



PBL Netherlands Environmental
Assessment Agency

Short-term effects of the Brexit

Initial change in the competitive position
of various sectors in certain Dutch regions

**Mark Thissen, Anet Weterings
and Trond Husby**

22 February 2019



Aim of the research

- This study examines where the Brexit's initial effects would be the greatest for the competitiveness of sectors in the Netherlands. We look at the effects per sector and region. We describe the cost-increasing effect of trade barriers (tariff and non-tariff barriers) that occur immediately after Brexit, i.e. before companies, governments and consumers have had a chance to respond and adapted their behaviour.
- We answer the following question: Is the trade-barrier-related increase in costs due to the Brexit larger or smaller for individual Dutch regions, compared to competitors at home and abroad? This is analysed on regional levels per sector. In other words, which sector in which region will see their competitive position either strengthen or weaken, following the Brexit?
- Insight into these effects is relevant for:
 - Companies in sectors that are likely to be affected by a Brexit;
 - Any follow-up negotiations on the future economic relationship between the European Union and the United Kingdom;
 - Possible policy targeting specific regions and sectors to mitigate the impact of the Brexit.
- Our study did not consider:
 - Any impact on consumers or long-term effects on welfare. In the economic literature, there is consensus about a Brexit, on average, having a negative impact on economic welfare.
 - Brexit effects unrelated to any trade barriers between the United Kingdom and the EU (e.g. access to fishing grounds).
- This study was conducted at the request of the Ministry of Economic Affairs & Climate and builds on the research project *The Economic Impacts of Brexit on the UK, its Regions, its Cities and its Sectors*, funded by the UK Economic and Social Research Council.



Findings for the Netherlands

This study shows the consequences of increased costs from Brexit-related trade barriers for the competitive position of 62 sectors in 12 Dutch NUTS2 regions. The main conclusions are:

- **For the Netherlands, in general**

- The competitiveness of the food industry will weaken. To a lesser extent, this also applies to agriculture, the chemical industry, and retail and wholesale trade. For some services sectors (financial services, telecom and travel agencies) the competitive position will strengthen; for example, when costs for competitors increase more due to Brexit-related trade barriers.
- For internationally competing companies, the decrease in competitiveness is much smaller for those in the Netherlands than those in the United Kingdom. On a domestic trade level, however, companies in the Netherlands are slightly more affected than those in the United Kingdom (because the Netherlands has a more open economy). Because many companies compete mainly on a domestic level, the average impact on their competitive position is more or less the same, in both countries.

- **For Brexit-related follow-up negotiations**

- The extent of the reduced competitiveness of the Dutch industrial and agricultural sectors depends on specific trade barriers, whereas the strengthening of the competitive position of the Dutch services sector depends on a multitude of trade barriers.
- The effects of a Brexit on the competitive position of companies differs per sector and region. As a result, the interest in follow-up negotiations on the future economic relationship with the United Kingdom may be different for the Netherlands than, on average, for other EU Member States. This study shows where these differences may occur.



Findings for Dutch regions

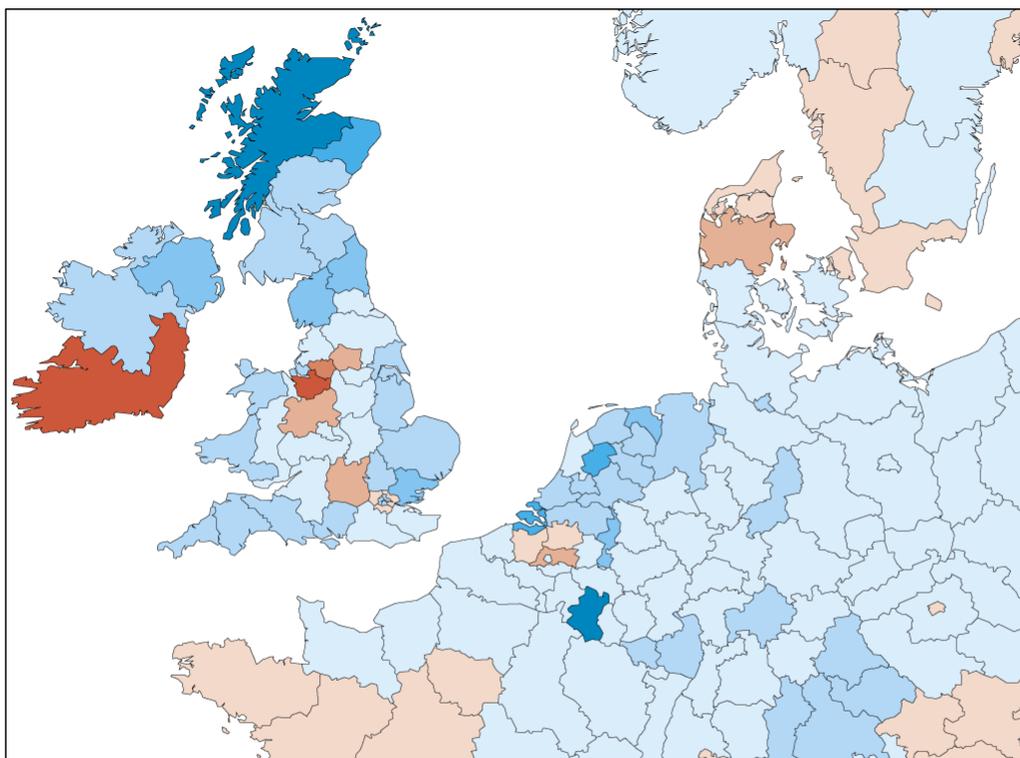
- **The Brexit impact on a national level conceals the diversity of the effects per region and sector**
 - The larger economic regions (South Holland, North Holland and North Brabant) will be affected less severely than those that are smaller, because companies in these economically larger regions are more likely to compete with nearby companies and obtain more goods from nearby suppliers. As a result, they are less likely to compete with UK companies and depend less on indirect economic interaction with the United Kingdom. In addition, these regions contain more companies from the services sector, which, on average, increases their competitive position.
 - The effects vary per province, because:
 - › For example, sectors in a certain region may, overall, be either strongly or hardly dependent on the United Kingdom, in terms of both sales market and production structure. For example, the regional economy of North Brabant hardly depends on the United Kingdom, whereas Zeeland's dependence on the United Kingdom is rather strong.
 - › Some of the sectors that are likely to experience a large Brexit impact are located only in specific regions, such as the automotive industry, which is located in North Brabant, and the textile industry, which is in Overijssel and Flevoland.
 - › The dependence on the United Kingdom of certain sectors varies per region, in terms of both sales market and production structure. An example is the machine industry, for which the impact in South Holland differs from that in Friesland.



The competitive position of sectors either strengthens or weakens

- › The change in the competitive position of individual types of sectors per region is defined as the percentage of change in the costs for those particular sectors in those regions, compared to the change in costs for their competitors. If, for a certain sector, costs increase significantly less than for its competitors, its competitive position becomes stronger.
- › Costs, here, concern the price of goods and services paid to suppliers, plus monetary losses related to tariffs and non-tariff barriers. If, for a certain sector, cost increases are larger than for its regional competitors, these costs cannot fully be factored into the sales price. In such cases, any relative cost increases will reduce profit margins for those particular sectors.
- › In order to determine the size of the effects, we assumed a worst-case scenario, so that the proportions of the effects between the various sectors could clearly be seen. This scenario is based on a hard Brexit scenario that is widely used in the literature, based on WTO tariffs and supplemented by non-tariff barriers. This is not the same as a 'no-deal Brexit', because that also includes all kinds of short-term disruptions, such as the lack of a proper infrastructure needed for customs' clearance in the United Kingdom.
- › For further insight into how a Brexit could influence the competitive position of sectors in the Dutch regions, we used the following classifications:
 - *Large sectors* are business sectors with a higher than average added value compared to other companies in the region.
 - *A large Brexit effect* is a higher than average impact on a sector's competitive position than on the region as a whole.
 - *A sector that is specifically sensitive to certain tariff rates* is one that is more sensitive than on average for the region (this is measured by the variation in the impact of trade barriers on various products and services).

The average change in regional competitiveness due to Brexit



Source: PBL

Sales-price-related impact



Product-cost-related impact



The change in competitiveness concerns the percentage of change in costs, compared to competitors.

The competitive position of all companies in the Dutch regions will weaken, on average.

- Trade barriers will affect competitiveness in two ways:
- 1) by increasing the sales price of Dutch products sold in the United Kingdom
 - 2) by increasing the price of UK goods used in Dutch production processes. The level of production costs may strengthen the competitive position of certain Dutch regions, as other, competing regions may face higher cost increases. The two smaller maps show that effects will vary per region.

For more information on the change in regional competitiveness, see the Annex, slide 9, explanation of the approach.



Brexit-related changes in the competitive position of sectors in various Dutch regions, the UK and the EU

sector ↓	region →	The Netherlands	United Kingdom	European Union	Groningen	Friesland	Drenthe	Overijssel	Gelderland	Flevoland	Utrecht	North Holland	South Holland	Zeeland	North Brabant	Limburg
Crop and animal production, and hunting etc.		Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple
Manufacture of food products, and beverages etc.		Dark Purple	Dark Purple	Dark Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple
Manufacture of textiles, and wearing apparel etc.		Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Manufacture of coke and refined petroleum products		Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Manufacture of chemicals and chemical products		Dark Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple
Manufacture of fabricated metal products		Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Manufacture of electrical equipment		Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple
Manufacture of machinery and equipment n.e.c.		Light Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple
Manufacture of motor vehicles, trailers and semi-trailers		Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple
Manufacture of furniture; other manufacturing		Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple
Wholesale trade, except in motor vehicles etc.		Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple
Retail trade, except in motor vehicles and motorcycles		Dark Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Dark Purple
Land transport and transport via pipelines		Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Warehousing and support activities for transportation		Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple
Postal and courier activities		Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Accommodation and food service activities		Light Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple
Publishing activities		Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple
Telecommunications		Dark Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple
Financial service activities, except insurance etc.		Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple
Activities auxiliary to financial services etc.		Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple
Rental and leasing activities		Light Purple	Light Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Light Purple	Light Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple
Travel agency, tour operator reservation service etc.		Dark Purple	Light Purple	Light Purple	Light Purple	Dark Purple	Dark Purple	Dark Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple	Dark Purple	Light Purple	Dark Purple	Dark Purple

- The strengthening or weakening of the competitive position was determined as the change in costs (in %) per sector, compared to this change for the competitors.
- This table shows only the sectors with large representation in at least two regions and where the impact is large (regardless of whether this is due to specific tariffs).
- The table on slide 16 shows the size of the change in competitive position and associated cost increases. An overview of all sectors examined is provided on slide 17.

Strengthening	Weakening	of the competitive position
Dark Purple	Dark Purple	Large sectors with a large impact
Light Purple	Light Purple	Large sectors with a large impact from specific tariffs
Light Purple	Light Purple	Small sectors and/or sectors with a small impact



Interpretation of table 'Brexit-related changes in the competitive position of sectors in various Dutch regions, the UK and the EU'

- **The average effect on the competitive position of companies in the Netherlands (column 1):**
 - The food industry shows a pink colour. The competitive position of this industry will deteriorate, particularly due to trade barriers on certain products and services.
 - › The United Kingdom is an important sales market for the Dutch food sector, where Dutch companies compete with UK companies. A tariff on food, therefore, has a large impact on the competitiveness of this sector.
 - Three services sectors show dark green colours. Their competitive position will improve following a Brexit, irrespective of whichever Brexit-related additional trade barriers on any of their products and services. This, because tariffs on all types of products and services have a cost-increasing effect on competing sectors from abroad.

- **Differences in the average effect for Dutch, UK and EU companies (columns 1–3):**
 - The different colours in the first and third column indicate that the effect of a Brexit on the competitive position of sectors in the Netherlands and the EU may differ.
 - This could imply that the importance of Brexit-related trade barriers on specific goods or services for the Netherlands differs from the average importance for other EU Member States. This could lead to differences in the emphasis on tariffs and sectors in the follow-up negotiations.
 - › An example is wholesale trade. The effect of the Brexit on wholesale is large (purple) for the Netherlands, whereas for the EU it is small (yellow).
 - › Another example is the Dutch food industry. The effect of a Brexit depends on the tariff rate on food (pink), whereas the effect for the EU depends on a combination of various tariffs (purple).

- **Differences in effects per sector and region (columns 4–15):**
 - An interregional comparison of effects for a certain sector shows which effects will be region-specific. For example, the effect of the Brexit on the Dutch automotive industry will only be noticeable in North Brabant, as this is the only province where this industry is large. The Brexit will strengthen the industry's competitive position in North Brabant, irrespective of whichever product-specific tariffs will be imposed (dark green). A large cost increase for the competing UK automotive industry is a major reason for the improving competitiveness of the Dutch industry.
 - In addition, certain impacts may also lead to opposing effects for the same sector in a different region. An example is the machinery industry. In Friesland, this industry will see an increase in its competitiveness, whereas in South Holland competitiveness will weaken. The Brexit impact, therefore, will depend on the industry's specific regional situation. In the case of Friesland, the machine industry is not only less dependent on the United Kingdom (they have a lower cost increase), but their competitors also will face higher Brexit-related cost increases.



ANNEX: EXPLANATION OF THE APPROACH



Background, definitions and methods

- › The following slides describe how the results were achieved and discuss the following issues:
 - The distinction between the direct and indirect effects of a Brexit
 - The Brexit scenario used
 - How to determine the competitive position
 - The change (in %) in competitiveness and the associated cost increase per sector and region
 - The scientific contribution of this study, compared to previous studies
 - A list of all sectors examined in this study

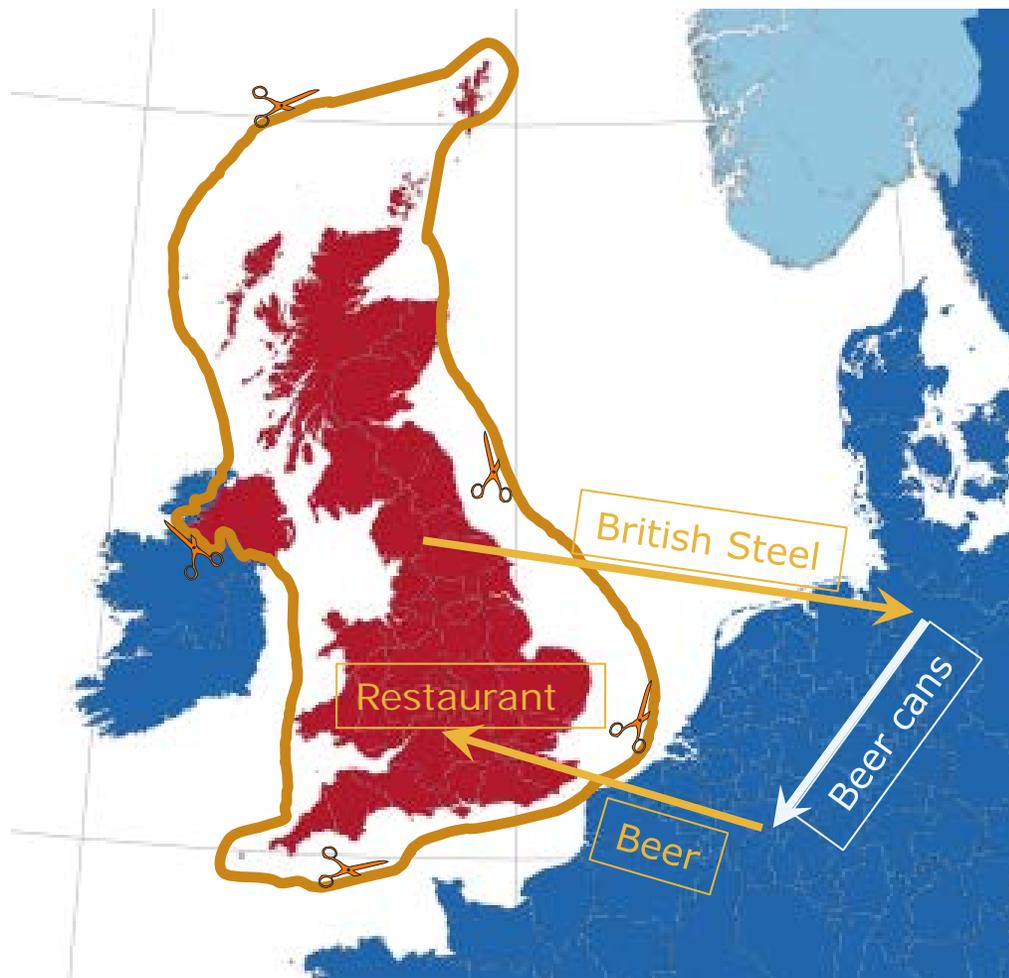


Direct and indirect Brexit-related impacts

- › Tariffs and trade barriers between the European Union and the United Kingdom will affect the functioning of companies in the Netherlands, in two ways:
 - Direct impact: Higher sales prices for UK-based goods and services
 - Extent of the impact depends on export quantities to the United Kingdom
 - Indirect effects: Higher production costs due to higher purchasing prices for goods and services from the United Kingdom
 - Extent of the impact depends on import quantities from the United Kingdom, or on the extent to which the supplying sector imports from the United Kingdom.

- › The total effect on the competitive position of sectors may differ substantially from only the direct effects. The following example illustrates this point.

Example of indirect Brexit-related effects



Illustrative example of the Brexit-related impact on the price of beer in the United Kingdom:

1. A tariff is imposed on British steel
2. The German company that uses British steel to produce beer cans has to pay more – their production costs increase
3. The more expensive German cans are bought by a brewery in Belgium – their beer becomes more expensive
4. The beer from Belgium is exported to the United Kingdom. A tariff is imposed on the beer imported into the UK – the price of the beer increases even further.

The effect of the Brexit on production costs is greater as more components (raw materials, intermediate goods, services) along the value chain of the production process cross the border between the United Kingdom and the European Union.



Brexit scenario

- › Assessing the magnitude of the impact of a Brexit requires a scenario on the trade barriers that would be created between the United Kingdom and the European Union, following a Brexit.
- › This study uses the most commonly used and complete scenario (Dhingra et al. 2017, negative scenario):
 1. It contains impacts related to goods and services from various economic sectors;
 2. It takes into account both non-tariff and tariff barriers;
 3. It expresses non-tariff barriers in cost changes comparable to tariffs (monetised).
- › We chose the most negative scenario to be able to emphasise the possible differences in effects between the various sectors. The impact will be smaller under a softer Brexit scenario with lower trade barriers.
- › The scenario is similar to that of a hard Brexit that is based on WTO tariffs and complemented by non-tariff barriers. This is not the same as a 'no-deal Brexit', because that would involve all sorts of short-term disruptions.
- › The reference scenario represents the current situation, based on a PBL data set containing the most recent economic data on European regions, a large number of individual countries outside Europe and the rest of the world (2013). This data set is unique in that it includes data on the trade in goods and services between these regions and countries ([Follow this link to the related PBL report](#)). It is a more detailed update of a data set previously created by PBL in a European research project. This earlier data set has been used several times in the past, in published scientific research on the consequences of the Brexit and the competitiveness of Dutch and European regions.



What is competitiveness?

- › Changes in the competitiveness of sectors and regions depend not only on Brexit-related cost increases for companies in Dutch regions, but also on those for their competitors.
- › The Brexit-related effect on the competitiveness of companies in different regions is therefore determined as the change in costs *compared to the cost changes for their competitors*.
- › This depends on:
 - the extent to which Dutch companies depend on UK products and services for their production, compared to their competitors;
 - where products and services of Dutch companies are sold and whether their competitors are located in the United Kingdom;
 - A Brexit will increase the price of Dutch products and services sold in the United Kingdom, while the price of those by UK competitors remains the same.
 - Dutch companies compete with UK companies in markets elsewhere in Europe.
 - A Brexit increases the price of UK products and services sold in the EU, while the price of those by their EU competitors remains the same.

The next slide illustrates how the location of competitors in specific regions is determined.

Illustration of how competitiveness is measured

The map shows an illustrative example of the markets of:

Rotterdam



London



Vienna



London and Rotterdam have the biggest overlap in sales market. Competition between companies in



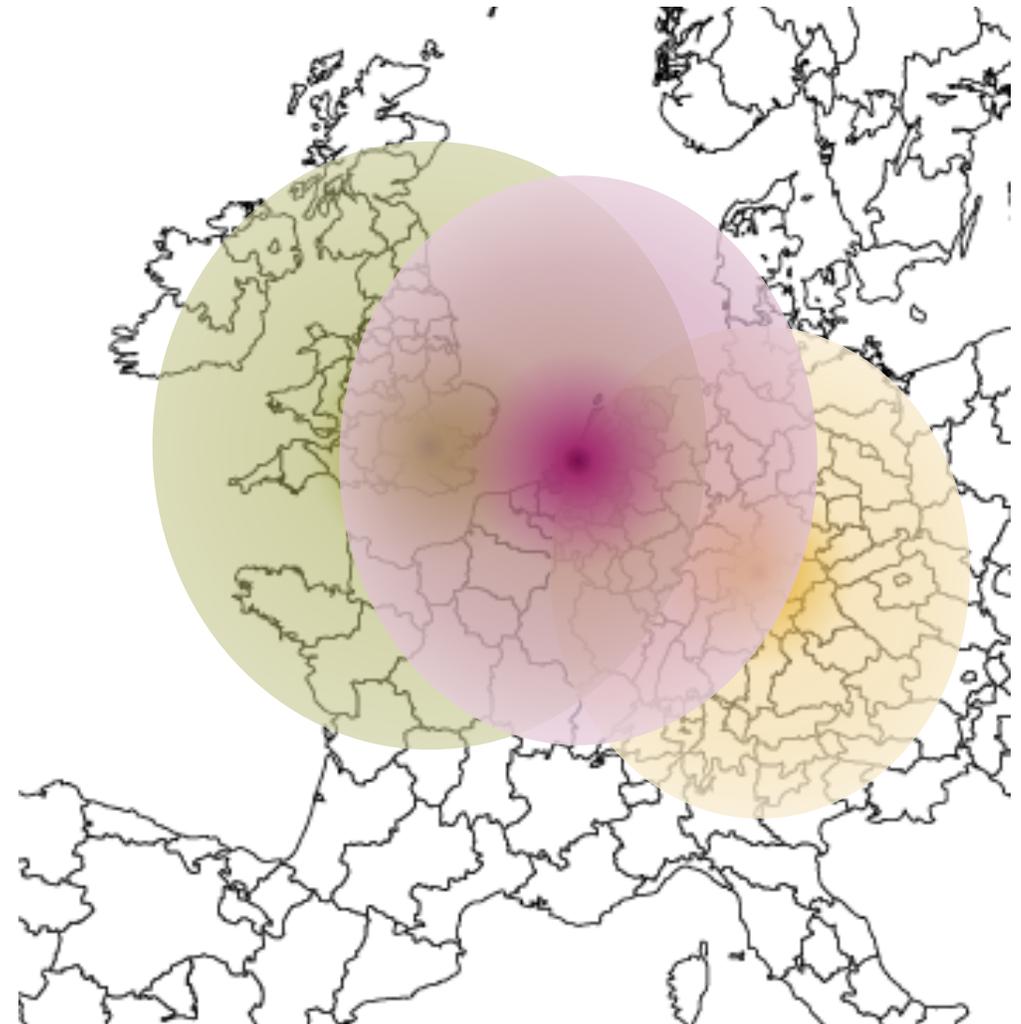
London and those in Rotterdam

is therefore greater than between those in



London and those in Vienna

For this research, we used the actual data on trade between all regions and the rest of the world.





Brexit-related changes in competitive position and cost increases

sector ↓ region →	The Netherlands	United Kingdom	European Union	Groningen	Friesland	Drenthe	Overijssel	Gelderland	Flevoland	Utrecht	North Holland	South Holland	Zeeland	North Brabant	Limburg
Average over the sectors	0.5 (0.8)	0.5 (1.7)	0.1 (0.4)	0. (1.2)	0.4 (0.9)	0.4 (0.9)	0.4 (1)	0.4 (0.9)	0.8 (1.6)	0.3 (0.6)	0.2 (0.5)	0.4 (0.9)	0.9 (1.7)	0.3 (0.7)	0.6 (1.1)
Crop and animal production, and hunting etc.	0.8 (1.6)	1.3 (6.6)	0 (0.5)	0.9 (1.6)	0.5 (1.1)	0.7 (1.3)	0.6 (1.1)	0.6 (1.2)	1 (1.9)	0.6 (1.2)	0.7 (1.3)	1.2 (2)	1.3 (2.4)	0.6 (1.2)	1 (1.8)
Manufacture of food products, and beverages etc.	4.7 (5.5)	-5.3 (3.9)	1.1 (1.3)	3.9 (5.1)	2.9 (3.9)	3.1 (4.1)	3.2 (4.2)	2.8 (3.6)	4.9 (6.5)	3.6 (4.7)	5.9 (7.7)	9.1 (11.8)	8.2 (10.7)	2.8 (4)	5.4 (7)
Manufacture of textiles, and wearing apparel etc.	4.8 (6)	3.2 (3.1)	0.2 (0.3)	8 (11.8)	6 (10)	5.9 (9.8)	-0.8 (4.2)	4.5 (9)	7 (10.9)	5.4 (9.8)	1.5 (6.1)	1.1 (5.8)	11 (14)	0 (5.1)	8.4 (12.5)
Manufacture of coke and refined petroleum products	0.6 (0.4)	1.4 (2.9)	0.4 (0.4)	0.8 (1.1)	1.1 (1.5)	1.1 (1.5)	1 (1.4)	0.3 (0.5)	0.2 (0.4)	0.2 (0.3)	0 (0.1)	1.1 (1.5)	1 (1.5)	0 (0)	0.1 (0.2)
Manufacture of chemicals and chemical products	0.8 (1.4)	0.5 (6.1)	0.6 (1.3)	1.2 (2.6)	1 (2.2)	1.1 (2.2)	1 (2.1)	1.1 (2.4)	1 (2.2)	0.9 (2)	0.9 (1.9)	0.4 (0.9)	0.9 (1.9)	0.2 (0.7)	0.4 (1)
Manufacture of fabricated metal products	0.2 (0.4)	0.8 (1.8)	0.1 (0.2)	0.2 (0.5)	0.2 (0.5)	0.3 (0.6)	0 (0.2)	0 (0.2)	0.5 (0.8)	0 (0.3)	0.1 (0.4)	0.1 (0.3)	0.4 (0.7)	0 (0.4)	0.1 (0.3)
Manufacture of electrical equipment	0.3 (0.6)	2.6 (1.5)	0.3 (0.7)	0.3 (0.8)	0.2 (0.7)	0.2 (0.7)	0.3 (0.7)	0.3 (0.7)	0.3 (0.8)	0.3 (0.8)	0.3 (0.7)	0.3 (0.7)	0.4 (1)	0.2 (0.5)	0.4 (0.9)
Manufacture of machinery and equipment n.e.c.	0 (0.8)	4.7 (5)	0.2 (0.6)	-0.1 (1)	-0.1 (0.9)	-0.1 (1)	0.1 (0.8)	0.1 (0.8)	-0.1 (1)	-0.1 (1)	0.1 (1)	0.3 (1)	0 (1.1)	0.1 (0.5)	0.2 (1)
Manufacture of motor vehicles, trailers and semi-trailers	0 (1.1)	11 (12.8)	-0.1 (2.2)	0.3 (5.3)	0 (4.2)	-0.1 (2.5)	-0.8 (0.5)	-0.7 (0.8)	0.1 (4.3)	-0.1 (4.2)	-0.6 (2.1)	0.8 (5)	1.9 (12.1)	-0.4 (0.3)	-0.9 (0.3)
Manufacture of furniture; other manufacturing	0.5 (0.9)	3 (1.7)	0.4 (0.8)	0.6 (1.3)	0.6 (1.3)	0.6 (1.3)	0.3 (0.8)	0.3 (0.8)	1.1 (1.9)	0.8 (1.6)	0.3 (0.9)	0.2 (0.8)	1 (1.9)	0 (0.4)	0.6 (1.3)
Wholesale trade, except in motor vehicles etc.	0.8 (1.3)	-2.7 (4.1)	0.1 (0.2)	1.1 (2.4)	0.9 (1.9)	1 (2.1)	0.3 (0.7)	0.6 (1.3)	0.7 (1.4)	0.8 (1.7)	0.5 (1.1)	0.6 (1.4)	1.3 (2.8)	0.3 (0.6)	1 (2)
Retail trade, except in motor vehicles and motorcycles	0.8 (1)	0.8 (1)	0.2 (0.2)	1.5 (1.8)	1 (1.3)	1 (1.4)	-0.1 (0.3)	0.3 (0.8)	1 (1.3)	1 (1.4)	0.4 (0.8)	0.7 (1.1)	2.3 (2.7)	0 (0.4)	0.8 (1.3)
Land transport and transport via pipelines	0.2 (0.2)	-0.7 (1.4)	0.1 (0.2)	-0.1 (0.1)	-0.1 (0.1)	-0.1 (0.1)	-0.1 (0)	0 (0.1)	1.6 (2)	0.5 (0.8)	-0.1 (0)	0 (0)	0.7 (1)	0 (0.1)	0 (0.1)
Warehousing and support activities for transportation	0 (0.1)	1.4 (1.8)	-0.1 (0.1)	0 (0.1)	-0.1 (0.1)	0 (0.1)	-0.1 (0.1)	0 (0.1)	0.5 (0.7)	0.1 (0.3)	-0.3 (0)	-0.1 (0.1)	0.2 (0.4)	-0.1 (0.1)	0 (0.1)
Postal and courier activities	-0.2 (0.1)	0.9 (1)	0 (0.2)	-0.3 (0.1)	-0.1 (0.1)	-0.4 (0.2)	-0.1 (0.1)	-0.1 (0.1)	-0.4 (0.3)	-0.1 (0.1)	0 (0)	0 (0)	-0.4 (0.2)	-0.1 (0.1)	-0.2 (0.2)
Accommodation and food service activities	0 (0.2)	1.9 (2.5)	0.1 (0.3)	0.1 (0.3)	0.1 (0.3)	0.1 (0.3)	0.1 (0.3)	-0.1 (0.2)	0.3 (0.5)	0 (0.2)	-0.2 (0.1)	-0.2 (0.1)	0.2 (0.5)	-0.2 (0.1)	0.2 (0.4)
Publishing activities	-0.7 (0.5)	0.8 (1.6)	-0.1 (0.3)	-0.3 (0.3)	-0.3 (0.2)	-1.3 (0.3)	-0.4 (0.3)	-0.4 (0.4)	-1.5 (0.4)	-0.5 (0.4)	0.2 (0.6)	0.1 (0.5)	-2 (0.4)	-0.4 (0.4)	-1.1 (0.4)
Telecommunications	-0.3 (0.3)	1.1 (2)	-0.1 (0.2)	0 (0.6)	-0.2 (0.4)	-1 (0.6)	-0.1 (0.5)	-0.3 (0.7)	-0.7 (0.8)	0 (0.5)	-0.1 (0.2)	-0.1 (0.1)	-1.1 (0.9)	-0.3 (0.7)	-0.2 (0.7)
Financial service activities, except insurance etc.	-0.3 (0.1)	0.8 (0.8)	-0.1 (0.1)	-0.4 (0.2)	-0.3 (0.1)	-0.5 (0.3)	-0.4 (0.2)	-0.3 (0.2)	-0.6 (0.5)	-0.1 (0)	-0.1 (0)	-0.2 (0.1)	-0.6 (0.5)	-0.2 (0.2)	-0.4 (0.3)
Activities auxiliary to financial services etc.	0 (0.1)	0.6 (1.7)	-0.3 (0.2)	-0.1 (0.1)	0 (0)	0 (0.2)	0 (0.1)	0 (0.1)	0 (0.2)	-0.1 (0)	-0.2 (0)	-0.1 (0)	0 (0.2)	-0.1 (0.1)	0 (0.1)
Rental and leasing activities	-0.1 (0)	0.6 (0)	-0.2 (0)	-0.1 (0)	-0.1 (0)	-0.1 (0)	-0.2 (0)	-0.2 (0)	0 (0)	-0.1 (0)	-0.1 (0)	-0.1 (0)	-0.1 (0)	-0.2 (0)	-0.3 (0)
Travel agency, tour operator reservation service etc.	-0.2 (0.2)	0.7 (0.3)	0 (0.2)	-0.4 (0.2)	-0.1 (0.3)	-0.2 (0.3)	-0.2 (0.2)	-0.3 (0.3)	-0.1 (0.4)	-0.3 (0.2)	-0.1 (0.1)	-0.2 (0.2)	0 (0.4)	-0.2 (0.2)	-0.4 (0.3)

The change in competitive position is the change in costs (in %), compared to cost changes experienced by competitors. A negative value therefore means that the competitive position is strengthened.

The corresponding change in costs is provided between brackets. This cost change is always larger than the change in competitiveness because a Brexit will cause cost increases in all regions and sectors.

Strengthening	Weakening	of the competitive position
		Large sectors with a large impact
		Large sectors with a large impact from specific tariffs
		Small sectors and/or sectors with a small impact



Interpretation of table 'Brexit-related changes in competitive position and cost increases'

■ The average effects for the Netherlands:

- The first column shows the average Brexit-related effects for the different sectors in the Netherlands. In this column, the food industry is coloured pink, indicating that this is an above-average sized industry with a large Brexit impact on its competitive position. The percentage for this industry shows that, under the most negative scenario, there is a loss in competitiveness of 4.7%. As is shown between brackets, costs for the Dutch food industry will increase by 5.5%. For its competitors, cost increases are less severe (0.8%), which can be deduced indirectly from the table by reducing the cost change by the loss in competitiveness ($5.5 - 4.7 = 0.8\%$).
- The average effect on their competitive position is similar for Dutch and UK companies, as shown in the top row of the table. This is because many companies mainly compete on a domestic level. Since cost increases are about the same for all UK companies, this has only a small impact on their competitiveness. The difference in loss in competitive position between the United Kingdom and the Netherlands is therefore much greater if we look only at the international competitive position of Dutch companies compared to UK companies: The average UK company will face a loss in international competitiveness of 1% (not shown in the table). This is double the average loss for all firms. The reason is that the UK-EU border plays a major role in the international competition between UK and non-UK companies. For companies in the Netherlands, the loss in international competitiveness is almost equal to the loss of their overall competitive position.

■ Differences in effects per sector and region:

- The numbers in the table show that there is a large degree of variation in the Brexit-related impact per sector and per region on the costs for companies and on their competitive position.
- The top row provides the average impact on the competitive position of all companies, per Dutch province. This shows that the competitive position of companies in the larger Dutch regions (South Holland, North Holland, North Brabant and Utrecht) will be affected less severely by a Brexit than that of companies in the smaller Dutch regions. This has two causes:
 - › Companies in the larger regions are more likely to compete with companies from the same region. Because they have a comparable cost increase, a Brexit has little impact on their competitive position.
 - › Large regions, generally, have a large services sector which is expected to see an improvement in its competitive position, following a Brexit.



Build on existing research

- › This research builds on earlier research by PBL about the economic [exposure of sectors in European regions to the Brexit](#).

- › This is a short-term analysis
- › Previous studies, such as by [CPB](#), examine the long-term effects of a Brexit on production and welfare. These are aggregate studies with less detail and in which assumed changes in behaviour are taken into account.
 - A long-term analysis requires assumptions about how companies and policies will respond to the consequences of a Brexit, but given the unique situation around this Brexit, very little is known about what changes in the economy and policy are likely to take place. This study, therefore, focuses on how the situation may change immediately following a Brexit, without the uncertainties of possible 'no-deal' disruptions, in the short term. This provides insight into where the Brexit-related impact will be the largest and for which sectors it is important to prepare for a Brexit.
 - This study focuses on regional and sectoral details and shows the size of the variation in the possible effects of a Brexit. This is important, as the Brexit-related impact on the competitive position may vary per sector, from negative to positive. These opposing effects cancel each other out in an aggregated analysis, and thus may cause the Brexit-related impact per sector to be either underestimated or overestimated.
- › Methodological innovation: Scenario and analysis disconnected
 - The basis of this study is an analysis of the sensitivity of various sectoral activities to trade barriers between the United Kingdom and the European Union, in general—regardless of whether those trade barriers result from a particular Brexit treaty (i.e. EU-UK agreements on exit and future relationship).
 - Most of the conclusions of this research are therefore independent of the scenario and the interpretation of a Brexit treaty. In existing studies, such a scenario is part of the analysis, which makes their conclusions no longer useful if implementation or conditions of a Brexit treaty change.
 - Our analysis of the sensitivity to a Brexit (an elasticity that reflects the percentage of change in the cost per cent rate) shows whether sectors are sensitive to the Brexit in general or only to specific trade barriers.
 - We were able to analyse the impact of various types of Brexit on the competitive position more rapidly, because sensitivity to the Brexit was determined per sector, regardless of the political policy scenario.
 - We based our research on existing methods. However, it is innovative in how these methods are combined. The research is deterministic and not based on behaviour. Because of the deterministic nature of the research, the data used are very important for the results. The data set was compiled by PBL and the construction of these data have been published, over the past decade, in various articles, working papers and a book. A detailed explanation of the methodology of this research will be published, in the near future, in a scientific report, together with the results.



Sector classification (NACE revision 2) used in this research

Crop and animal production, hunting and related service activities	Manufacture of furniture; other manufacturing	Activities auxiliary to financial services and insurance activities
Forestry and logging	Repair and installation of machinery and equipment	Imputed rents of owner-occupied dwellings
Fishing and aquaculture	Electricity, gas, steam and air conditioning supply	Legal and accounting activities; activities of head offices; management consultancy activities
Mining and quarrying	Water collection, treatment and supply	Architectural and engineering activities; technical testing and analysis
Manufacture of food products; beverages and tobacco products	Sewerage, waste management, remediation activities	Scientific research and development
Manufacture of textiles, wearing apparel, leather and related products	Construction	Advertising and market research
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Wholesale and retail trade and repair of motor vehicles and motorcycles	Other professional, scientific and technical activities; veterinary activities
Manufacture of paper and paper products	Wholesale trade, except in motor vehicles and motorcycles	Rental and leasing activities
Printing and reproduction of recorded media	Retail trade, except in motor vehicles and motorcycles	Employment activities
Manufacture of coke and refined petroleum products	Land transport and transport via pipelines	Travel agency, tour operator reservation service and related activities
Manufacture of chemicals and chemical products	Water transport	Security and investigation, service and landscape, office administrative and support activities
Manufacture of basic pharmaceutical products and pharmaceutical preparations	Air transport	Public administration and defence; compulsory social security
Manufacture of rubber and plastic products	Warehousing and support activities for transportation	Education
Manufacture of other non-metallic mineral products	Postal and courier activities	Human health activities
Manufacture of basic metals	Accommodation and food service activities	Residential care activities and social work activities without accommodation
Manufacture of fabricated metal products, except machinery and equipment	Publishing activities	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities
Manufacture of computer, electronic and optical products	Motion picture, video, television programme production; programming and broadcasting activities	Sports activities and amusement and recreation activities
Manufacture of electrical equipment	Telecommunications	Activities of membership organisations
Manufacture of machinery and equipment n.e.c.	Computer programming, consultancy, and information service activities	Repair of computers and personal and household goods
Manufacture of motor vehicles, trailers and semi-trailers	Financial service activities, except insurance and pension funding	Other personal service activities
Manufacture of other transport equipment	Insurance, reinsurance and pension funding, except compulsory social security	