

# The impact of US tariffs on EU industries: results from a global input-output model

In this study, we analyze the economic effects of US tariff increases on EU industries during President Trump's second term. We simulate three different scenarios of escalating tariffs and find that EU GDP could decline by up to 0.5% in the medium term. Our simulations show a wide range of impacts for different industries, with pharmaceutical manufacturing being hit hardest. Ireland, Denmark, Belgium and Germany are among the most affected countries according to our analysis.

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## JEL classification

C67, F13, F14

## Keywords

US tariffs, European industries, trade war, input-output analysis



### Significant sectoral impacts

In our most severe scenario, pharmaceutical manufacturing is the most affected sector in the EU, with a potential decline of value added of 10.4%. Other vulnerable industries include manufacture of transport equipment and basic metals.



### Country-level vulnerability

Ireland faces a GDP loss of 2.7% in the most severe scenario, mainly due to its reliance on pharmaceutical exports to the US. Denmark (-1.0%), Belgium (-0.7%) and Germany (-0.5%) would also rank among the most affected EU countries in terms of GDP losses in this scenario.



### About the study

The study uses a global input-output model based on OECD data, incorporating tariff elasticities and tariff changes at a detailed product level to simulate medium-term effects (five years). We find strong heterogeneity regarding the impacts of US tariffs on different industries. Aggregate results are in line with other relevant recent studies.

Opinions expressed by the authors of studies do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank or the Eurosystem.

## Abstract

We simulate the impacts of the US tariff increases of President Trump's second term (cut-off date May 12) on the EU industries using detailed data at the product group level on tariffs, tariff elasticities and a global input-output model. We simulate three different tariff scenarios. In the most severe scenario with 25% tariffs on US imports from the EU for steel, aluminum, automobiles and automobile parts and 20% on all other products including pharmaceuticals, GDP in the EU would fall by 0.5% in the medium term (five years) against the baseline of no tariff increases. The pharmaceutical manufacturing industry is particularly affected, with output declining by 10.4%. Other heavily affected industries are: manufacture of other transport equipment, of basic metals and of motor vehicles. Looking at individual countries, Ireland is expected to be hit hardest, followed by Denmark, Belgium and Germany. The results are subject to several limitations. Investment and consumption restraint due to high uncertainty, trade diversion of Chinese goods to the EU and relocation of production to the US could further dampen economic activity in the EU on top of the direct trade effects estimated in this study.

## 1 A short timeline of the US trade war of 2025 so far

Since the start of his second term in office on January 20, 2025, US President Trump has introduced numerous new US import tariffs. In the following, we outline the scope of some of these tariffs that are relevant for the EU countries. Those are the tariffs on steel, aluminum, automobiles, automobile parts and the broad-based tariff increases of April 2, 2025.<sup>1</sup> The 25% tariffs on steel and aluminum products came into effect on March 12, covering all countries exporting to the US. On April 3, the 25% tariff on automobiles took effect and was extended to also cover automobile parts on May 3. Imports from Canada and Mexico satisfying the rules of origin requirements of the United States-Mexico-Canada Agreement (USMCA) were exempt from these tariffs. The escalation gained momentum on April 2 (“liberation day”), when President Trump imposed additional tariffs of 10% on a broad range of products from all major trading partners of the US, effective as of April 5. The official aim of these tariffs is to reduce the bilateral trade deficits of the US with its trading partners via “reciprocal tariffs.” To achieve this, even higher country-specific tariff rates, replacing the 10% tariff for 57 trading partners<sup>2</sup>, came into force on April 9. This increased the tariffs for goods imported from the EU to 20%.

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<sup>1</sup> The overview of measures presented here was compiled with the help of the timeline of the Peterson Institute for International Economics.

<sup>2</sup> The 57 countries are listed in Annex I of the executive order.

Table 1

### Summary of the most relevant US tariff announcements for the EU (cut-off date May 12, 2025)

Tariff measure and legal document	Effective as of	Affected goods	Affected countries	Tariff
Steel and Aluminum Proclamations 10895 and 10896 (February 10)	March 12	Steel and aluminum	Worldwide	25%
Automobiles and automobile parts Proclamation 10908 (March 26)	April 3 (automobiles) and May 3 (parts)	Automobiles and automobile parts	Except USMCA-conform trade with Canada and Mexico	25%
"Liberation day reciprocal tariffs" Executive Order 14257 (April 2) Amendment (April 8) Executive Order 14266 (April 9) Presidential Memorandum (April 11) Executive Order 14297 (May 12)	April 5 and April 9 (higher rate suspended for 90 days on April 9 all countries except China and on May 14 for China)	all goods; except steel, aluminum, automobiles and automobile parts, goods from annex II (copper, pharmaceuticals, energy, lumber, semiconductors, etc.) and as of April 11 products including semi-conductors (i.e. smart phones)	Worldwide; except Canada, Mexico, Russia, Belarus, North Korea, Cuba	10% or higher country-specific rate (e.g., EU 20%)

Source: Peterson Institute for International Economics, <https://www.whitehouse.gov/>, <https://hts.usitc.gov/>, authors' draft.

However, several countries and product groups were exempt from these tariffs. Among the excluded countries are Canada, Mexico, Russia, North Korea, Belarus and Cuba.<sup>3</sup> Additionally, the specific products listed in annex II of the executive order (including energy, semiconductors, copper, pharmaceuticals and lumber) and products already subject to tariffs under other decrees (steel, aluminum, automobiles and automobile parts) were exempt. On April 11, a presidential memorandum extended the list of exempt products to also cover smartphones and electronic devices containing semiconductors in general. Yet, some products were subject to multiple tariffs. For instance, automobile parts made of aluminum or steel were to face a tariff rate of 50%. An executive order<sup>4</sup> on April 29 clarified that the tariffs on aluminum, steel and automobiles / automobile parts do not stack.<sup>5</sup>

On April 9, President Trump partially backtracked in light of the turmoil in financial markets and lowered the April-2 tariffs on imports from all countries except China to 10% for 90 days. This lowered the additional tariff for the EU from 20% to 10%. The US President also announced that, should the EU fail to reach an agreement with the US by the end of those 90 days, the tariffs were going to revert to 20%. We also expected additional tariffs on previously exempt products in this case. On April 1, the Secretary of Commerce launched an investigation to determine the national security impact of the importation of drugs and pharmaceutical ingredients. The International Emergency Economic Powers Act (IEEPA) authorizes the US President to act in response to threats to US national security in the event of a national emergency. This includes the imposition of tariffs. Thus, we expected the removal of exemptions for pharmaceutical products after the end of the 90-day suspension period.

<sup>3</sup> For the last four countries, far-reaching trade sanctions were already in force and significantly restricting trade even before the tariffs were imposed. Canada and Mexico were exempt since they had already been subject to tariffs of 25% in February 2025.

<sup>4</sup> See Executive Order 14289: [Addressing Certain Tariffs on Imported Articles – The White House](#).

<sup>5</sup> This also covers the tariffs that were imposed on products from Canada and Mexico in February and March but does not apply to the prior tariffs on products from China. Also note that according to this executive order steel tariffs still stack with aluminum tariffs. The latter applies to 5 HS3 6-digit products.

Since the tariffs described above affect the EU directly, we compiled a detailed list of affected products from the US 2025 Harmonized Tariff Schedule (HTS) Revision 12 (May 13, 2025).<sup>6</sup> For the tariffs on US imports from Canada, Mexico and China, we relied on a few assumptions to simplify the analysis.

Since February, almost all products imported from Canada and Mexico are subject to a 25% tariff unless they comply with the rules of origin requirements of the USMCA trade agreement. We set the mean tariff rate for Mexican and Canadian products to 25% times the share of non-USMCA conforming exports. As an estimate for these non-conforming exports we use 50% for Mexico and 62% for Canada as was communicated by a White House official (see [CNBC news coverage](#)).

Tariffs for products from China were increased by 10% in early February and then by another 10% in early March 2025. Since China retaliated against the tariffs from April 2, the US President increased the additional tariffs on imports from China from an initial 34% to ultimately 125%. Furthermore, the US ended the de minimis exemptions (i.e. duty-free status) of low-value shipments from China. On May 12, China and the US reached an agreement which lowered the April-2 tariff rate imposed on US imports from China to 10%.

## 2 Description of scenarios

The above timeline demonstrates that so far during Trump's second term, his trade policy has been very dynamic. To reflect the rapidly changing environment we developed three scenarios that we consider to be relevant and likely. In all three scenarios, we assume that the tariffs on steel, aluminum, automobiles and automobile parts will stay at the levels of our cut-off date (May 12). This amounts to additional tariffs of 25% for all countries (including EU countries) and an additional 45% for China (which also include the 20% from February and March). Furthermore, we do not assume any retaliatory measures from trading partners and have not included the retaliation measures already implemented by China against the US. Note that while our analysis focuses on the results for EU countries, all simulations also include indirect impacts of the tariff increases on non-EU countries.

The first scenario (S1 "90 days") represents the status quo (cut-off date: May 12). Pharmaceutical products are exempt and all countries (including EU countries and China) benefit from the 90-day relief from the April-2 tariffs. Therefore, all products imported to the US from the EU are subject to an additional 10% tariff rate, all imports from China to an additional 30%. Scenario 2 (S2 "Liberation") depicts the status quo after the 90-day relief. In this scenario the country-specific "reciprocal" tariff rates are applied to all products covered by the executive order issued on April 2. This corresponds for instance to 20% for EU countries and 145% for China. However, pharmaceutical (HS3 2-digit: 30) products are still exempt. In the third scenario (S3 "Pharma") we assume that the exemption for pharmaceutical<sup>7</sup> products is lifted for each country. As we explained above, this seems likely given that an investigation on national security grounds has been launched in early April. All other assumptions are similar to S2.

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<sup>6</sup> For more details see annex I: data and tariff mapping.

<sup>7</sup> Note that a significant share of Europe's exposure to the US in terms of pharmaceuticals is via Ireland. A significant share of this exposure, as measured by the input-output tables, consists of royalty payments, which may be differently affected by the tariffs than typical goods trade. As we cannot address this issue within our methodological framework, the results of this analysis should be interpreted with caution.

Table 2

**Simulated tariff increase in scenario**

Scenario	Steel and aluminum	Automobiles and automobile parts	Pharmaceuticals	All other products (not exempt)
S1 "90 days"	EU 25% / CN 45%	EU 25% / CN 45%	-	April 2 base rate of 10% EU 10% / CN 30%
S2 "Liberation"	EU 25% / CN 45%	EU 25% / CN 45%	-	April 2 annex I "reciprocal" rates EU 20% / CN 145%
S3 "Pharma"	EU 25% / CN 45%	EU 25% / CN 45%	April 2 annex I "reciprocal" rates EU 20% / CN 145%	April 2 annex I "reciprocal" rates EU 20% / CN 145%

Source: Authors' draft.

We mapped the tariffs at a detailed product level to the similarly detailed bilateral trade data for 2023 and calculated the trade-weighted average tariffs by product group and country.<sup>8</sup> Table 3 shows the average tariff of the EU-27 for the ten product groups that make up the highest share in total exports to the US in 2023. With a share of nearly 20% of all EU-27 exports, pharmaceutical products are on top of the list. Since most of the products included in this group are exempt, additional tariffs are only marginal in scenarios S1 and S2 but increase by 20 percentage points (pp) in S3 as per scenario assumption. Mechanical machineries (HS3 chapter 84) and automobiles and automobile parts (HS3 87) follow with shares of 16% and 12% of total EU exports to the US, respectively. As expected, steel, aluminum, automobiles and automobile parts show the highest average tariff increases in all three scenarios.<sup>9</sup> At the bottom of the ten most important export product groups are beverages (HS3 22) and cosmetics (HS3 33). Since none of the products in these groups are exempt from the tariffs, their average tariff rates increase by exactly 10 (S1) and 20 (S2 and S3) pp, respectively.

Table 4 shows the average tariff increases for the ten EU countries for which, in terms of shares of total exports, the US is the largest export market. These country-wide tariff exposures depend on the export structure of the specific country. In scenario S1, the EU exports to the US are subject to tariff increases of around 10 pp. However, this masks substantial country heterogeneity with much smaller increases for Ireland (2.4 pp) and Denmark (6.2 pp) and much larger ones for Slovakia (23.5 pp) and Germany (13.4 pp). The lower tariffs for Ireland and Denmark reflect their large shares of exports of pharmaceutical products to the US. Lifting the exemption for those products in S3 would increase the average tariff on Irish as well as Danish products to the US by around 10 pp. This would particularly hit Ireland, since nearly a third of its goods exports are shipped to the US market. By contrast, Slovakia already faces a high tariff increase of 23.5 pp in our least severe scenario S1. Ending the 90-day relief or imposing additional tariffs on pharmaceuticals leaves the tariff increases nearly unchanged. This reflects the higher share of goods with higher tariff rates of 25% in Slovakian exports, with automobiles and automobile parts playing a particularly important role. We observe a similar pattern for Germany and Austria. These two countries also export noticeable amounts of steel and pharmaceutical products to the US.

<sup>8</sup> For more details see annex I: data and tariff mapping.

<sup>9</sup> Since steel and aluminum tariffs may stack, the average tariff of HS3 87 is more than 25%.

Table 3

**US import tariffs for selected EU industries<sup>1</sup>**

HS3 code	Tariff increase (pp) in scenario ...			Share of EU in total US imports of good j, % (2023)	Share of US in industry j's total exports, % (2023) <sup>2</sup>	Share of good j in total EU-exports to the US, % (2023)
	S1 "90 days"	S2 "Liberation"	S3 "Pharma"			
Total	10.4	14.9	18.8	18.1	8.4	100.0
Pharmaceutical products	30	0.1	0.2	20.0	60.1	19.7
Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	84	14.0	21.1	21.1	19.5	16.3
Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof	87	25.3	25.6	25.6	17.3	11.9
Electrical machinery and equipment and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers, parts and accessories of such articles	85	13.2	18.5	18.5	8.4	7.0
Optical, photographic, cinematographic, measuring, checking, medical or surgical instruments and apparatus; parts and accessories	90	10.4	20.1	20.1	28.2	6.1
Organic chemicals	29	0.9	1.7	1.7	45.0	5.1
Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	27	0.0	0.0	0.0	6.1	3.0
Aircraft, spacecraft and parts thereof	88	14.6	21.5	21.5	39.3	2.3
Beverages, spirits and vinegar	22	10.0	20.0	20.0	36.4	2.0
Essential oils and resinoids; perfumery, cosmetic or toilet preparations	33	10.0	20.0	20.0	54.3	1.9

1 Industries are sorted according to the share of exports in total exports to the US.

2 Total exports of industry j include intra- and extra-EU exports.

Source: Authors' calculations based on BACI data for 2023 (see Gaulier and Zignago, 2010), HTSUS, White House.

Table 4

**US import tariffs for selected EU countries**

	Tariff increase (pp) in scenario ...			Share of country i in total US imports (2023), %	Share of US in country i's total exports (2023) <sup>1</sup> , %
	S1 "90 days"	S2 "Liberation"	S3 "Pharma"		
EU-27	10.4	14.9	18.8	18.1	8.4
EA-20	10.2	14.7	18.6	16.0	9.1
Ireland	2.4	4.6	14.7	2.3	28.9
Finland	8.4	14.7	16.8	0.3	11.3
Italy	11.2	17.3	19.6	2.4	11.0
Denmark	6.2	10.5	19.5	0.4	10.3
Germany	13.4	17.6	20.4	5.2	10.0
Sweden	12.9	16.9	20.0	0.6	9.6
Austria	12.5	16.6	20.4	0.6	8.7
France	10.1	17.3	18.8	1.7	8.0
Portugal	8.4	12.5	16.9	0.2	7.7
Slovakia	23.5	24.5	24.5	0.3	7.2

1 EU-27 and EA-20 exports include both intra- and extra-EU-27 (EA-20) exports.

Source: Authors' calculations based on BACI data for 2023 (see Gaulier and Zignago, 2010), HTSUS, White House.

### 3 Method

We simulated the effects of the tariffs on Austria using a global input-output model which is based on the OECD's global input-output table for 2019.<sup>10</sup> The model comprises 77 regions (76 countries and the rest of the world) and 45 sectors / product groups according to the International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4 classification. It maps the interdependencies between the economic sectors of the countries by depicting national and international production networks, international trade in finished products and the value added resulting from production in a matrix structure. For each industry, in addition to the domestic intermediate input linkages, the imports flowing into domestic production are also included in detail by industry and country of origin. The model can be used to simulate the effects of demand shocks on the economic sectors in all countries.

#### 3.1 Deriving the decrease in import demand using tariff elasticities

The global input-output model requires changes in final demand or intermediate inputs as simulation inputs. To translate the change in US tariffs to changes in US import demand we employ tariff elasticities. For example, a tariff elasticity of  $-0.5$  means that a tariff increase of 1 pp leads to a reduction in import demand of 0.5 pp. In the empirical literature, the magnitude of elasticity estimates can differ substantially depending on the methods and data used and which countries and goods are covered. For illustration purposes, we cite two examples from the large literature. Devarajan et al. (2023) estimated elasticities of around  $-0.6$  for developing and  $-1.4$  for high-income countries. A survey of Schwarz et al. (2020) of 3,524 previous estimates found a median elasticity of  $-3.8$  with a range from  $-2.5$  to  $-5.1$ .

The elasticities we use are based on two sources. To cover the variation between product groups, we use the trade elasticities from Fontagné et al. (2022), which are available at the Harmonized System (HS) 3 (2007) subheadings (6-digit) product level (5,052 products).<sup>11</sup> They found substantial variation between products, ranging from  $-3.6$  for highly differentiated products like footwear to  $-19$  for standardized products like mineral products. Since the elasticities found by Fontagné et al. (2022) are rather large (Median of  $-5.6$ ) – potentially reflecting long-term relationships – we use the aggregate elasticities estimated by Boehm et al. (2023) to cover the medium-term perspective (five years). Using a thorough identification strategy, they find a short-term (one year after the tariff increase) elasticity of  $-0.76$ . After five years, the elasticity increases to  $-1.24$ . Since we are interested in medium-term effects of the tariff increases, we scale the elasticities of Fontagné et al. (2022) to a (US trade-weighted) average of  $-1.24$  (the five-year elasticity of Boehm et al., 2023). This gives us detailed elasticities at product level  $\beta_k$ :

$$\beta_k = (\varepsilon_k - 1)/\omega, \tag{1}$$

<sup>10</sup> See <https://www.oecd.org/en/data/datasets/inter-country-input-output-tables.html>.

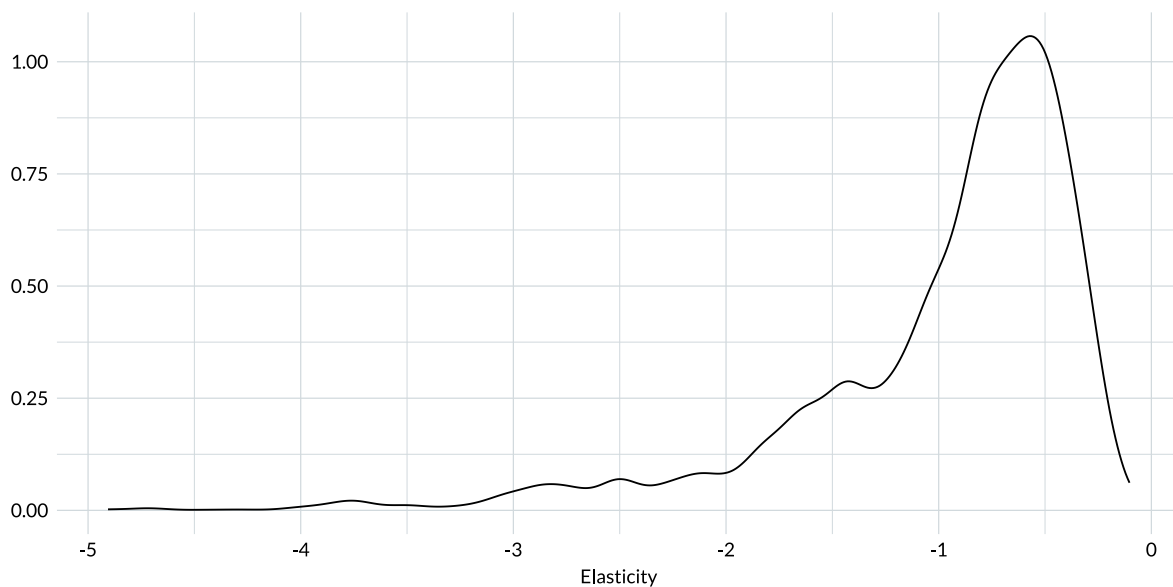
<sup>11</sup> Their estimates employ trade data from the BACI database and MAcMap-HS6 tariff data for a total of 5,052 product groups, 189 exporting, 152 importing countries and include the years 2001, 2004, 2007, 2010, 2013, 2016 and 2019.

with  $\varepsilon_k$  being the HS3 6-digit trade elasticity from the dataset of Fontagné et al. (2022) and  $\omega$  being the scaling factor chosen so that the US import-weighted mean tariff elasticity equals  $-1.24$ . The distribution of the scaled elasticities is displayed in chart 1. Boehm et al. (2023) also estimated elasticities for a subset of aggregate HS chapters (2 digits). These include, among other items, plastics, wood, paper, textiles, metals and machinery. We may compare those elasticities for the medium term (five years) with the trade-weighted (US imports from EU-27) scaled versions of the Fontagné et al. (2022) elasticities we use in this analysis. Boehm et al. (2023) reported their estimated sector-specific elasticities only in a graph. This complicates a comparison. However, their estimates for the fifth year roughly vary between  $-0.2$  and  $-4.0$ . Our scaled estimates for comparable HS chapters vary between  $-0.5$  and  $-1.3$ , which is within the range of their results.

Chart 1

### Distribution of tariff elasticities over 5,052 HS3 6-digit product categories

Scaled to  $-1.24$ , cut-off at  $-5$



Source: Authors' calculations based on Fontagné et al. (2022).

To convert the increases in US tariffs into a reduction in US import demand, we first allocate the tariff increases to the 5,052 6-digit HS3 product groups of each exporter (for further details, see annex I: data and tariff mapping). We then calculate the percentage change in each tariff relative to its corresponding baseline tariff rate. Our baseline tariff rates stem from the latest MAcMap-HS6 tariff data (i.e. 2019), which matches the product classification of the trade and elasticity data we use. These data include the WTO most-favoured-nation (MFN) and preferential tariff rates but excludes tariffs imposed via special and temporary legislation such as the tariffs from Trump's first term. The tariff change multiplied by the tariff elasticities<sup>12</sup> gives the change in US import demand at the level of HS3 subheadings (6-digit) for each exporter. We then aggregate these impacts to the dimensions of our global input-output model (77 countries x 77 countries x 45 product groups) using mapping matrices (see annex I). Formally this is:

<sup>12</sup> The tariff elasticity is calculated as  $\beta = \varepsilon - 1$  with  $\varepsilon$  being the trade elasticity available from Fontagné et al. (2022).

$$\Delta \ln(X_{US,j,k}) = \beta_k [\ln(1 + \hat{\tau}_{US,j,k}) - \ln(1 + \tau_{US,j,k})], \quad (2)$$

with  $X_{US,j,k}$  being the US imports of trading partner  $j$  of HS3 6-digit subheadings  $k$ . The difference operator is given by  $\Delta$  which yields the percentage change of US imports in equation (2). The initial (before the tariff increase) US import tariff rate with trading partner  $j$  and product group  $k$  is given by  $\tau_{US,j,k}$ . The new tariff rate – i.e. after the increase implied by the respective scenario – is given by  $\hat{\tau}_{US,j,k}$ .<sup>13</sup>

We assume that the exporters affected by the tariffs do not adjust their prices. Several empirical studies on the impact of tariffs during Trump's first term found evidence in favor of that assumption (see Fajgelbaum et al., 2020; Cavallo et al., 2021 or Amiti et al., 2019). As Amiti et al. (2019) note, however, this contrasts with studies on price reactions to exchange rate shocks or empirical estimates that imply rising export supply curves (Gopinath, et al., 2010; Broda et al., 2008). One of the reasons for the lack of transmission cited by Amiti et al. (2019) is that Trump's tariffs may not be perceived as permanent measures by exporters due to the high level of uncertainty (his erratic trade policy). In such a case, it would be difficult for exporters to increase previously lowered prices if the tariffs are lifted. As trade policy in Donald Trump's second term is similarly erratic and characterized by even greater uncertainty (as measured, for example, by the Trade Policy Uncertainty Index), we do not assume a strong reaction in export prices this time either and therefore assume a full transmission to US import prices. However, it should be noted that the higher tariff rate increases of Trump's second term could very well have impacts on export prices, especially if strong non-linearities are present.

### 3.2 Simulating the impacts of the US tariff increases with a global input-output model

Imports before and after the tariff increase for each exporter and product group are mapped from the HS3 6-digit product group level to the ISIC Rev. 4 industry classification (see annex I: data and tariff mapping). The change in US imports<sup>14</sup> at this level is then used in the global input-output model to simulate the direct and indirect impacts on value added.

In our global input-output model, simulating a demand shock involves quantifying how changes in final demand propagate through the world economy's interconnected industries. The Leontief inverse matrix  $L = (I - \theta)^{-1}$ , where  $\theta$  is the matrix of technical coefficients, plays a central role.  $\theta$  is derived by dividing intermediate inputs per industry and country by the output of industry  $i$  in country  $j$ . When a demand shock  $\epsilon = (\epsilon_1, \dots, \epsilon_s)$  hits the final demand vector  $d$ , the resulting change in sectoral outputs is calculated as  $\Delta x = L\epsilon$ . In our global input-output model, the final demand vector has the dimension 3,465 (=77 countries x 45 goods). This framework allows us to trace cascading impacts of reduced US imports across the global production network.

Note that the global input-output model delivers the impacts of the tariff increases from a comparative static perspective. As such, these impacts do not have a specific time span (short, medium, long) or development path attached to them. However, one could argue that it takes some time for the tariff

<sup>13</sup> Note that using this formula, there will be minor inaccuracies if we start from an approximate baseline tariff level, since the percentage change in the tariff rate (which is used in the formula) does not equal the change in the tariff rate in percentage points.

<sup>14</sup> Note that we did not simulate the impacts of the direct import change for services industries. The trade recorded in the OECD input-output tables for these industries will be mostly trade in services. But our direct import change is derived from trade data on goods only. Applying the goods import change to a service industry would thus overestimate the impacts of the tariffs.

impacts to feed through the entire production network, which we simulate by employing the Leontief inverse matrix. Because of that and since we are scaling the tariff elasticities to impacts after five years (as explained above), we would argue that our results represent medium-term effects.<sup>15</sup>

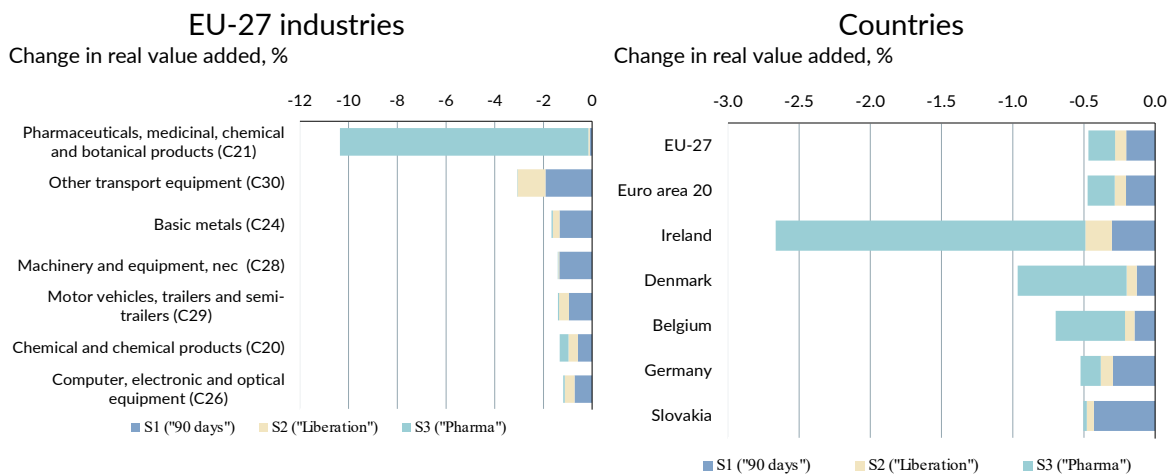
## 4 Results

Chart 2 gives an overview of the results of all three scenarios for the most affected industries and countries. The bars for scenario S1 show the change of value added relative to the baseline in %, the stacked bars for scenarios S2 and S3 show the additional impact relative to S1 (S2) in the medium term, i.e. after five years. In scenario S1 (“90 days”: with 25% tariffs on steel, aluminum, automobiles and automobile parts from the EU), real GDP in the EU and the euro area decreases by 0.20% (see the right panel of chart 2). The countries with the strongest declines are Ireland, Denmark, Belgium, Germany and Slovakia.

In scenario S2 (“Liberation”: with additional tariffs of 10% for all other goods from the EU that are not exempt), the additional GDP loss (EU: -0.08 pp) is relatively small compared to scenario S1. The size of the additional impact on the EU’s GDP in scenario S3 (“Pharma”: with additional tariffs of 20% on pharmaceutical exports from the EU) is very similar to the impact in the first scenario (-0.19 pp).

Chart 2

### Impact of US import tariff increases on Europe: main results for scenarios S1 to S3



Source: Authors' calculations.

Note: For scenario S2 (S3), the bars represent the additional impact relative to scenario S1 (S2).

In the following, we will focus on the discussion of the results of the most encompassing scenario S3. For more detailed results of S1 and S2, consult annex II: detailed results in tables. The US tariff increases cover a wide range of industries, with manufacture of pharmaceutical products (C21) being hit particularly hard with a decline of value added of 10.4% in the EU. The US is the single largest export

<sup>15</sup> Nevertheless, our results are subject to a series of caveats that we discuss in detail in the concluding section.

market for pharmaceutical products from the EU. These products accounted for around 20% of all EU exports to the US in 2023. In 17 out of the 27 EU countries, this industry shows the highest relative losses in value added, with Ireland (-21.2%), Denmark (-15.2%) and Belgium (-10.1%) being hit hardest (see table 5). The second most affected industry is manufacture of other transport equipment (C30), which encompasses the production of a wide range of vehicles and equipment used for transportation, excluding motor vehicles, trailers, and semi-trailers (which are covered under NACE C29). Value added in this industry falls by 3.1% in the EU, with Poland (-5.7%), France (-4.7%) and Latvia (-3.5%) being most severely affected. The third highest loss of value added for the EU (-1.7%) we find for basic metals (C24), with Greece, Ireland and Sweden being hit hardest.

Table 5

### Impact of US import tariffs on the EU: ten most affected industries and five most affected countries per industry for scenario S3 ("Pharma")

ISIC Rev. 4 industries	EU-27	EA-20	5 most affected countries per industry (code   value added, %)									
C21: Pharmaceuticals, medicinal chemical and botanical products	-10.4	-10.6	IE	-21.2	DK	-15.2	BE	-10.1	DE	-7.1	NL	-6.9
C30: Other transport equipment	-3.1	-3.1	PL	-5.7	FR	-4.7	LV	-3.5	IT	-3.4	SE	-2.9
C24: Basic metals	-1.7	-1.7	GR	-2.9	IE	-2.5	SE	-2.5	LU	-2.3	AT	-2.1
C29: Motor vehicles, trailers and semi-trailers	-1.4	-1.5	SK	-2.9	AT	-2.4	FI	-2.1	SE	-1.9	HU	-1.8
C28: Machinery and equipment, n.e.c.	-1.4	-1.4	IE	-2.5	HU	-1.7	FR	-1.5	DE	-1.5	IT	-1.4
C20: Chemical and chemical products	-1.3	-1.4	DK	-2.5	NL	-1.8	IE	-1.6	SE	-1.5	BE	-1.4
C26: Computer, electronic and optical equipment	-1.2	-1.2	EE	-2.5	IE	-1.7	HU	-1.4	DK	-1.4	FR	-1.3
A03: Fishing and aquaculture	-1.1	-1.1	CY	-5.1	IE	-3.8	GR	-3.2	CZ	-1.8	ES	-1.5
C27: Electrical equipment	-1.0	-1.0	HU	-1.3	IE	-1.3	EE	-1.2	FI	-1.1	DE	-1.1
B07_08: Mining and quarrying, non-energy producing products	-1.0	-0.8	SE	-2.1	IE	-1.9	LU	-1.2	AT	-1.0	DE	-1.0

Source: Authors' calculations.

Note: AT: Austria, BE: Belgium, CY: Cyprus, CZ: Czechia, DE: Germany, DK: Denmark, ES: Spain, EE: Estonia, FI: Finland, FR: France, GR: Greece, HU: Hungary, IE: Ireland, IT: Italy, LU: Luxembourg, LV: Latvia, MT: NL: Netherlands, PL: Poland, SE: Sweden.

Looking at the impacts on different countries, there is one country that stands out in terms of GDP losses (see table 6). If all US import tariffs of scenario S3 will materialize, the GDP of Ireland could decline by 2.7%. This is mainly due to the important role of pharmaceutical exports to the US, but also to a high exposure in other relevant industries (repair and installation of machinery and equipment (C31–33), fishing and agriculture (A03) and manufacture of basic metals (C24)). The second most affected country is Denmark, with a GDP loss of 1.0%, driven by substantial declines in manufacture of pharmaceuticals (C21) and losses in manufacture of chemicals (C20), and fishing and agriculture (A03). The GDP of Belgium could decline by 0.7%, mainly due to manufacture of pharmaceuticals (C21), mining support activities (B09) and manufacture of vehicles (C30). Germany ranks fourth among the most affected EU countries.

Table 6

### Impact of US import tariffs on the EU: ten most affected countries and five most affected industries per country for scenario S3 ("Pharma")

	GDP change, %	5 most affected industries per country (code   change of value added, %)									
EU-27	-0.5	C21	-10.4	C30	-3.1	C24	-1.7	C29	-1.4	C28	-1.4
Euro area 20	-0.5	C21	-10.6	C30	-3.1	C24	-1.7	C29	-1.5	C28	-1.4
Ireland	-2.7	C21	-21.2	C31_33	-4.3	A03	-3.8	C24	-2.5	C28	-2.5
Denmark	-1.0	C21	-15.2	C20	-2.5	A03	-1.4	C26	-1.4	C22	-1.3
Belgium	-0.7	C21	-10.1	B09	-2.7	C30	-2.3	C20	-1.4	C24	-1.4
Germany	-0.5	C21	-7.1	C30	-1.9	C24	-1.7	C29	-1.6	C28	-1.5
Slovakia	-0.5	C29	-2.9	C22	-1.6	C21	-1.2	C25	-1.2	C24	-1.2
Netherlands	-0.5	C21	-6.9	J58_60	-1.9	C20	-1.8	B09	-1.6	A03	-1.4
Sweden	-0.5	C21	-4.5	C30	-2.9	C24	-2.5	B07_08	-2.1	C29	-1.9
Slovenia	-0.4	C21	-3.3	C30	-2.5	C24	-2.0	C27	-0.8	C28	-0.8
Austria	-0.4	C21	-5.0	C29	-2.4	C24	-2.1	C30	-1.8	C28	-1.4
Hungary	-0.4	C29	-1.8	C28	-1.7	C26	-1.4	C27	-1.3	B09	-1.3

Source: Authors' calculations.

Note: A03: Fishing and aquaculture, B07\_08: Mining and quarrying, non-energy producing products, B09: Mining support service activities, C20: Chemical and chemical products, C21: Pharmaceuticals, medicinal chemical and botanical products, C22: Rubber and plastics products, C24: Basic metals, C25: Fabricated metal products, C26: Computer, electronic and optical equipment, C27: Electrical equipment, C28: Machinery and equipment, n.e.c., C29: Motor vehicles, trailers and semi-trailers, C30: Other transport equipment, C31\_33: Manufacturing n.e.c.; repair and installation of machinery and equipment, J58\_60: Publishing, audiovisual and broadcasting activities.

## 5 Does the use of the global input-output table from 2019 distort our results?

Our calculations are based on the OECD global input-output table from 2019. Since then, the trade relations of some European industries with the US underwent significant changes. Total exports of goods of the EU to the US in nominal terms increased by 38%. The share of the US in extra-EU exports rose from 18% to 21%. For pharmaceutical products, the increase of EU exports into the US amounts to 85%. This implies that our global input-output model underestimates the impact of the tariffs for industries and countries where the role of the US as export market increased. In order to assess the relevance of these changes, we compare for each EU country  $j$  the ratio of exports of good  $i$  to the US, relative to the output of the industry  $i$  that produces this good for the years 2019 and 2024.<sup>16</sup> An increase of the exports to US-to-turnover ratio indicates that the impact of the US tariffs on this industry is larger than the result of the global input-output model suggests.

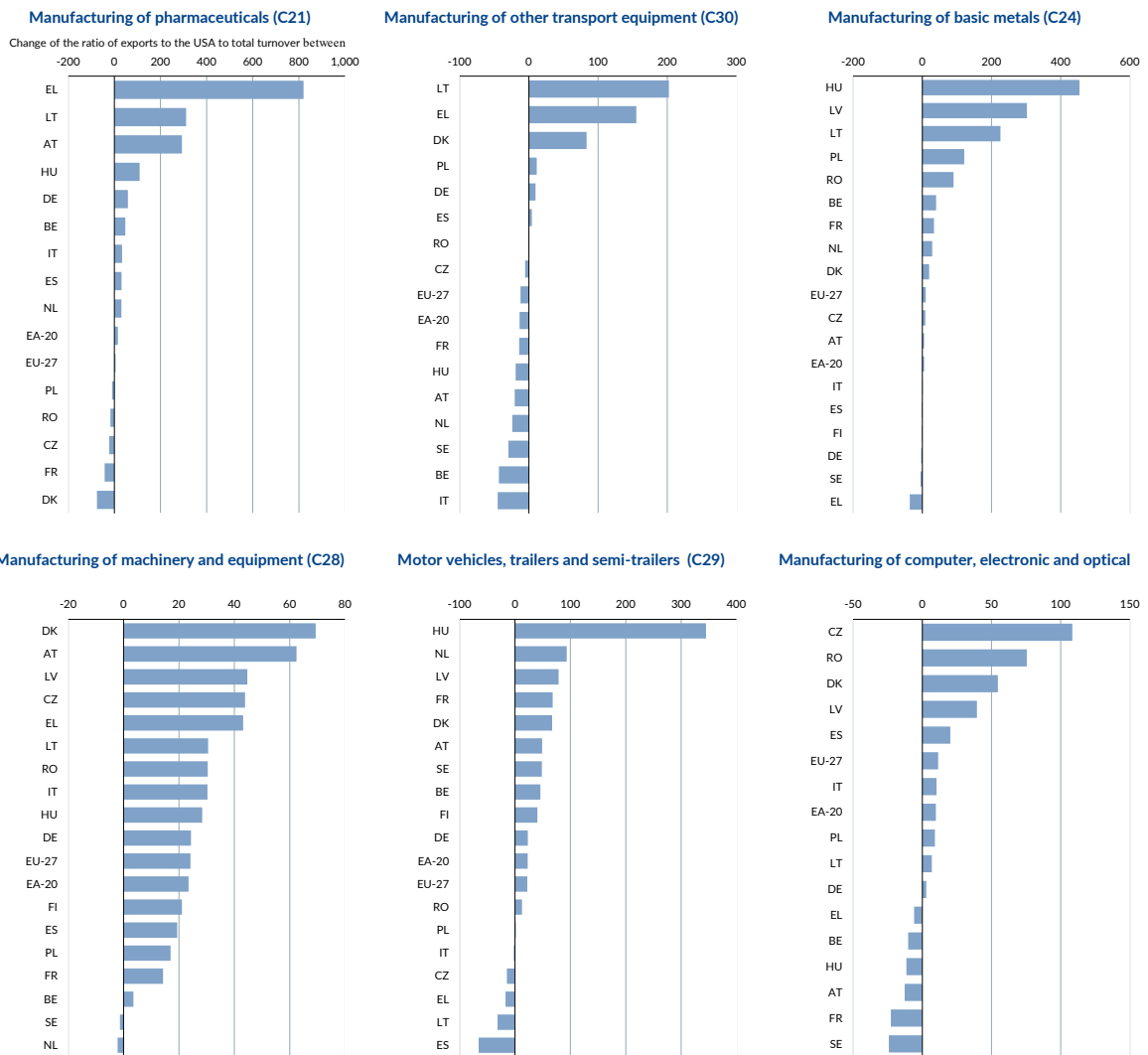
<sup>16</sup> We took the trade data from the Comext database. Since national account data for output have significant data gaps, we use the turnover index (of Eurostat's short-term business statistics *sts\_intv\_a*) which has a better coverage.

Chart 3 shows the changes of this ratio for the six most affected industries for those EU countries where data are available. For the EU and the euro area, the ratio changes are modest for most industries / goods. For manufacture of transport equipment (C30), the role of exports to the US has declined by 12% for the EU. For the five other most affected industries, the ratio increased by about 10–20%.

Chart 3

### Change of the ratio of exports to US to turnover for six EU industries from 2019 to 2024

%



Source: Authors' calculations.

This increase does, however, not imply that the actual impact on the particular industry is 10–20% above our results. It only means that the direct exposure to the US and hence the potential direct effect is higher by this amount. However, the total impacts also contain the indirect exposures via production linkages with industries of countries outside the EU. For countries with strong downstream linkages in

international production networks these indirect effects play a stronger role.<sup>17</sup> Depending on how the ratios of exports to US to turnover have changed in non-EU countries since 2019, this may either increase or decrease the bias of the total impact.<sup>18</sup>

The industry where the direct role of exports to the US increased most is manufacture of machinery and equipment (C28). For the EU the export-to-turnover ratio increased by 24%. Five countries show an increase of more than 40% (Denmark, Austria, Latvia, Czechia and Greece, see chart 3). For manufacture of pharmaceutical products (C21), the informational content of the chart is limited for at least two reasons. The first is that Ireland – the country which is affected most strongly by the US tariffs for these goods – publishes no data for turnover in this industry. The second reason is that the regional export data for Denmark (which, for instance, exports the successful drug Ozempic to the US) were re-classified over time. Data from the Comext database on international trade in goods show a decline of 95% of exports to the US in 2017 compared to the previous year. In December 2017, the drug Ozempic was approved in the US. At the same time, exports classified under the region code QZ (countries and territories not specified for commercial or military reasons in the framework of trade with third countries) increased tenfold.<sup>19</sup> These likely contain exports to the US. The high growth rate for Greece's exports of pharmaceutical products (+820%) is mainly due to low exports to the US in 2019 and, consequently, a low impact of US tariffs on this industry in Greece.

For manufacture of other transport equipment (C30), the role of the US as export destination country fell between 2019 and 2024. This is especially the case for Italy, Belgium, Sweden, the Netherlands and Austria. For the other three of the six most affected industries, the exports to US-to-turnover ratio increased by 10 to 20% for the EU, indicating no significant underestimation of the effects due to the use of the global input-output tables from 2019.

## 6 Summary and discussion

The main result of our study is that there is strong heterogeneity regarding the impacts of US tariffs on different European industries. To our knowledge, we are the first to investigate the effects in such detail, i.e. at product- / industry-level. The aggregate results of our study for the EU – although not accurately comparable due to different scenario assumptions and underlying models – are in line with recent studies from Bruegel, the Kiel Institute for the World Economy and the European Commission (Barata de Rocha et al. (2025), Hinz et al. (2025) and European Commission (2025)). For Austria, our results are close to current estimates provided by WIFO and the Institute for Advances Studies, which found short-term effects on Austrian GDP (i.e. within one year) of  $-0.35\%$  (WIFO) and  $-0.20\%$  (IAS). Both estimates are consistent with our medium-term effects of  $-0.5\%$ .<sup>20</sup>

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<sup>17</sup> Calculations for Austria have shown that 58% of the decline in GDP because of the tariffs are due to direct linkages and 42% to indirect effects via third countries.

<sup>18</sup> We have not computed the development of these ratios for countries outside the EU since only EU countries are covered by the two Eurostat databases we use.

<sup>19</sup> Not only the region code QZ (secret destination in extra-EU) but also QY (secret destination in intra-EU) plays an important role for many export products (gas, pharmaceuticals, chemicals, fertilizers, a.o.) in Denmark. In Finland, the Netherlands and Sweden, secret destinations also play an important role.

<sup>20</sup> Both institutes based their estimates on the KITE Model Suite from the Kiel Institute for the World Economy (IfW Kiel). The KITE model is a global model combining a Ricardian trade model with a multisectoral economic structure and input-output linkages.

While our global input-output approach offers valuable insights, several limitations should be considered: It assumes constant input-output relationships, does not capture adjustments in prices or general equilibrium effects<sup>21</sup> and omits potential effects from retaliatory tariffs or wider economic feedback mechanisms (i.e. on commodity prices). Potential production relocations and the impacts of heightened policy uncertainty<sup>22</sup> on investment and household consumption are not comprehensively addressed. Finally, the additional turmoil in global financial markets could significantly exacerbate the downturn, increasing the likelihood of a global recession. Given all of these considerations, we take our model results to lie at the lower end of the expected impact range.

Despite these caveats, there are some important policy conclusions that can be drawn from our analysis. For the EU as a whole, the negative impact is not negligible but manageable. However, certain industries (especially, manufacture of pharmaceuticals and transport equipment) might suffer considerably. In the short term, ongoing diplomatic initiatives to address trade disputes and to negotiate potential tariff reductions are essential for curbing further escalation dynamics. Furthermore, providing targeted support to highly exposed industries might be necessary. In the medium term, the EU should strengthen its efforts to diversify export markets, to reduce reliance on the US and to increase resilience against unilateral tariffs. In addition, enhancing integration of the EU internal market and improving the resilience of European supply chains can help cushion the effects of external trade shocks. These policy recommendations can help mitigate the negative ramifications of US tariffs and promote sustainable economic growth in the EU.

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<sup>21</sup> This could be done, for instance, by embedding our analysis into a dynamic multi-sector, multi-country general equilibrium model as in Quintana (2024). The development of such a model is beyond the scope of this paper.

<sup>22</sup> Under such conditions, companies typically restrain investments and households reduce consumption (see Baker et al., 2016; Caldara et al., 2020; Coibion et al., 2024). Deutsche Bank (DB Research 2025) estimated an additional growth-dampening effect on the euro area of 0.2 to 0.5 pp from those channels.

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## 8 Annex I: data and tariff mapping

As a data source for bilateral trade data, we use the BACI dataset for the year 2023 at HS3/2007 classification (see Gaulier and Zignago, 2010). This dataset covers 238 countries. As a starting point for the simulation of tariff increases, we take the ad-valorem MFN tariff rates at HS 6-digit level for 2019 contained in the Market Access Map HS6 dataset (see Guimbard et al., 2012) for 152 importing and 189 exporting countries.<sup>23</sup> The trade elasticities available at HS3 6-digit level are taken from the replication files of Fontagné, Guimbard and Orefice (2022).<sup>24</sup> As there is no tariff data on Taiwan available and the BACI data on trade<sup>25</sup> only contains the approximate category “Asia, not elsewhere specified (iso 490),” we subsumed Taiwan under the category “rest of the world.”

The mapping of the HS3 (2007) subheadings (6-digit) import flows to the ISIC Rev. 4 classification, used in the global ICIO input-output table (see OECD, 2023), was carried out in two steps. First, the 6-digit was mapped to ISIC Rev. 3 2-digit level using the R-package “concordance” (see Liao et al., 2020). The resulting ISIC Rev. 3 2-digits were then mapped by the authors to the ISIC Rev. 4 aggregates of the ICIO IO table (for a list of the ICIO ISIC Rev. 4 industries, see table A-6). The products of the HS3 2-digit code of the pharmaceutical products were considered separately (under a newly created heading 24a, see table A-7), as they would otherwise have been assigned to an ISIC Rev. 3 2-digit code together with chemical products (24).

Tariffs in the US are recorded in the Harmonized Tariff Schedule (HTS) of the United States International Trade Commission (USITC) at detailed 8-digit HS product level. For example, 52042000 would correspond to cotton threads. Tariffs are imposed or exempt at this level. Given this level of detail in the tariff schedules and because usually not all products in an industry are affected by the tariffs of an executive order, a more detailed product group-specific recording of the impact of tariff increases is advised.

For the classification, we used the tariff schedule 2025 HTS Revision 12 (05/13/2025), which was the latest available schedule at the cut-off date (May 12) of the analysis.<sup>26</sup> For each product at HS 8-digit level, it is possible to look up which duty applies to which country. However, we record the tariffs’ impact on the products at the HS 6-digit level, as our supplementary foreign trade, tariff and tariff elasticity data are also available at this level.<sup>27</sup> For example, the HS subheading 840734 stands for the vehicle component “Engines; reciprocating piston engines, of a kind used for the propulsion of vehicles of chapter 87, of a cylinder capacity exceeding 1000cc.”

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<sup>23</sup> This database does not include the tariffs outside the WTO framework. Thus, tariffs from Trump's first term in office and those imposed by President Biden, which are recorded under special and temporary legislation in section 22 chapter 99 of the US HTS, are not included.

<sup>24</sup> See Tariff-Based Product-Level Trade Elasticities – Mendeley Data. We replaced positive, insignificant and missing elasticities with the mean of the next higher aggregation level.

<sup>25</sup> The BACI database is based on UN COMTRADE and the UN does not provide trade data for Taiwan.

<sup>26</sup> See Harmonized Tariff Schedule. The tariffs of the executive orders and proclamations go beyond the MFN tariffs of the WTO framework and are thus contained in the notes and tables of chapter 99, subchapter III.

<sup>27</sup> We re-classified the tariffs recorded in the tariff schedules in the HS6 (2022) revision to the HS3 (the classification of our supplementary data) revision using the R package “concordance” (see Liao et al., 2020).

## 9 Annex II: detailed results in tables

Table A-1

### US import tariffs for the EU and its member states

	Tariffs (%) in scenario ...			Share of country i in total US imports (2023), %	Share of US in country i's total exports (2023), %
	S1 ("90 days")	S2 ("Liberation")	S3 ("Pharma")		
EU-27	10.4	14.9	18.8	18.1	8.4
EA-20	10.2	14.7	18.6	16.0	9.1
Austria	12.5	16.6	20.4	0.6	8.7
Belgium	7.7	11.1	17.5	0.8	5.2
Bulgaria	10.7	17.4	17.8	0.1	3.0
Croatia	7.4	12.8	19.3	0.0	3.9
Cyprus	10.1	19.9	19.9	0.0	2.6
Czechia	14.0	19.5	20.1	0.2	3.1
Denmark	6.2	10.5	19.5	0.4	10.3
Estonia	9.9	15.3	15.3	0.0	3.9
Finland	8.4	14.7	16.8	0.3	11.3
France	10.1	17.3	18.8	1.7	8.0
Germany	13.4	17.6	20.4	5.2	10.0
Greece	11.4	18.7	19.0	0.1	3.9
Hungary	14.1	16.8	21.8	0.3	6.5
Ireland	2.4	4.6	14.7	2.3	28.9
Italy	11.2	17.3	19.6	2.4	11.0
Latvia	8.5	14.0	14.0	0.0	3.1
Lithuania	7.2	11.7	12.0	0.1	5.3
Luxembourg	17.5	22.1	22.1	0.0	3.5
Malta	7.0	10.0	10.6	0.0	2.4
Netherlands	7.1	10.6	16.7	1.1	5.5
Poland	13.5	20.6	20.6	0.4	3.7
Portugal	8.4	12.5	16.9	0.2	7.7
Romania	15.3	19.9	20.7	0.1	3.7
Slovakia	23.5	24.5	24.5	0.3	7.2
Slovenia	13.4	18.8	20.6	0.0	1.8
Spain	9.9	15.4	17.6	0.8	5.7
Sweden	12.9	16.9	20.0	0.6	9.6

Source: Authors' own calculations based on BACI data for 2023 (see Gaulier and Zignago, 2010), HTSUS, White House.

Table A-2

## US import tariffs for the industries of the EU (1/2)

HS3 code	Tariffs (%) in scenario ...			Share of EU in total US imports of good j (2023), %	Share of US in industry j's total exports (2023), %	Share of good j in total EU-exports to the US (2023), %	
	S1 ("90 days")	S2 ("Liberation")	S3 ("Pharma")				
Total		10.4	14.9	18.8	18.1	8.4	100.0
Pharmaceutical products	30	0.1	0.2	20.0	60.1	20.4	19.7
Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	84	14.0	21.1	21.1	19.5	10.5	16.3
Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof	87	25.3	25.6	25.6	17.3	7.9	11.9
Electrical machinery and equipment and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers, parts and accessories of such articles	85	13.2	18.5	18.5	8.4	6.2	7.0
Optical, photographic, cinematographic, measuring, checking, medical or surgical instruments and apparatus; parts and accessories	90	10.4	20.1	20.1	28.2	14.8	6.1
Organic chemicals	29	0.9	1.7	1.7	45.0	16.8	5.1
Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	27	0.0	0.0	0.0	6.1	4.1	3.0
Aircraft, spacecraft and parts thereof	88	14.6	21.5	21.5	39.3	12.6	2.3
Beverages, spirits and vinegar	22	10.0	20.0	20.0	36.4	13.5	2.0
Essential oils and resinoids; perfumery, cosmetic or toilet preparations	33	10.0	20.0	20.0	54.3	11.7	1.9
Natural, cultured pearls; precious, semi-precious stones; precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	71	6.7	13.3	13.3	13.5	10.4	1.9
Plastics and articles thereof	39	7.5	15.0	15.0	13.1	3.8	1.7
Iron or steel articles	73	24.8	24.9	24.9	16.6	6.7	1.6
Chemical products n.e.c.	38	6.1	12.2	12.2	32.2	7.2	1.5
Ships, boats and floating structures	89	10.0	20.0	20.0	69.3	20.8	1.2
Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, n.e.c.; illuminated signs, illuminated name-plates and the like; prefabricated buildings	94	16.6	23.4	23.4	8.5	6.5	1.1
Iron and steel	72	23.3	24.1	24.1	17.1	3.6	1.0
Rubber and articles thereof	40	18.7	22.9	22.9	13.9	6.7	0.9
Inorganic chemicals; organic and inorganic compounds of precious metals; of rare earth metals, of radio-active elements and of isotopes	28	2.3	4.6	4.6	23.3	9.5	0.7
Paper and paperboard; articles of paper pulp, of paper or paperboard	48	10.0	20.0	20.0	18.2	3.9	0.7
Works of art; collectors' pieces and antiques	97	10.0	20.0	20.0	51.6	42.0	0.7
Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	42	10.0	20.0	20.0	24.2	9.2	0.6
Footwear; gaiters and the like; parts of such articles	64	10.0	20.0	20.0	12.6	7.0	0.6
Wood and articles of wood; wood charcoal	44	2.4	4.7	4.7	12.9	5.1	0.6
Preparations of cereals, flour, starch or milk; pastrycooks' products	19	10.0	20.0	20.0	17.3	4.4	0.5
Aluminium and articles thereof	76	24.5	24.8	24.8	8.9	3.4	0.5
Apparel and clothing accessories; not knitted or crocheted	62	10.0	20.0	20.0	6.3	4.4	0.4
Preparations of vegetables, fruit, nuts or other parts of plants	20	10.0	20.0	20.0	16.6	6.0	0.4
Tools, implements, cutlery, spoons and forks, of base metal; parts thereof, of base metal	82	10.0	20.0	20.0	20.3	9.4	0.4
Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes	15	10.0	20.0	20.0	13.9	5.4	0.4
Ceramic products	69	10.0	20.0	20.0	30.2	10.3	0.4
Arms and ammunition; parts and accessories thereof	93	10.0	20.0	20.0	46.1	21.9	0.4
Stone, plaster, cement, asbestos, mica or similar materials; articles thereof	68	10.0	20.0	20.0	20.4	8.7	0.4
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	04	10.0	20.0	20.0	48.3	2.7	0.4
Glass and glassware	70	10.3	20.1	20.1	20.6	5.8	0.3
Miscellaneous edible preparations	21	10.0	20.0	20.0	15.1	4.0	0.3
Albuminoidal substances; modified starches; glues; enzymes	35	10.0	20.0	20.0	43.0	8.6	0.3
Copper and articles thereof	74	0.0	0.0	0.0	10.6	2.8	0.3
Metal; miscellaneous products of base metal	83	19.5	23.2	23.2	10.1	4.9	0.3
Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints, varnishes; putty, other mastics; inks	32	7.6	15.1	15.1	29.7	4.1	0.3
Fish and crustaceans, molluscs and other aquatic invertebrates	03	10.0	20.0	20.0	6.5	4.9	0.2
Cocoa and cocoa preparations	18	10.0	20.0	20.0	19.7	4.0	0.2
Toys, games and sports requisites; parts and accessories thereof	95	15.2	21.7	21.7	2.8	4.5	0.2
Apparel and clothing accessories; knitted or crocheted	61	10.0	20.0	20.0	2.4	2.4	0.2
Soap, organic surface-active agents; washing, lubricating, polishing or scouring preparations; artificial or prepared waxes, candles and similar articles, modelling pastes, dental waxes and dental preparations with a basis of plaster	34	9.1	18.2	18.2	18.6	3.0	0.2
Nickel and articles thereof	75	9.0	18.1	18.1	20.0	9.5	0.2
Metals; n.e.c., cermets and articles thereof	81	2.5	5.1	5.1	22.6	15.7	0.2
Sugars and sugar confectionery	17	10.0	20.0	20.0	10.2	3.7	0.1

Source: Authors' calculations based on BACI data for 2023 (see Gaulier and Zignago, 2010), HTSUS, White House.

Table A-2

## US import tariffs for the industries of the EU (2/2)

	HS3 code	Tariffs (%) in scenario ...			Share of EU in total US imports of good j (2023), %	Share of US in industry's total exports (2023), %	Share of good j in total EU-exports to the US (2023), %
		S1 ("90 days")	S2 ("Liberation")	S3 ("Pharma")			
Wadding, felt and nonwovens, special yarns; twine, cordage, ropes and cables and articles thereof	56	10.0	20.0	20.0	24.0	6.3	0.1
Salt; sulphur; earths, stone; plastering materials, lime and cement	25	9.6	19.1	19.1	11.5	4.6	0.1
Animals; live	01	10.0	20.0	20.0	15.4	4.0	0.1
Products of the milling industry; malt, starches, inulin, wheat gluten	11	10.0	20.0	20.0	20.8	4.8	0.1
Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	49	1.9	3.7	3.7	11.5	4.2	0.1
Meat and edible meat offal	02	10.0	20.0	20.0	4.4	0.9	0.1
Coffee, tea, mate and spices	09	10.0	20.0	20.0	5.3	3.9	0.1
Miscellaneous manufactured articles	96	10.9	20.3	20.3	8.4	5.4	0.1
Railway, tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	86	10.0	20.0	20.0	16.6	3.0	0.1
Food industries, residues and wastes thereof; prepared animal fodder	23	10.0	20.0	20.0	10.0	1.4	0.1
Meat, fish or crustaceans, molluscs or other aquatic invertebrates; preparations thereof	16	10.0	20.0	20.0	7.2	2.2	0.1
Textile fabrics; impregnated, coated, covered or laminated; textile articles of a kind suitable for industrial use	59	10.0	20.0	20.0	18.1	6.1	0.1
Vegetables and certain roots and tubers; edible	07	10.0	20.0	20.0	3.1	1.4	0.1
Textiles, made up articles; sets; worn clothing and worn textile articles; rags	63	10.0	20.0	20.0	2.7	3.7	0.1
Lac; gums, resins and other vegetable saps and extracts	13	10.0	20.0	20.0	29.0	13.6	0.1
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plants; straw and fodder	12	10.0	20.0	20.0	14.1	2.5	0.1
Fertilizers	31	7.0	13.9	13.9	3.8	2.3	0.1
Photographic or cinematographic goods	37	10.0	20.0	20.0	25.7	11.9	0.1
Man-made filaments; strip and the like of man-made textile materials	54	10.0	20.0	20.0	17.4	4.4	0.1
Man-made staple fibres	55	10.0	20.0	20.0	19.9	4.6	0.1
Pulp of wood or other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	47	10.0	20.0	20.0	8.6	2.1	0.1
Trees and other plants, live; bulbs, roots and the like; cut flowers and ornamental foliage	06	10.0	20.0	20.0	9.1	2.0	0.1
Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	36	9.7	19.5	19.5	25.0	13.3	0.1
Cork and articles of cork	45	10.0	20.0	20.0	91.0	14.3	0.1
Raw hides and skins (other than furskins) and leather	41	10.0	20.0	20.0	41.3	3.4	0.0
Musical instruments; parts and accessories of such articles	92	10.0	20.0	20.0	13.9	12.5	0.0
Clocks and watches and parts thereof	91	10.0	20.0	20.0	3.2	3.1	0.0
Cereals	10	10.0	20.0	20.0	6.0	0.6	0.0
Carpets and other textile floor coverings	57	10.0	20.0	20.0	5.9	4.7	0.0
Animal originated products; not elsewhere specified or included	05	10.0	19.9	19.9	16.9	4.6	0.0
Fruit and nuts, edible; peel of citrus fruit or melons	08	10.0	20.0	20.0	0.8	0.6	0.0
Headgear and parts thereof	65	10.0	20.0	20.0	4.8	5.0	0.0
Fabrics; knitted or crocheted	60	10.0	20.0	20.0	14.1	3.9	0.0
Zinc and articles thereof	79	8.0	15.9	15.9	4.5	1.7	0.0
Fabrics; special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings, embroidery	58	10.0	20.0	20.0	12.5	4.6	0.0
Tobacco and manufactured tobacco substitutes	24	10.0	20.0	20.0	4.3	0.4	0.0
Ores, slag and ash	26	8.1	16.1	16.1	3.1	0.7	0.0
Cotton	52	10.0	20.0	20.0	11.4	2.2	0.0
Wool, fine or coarse animal hair; horsehair yarn and woven fabric	51	10.0	20.0	20.0	33.0	2.0	0.0
Vegetable textile fibres; paper yarn and woven fabrics of paper yarn	53	10.0	20.0	20.0	33.9	4.0	0.0
Tin; articles thereof	80	0.3	0.6	0.6	8.5	5.7	0.0
Furskins and artificial fur; manufactures thereof	43	10.0	20.0	20.0	36.1	3.9	0.0
Feathers and down, prepared; and articles made of feather or of down; artificial flowers; articles of human hair	67	10.0	20.0	20.0	0.7	3.6	0.0
Umbrellas, sun umbrellas, walking-sticks, seat sticks, whips, riding crops; and parts thereof	66	12.3	20.8	20.8	2.4	3.2	0.0
Silk	50	10.0	20.0	20.0	23.4	2.6	0.0
Lead and articles thereof	78	10.0	20.0	20.0	1.0	0.5	0.0
Manufactures of straw, esparto or other plaiting materials; basketware and wickerwork	46	10.0	20.0	20.0	2.0	3.2	0.0
Vegetable plaiting materials; vegetable products not elsewhere specified or included	14	10.0	20.0	20.0	5.3	3.9	0.0

Source: Authors' calculations based on BACI data for 2023 (see Gaulier and Zignago, 2010), HTSUS, White House.



Table A-4

# Impact of US import tariffs on the EU: detailed results for scenario S2 ("Liberation")<sup>1</sup>

PP

Country	Country																												
	EU-27	EA-20	Austria	Belgium	Bulgaria	Cyprus	Czechia	Germany	Denmark	Spain	Estonia	Finland	France	Greece	Croatia	Hungary	Ireland	Italy	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Sweden
Industry	-3	-3	-3	-2	-2	-1	-3	-4	-2	-2	-2	-3	-2	-1	-1	-3	-5	-3	-2	-2	-1	-1	-2	-3	-2	-2	-5	-3	-3
Industry and services (2)	-8	-8	-9	-6	-5	-1	-6	-10	-5	-5	-5	-8	-9	-5	-2	-9	-11	-9	-4	-10	-3	-3	-7	-6	-5	-3	-11	-6	-11
Industry (B-E)	-1	-1	-2	-1	-1	-1	-2	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1
Services (G-S)	-3	-3	-3	-3	-4	-5	-2	-2	-4	-3	-3	-5	-2	-4	-1	-2	-11	-2	-2	-3	-1	-4	-2	-3	-1	-2	-2	-4	-4
NACE 1-digit industries (20)	-6	-6	-7	-4	-7	-1	-4	-7	-3	-5	-2	-7	-6	-8	-2	-7	-17	-5	-2	-11	-2	-1	-5	-3	-7	-2	-4	-5	-20
Agriculture, forestry and fishing (A)	-9	-9	-10	-6	-5	-1	-7	-11	-6	-5	-6	-9	-10	-6	-2	-10	-11	-10	-4	-11	-4	-4	-7	-6	-6	-4	-13	-6	-11
Mining and quarrying (B)	-3	-3	-3	-3	-3	0	-2	-3	-1	-2	-2	-3	-2	-3	-1	-3	-4	-3	-1	-7	-1	-1	-2	-2	-2	-2	-2	-3	-3
Manufacturing (C)	-3	-4	-5	-5	-2	0	-4	-4	-2	-3	-2	-5	-2	-1	-1	-3	-2	-4	-1	-9	-1	-1	-2	-4	0	-1	-4	-6	-6
Electricity, gas, steam and air conditioning supply (D)	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	0	0	-1	0	0	-1	0	-1	0	0	-1	0	-1	0	0	0	-1
Water supply; sewerage, waste management and remediation activities (E)	-3	-3	-3	-3	-3	0	-2	-3	-1	-2	-2	-3	-2	-3	-1	-3	-4	-3	-1	-7	-1	-1	-2	-2	-2	-2	-2	-3	-3
Construction (F)	-3	-3	-3	-3	-3	-1	-3	-3	-3	-2	-2	-3	-3	-1	-1	-3	-3	-3	-2	-3	-2	-2	-3	-3	-2	-2	-4	0	-1
Wholesale and retail trade; repair of motor vehicles and motorcycles (G)	-3	-3	-3	-3	-3	-1	-3	-3	-3	-2	-2	-3	-3	-1	-1	-3	-3	-3	-2	-3	-2	-2	-3	-3	-2	-2	-4	-3	-3
Transportation and storage (H)	-3	-3	-3	-3	-3	-2	-2	-4	-3	-2	-3	-4	-2	-2	-1	-3	-3	-3	-2	-3	-2	-2	-3	-3	-2	-2	-3	-2	-3
Accommodation and food service activities (I)	-1	0	-1	-1	0	0	-1	-1	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	-1
Publishing, broadcasting, and content production and distribution activities (J)	-2	-2	-2	-1	-1	-1	-1	-2	-1	-1	-1	-2	-1	-1	-1	-2	-2	-2	-1	-2	-1	-1	-2	-2	-1	-1	-2	-1	-2
Telecommunication, computer programming, consulting, computing infrastructure, and other information service activities (K)	-2	-2	-2	-1	-2	-1	-2	-2	-1	-1	-1	-2	-1	-1	-1	-2	-1	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2
Financial and insurance activities (L)	-1	-1	-1	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1
Real estate activities (M)	-2	-2	-3	-2	-2	-2	-3	-2	-1	-2	-3	-2	-2	-1	-3	-2	-3	-1	-2	-1	-2	-2	-3	-1	-2	-3	-1	-2	-3
Professional, scientific and technical activities (N)	-3	-3	-3	-2	-1	-1	-2	-3	-2	-2	-2	-2	-2	-1	-4	-3	-3	-1	-3	-1	-2	-2	-2	-2	-2	-2	-4	-2	-3
Administrative and support service activities (O)	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	-1
Public administration and defence; compulsory social security (P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Education (Q)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Human health and social work activities (R)	0	-1	0	-1	0	0	0	0	0	0	0	0	0	0	-1	0	-2	-1	0	-1	-1	-1	-1	-1	0	0	0	0	-1
Other service activities (S)	-1	-1	0	-1	-1	0	-1	-1	-1	-1	-1	0	-1	0	0	-1	-3	-1	0	-2	0	0	-1	-1	0	-1	-1	-1	-1
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ICIO industries (45)	-3	-3	-3	-3	-4	0	-2	-2	-4	-2	-4	-5	-2	-2	-1	-2	-10	-2	-2	-2	-3	0	-3	-2	-3	-1	-2	-2	-4
Agriculture, hunting, forestry (A01_02)	-11	-11	-11	-11	-5.1	-1.8	-4	-1.3	-1.5	-1	-1	-3	-3.2	-1	0	-3.8	-1	-1	-2	-1	-1.4	-2	-4	0	-4	-1	-3	-3	
Fishing and aquaculture (A03)	-3	-3	-4	-2	0	-4	-4	-3	-2	-2	-4	-3	-2	-2	-2	-4	-3	-2	-2	-2	-3	-3	-2	-4	-4	-4	-8	-8	
Mining and quarrying, energy producing products (B05_06)	-9	-8	-9	-4	-8	-1	-5	-9	-2	-6	-2	-9	-7	-9	-2	-5	-1.8	-7	-2	-1.1	-2	-1	-4	-4	-7	-2	-5	-5	-20
Mining and quarrying, non-energy producing products (B07_08)	-8	-1.1	-8	-2.6	-6	-1	-4	-1.2	-4	-1.1	-7	-5	-6	-1.6	-2	-1.2	-5	-1.0	-3	-2	-1	-1.5	-3	-1.0	-3	-3	-6	-8	
Mining support service activities (B09)	-3	-3	-6	-3	-1	-1	-1	-1	-4	-3	-1	-1	-3	-3	-1	-2	-8	-4	-1	-1	-5	-1	-3	-2	0	0	-1	-1	
Food products, beverages and tobacco (C10T12)	-5	-6	-3	-5	-5	0	-4	-3	-2	-4	-3	-2	-2	-5	-5	-8	-4	-1.3	-3	-1	-2	-3	-1	-2	-3	-8	-3	-5	-4
Textiles, textile products, leather and footwear (C13T15)	-4	-5	-3	-3	-3	-1	-4	-4	-2	-4	-4	-7	-4	-3	-5	-3	-5	-3	-5	-3	-3	-2	-4	-1.6	-4	-4	-4	-3	
Wood and products of wood and cork (C16)	-6	-6	-6	-5	-2	-1	-5	-7	-5	-4	-3	-1.9	-4	-2	-1	-4	-3	-4	-4	-1	-2	-5	-3	-8	-2	-4	-3	-12	
Paper products and printing (C17_18)	-3	-3	-3	-2	0	-3	-3	-2	-2	-2	-2	-2	-2	-2	-2	-3	-5	-2	-2	-2	-1	-3	-2	-1	-3	-2	-1	-2	-3
Coke and refined petroleum products (C19)	-10	-10	-8	-11	-4	-2	-6	-11	-1.5	-7	-7	-9	-1.1	-4	-2	-8	-6	-8	-8	-9	-4	-2	-1.4	-6	-6	-4	-7	-5	-10
Chemical and chemical products (C20)	-2	-1	-1	-1	-1	-1	-1	-2	-1	0	-2	-1	0	0	-1	-2	-1	-1	-1	-1	-1	-1	-1	-2	-1	0	-1	-2	
Pharmaceuticals, medicinal chemical and botanical products (C21)	-8	-8	-7	-7	-5	-1	-10	-8	-6	-7	-4	-6	-7	-4	-2	-9	-1.8	-7	-4	-7	-3	-7	-6	-10	-7	-1.5	-6	-8	
Rubber and plastics products (C22)	-6	-6	-5	-3	-3	-1	-5	-6	-3	-8	-2	-4	-4	-1.9	-2	-5	-9	-2	-4	-3	-2	-4	-5	-1	-5	-1	-5	-6	-5
Other non-metallic mineral products (C23)	-1.6	-1.6	-2.1	-1.3	-1.2	-4	-1.2	-1.7	-9	-1.2	-1.4	-1.6	-1.6	-2.8	-4	-1.0	-2.4	-1.8	-4	-2.3	-7	-6	-1.2	-1.2	-1.1	-1.1	-1.1	-1.9	-2.4
Basic metals (C24)	-8	-8	-1.1	-5	-5	-1	-8	-9	-6	-6	-5	-7	-6	-6	-5	-10	-8	-10	-7	-10	-4	-4	-6	-6	-6	-3	-12	-7	-9
Fabricated metal products (C25)	-1.1	-1.1	-1.0	-6	-8	-2	-7	-1.2	-1.2	-4	-2.5	-7	-1.2	-3	-3	-1.4	-1.6	-6	-7	-4	-4	-1.1	-6	-10	-9	-7	-6	-7	-1.1
Computer, electronic and optical equipment (C26)	-9	-10	-10	-6	-6	-1	-8	-10	-8	-7	-12	-10	-10	-3	-4	-1.3	-1.2	-9	-6	-7	-5	-7	-5	-8	-7	-8	-9	-8	-9
Electrical equipment (C27)	-1.4	-1.4	-1.4	-9	-8	-2	-9	-1.5	-10	-7	-1.2	-10	-1.5	-4	-4	-1.6	-2.4	-1.4	-5	-8	-4	-8	-1.3	-1.1	-6	-8	-1.1	-8	-1.4
Machinery and equipment, n.e.c. (C28)	-1.4	-1.5	-2.3	-1.1	-4	0	-7	-1.6	-3	-7	-3	-2.1	-4	-2	-2	-1.8	-2	-1.5	-3	-1	-2	0	-3	-7	-5	-5	-2.9	-5	-1.8
Motor vehicles, trailers and semi-trailers (C29)	-3.1	-3.1	-1.8	-2.2	-4	0	-1.5	-1.8	-5	-1.5	-1	-7	-4.7	-1.3	-1	-6	-3	-3.4	-4	-3.4	-1	-1.2	-5.7	-8	-10	-4	-2.5	-2.9	
Other transport equipment (C30)	-8	-9	-5	-11	-11	-3	-4	-7	-7	-3	-6	-6	-6	-3	-3	-6	-4.2	-7	-6	-6	-4	-4	-5	-5	-4	-5	-5	-7	
Manufacturing n.e.c.; repair and installation of machinery and equipment (C31T33)	-3	-3	-3	-3	-3	0	-2	-3	-1	-2	-2	-3	-2	-3	-1	-3	-4	-3	-1	-7	-1	-1	-2	-2	-2	-2	-2	-3	-3
Electricity, gas, steam and air conditioning supply (D)	-3	-4	-5	-5	-2	0	-4	-4	-2	-3	-2	-5	-2	-1	-1	-3	-2	-4	-1	-9	-1	-1	-2	-4	0	-1	-4	-6	
Water supply; sewerage, waste management and remediation activities (E)	-1	-1	-1	-1	-1	0	-1	-1	-1	0	0	0	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	-1	-1	-1	
Construction (F)	-3	-3	-3	-3	-3	-1	-3	-3	-3	-2	-2	-3	-3	-1	-1	-3	-3	-3	-2	-3	-2	-2	-3	-2	-2	-4	-3	-3	
Wholesale and retail trade; repair of motor vehicles (G)	-3	-3	-3	-3	-3	-1	-3	-3	-3	-2	-2	-3	-3	-1	-1	-3	-3	-3	-2	-3	-2	-2	-3	-2	-2	-4	-3	-3	
Land transport and transport via pipelines (H49)	-4	-3	-2	-3	-2	-2	-1	-4	-4	-1	-3	-3	-4	-3	-1	-2	-3	-3	-2	-3	-2	-1	-3	-2	-2	-3	-3	-3	
Water transport (H50)	-2	-2	-2	-2	-1	-1	-2	-2	-1	-1	-2	-2	-1	-1	-2	-3	-2	-2	-4	-1	-2	-3	-2	-2	-2	-2	-2	-1	-4
Air transport (H51)	-3	-3	-3	-3	-3	-2	-4	-4	-2	-3	-6	-3	-2	-1	-3	-2	-3	-3	-3	-2	-3	-2	-3	-2	-2	-2	-3	-2	-3
Warehousing and support activities for transportation (H52)	-3	-3	-2	-2	-1	-2	-2	-4	-2	-2	-2	-4	-2	-1	-1	-2	-2	-2	-2	-2	-2	-2	-1	-2	-2	-2	-2	-2	-2
Postal and courier activities (H53)	-1	0	-1	-1	0	0	-1	-1	0	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	-1
Accommodation and food service activities (I)	-1	-1	-2	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1	-1	0	-2	-1	-1	-1	-1	-2	-1	-1	-2	-1	-1	-1	-1	-2
Publishing, audiovisual and broadcasting activities (J58T60)	-1	-1	-2	-1	-1	-1	-1	-2	-1	-1	-2	-1	-1	0	-1	-2	-1	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2
Telecommunications (J61)	-2	-2	-2	-1	-2	-1	-1	-3	-1</																				

Table A-5

Impact of US import tariffs on the EU: detailed results for scenario S3 ("Pharma")<sup>1</sup>

PP

Country	Country																												
	EU-27	EA-20	Austria	Belgium	Bulgaria	Cyprus	Czechia	Germany	Denmark	Spain	Estonia	Finland	France	Greece	Croatia	Hungary	Ireland	Italy	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Sweden
Industry	-5	-5	-4	-7	-2	-1	-3	-5	-10	-2	-2	-4	-3	-2	-2	-4	-2	-4	-2	-3	-4	-4	-5	-3	-2	-2	-5	-4	-5
Total economy	-5	-5	-4	-7	-2	-1	-3	-5	-10	-2	-2	-4	-3	-2	-2	-4	-2	-4	-2	-3	-4	-4	-5	-3	-2	-2	-5	-4	-5
Industry and services (2)	-1.4	-1.5	-1.1	-2.2	-5	-1	-7	-1.3	-3.5	-7	-5	-10	-1.1	-5	-4	-10	-6.9	-1.1	-4	-1.1	-4	-4	-1.0	-6	-6	-4	-1.2	-10	-1.4
Industry (B-E)	-2	-2	-2	-4	-2	-1	-2	-3	-4	-1	-2	-2	-2	-1	-1	-2	-3	-2	-2	-3	-1	-2	-4	-2	-1	-1	-3	-2	-3
Services (G-S)	-3	-3	-4	-4	-4	-5	-2	-2	-6	-3	-4	-6	-2	-4	-2	-3	-12	-3	-2	-2	-3	-1	-5	-2	-3	-1	-2	-3	-5
NAACE 1-digit industries (20)	-7	-7	-8	-6	-7	-1	-5	-8	-6	-5	-2	-8	-7	-8	-2	-7	-18	-6	-3	-12	-2	-2	-7	-4	-8	-2	-4	-6	-20
Agriculture, Forestry and Fishing (A)	-3	-3	-4	-4	-4	-5	-2	-2	-6	-3	-4	-6	-2	-4	-2	-3	-12	-3	-2	-2	-3	-1	-5	-2	-3	-1	-2	-3	-5
Mining and Quarrying (B)	-7	-7	-8	-6	-7	-1	-5	-8	-6	-5	-2	-8	-7	-8	-2	-7	-18	-6	-3	-12	-2	-2	-7	-4	-8	-2	-4	-6	-20
Manufacturing (C)	-1.6	-1.7	-1.3	-2.5	-6	-2	-7	-1.4	-4.4	-8	-6	-1.1	-1.3	-6	-5	-1.1	-7.1	-1.2	-5	-1.1	-4	-5	-1.1	-7	-7	-4	-1.4	-1.1	-1.6
Electricity, Gas, Steam and Air Conditioning Supply (D)	-3	-4	-4	-5	-3	-1	-2	-4	-5	-3	-2	-3	-3	-3	-1	-4	-12	-4	-2	-8	-1	-2	-3	-2	-2	-2	-3	-4	-1.6
Water Supply; Sewerage, Waste Management and Remediation Activities (E)	-4	-4	-6	-7	-2	0	-4	-5	-5	-3	-2	-6	-3	-1	-1	-3	-6	-5	-1	-10	-1	-2	-4	-2	-4	-1	-2	-5	-7
Construction (F)	-1	-1	-1	-2	-1	0	-1	-1	-2	0	0	0	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	-1	0	-2	-1
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (G)	-4	-4	-4	-5	-3	-1	-4	-4	-6	-3	-3	-3	-3	-2	-4	-5	-4	-2	-5	-2	-2	-5	-3	-2	-2	-2	-5	-4	-5
Transportation and Storage (H)	-4	-4	-4	-5	-3	-3	-3	-5	-5	-3	-3	-5	-3	-3	-1	-3	-4	-4	-3	-5	-3	-3	-4	-3	-2	-2	-4	-3	-4
Accommodation and Food Service Activities (I)	-1	-1	-1	-2	0	0	-1	-1	-5	0	0	0	-1	0	0	0	-2	-1	0	-1	0	-1	0	-1	0	0	0	0	-1
Publishing, Broadcasting, and Content Production and Distribution Activities (J)	-3	-3	-2	-4	-2	-1	-2	-4	-5	-2	-2	-3	-1	-1	-1	-3	-3	-3	-1	-3	-2	-2	-10	-2	-1	-2	-2	-3	-3
Telecommunications, Computer Programming, Consulting, Computing Infrastructure, and other Information Service Activities (K)	-2	-2	-3	-4	-2	-1	-2	-2	-3	-1	-1	-2	-2	-1	-2	-2	-2	-3	-1	-2	-1	-1	-3	-2	-1	-2	-3	-2	-2
Financial and Insurance Activities (L)	-1	-1	-1	-1	0	0	-1	-2	-2	0	-1	-1	-1	-1	0	-1	0	-1	-1	-1	0	0	-1	-1	0	0	-2	-1	-1
Real Estate Activities (M)	-4	-4	-4	-8	-2	-2	-3	-5	-9	-2	-3	-4	-3	-2	-3	-5	-6	-4	-2	-4	-2	-4	-6	-4	-2	-2	-5	-5	-4
Professional, Scientific and Technical Activities (N)	-6	-6	-4	-14	-2	-2	-4	-10	-10	0	0	-1	-2	-3	-1	-2	-6	-9	-5	-16	-2	-1	-14	-2	-1	-1	-2	-5	-7
Administrative and Support Service Activities (O)	-1	-1	0	-1	0	0	0	0	0	0	0	0	0	0	0	-1	-1	0	0	-1	0	0	0	0	0	0	0	0	-1
Public Administration and Defence; Compulsory Social Security (P)	-1	-1	0	-2	0	0	-1	-1	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0
Education (Q)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Human Health and Social Work Activities (R)	-1	-1	-1	-2	0	0	-1	-1	-1	0	0	0	0	-1	-1	-4	-3	0	-1	0	-2	-3	0	0	0	0	0	-1	-1
Other service activities (S)	-1	-1	-1	-3	-1	0	-1	-1	-3	-1	-1	-1	-1	0	-1	-1	-8	-1	0	-2	0	0	-1	-1	0	-1	-1	-1	-1
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ICIO industries (45)	-3	-3	-4	-4	-4	-1	-2	-2	-6	-3	-4	-6	-2	-2	-2	-3	-11	-3	-2	-2	-3	-1	-4	-2	-3	-1	-2	-3	-5
Agriculture, hunting, forestry (A01_02)	-3	-3	-4	-4	-4	-1	-2	-2	-6	-3	-4	-6	-2	-2	-2	-3	-11	-3	-2	-2	-3	-1	-4	-2	-3	-1	-2	-3	-5
Fishing and aquaculture (A03)	-1.1	-1.1	-1	-2	-1	-5.1	-1.8	-5	-14	-1.5	-1	-2	-3	-2	-1	-3	-3.2	-1	-1	-3.8	-1	-1	-1.4	-2	-4	0	-5	-1	-4
Mining and quarrying, energy producing products (B05_06)	-4	-4	-5	-2	0	-4	-5	-5	-2	-2	-4	-3	-3	-2	-3	-6	-4	-3	-3	-2	-5	-3	-2	-4	-6	-6	-9	-9	
Mining and quarrying, non-energy producing products (B07_08)	-10	-8	-10	-6	-9	-1	-5	-10	-6	-7	-2	-10	-8	-9	-2	-5	-19	-8	-2	-12	-2	-5	-5	-8	-2	-5	-6	-21	
Mining support service activities (B09)	-9	-12	-9	-2.7	-6	-1	-5	-13	-8	-12	-7	-6	-7	-16	-2	-13	-8	-11	-3	-3	-2	-1.6	-3	-1.1	-4	-3	-7	-9	
Food products, beverages and tobacco (C10T12)	-3	-4	-6	-3	-1	-1	-1	-2	-6	-3	-1	-1	-3	-3	-1	-2	-11	-4	-1	-1	-5	-1	-4	-2	-2	0	-1	-2	
Textiles, textile products, leather and footwear (C13T15)	-6	-6	-3	-6	-5	0	-5	-3	-4	-3	-2	-4	-2	-3	-5	-5	-8	-4	-13	-3	-1	-2	-3	-8	-3	-5	-4	-4	
Wood and products of wood and cork (C16)	-5	-5	-4	-4	-4	-1	-4	-4	-4	-4	-5	-5	-8	-4	-3	-5	-3	-6	-5	-4	-3	-2	-4	-4	-1.6	-4	-4	-5	-4
Paper products and printing (C17_18)	-8	-8	-7	-8	-3	-1	-6	-9	-9	-6	-4	-20	-6	-2	-2	-5	-4	-6	-2	-3	-8	-4	-9	-2	-5	-7	-14	-14	
Coke and refined petroleum products (C19)	-4	-5	-4	-5	-2	0	-3	-4	-4	-2	-2	-3	-3	-2	-2	-3	-8	-3	-2	-1.6	-2	-2	-4	-3	-2	-4	-3	-4	
Chemical and chemical products (C20)	-1.3	-1.4	-1.1	-1.4	-5	-3	-7	-1.4	-2.5	-9	-8	-1.1	-1.3	-5	-3	-9	-1.6	-1.1	-10	-1.2	-5	-5	-1.8	-7	-8	-4	-8	-7	-15
Pharmaceuticals, medicinal chemical and botanical products (C21)	-10.4	-10.6	-5.0	-10.1	-1.4	-4	-1.6	-7.1	-15.2	-3.7	-3	-30	-4.5	-3	-50	-11	-21.2	-60	-7	-8	-2	-1.8	-6.9	-8	-2.9	-4	-1.2	-3.3	-4.5
Rubber and plastics products (C22)	-9	-9	-8	-9	-5	-2	-11	-10	-13	-8	-5	-7	-8	-4	-3	-10	-21	-9	-5	-8	-9	-8	-9	-6	-10	-7	-16	-7	-10
Other non-metallic mineral products (C23)	-7	-7	-6	-6	-4	-1	-5	-7	-6	-9	-2	-5	-5	-19	-3	-6	-10	-10	-2	-5	-3	-3	-4	-6	-2	-6	-7	-6	
Basic metals (C24)	-1.7	-1.7	-2.1	-1.4	-1.3	-4	-1.3	-1.7	-1.1	-1.2	-1.4	-1.6	-1.7	-2.9	-4	-1.1	-2.5	-1.9	-4	-2.3	-7	-7	-1.3	-1.2	-1.2	-1.1	-1.2	-20	-2.5
Fabricated metal products (C25)	-9	-9	-1.1	-6	-6	-1	-9	-9	-9	-6	-5	-7	-7	-6	-5	-10	-10	-10	-7	-11	-4	-4	-7	-7	-3	-12	-8	-10	
Computer, electronic and optical equipment (C26)	-1.2	-1.2	-1.0	-8	-8	-2	-8	-12	-14	-4	-2.5	-1.1	-1.3	-3	-3	-14	-17	-7	-7	-4	-5	-1.2	-6	-10	-9	-7	-6	-8	-12
Electrical equipment (C27)	-1.0	-1.0	-1.0	-8	-6	-1	-9	-11	-9	-8	-1.2	-1.1	-1.0	-3	-4	-13	-13	-10	-6	-8	-5	-7	-8	-8	-8	-8	-9	-8	-10
Machinery and equipment, n.e.c. (C28)	-1.4	-1.4	-1.4	-10	-8	-2	-10	-15	-12	-7	-1.2	-1.2	-1.5	-4	-4	-17	-25	-14	-5	-8	-4	-8	-14	-12	-6	-8	-11	-8	-14
Motor vehicles, trailers and semi-trailers (C29)	-1.4	-1.5	-2.4	-1.1	-5	0	-7	-16	-3	-8	-3	-2.1	-4	-2	-3	-18	-2	-1.5	-3	-1	-3	0	-9	-7	-5	-5	-2.9	-6	-19
Other transport equipment (C30)	-3.1	-3.1	-1.8	-2.3	-4	0	-1.5	-1.9	-6	-1.5	-2	-7	-4.7	-1.3	-2	-7	-3	-3.4	-4	-5	-3.5	-1	-1.2	-5.7	-8	-10	-4	-2.5	-2.9
Manufacturing n.e.c.; repair and installation of machinery and equipment (C31T33)	-9	-9	-6	-13	-1.1	-4	-5	-7	-10	-3	-6	-6	-6	-3	-3	-6	-4.3	-8	-6	-7	-5	-4	-6	-5	-5	-4	-5	-6	-8
Electricity, gas, steam and air conditioning supply (D)	-3	-4	-4	-5	-3	-1	-2	-4	-5	-3	-2	-3	-3	-3	-1	-4	-12	-4	-2	-8	-1	-2	-3	-2	-2	-3	-4	-4	
Water supply; sewerage, waste management and remediation activities (E)	-4	-4	-6	-7	-2	0	-4	-5	-5	-3	-2	-6	-3	-1	-1	-3	-6	-5	-1	-10	-1	-2	-4	-2	-4	-1	-2	-5	-7
Construction (F)	-1	-1	-1	-2	-1	0	-1	-1	-2	0	0	0	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	0	-2	-1
Wholesale and retail trade; repair of motor vehicles (G)	-4	-4	-4	-5	-3	-1	-4	-4	-6	-3	-3	-3	-2	-2	-4	-5	-4	-2	-5	-2	-2	-5	-3	-2	-2	-5	-4	-5	
Land transport and transport via pipelines (H49)	-4	-4	-4	-5	-3	-1	-3	-5	-3	-3	-4	-3	-2	-1	-3	-4	-4	-3	-4	-3	-4	-3	-2	-5	-3	-2	-2	-4	-4
Water transport (H50)	-4	-4	-3	-6	-2	-3	-1	-5	-5	-2	-3	-4	-5	-4	-2	-2	-5	-4	-2	-4	-1	-4	-4	-2	-2	-2	-3	-1	-5
Air transport (H51)	-3	-3	-2	-3	-2	-2	-2	-3	-3	-2	-3	-2	-2	-1	-1	-2	-5	-3	-2	-7	-2	-3	-4	-3	-2	-2	-2	-1	-3
Warehousing and support activities for transportation (H52)	-4	-4	-4	-4	-3	-4	-3	-5	-5	-3	-4	-7	-4	-3	-1	-4	-4	-4	-4	-5	-3	-4	-4	-3	-3	-2	-3	-3	-4
Postal and courier activities (H53)	-5	-5	-4	-5	-1	-2	-2	-7	-7	-2	-2	-4	-2	-1	-2	-3	-4	-3	-3	-3	-2	-1	-4	-2	-2	-2	-3	-3	-4
Accommodation and food service activities (I)	-1	-1	-1	-2	0	0	-1	-1	-5	0	0	0	-1	0	0	0	-2	-1											

Table A-6

**OECD ICIO industry classification**

ISIC Rev. 4	Name
A01_02	Agriculture, hunting, forestry
A03	Fishing and aquaculture
B05_06	Mining and quarrying, energy producing products
B07_08	Mining and quarrying, non-energy producing products
B09	Mining support service activities
C10T12	Food products, beverages and tobacco
C13T15	Textiles, textile products, leather and footwear
C16	Wood and products of wood and cork
C17_18	Paper products and printing
C19	Coke and refined petroleum products
C20	Chemical and chemical products
C21	Pharmaceuticals, medicinal chemical and botanical products
C22	Rubber and plastics products
C23	Other non-metallic mineral products
C24	Basic metals
C25	Fabricated metal products
C26	Computer, electronic and optical equipment
C27	Electrical equipment
C28	Machinery and equipment, n.e.c.
C29	Motor vehicles, trailers and semi-trailers
C30	Other transport equipment
C31T33	Manufacturing n.e.c.; repair and installation of machinery and equipment
D	Electricity, gas, steam and air conditioning supply
E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles
H49	Land transport and transport via pipelines
H50	Water transport
H51	Air transport
H52	Warehousing and support activities for transportation
H53	Postal and courier activities
I	Accommodation and food service activities
J58T60	Publishing, audiovisual and broadcasting activities
J61	Telecommunications
J62_63	IT and other information services
K	Financial and insurance activities
L	Real estate activities
M	Professional, scientific and technical activities
N	Administrative and support services
O	Public administration and defence; compulsory social security
P	Education
Q	Human health and social work activities
R	Arts, entertainment and recreation
S	Other service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

Source: OECD.

Table A-7

## Mapping ISIC Rev. 3 to ICIO (ISIC Rev. 4)

ISIC Rev. 3 2-digit	ISIC Rev. 3 name	ICIO (ISIC Rev. 4)
01	Agriculture, hunting and related service activities	A01_02
02	Forestry, logging and related service activities	A01_02
05	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing	A03
10	Mining of coal and lignite; extraction of peat	B05_06
11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying	B05_06
12	Mining of uranium and thorium ores	B07_08
13	Mining of metal ores	B07_08
14	Other mining and quarrying	B09
15	Manufacture of food products and beverages	C10T12
16	Manufacture of tobacco products	C10T12
17	Manufacture of textiles	C13T15
18	Manufacture of wearing apparel; dressing and dyeing of fur	C13T15
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	C13T15
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	C16
21	Manufacture of paper and paper products	C17_18
22	Publishing, printing and reproduction of recorded media	C17_18
23	Manufacture of coke, refined petroleum products and nuclear fuel	C19
24	Manufacture of chemicals and chemical products	C20
24a	Pharmaceuticals	C21
25	Manufacture of rubber and plastics products	C22
26	Manufacture of other non-metallic mineral products	C23
27	Manufacture of basic metals	C24
28	Manufacture of fabricated metal products, except machinery and equipment	C25
29	Manufacture of machinery and equipment n.e.c.	C28
30	Manufacture of office, accounting and computing machinery	C26
31	Manufacture of electrical machinery and apparatus n.e.c.	C27
32	Manufacture of radio, television and communication equipment and apparatus	C26
33	Manufacture of medical, precision and optical instruments, watches and clocks	C26
34	Manufacture of motor vehicles, trailers and semi-trailers	C29
35	Manufacture of other transport equipment	C30
36	Manufacture of furniture; manufacturing n.e.c.	C31T33
37	Recycling	E
40	Electricity, gas, steam and hot water supply	D
41	Collection, purification and distribution of water	E
45	Construction	F
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	G
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	G
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	G
55	Hotels and restaurants	I
60	Land transport; transport via pipelines	H49
61	Water transport	H50
62	Air transport	H51
63	Supporting and auxiliary transport activities; activities of travel agencies	H52
64	Post and telecommunications	H53
65	Financial intermediation, except insurance and pension funding	K
66	Insurance and pension funding, except compulsory social security	K
67	Activities auxiliary to financial intermediation	K
70	Real estate activities	L
71	Renting of machinery and equipment without operator and of personal and household goods	M
72	Computer and related activities	M
73	Research and development	M
74	Other business activities	M
75	Public administration and defence; compulsory social security	O
80	Education	P
85	Health and social work	Q
90	Sewage and refuse disposal, sanitation and similar activities	C24
91	Activities of membership organizations n.e.c.	Q
92	Recreational, cultural and sporting activities	R
93	Other service activities	S
95	Private households with employed persons	T
99	Extra-territorial organizations and bodies	T

Source: Authors' compilation.

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