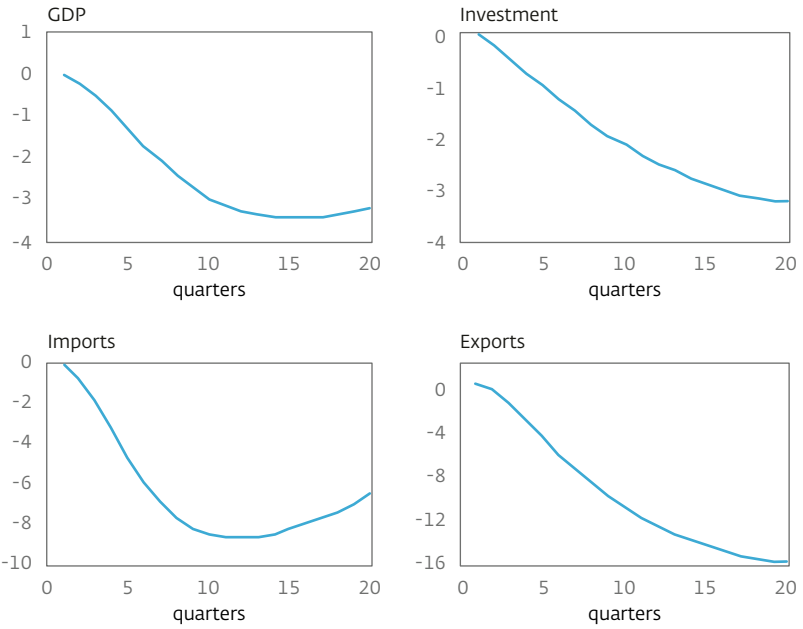


direct their attention towards the domestic market, putting further pressure on exports. However, this negative effect on the trade balance can be partly offset by lower imports, as the European import tariffs make foreign goods less attractive to Dutch consumers, thus reducing the demand for foreign goods. In the medium term, Dutch imports recover somewhat faster towards equilibrium level than those of other euro area countries, partly because the import share of consumption in the Netherlands is higher than in the rest of the euro area.[28] As a result, there is less scope to offset the negative impact of declining exports in the Netherlands than in the rest of the euro area, resulting in a greater deterioration of the trade balance. Consequently, Dutch GDP drops by around 3% in the medium term.

28 The real effective exchange rate rises both in the Netherlands and in the rest of the euro area. Due to the higher import share of consumption in the Netherlands, the rise in exchange rates contributes to a faster recovery in the consumption of imported goods.

Figure 4.2 Effect on the Dutch economy of a 10% tariff increase for all regions over 20 quarters

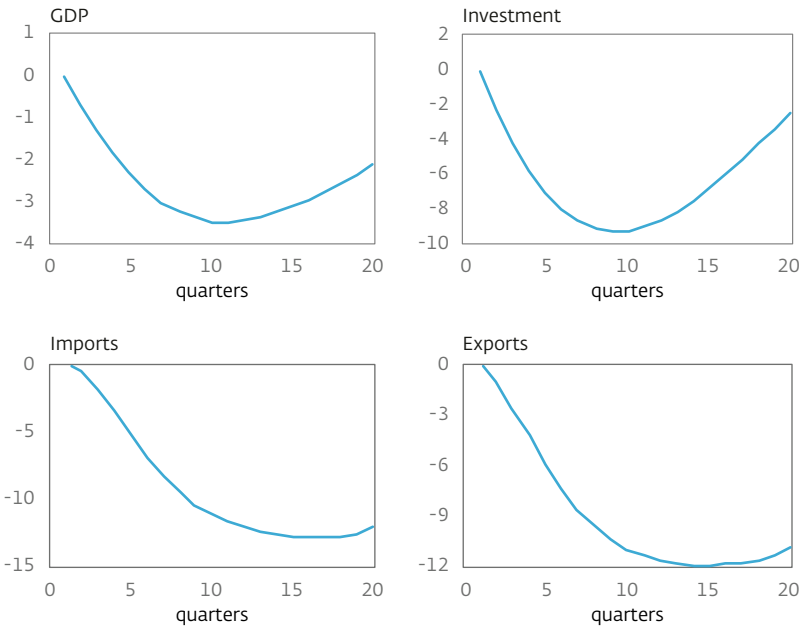
Percentage deviation from the equilibruim level



Not only is the Dutch trade balance greatly affected by the trade tariffs, but business investment also falls sharply as a result of higher tariffs. Lower global demand causes companies to reduce production and thereby also their demand for labour and capital, leading to a decline in investment. After about 10 quarters, business investment falls by 2% compared to the 'steady state' equilibrium level, as shown by the blue lines in Figure 4.2. The decline in Dutch investment is, however, less pronounced than in the rest of the euro area as the decline in the (real) return on capital is also less pronounced.

Figure 4.3 Effect in REA of a 10% tariff increase for all regions over 20 quarters

Percentage deviation from the equilibruim level



5 COVID-19 and the Dutch trade landscape

5.1 Vulnerabilities of global value chains

The intensive participation of the Netherlands in global value chains brings many cost efficiencies to Dutch companies and has contributed to the country's increasing prosperity in recent decades. At the same time, it has increased the dependency of the Netherlands on other countries, resulting in vulnerabilities that came to light during the COVID-19 crisis. Several Dutch companies had to cope with production problems as some product components could not be delivered on time due to COVID-19 related containment measures. Such distortions in global value chains can hit the Dutch economy hard. The COVID-19 crisis has also clearly shown that countries depend on their trading partners for some essential goods. A clear example is the supply of medical face masks, for which the Netherlands depends on China.

We identify four main vulnerabilities of global value chains: i) higher risk of foreign shocks; (ii) just-in-time delivery of goods; (iii) export restrictions; and (iv) limited visibility within supply chains.

Since in a GVC the production process is generally divided among a large number of companies located in different countries, the likelihood of a shock occurring somewhere in the chain is greater than when production takes place entirely in the home country and within one company. The shortages of products and product components that arose during the COVID-19 crisis were partly due to this vulnerability. However, a large proportion of the shortages of essential goods were due to an explosive rise in demand for these products, which could not be met within a short time (see Box 5.1). Shocks can have various causes, such as natural disasters and geopolitical factors, but systemic risks can also play a role. The COVID-19 crisis is a typical tail risk: an extreme event that occurs with low probability but with a high potential impact.

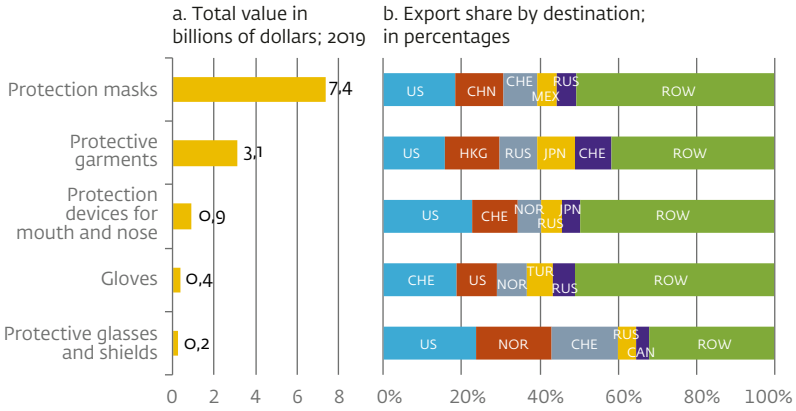
Box 5.1 Shortages of personal protective equipment

Although most attention during the COVID-19 crisis has been focused on disruptions within essential goods chains, the biggest disruptions have occurred in production chains for non-essential goods, particularly in the domestic processing of goods and their wholesale and retail distribution. Supply chains for essential products have generally continued to function (OECD, 2020d). Nevertheless, there have been major shortages of personal protective equipment, for which the Netherlands is heavily dependent on foreign countries. These shortages in themselves were unrelated to the dependence on international value chains. Rather, they were primarily the result of an explosive rise in demand for these products that were in short supply. Hence, even if such goods were produced entirely domestically, the supply would initially have fallen short of demand. China itself also faced a shortage of medical face masks, even though it is the world's largest producer (OECD, 2020d). The shortages in the Netherlands would most likely have been eliminated sooner, however, if the country had not depended on a single supplier and had been able to import face masks from multiple other sources.

Just-in-time delivery of intermediate and other goods increases vulnerabilities to shocks (both domestic and foreign). Many companies operate on the basis of the just-in-time (JIT) principle, with delivery and production precisely coordinated to minimise the need to hold stock. JIT is an attractive way for companies to operate as holding stocks is generally costly. High stock levels also entail risks, such as theft and deterioration. The JIT principle does mean, however, that companies have little leeway to absorb external shocks. This vulnerability applies to both domestic and international supply chains.

The risk of export restrictions reinforces vulnerabilities in global value chains. Both the EU and the WTO allow countries to impose specific export restrictions in exceptional situations. Around 80 countries have used this option during the COVID-19 crisis, particularly for COVID-19-related medical products (WTO, 2020c). This included EU Member States such as Germany, France and the Czech Republic who introduced export bans on personal protective equipment, affecting intra-EU trade and putting a large proportion of the EU's exports of medical goods at risk (Bown, 2020) (see Figure 5.1).

Figure 5.1 Importance of EU medical exports subject to export control



Source: Bown (2020).

Finally, the vulnerabilities of global value chains are exacerbated by the lack of visibility in (complex) value chains. With many production processes being highly fragmented and companies often using foreign suppliers, companies do not always have a full overview of the series of suppliers on which they

depend (Sheffi, 2015).[29] This lack of visibility hampers companies' ability to timely anticipate and absorb shocks.

5.2 Solutions to reduce vulnerabilities

Experience gained during the COVID-19 crisis has sparked debates – including within Europe – on redesigning the production process to reduce vulnerabilities in global value chains. Proposals have been made to reshore production, to minimise dependence on a single supplier (diversification) or to maintain a larger buffer stock. In some countries (e.g. Japan and the United States) governments are considering how to play a role in effectuating these proposals. When assessing the desirability of such solutions, there are two key questions. First, to what extent is it desirable for governments to play a role in rethinking the production process? Second, to what extent can such solutions actually make firms more robust, and to what extent does that affect a company's cost-efficiency?

5.2.1 The desirability of government intervention

Rethinking the production process in response to the current crisis should in principle be left to companies themselves. Companies choose to import components for reasons of economic efficiency. International free trade thereby contributes to the growth of global prosperity through an efficient allocation of production factors and specialisation of the production process. Free trade in itself can also contribute to greater global robustness by stimulating essential transfers of technology and knowledge, particularly between developed and developing countries. Government intervention may jeopardise such benefits.

29 A survey has shown, for example, that over 30% of companies surveyed do not assess these dependencies. For those that do, 40% of their supply chain disruptions originate from indirect suppliers (Business Continuity Institute, 2019).

Government measures may be desirable, however, to protect the supply of essential goods from a public interest point of view. A distinction should be drawn between increasing the resilience and the robustness of supply chains. Resilience is the ability to return to normal production levels within an acceptable period following a shock, whereas robustness is the ability to maintain production levels during a shock in order to safeguard the continuity of supply.

5.2.2 Robustness versus cost efficiency

Below we discuss four solutions, the first three of which are often put forward in the public debate to make production chains more robust. These are reshoring production, diversifying suppliers, holding larger stocks and increasing visibility within supply chains. We then evaluate these solutions with respect to the trade-off between robustness and cost efficiency.

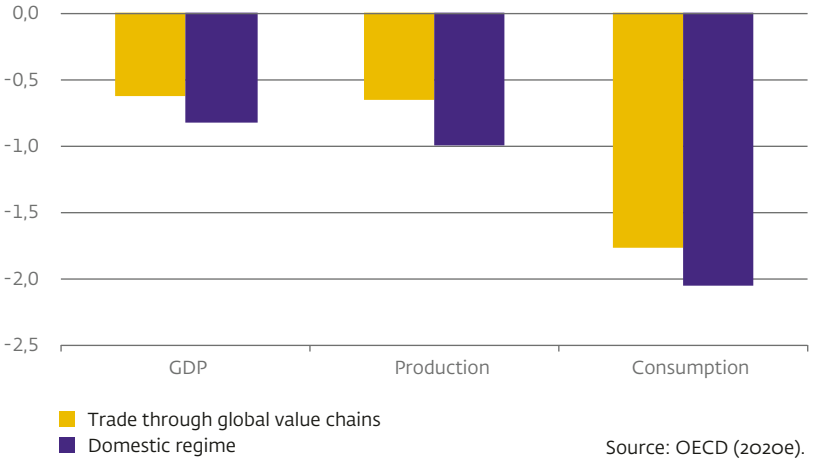
Reshoring

Reshoring – repatriating business activities from abroad – does not necessarily make value chains more robust, whereas it does make the production process more expensive. By reducing their dependence on foreign suppliers, companies are less exposed to foreign shocks. At the same time, it makes them more vulnerable to domestic shocks. If a domestic shock occurs, the entire production line may potentially be affected. In addition, reshoring gives companies less flexibility to anticipate shocks. OECD (2020e) shows that the COVID-19 crisis would not only have entailed a greater economic contraction if production had taken place entirely domestically, but also lower security of supply. Production that is almost entirely domestic makes it more difficult and costlier to substitute production in disturbed production lines than a regime in which companies participate in global value chains. Whereas in global value chains part of the shock is absorbed by international markets, in the case of domestic production the domestic

market must undertake relatively more of these expensive adjustments itself. This decreases domestic spending, such as consumption, to a greater extent than when an economy participates in global value chains (see Figure 5.2).

Figure 5.2 Shocks have greater economic impact in the case of full domestic production than in the case of optimal participation in global value chains

Average percentage deviation



Source: OECD (2020e).

Notes: Given the static basic outcome of the two different regimes, the figure reflects the average percentage deviation of a negative shock affecting the economy at sector-country level. The shock gives rise to similar distortions to those during the coronavirus crisis.

Diversification of suppliers

Diversification is a costly way to make production lines more robust and resilient. Diversification helps companies to reduce their dependence on a single country or supplier, enabling them to switch to suppliers from another region if a shock occurs that is specific to a certain region. However,

diversification is expensive as it requires companies to invest in multiple suppliers to customise their supplies and ensure that components from different manufacturers are compatible. It also involves a potential loss of economies of scale. It was for these reasons, for example, that the 2011 earthquake in Japan did not lead most companies that imported components from to further diversify their supplier base (Freund & Pierola, 2020). Instead, they sought an alternative supplier outside Japan that also had a comparative advantage in producing such components. Finally, diversification does not increase robustness in crises that affect all countries more or less simultaneously and to the same extent.

Holding larger buffer stocks

Holding larger stocks does not change companies' choice of the most efficient form of organisation while it does provide maximum security of supply. Building larger stocks of both product components and final products makes companies less vulnerable to domestic as well as foreign shocks. A stock can be built at company level, but also at government level. Such an approach would ensure, for example, that the medical products a country needs can be supplied with the least disruption possible. While holding stocks also entails costs, the product location itself remains unchanged. Some products, however, have limited shelf lives and can therefore not be held in stock for long periods.

Increased visibility in supply chains

A final solution that receives little attention in the policy debate is the importance of improving visibility within chains, as indicated in the management literature (Wu et al., 2010). In order to anticipate disruptions in supply chains, it is important that businesses have access to detailed, real-time information on the entirety of their supply chain (OECD, 2020d). Technologies such as Blockchain and 'the Internet of Things' could play a significant role in this respect.

5.3 Impact COVID-19 crisis on globalisation

The impact of the COVID-19 crisis on globalisation depends on the choices that companies make and the extent to which these choices are influenced by specific government measures. Much of this remains uncertain at present. On the one hand, the current crisis is likely to prompt companies and their shareholders to place more emphasis on increasing the robustness of their supply chains. On the other hand, robustness entails higher costs, and the COVID-19 crisis leaves little room for costly reforms of the production process. Although there are good reasons to make international trade more robust, it is important to resist nationalist and protectionist tendencies in response to this crisis. Imposing restrictions on free trade, for example by favouring domestic over foreign production, does not necessarily increase the robustness of global value chains nor ensure the supply of essential goods. Instead, it is likely to be accompanied by major welfare losses. Companies should decide, on the basis of an informed cost-benefit analysis, to what extent an adjustment of the production process, for example through diversification of production lines, is desirable.

Appendix Full set of deglobalisation scenario variables

Figure 1 Effect on the Dutch economy of a 10% tariff increase for all regions over 20 quarters

Percentage deviation from the equilibruim level

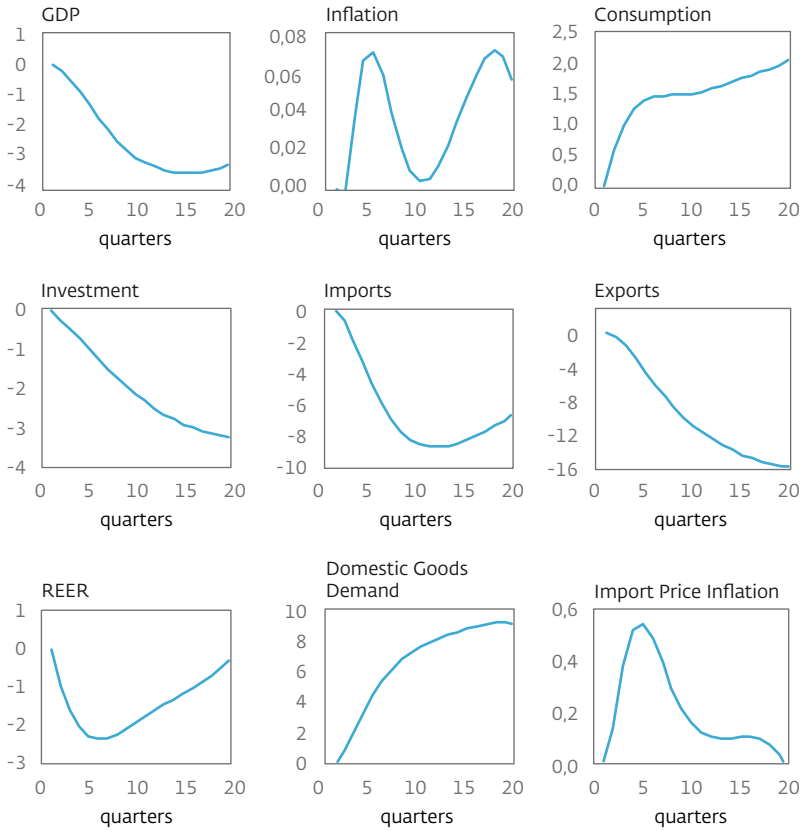
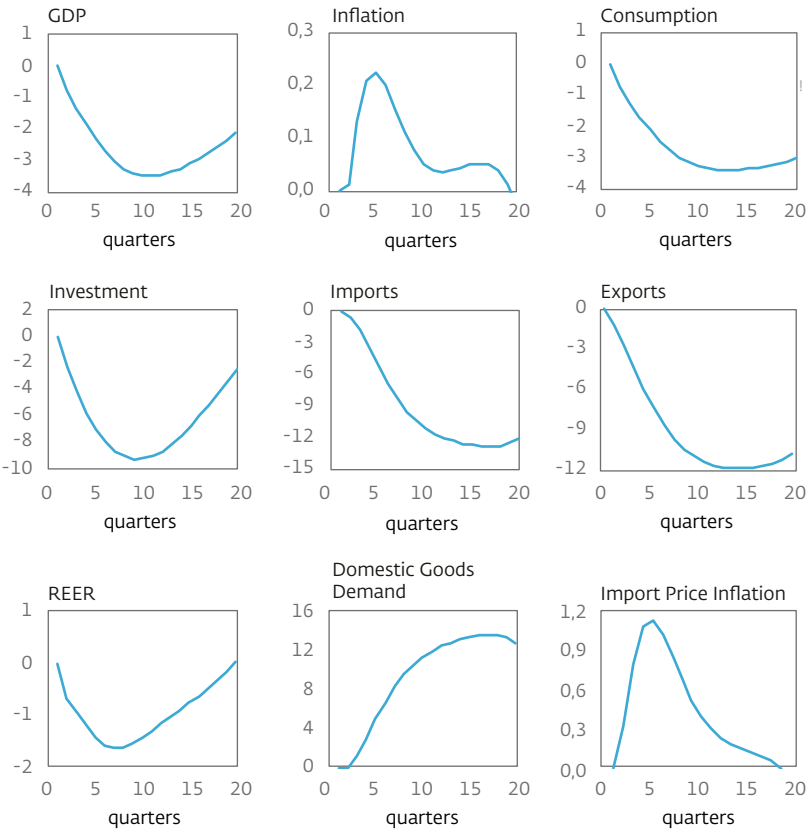


Figure 2 Effect in REA of a 10% tariff increase for all regions over 20 quarters

Percentage deviation from the equilibruim level



References

Acemoglu, D., Autor, D., Dorn, D., Hanson, G., Price, B. (2016). Import competition and the great US employment sag of the 2000s. *Journal of Labor Economics*, 1, 141-198.

Alesina, A., Angeloni, I., Etro, F. (2005). International unions. *American Economic Review*, 95(3), 602-615.

Amiti, M., Konings, J. (2007). Trade liberalization, intermediate inputs, and productivity: Evidence from Indonesia. *American Economic Review*, 97(5), 1611-1638.

Antràs, P. (2020). De-globalisation? Global value chains in the post-COVID-19 age. *National Bureau of Economic Research, Working Paper No. 28115.*

Autor, D. H., Dorn, D., Hanson, G. H. (2013). The China syndrome: Local labor market effects of import competition in the United States. *American Economic Review*, 103(6), 2121-2168.

Autor, D., Dorn, D., Hanson, G. (2016). The China Shock: Learning from labor-market adjustment to large changes in trade. A*nnual Review of Economics*, *8*, 205-240.

Baldwin, R. E. (2006). *Globalisation: The great unbundling(s).* Economic Council of Finland.

Baldwin, R. E. (2012). Global value chains: Why they emerged, why they matter, and where they are going. *Centre for Economic Policy Research, Discussion Paper No. 9103.*

Baldwin, R. E. (2016). The World Trade Organization and the future of multilateralism. *Journal of Economic Perspectives*, 30(1), 95-116.

Baldwin, R. E., Evenett, S. J. (2020). *COVID-19 and trade policy: Why turning inward won't work.* CEPR Press.

Baldwin, R. E., Lopez-Gonzalez, J. (2015). Supply-chain trade: A portrait of global patterns and several testable hypotheses. *The World Economy, 38*(11), 1682-1721.

Baldwin, R. E., Yan, B. (2014). *Global value chains and the productivity of Canadian manufacturing firms.* Statistics Canada.

Balsvik, R., Jensen, S., Salvanes, K. G. (2015). Made in China, sold in Norway: Local labor market effects of an import shock. *Journal of Public Economics, 127*, 137-144.

Bolt, W., Mavromatis, K., Van Wijnbergen, S. (2019). The global macro-economics of a trade war: The EAGLE model on the United States-China trade conflict. *Tinbergen Institute Discussion Paper Series*, 15(8).

Borin, A., Mancini, M. (2019). Measuring what matters in global value chains and value-added trade. *World Bank Policy Research, Working Paper No. 8804.*

Bown, C. P. (2018). Trade policy towards supply chains after the great recession. *IMF Economic Review, 66*(3), 602-616.

Bown, C. P. (2020). EU limits on medical gear exports put poor countries and Europeans at risk. *Peterson Institute for International Economics, 19 March 2020.*

Bown, C. P., Irwin, D. A. (2015). The GATT's starting point: Tariff levels circa 1947. *National Bureau of Economic Research, Working Paper No. 21782.*

Brakman, S., Garretsen, H. (2020). Trump bestrijdt globalisering met beleid van de vorige eeuw. *MeJudice, 10 January 2017.*

Bun, M., Öztürk, B. (2020). Hoger Amerikaans tarief op Europese auto's raakt vooral Duitsland. *Economisch Statistische Berichten, 105*(4781), 44-45.

Business Continuity Institute (2019). *Supply chain resilience report 2019.* Zurich.

CBS (2018). *Internationaliseringsmonitor 2018-I: De positie van Nederland.* The Hague: Statistics Netherlands.

CBS (2020). *Dutch Trade in Facts and Figures 2020: Exports, investment and employment.* The Hague: Statistics Netherlands.

Cerrato, A., Ferrara, F., Ruggieri, F. (2018). Why does import competition favor Republicans? *Working Paper.*

Cezar, R., Polge, T. (2020). CO_2 emissions embodied in international trade. *Banque de France Bulletin, 228*(1).

Cheng, M. K., Rehman, S., Seneviratne, M. D., Zhang, S. (2015). Reaping the benefits from global value chains. *IMF Working Papers, 15*(204).

Clausing, K. (2001). Trade creation and trade diversion in the Canada-United States free trade agreement. *Canadian Journal of Economics,* 677-696.

Colantone, I., Stanig, P. (2018). Global competition and Brexit. *American Political Science Review, 112*(2), 201-218.

Contractor, F. J., Kumar, V., Kundu, S. K., Pedersen, T. (2010). Reconceptualizing the firm in a world of outsourcing and offshoring: The organizational and geographical relocation of high value company functions. *Journal of Management Studies, 47*(8), 1417-1433.

Costinot, A., Rodriguez-Clare, A. (2014). Trade theory with numbers: Quantifying the consequences of globalisation, in E. Helpman, K. Rogoff and G. Gopinath (eds). *Handbook of International Economics, 4.*

Dauth, W., Findeisen, S., Suedekum, J. (2014). The rise of the East and the far East: German labor markets and trade integration. *Journal of the European Economic Association, 12*(6), 1643-1675.

De Backer, K., Flaig, D. (2017). The future of global value chains: Business as usual or "a new normal"? *OECD Science, Technology and Innovation Policy Papers, No. 41.*

Den Ridder, J., Boonstoppel, E., Dekker, P. (2018). *Continu onderzoek burgerperspectieven 2018|2.* The Hague: Netherlands Institute for Social Research.

Di Tella, R., Rodrik, D. (2019). Labor market shocks and the demand for trade protection: Evidence from online surveys. *National Bureau of Economic Research, Working Paper No. 25705.*

Diamond, R. (2016). The determinants and welfare implications of US workers' diverging location choices by skill: 1980-2000. *American Economic Review, 106*(3), 479-524.

DNB (2019). *EOV: Economic Developments and Outlook – December 2019.* Amsterdam: DNB.

Donoso, V., Martín, V., Minondo, A. (2015). Does competition from China raise the probability of becoming unemployed? An analysis using Spanish workers' micro-data. *Social Indicators Research, 120*, 373–394.

Dutch Ministry of Foreign Affairs (2019). *The Netherlands and China: A new balance.* The Hague.

Estevadeordal, A., Suominen, K., Volpe, C. (2013). *Regional trade agreements: Development challenges and policy options.* Geneva: International Centre for Trade and Sustainable Development & World Economic Forum.

Eurobarometer (2017). *Standard Eurobarometer 88 (November). Public opinion in the European Union.* Brussels: European Commission.

Eurochambre (2019). *The state of the single market: Barriers and Solutions.*

European Commission (2019). *China - Challenges and prospects from an industrial and innovation powerhouse.* Luxembourg: Joint Research Centre.

Euwals, R., Groot, S., Meijerink, G. (2019). *Globalisering: Geringe regionale effecten, wel onzekerheid.* Netherlands Bureau for Economic Policy Analysis.

Fajgelbaum, P., Goldberg, P., Kenne, P. (2020). *The return to protectionism.* VoxEU, *7 November 2019.*

Feenstra, R. C., Sasahara, A. (2017). The 'China shock', exports and U.S. employment: A global input-output analysis. *National Bureau of Economic Research, Working Paper No. 24022.*

Feenstra, R. C., Ma., H., Xu, Y. (2019). U.S. exports and employment. *Journal of International Economics, 120,* 46-58.

Freund, C., Pierola, M. D. (2020). The origins and dynamics of export superstars. *The World Bank Economic Review, 34*(1), 28-47.

Glaeser, E. L., Gyourko, J. (2005). Urban decline and durable housing. *Journal of Political Economy, 113*(2), 345–375.

Goldberg, P. K., Khandelwal, A. K., Pavcnik, N., Topalova, P. (2010). Imported intermediate inputs and domestic product growth: Evidence from India. *The Quarterly Journal of Economics*, 125(4), 1727-1767.

Gomes, S., Jacquinot, P., Pisani, M. (2012). The EAGLE. A model for policy analysis of macroeconomic interdependence in the euro area. *Economic Modelling, 29*(5), 1686-1714.

Grossman, G. M., Rossi-Hansberg, E. (2006). The rise of offshoring: It's not wine for cloth anymore. *Proceedings - Economic Policy Symposium - Jackson Hole* (pp. 59-102). Federal Reserve Bank of Kansas City.

Harding, R., Reed, J. (2020). Asia-Pacific countries sign one of the largest free trade deals in history. *Financial Times.*

Horn, S., Reinhart, C. M., Trebesch, C. (2019). China's overseas lending. *National Bureau of Economic Research, Working Paper No. 26050.*

Ignatenko, A., Raei, F., Mircheva, B. (2019). Global value chains: What are the benefits and why do countries participate? *IMF Working Papers*, 19(18).

Ikenberry, J. G. (2018). The end of liberal international order? *International Affairs*, 94(1), 7-23.

IMF, World Bank, WTO (2017). Making trade an engine of growth for all: The case for trade and for policies to facilitate adjustment. *For discussion at the meeting of G20 Sherpas, March 23-24.* Frankfurt.

IRC Trade Task Force (2016). Understanding the weakness in global trade: What is the new normal? *ECB Occasional Paper, No. 178.*

Irwin, D. (1996). *Against the tide: An intellectual history of free trade.* Princeton University Press.

Jaumotte, F., Lall, S., Papageorgiou, C. (2013). Rising income inequality: Technology, or trade and financial globalization? *IMF Economic Review*, 61(2), 271-309.

Karacaovali, B., Limão, N. (2008). The clash of liberalizations: Preferential vs. multilateral. *Journal of International Economics*, 74(2), 299-327.

Koopman, R., Wang, Z., Wei, S. (2014). Tracing value-added and double counting in gross exports. *American Economic Review*, 104(2), 459-94.

Kumar, K., van Fenema, P. C., von Glinow, M. A. (2009). Offshoring and the global distribution of work: Implications for task interdependence. *Journal of International Business Studies*, 40(4), 642-667.

Kummritz, V., Quast, B. (2017). Global value chains in developing economies. *VoxEU, 25 February 2017.*

Lakner, C., Milanovic, B. (2013). Global income distribution: From the fall of the Berlin Wall to the Great Recession. *World Bank Policy Research, Working Paper No. 6719.*

Lenzen, M., Moran, D., Kanemoto, K., Foran, B., Lobefaro, L., Geschke, A. (2012). International trade drives biodiversity threats in developing nations. *Nature, 486,* 109-112.

Lindé, J., Pescatori, A. (2019). The macroeconomic effects of trade tariffs: Revisiting the Lerner symmetry result. *Journal of International Money and Finance, 95,* 52-69.

Malamud, O., Wozniak, A. K. (2012). The impact of college education on geographic mobility. *Journal of Human Resources, 47*(4), 913–950.

Mattoo, A., Mulabdic, A., Ruta, M. (2017). Trade creation and trade diversion in deep agreements. *World Bank Policy Research, Working Paper No. 8206.*

OECD (2020a). Regional trade agreements are evolving – why does it matter? *OECD*.

OECD (2020b). Tariffs are the tip of the iceberg: How behind the border issues impact trade. *OECD*.

OECD (2020c). Trade in value added. *OECD statistics on trade in value added.*

OECD (2020d). COVID-19 and global value chains: Policy options to build more resilient production networks. *OECD, 3 June 2020.*

OECD (2020e). *Shocks, risks and global value chains: Insights from the OECD METRO model.* OECD.

Pelkmans, J. (2019). *Contribution to growth: The single market for services.* European Parliament.

Pisani-Ferry, J. (2018). *Should we give up on global governance? Bruegel, 17.*

Rodrik, D. (2018). Populism and the economics of globalization. *Journal of International Business Policy, 1*, 12-33.

Romalis, J. (2007). NAFTA's and CUSFTA's impact on international trade. *The Review of Economics and Statistics, 89*(3), 416-435.

Rouzet, D., Miroudot, S. (2013). *The cumulative impact of trade barriers along the value chain: An empirical assessment using the OECD inter-country input-output model.* OECD.

Sheffi, Y. (2015). *The power of resilience: How the best companies manage the unexpected.* Cambridge, Massachusetts: The MIT Press.

Stokes, B. (2014). Most of the world supports globalization in theory, but many question it in practice. *Pew Research Center, 16 September 2014.*

Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R., de Vries, G. J. (2015). An illustrated user guide to the world input-output database: The case of global automotive production. *Review of International Economics, 23*, 575-605.

Timmer, M., Los, B., Stehrer, R., de Vries, G. (2016). An anatomy of the global trade slowdown based on the WIOD 2016 release. *Groningen Growth and Development Centre, 162.*

Tinbergen, J. (1962). Shaping the world economy: Suggestions for an international economic policy. *Twentieth Century Fund.*

Van Schaik, I. (2020). De toegenomen scepsis over vrijhandel vraagt om aanpakken schaduwzijden. *Economisch Statistische Berichten, 105*(4784S), 42-45.

Wang, Z., Wei, S., Zhu, K. (2017). Measures of participation in global value chains and global business cycles. *National Bureau of Economic Research, Working Paper No. 23222.*

World Bank, WTO (2019). *Global value chain development report 2019: Technological innovation, supply chain trade, and workers in a globalized world.* Washington, D.C.: World Bank Group.

World Bank (2020a). *World Development Report 2020: Trading for development in the age of global value chains.* Washington, DC: World Bank Group.

World Bank (2020b). World development indicators. Washington D.C.

World Intellectual Property Organization (2017). *World intellectual property report 2017.* Geneva.

WTO (2020a). Members and Observers. *World Trade Organization.*

WTO (2020b). Regional trade agreements and the WTO. *World Trade Organization.*

WTO (2020c). WTO report finds growing number of export restrictions in response to COVID-19 crisis. *World Trade Organization, 23 April 2020.*

Wu, M. (2016). The "China, Inc." challenge to global trade governance. *Harvard International Law Journal, 57*(2), 261-324.

Wu, S. J., Melnyk, S. A., Flynn, B. B. (2010). Operational capabilities: The secret ingredient. *Decision Sciences, 41*(4), 721-754.

Yagan, D. (2014). Moving to opportunity? Migratory insurance over the Great Recession. *Working Paper, Harvard University.*

Yi, K. M. (2003). Can vertical specialization explain the growth of world trade? *Journal of Political Economy, 111*(1), 52-102.

Yue, P., Evenett, S. J. (2010). *Moving up the value chain: Upgrading China's manufacturing sector.* International Institute for Sustainable Development.

DeNederlandscheBank

EUROSYSTEEM

De Nederlandsche Bank N.V.
P.O. Box 98, 1000 AB Amsterdam
020 524 91 11
dnb.nl