The impact of US 2025 tariffs on the Belgian economy

Report commissioned by Departement Werk, Economie, Wetenschap, Innovatie en Sociale Economie (WEWIS).

Authors

Glenn Magerman (Université libre de Bruxelles, CEPR, CESIfo)
Alberto Palazzolo (Université libre de Bruxelles, National Bank of Belgium)

October 2025

Solvay Public Policy House
Avenue Franklin Roosevelt 50, 1050 Brussels

Managementsamenvatting

Dit rapport kwantificeert de economische impact van het Amerikaanse tariefpakket van 2025 op invoer uit de Europese Unie en de rest van de wereld, met bijzondere aandacht voor België en zijn regio's.

Context. Op 2 april 2025 kondigde president Trump "Liberation Day" aan, met brede tariefverhogingen om het Amerikaanse handelstekort te verkleinen en de binnenlandse industrie te stimuleren. De gemiddelde invoerrechten op EU-goederen stegen van 3,6% naar ongeveer 17%, met de grootste stijgingen in metalen, machines en motorvoertuigen. De EU reageerde voorzichtig, via WTO-procedures en beperkte evenwichtsmaatregelen. België steunde een gecoördineerde EU-aanpak en begeleidde getroffen bedrijven via Credendo, FIT en AWEX.

Methodologie. We gebruiken het kwantitatieve model van Magerman and Palazzolo (2025), dat handelsschokken vertaalt naar regionale welvaart via mondiale en lokale waardeketens. Tariefgegevens zijn afkomstig uit UNCTAD–TRAINS, CEPII–BACI en de Global Tariff Database (Teti, 2024). We simuleren een scenario zonder vergeldingsmaatregelen van de EU of ROW, zodat de impact van de Amerikaanse tarieven afzonderlijk kan worden beoordeeld.

Effecten op welvaart en BBP. De VS verliest 0,9% aan welvaart en 1,6% aan BBP. Voor de EU bedraagt het welvaartsverlies gemiddeld 0,23%, met grotere dalingen in open economieën zoals België, Nederland, en Duitsland. Voor België is het welvaartsverlies -0,28% en de BBP-daling 0,42%. Brussel wordt het sterkst getroffen (-0,34%), gevolgd door Vlaanderen (-0,30%) en Wallonië (-0,22%). Het grootste deel van het verlies komt door hogere lokale prijzen, doordat invoer uit de VS en ROW wordt vervangen door duurdere alternatieven.

Belgische export en import. Alle provincies exporteren minder naar de VS. Ook export naar niet-EU-markten en binnen de EU daalt, vooral in chemie, farmaceutica en petrochemie, en dit vooral in Antwerpen. Enkel financiële diensten in Brussel zien een beperkte stijging, maar deze compenseert de algemene daling niet. Imports dalen eveneens in alle provincies, vooral in chemie, met weer Antwerpen op kop. Substitutie naar EU-leveranciers blijft beperkt en duurder, wat inputkosten verhoogt. Hierdoor ondervinden bedrijven zowel lagere externe vraag als duurdere productie-inputs, wat het welvaartsverlies versterkt.

Beleidsimplicaties. België's openheid en integratie in waardeketens vergroten de blootstelling aan wereldwijde protectionistische schokken. Deze bevindingen benadrukken het belang van gecoördineerde Europese reacties en een versterkte industriële coördinatie binnen de EU, evenals het behouden en verder diversifiëren van zowel export- als importmarkten. Retaliatietarieven zouden bijkomende verliezen veroorzaken voor alle grote handelsblokken.

Executive summary

This report quantifies the economic impact of the 2025 US tariff package on imports from the European Union and the rest of the world, with particular attention to Belgium and its regions.

Context. On April 2, 2025, President Trump declared "Liberation Day," announcing broad tariff increases aimed at reducing the US trade deficit and stimulating domestic industry. Average US import duties on EU goods rose from 3.6% to around 17%, with the largest increases in metals, machinery, and motor vehicles. The EU responded cautiously, through WTO procedures and limited rebalancing measures. Belgium supported a coordinated EU approach and assisted affected firms through Credendo, FIT, and AWEX.

Methodology. We use the quantitative model of Magerman and Palazzolo (2025), which translates trade shocks into regional welfare effects via global and local value chains. Tariff data are drawn from UNCTAD–TRAINS, CEPII–BACI, and the Global Tariff Database (Teti, 2024). We simulate a scenario without retaliatory measures from the EU or the rest of the world, so that the impact of the US tariffs can be evaluated independently.

Effects on welfare and GDP. The United States loses 0.9% in welfare and 1.6% in GDP. For the EU, the average welfare loss is 0.23%, with larger declines in more open economies such as Belgium, the Netherlands, and Germany. For Belgium, the welfare loss is -0.28% and the GDP decline is 0.42%. Brussels is affected most heavily (-0.34%), followed by Flanders (-0.30%) and Wallonia (-0.22%). The largest part of the loss is due to higher local prices, as imports from the US and the rest of the world are replaced by more expensive alternatives.

Belgian exports and imports. All provinces export less to the United States. Exports to non-EU markets and within the EU also decline, especially in chemicals, pharmaceuticals, and refined petroleum, and mainly in Antwerp. Only financial services in Brussels show a limited increase in exports, but this is not sufficient to offset the broader decline. Imports also fall across all provinces, particularly in chemicals, again with the largest impact for Antwerp. Substitution toward EU suppliers is limited and more expensive, increasing input costs. As a result, firms face both weaker external demand and higher production input costs, reinforcing the welfare loss.

Policy implications. Belgium's openness and integration in value chains increase its exposure to global protectionist shocks. These findings highlight the importance of coordinated European responses and strengthened industrial coordination within the EU, as well as maintaining and further diversifying both export and import markets. Retaliatory tariffs would induce additional losses for all major trade blocs.

1 Global context of the US trade policy escalation

1.1 The origins of the US tariff wars

During the Great Depression, the United States passed the Smoot–Hawley Tariff Act of 1930, with tariffs up to 59% in 1932. The Act is widely considered as contributing to the prolongation and deepening of the Great Depression. It was recalled in 1934, after which bilateral agreements under the Reciprocal Trade Agreement allowed for piecewise reductions in tariffs. After the Second World War, the multilateral system under GATT and later WTO rose to prominence, globally reducing tariff barriers to unprecedented levels.

The United States' tariff escalation under President Donald Trump marked a significant departure from the trend of gradual trade liberalization since the end of the Second World War. The first wave of tariff increases (2018-2020) was formally justified under two existing statutes: (i) *Section 301 of the Trade Act of 1974*, targeting what the administration considered unjustifiable, unreasonable, or discriminatory trade practices and intellectual property violations; and (ii) *Section 232 of the Trade Expansion Act of 1962*, invoking national security grounds for tariffs on steel, aluminium, and other strategic materials. Section 232 measures on automobiles and other products were publicly considered, but not implemented. Additional safeguard tariffs under *Section 201* were applied to solar panels and washing machines. These measures reversed decades of incremental liberalization and signaled a strategic use of tariffs as an instrument of industrial and geopolitical leverage.

The stated objectives of the policy were threefold. First, to reduce the US trade deficit, which the administration interpreted as evidence of systemic unfairness in global trade. Second, to protect domestic industries and employment, especially in sectors such as steel, automobiles, and electronics that were viewed as critical to national resilience. Third, to gain leverage in trade negotiations, using tariffs as a bargaining tool to renegotiate trade deals and secure concessions from key partners, including the EU, China, Japan, and Mexico.

Beyond these economic motives, the tariff policy reflected a broader political narrative of "America First," aimed at re-shoring production and asserting US autonomy in global value chains. While initially presented as a temporary strategy, tariffs became a central and persistent feature of US trade policy, triggering retaliation from major partners and ushering in a new phase of protectionist competition.

Figure 1 illustrates the sequence of US tariff announcements throughout 2025. The graph shows a highly volatile pattern: successive rounds of duties were announced and revised within weeks, days, and even hours, generating large swings in expected trade costs and creating considerable uncertainty for all of the US global trade partners. Until March 2025, the first announcements targeted China and the United States–Mexico–Canada Agreement (USMCA) partners of Mexico and Canada, with broad tariffs announced in the range of 10-15% on all imports.[1] Between March and May 2025, announcements targeted particular sectors, including steel, aluminium, and cars, levied on quasi all trading partners. At the same time,

[1] Signed in 2018 and implemented in July 2020, USMCA replaced NAFTA as the regional trade framework between the United States, Mexico, and Canada. The agreement preserved most of NAFTA's market access provisions but introduced stricter rules of origin for automobiles, higher wage and labor-standards requirements, stronger intellectual property protection, and digital trade and environmental chapters. It was negotiated as part of the Trump administration's strategy to modernize and "re-balance" existing trade deals under its broader "America First" agenda.

the conflict with China escalated, with declared tariffs up to 125% at a given moment. Immediately after, Trump announced a 90 day pause before implementation for all other countries as a way to try to leverage his negotiation position, while announcing a trade deal with the UK in May 2025.

On May 28th, 2025, the United States Court of International Trade ruled that the so-called "*Liberation Day*" tariffs introduced by the Trump administration exceeded the President's authority under the *International Emergency Economic Powers Act* (IEEPA).[2] The court concluded that the 2025 tariff package, which imposed sweeping duties on imports from the European Union and other trading partners, could not be legally justified on national security grounds and therefore violated US statutory limits on executive trade powers. However, on June 11th, 2025, the *United States Court of Appeals for the Federal Circuit* temporarily stayed the lower court's decision. This ruling allowed the tariffs to remain in effect while the administration appealed the case, pending a final judgment. The Federal Circuit declared the case to be of "exceptional importance" and ordered expedited proceedings, leaving the legal status of the 2025 tariffs uncertain through the second half of the year.

This continuing stop-and-go judicial sequence introduces significant policy uncertainty for global firms and trading partners. Although the tariffs continue to apply in practice, their suspension or reversal affect trade, investment, and supply chain decisions, as companies weigh the risk of future policy reversals in this turbulent policy period. For the purpose of our analysis, we treat the 2025 tariffs as fully implemented during the period under review, consistent with their *de facto* application following the June 2025 stay. Nevertheless, the ongoing litigation highlights the temporary and politically contested nature of the 2025 US tariff package and underscores the current fragility of the international trade environment.

1.2 EU responses to the 2025 US tariff package

The European Union responded to the 2025 US tariff escalation through a combination of diplomatic engagement, temporary safeguard measures, and coordinated policy monitoring at the European Commission level. Immediately after the first US announcements in April 2025, the EU Trade Commissioner condemned the measures as "unilateral and unjustified" under WTO rules and requested formal consultations under the WTO's Dispute Settlement System. The Commission simultaneously prepared a list of potential retaliatory tariffs targeting emblematic US products in metals, agriculture, and consumer goods, signaling the EU's willingness to act if negotiations failed.

During the summer of 2025, the Council of the EU authorized a temporary *re-balancing mechanism* allowing member states to impose counter duties of up to 10 percent on selected US goods in sectors directly affected by the new tariffs. In parallel, the EU launched a support package under the *European Globalisation Adjustment Fund* to cushion short-term employment effects in the automobile, machinery, and chemical sectors. The EU's diplomatic strategy sought to avoid a full-scale escalation. Talks with the US Trade Representative resumed in August 2025, but no formal suspension of tariffs is reached until today, as the US appeals process on the *Liberation Day* tariffs remains pending. As a result, the EU measures continues to be provisional and narrowly targeted, reflecting a preference for maintaining open dialogue while preserv-

[2] While the administration signaled the potential use of the 1977 International Emergency Economic Powers Act (IEEPA) as a legal basis for broad, across-the-board tariff increases in 2025, earlier tariff escalations in 2018-2020 relied almost exclusively on existing trade statutes, primarily Section 301 of the Trade Act of 1974 and Section 232 of the Trade Expansion Act of 1962. The use of IEEPA to justify general import tariffs remains legally contested, which has given rise to ongoing judicial review in 2025.

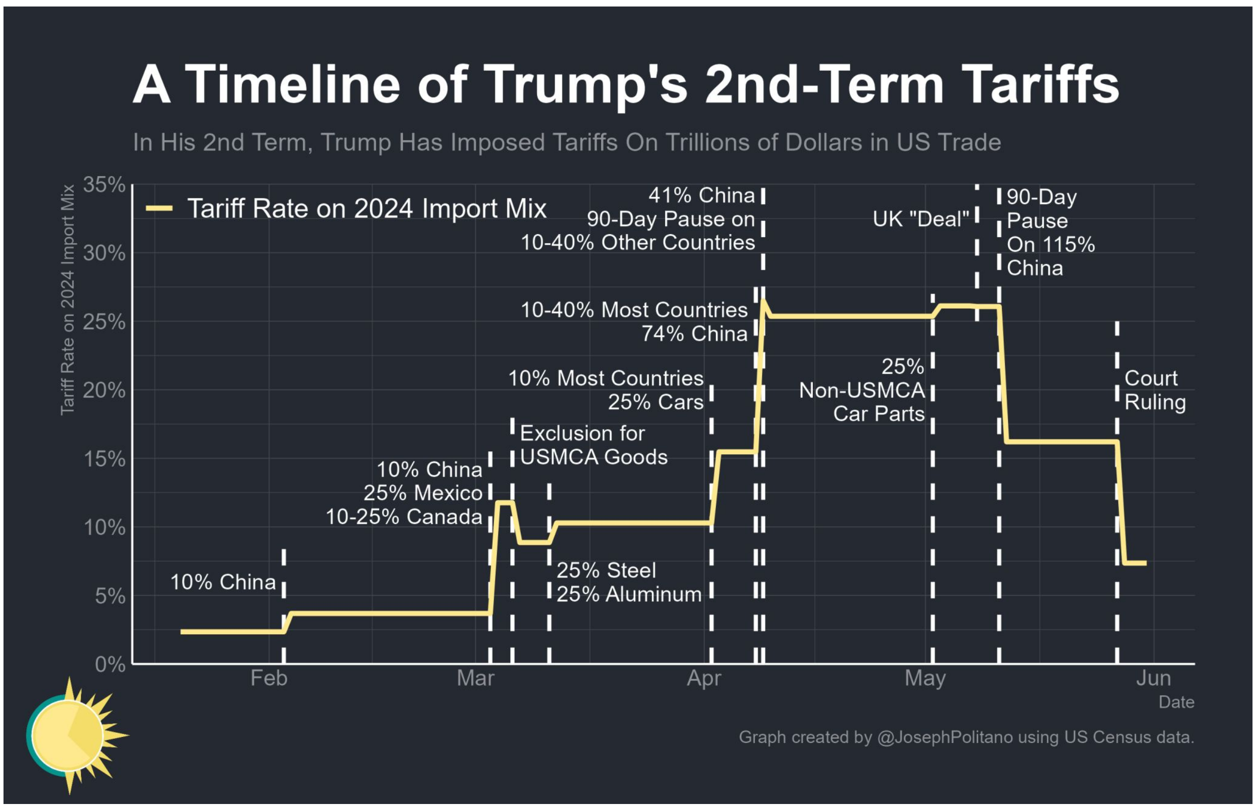


Figure 1: US imports tariffs announced by President Trump over the course of 2025.

ing reciprocity in trade relations. Overall, the EU's response combines legal, diplomatic, and defensive instruments, aimed at signaling resolve without aggravating economic disruption within the Single Market and its global trading partners. These reactions also underscore the Union's reliance on multilateral and rule-based channels, contrasting with the unilateral approach adopted by the United States.

1.3 Belgium's stance and domestic actions

Within the EU Council, Belgium supported the Commission's coordinated approach and opposed unilateral national countermeasures, emphasizing the importance of a unified European position in WTO proceedings. The Federal Public Service Economy (*FOD Economie*) and the Federal Planning Bureau jointly issued early assessments of the exposure of Belgian exporters to the new US tariffs, particularly in the automotive, chemicals, and machinery sectors.

At the regional level, *Flanders Investment & Trade (FIT)* and the *Wallonia Export-Investment Agency (AWEX)* launched information campaigns to assist affected firms in diversifying export markets and managing customs procedures. The Ministry of Economy and the *National Bank of Belgium (NBB)* also coordinated with the European Commission to provide quantitative input on the short-term macroeconomic impact of the tariff escalation. Although no direct Belgian countermeasures were introduced, the government prioritized mitigating supply chain disruptions and strengthening support for firms with high transatlantic exposure through the federal export credit agency *Credendo*. This proactive monitoring stance reflected Belgium's dual role as both a small open economy deeply integrated in EU value chains and a key contributor to the EU's common trade policy.

2 The 2025 US tariff shock in numbers

To quantify the impact of the 2025 US tariff package, we construct a consistent database for the most recent bilateral import tariffs at the sector level for the European Union, the United States, and the rest of the world (ROW). Baseline tariffs (before the 2025 US trade policy) are constructed by combining the UNCTAD-TRAINS database with global country-pair product-level tariffs (UNCTAD (2023)), with UK tariff files to account for the exit of the UK from the EU, and CEPII-BACI trade flow data (Gaulier and Zignago (2010)) to construct weighted average tariffs at the sector level we deploy in the model. Counterfactual tariffs (after the 2025 US trade policy shock) are obtained from the Global Tariff Database (2025 Trade War Extension) by Teti (2024). Tariffs are expressed as *ad valorem* rates by importer–exporter–sector. Appendix A describes the construction of the tariff dataset, while Appendix B provides a full overview of the pre/post tariffs for the EU, US and ROW.

Table 1 compares average tariffs applied by the European Union to imports from the United States with those applied by the United States to imports from the European Union before the 2025 policy change. Overall, tariffs were low and broadly symmetric, averaging around 4.8 percent for EU imports from the US and 3.6 percent for US imports from the EU across manufacturing sectors. Prior to the 2025 trade policy shock, the EU maintained higher protection in some sectors, with large import tariffs mostly on *food products* (C10–12) and *agricultural products* (A01-03). Slightly higher EU import tariffs occurred in *chemicals and pharmaceuticals* (C20–21) and *motor vehicles* (C29), while US tariffs were slightly higher in *wood* (C16) and *non-metallic minerals* (C23). By contrast, tariffs on *metals* (C24–25) and *machinery* (C26–28) were already low and close to most-favored-nation levels. Overall, pre-2025 tariffs on transatlantic trade were low and relatively symmetric, with slightly higher import tariffs for goods from the US to the EU.

Next, Table 2 summarizes the US import tariffs on goods originating from the EU before 2025, the tariffs in the 2025 package, and the corresponding changes in percentage points. The 2025 US tariff package sharply raises import duties on goods originating from the European Union, with average duties across manufacturing rising from 3.6 percent to nearly 17 percent, an increase of more than 13 percentage points, or over 370%. The largest hikes occurred in *basic metals* (C24, +31 ppt), *motor vehicles* (C29, +22 ppt), *printing and recorded media* (C18, +21 ppt), and *fabricated metal*s (C25, +18 ppt), sectors (except media) explicitly mentioned in the early announcements of the Trump administration's tariff agenda. However, tariffs rose significantly across the board, affecting all major manufacturing activities. Significant increases also affected *machinery* and *electrical equipment* (C26–C28, +12–15 ppt), *textiles* (C13–15, +16 ppt), and *furniture and other manufacturing* (C31–32, +13 ppt). Even traditionally low-tariff sectors such as *chemicals* (C20–21) and *rubber and plastics* (C22) experienced substantial increases. *Agricultural products* (A01-03) saw increases of roughly 9–10 ppt, and *energy-related products* (C19) around 9 ppt.

Overall, the policy shift represents a broad-based escalation of US protection on industrial goods, effectively reversing decades of gradual tariff reductions and directly targeting the EU's key export specializations. These tariff changes are the external trade policy shock that we feed into the general equilibrium framework in the next section.

Table 1: Comparison of average EU–US tariffs before the 2025 policy change.

Sector (NACE 2)	EU-USA (%)	USA-EU (%)	Difference (ppt)
Crop and animal production, and hunting (A01)	9.40	7.13	2.27
Forestry and fishing (A02–03)	9.30	6.19	3.11
Mining and quarrying (B)	0.03	0.40	-0.37
Food products, beverages and tobacco (C10–12)	18.17	9.54	8.63
Textiles, wearing apparel, leather (C13–15)	5.86	5.10	0.76
Wood and products of wood and cork (C16)	3.13	4.19	-1.06
Paper and paper products (C17)	1.52	2.06	-0.54
Printing and recorded media (C18)	1.19	1.43	-0.24
Coke and refined petroleum products (C19)	3.88	2.77	1.11
Chemicals and chemical products (C20)	5.47	3.46	2.01
Basic pharmaceutical products (C21)	4.75	3.01	1.74
Rubber and plastic products (C22)	4.15	3.62	0.53
Other non-metallic mineral products (C23)	4.10	5.39	-1.29
Basic metals (C24)	1.64	1.13	0.51
Fabricated metal products (C25)	2.25	1.75	0.50
Computer, electronic and optical products (C26)	3.02	2.63	0.39
Electrical equipment (C27)	2.24	1.77	0.47
Machinery and equipment n.e.c. (C28)	2.37	1.56	0.81
Motor vehicles, trailers and semi-trailers (C29)	5.02	1.88	3.14
Other transport equipment (C30)	2.74	1.79	0.95
Furniture and other manufacturing (C31–32)	2.87	2.89	-0.02
Repair and installation of machinery and equipment (C33)	2.26	1.63	0.63

Notes: Bilateral average import tariffs for 2023. "EU-USA" denotes tariffs applied by the European Union to imports from the United States. "USA-EU" denotes tariffs applied by the United States to imports from the European Union. "Difference" is calculated as (EU–USA) minus (USA–EU), in percentage points (ppt). Values are import-weighted averages by NACE 2-digit sector.

Table 2: Changes in US import tariffs on EU goods by NACE 2 sector, baseline vs. 2025 package.

Sector (NACE 2)	**Baseline (%)**	**2025 (%)**	**Change (ppt)**
Crop and animal production, hunting (A01)	7.13	16.85	+9.72
Forestry and fishing (A02–03)	6.19	15.36	+9.17
Mining and quarrying (B)	0.40	9.48	+9.08
Food products, beverages and tobacco (C10–12)	9.54	15.33	+5.79
Textiles, wearing apparel, leather (C13–15)	5.10	21.03	+15.93
Wood and products of wood and cork (C16)	4.19	14.42	+10.23
Paper and paper products (C17)	2.06	15.22	+13.16
Printing and recorded media (C18)	1.43	22.53	+21.10
Coke and refined petroleum products (C19)	2.77	11.50	+8.73
Chemicals and chemical products (C20)	3.46	11.94	+8.48
Basic pharmaceutical products (C21)	3.01	11.67	+8.66
Rubber and plastic products (C22)	3.62	16.13	+12.51
Other non-metallic mineral products (C23)	5.39	15.66	+10.27
Basic metals (C24)	1.13	32.08	+30.95
Fabricated metal products (C25)	1.75	20.06	+18.31
Computer, electronic and optical products (C26)	2.63	14.57	+11.94
Electrical equipment (C27)	1.77	17.17	+15.40
Machinery and equipment n.e.c. (C28)	1.56	16.34	+14.78
Motor vehicles, trailers and semi-trailers (C29)	1.88	23.80	+21.92
Other transport equipment (C30)	1.79	15.72	+13.93
Furniture and other manufacturing (C31–32)	2.89	15.43	+12.54
Repair and installation of machinery and equipment (C33)	1.63	16.85	+15.22

Notes: Values denote import-weighted averages aggregated to NACE 2 sectors. Changes are expressed in percentage points (ppt).

3 A non-technical overview of the model and the main mechanisms

To evaluate the impact of the recent US import tariffs on exports from the European Union and the rest of the world on the Belgian economy, we apply the quantitative general equilibrium framework developed in Magerman and Palazzolo (2025). The framework provides a consistent methodology to assess how trade, industrial, and public policies affect sectoral production, income, prices, and welfare at both local and EU levels. In this report, we focus on the trade policy channel, while the other instruments are kept at their baseline (pre-2025) settings.

The quantitative framework allows us to simulates how changes in international trade policies affect production, income, and prices across European regions and its global trade partners. It represents the global economy as an interconnected system where sectors buy and sell intermediate inputs from one another, both domestically and abroad. When tariffs rise, the model traces how higher import costs and lower export demand spread through these linkages across firms and consumers. The model therefore captures not only the direct loss of exports to the United States but also the indirect effects transmitted through partner countries and domestic supply chains.

We calibrate the model to the RHOMOLO database of the European Commission's Joint Research Center (Garcia Rodriguez et al. (2023), which provides harmonized data on sectoral output, intermediate consumption, value added, and final demand by NUTS 2 region. Additional parameters, including trade elasticities and love-of-variety parameters are estimated following Consonni and Magerman (2025), fully consistent with the model and the data.

The welfare effects of the 2025 US tariffs operate through a series of interconnected channels, beginning with the classic trade channels, augmented by additional propagation captured by our structural model, including input-output linkages, economies of scale, and government budgets. Because Belgium is a highly open economy embedded in complex European value chains, even small disturbances in external trade flows can propagate widely through intermediate-input relations.

3.1 Classical channels

The starting point mirrors a classical result from standard trade theory. When the United States raises import tariffs on goods from the European Union and the rest of the world (ROW), the import prices of these goods increase for US buyers, and demand for these foreign goods fall. Moreover, if the United States is large enough to affect world prices, the fall in import demand leads to a decline in the world price of these imported goods. In the US, buyers substitute away from foreign varieties and towards domestic ones, increasing US domestic output and prices. This generates a Terms-of-Trade (ToT) gain for the United States: the relative price of its exports rises compared to its imports. Conversely, the EU and other affected exporters experience a deterioration in their terms of trade, as they receive lower prices for their exports. However, these potential US gains are not guaranteed. If tariffs are set above the level that maximizes the terms-of-trade advantage, the reduction in trade flows outweighs the tariff revenue gains, resulting in net welfare losses for the United States. The EU and the rest of the world experience unambiguous welfare losses, driven by lower export volumes and the efficiency cost of distorted trade patterns.

3.2 Economies of scale

In our general equilibrium model, these first-order ToT effects are not the only channel through which tariffs affect production, consumption, prices, and welfare in each trade block. The model also includes external economies of scale. In each sector, a larger scale of production increases the number of active firms, which reduces average production costs and lowers sectoral prices. Conversely, a contraction in output leads to firm exit and higher prices.[3] Following the US tariff increase, US domestic production

[3] We implement sector-level external economies of scale in our model. However the same intuition applies with firm-level increasing returns to scale, or other models that would imply lower prices from increased competition or moving further down along the

expands, encouraging entry and thereby lowering US domestic and export prices. For EU sectors that lose export demand, output contracts, entry falls, and prices rise. The economies of scale channel therefore works in the opposite direction of the classical terms-of-trade effect: (i) US price reductions partly attenuate the US ToT gains, while (ii) EU price increases exacerbate the welfare loss for Europe. Its net effect depends on the quantitative characteristics of all sector-locations.

3.3 Propagation through input-output linkages

Finally, as production is organized in value chains, these effects have further cascading effects on both exports and imports for all trade blocks. On the export side, the reduction in EU exports to the United States lowers activity in the most exposed manufacturing sectors, i.e. metals, machinery, and motor vehicles, which in turn depresses demand for intermediate inputs from upstream suppliers and raises the costs for downstream industries. The decline in production scale in these sectors triggers further higher costs due to economies of scale, pushing up producer prices throughout connected EU regions, which then propagate downstream to other sectors and across regions. On the import side however, EU firms might gain from the lower input or consumer prices from the US. These interdependencies explain why tariff shocks generate heterogeneous outcomes across EU regions and within Belgium, even though the direct exposure to the US market may be limited.

To conclude, the tariff effects will be on net welfare reducing for the EU and ROW, while they are welfare increasing or decreasing for the US, depending on whether actual tariffs are set at or above their optimal level that exist for a large country. Global welfare decreases due to the distortional effect of the tariffs in every case. Within the EU, losses for each region depend on their exposure to (i) direct exports and imports, (ii) indirect dependence on US goods as suppliers or customers.

4 The welfare impact of the 2025 US tariffs

4.1 Results for the US

We first start with an evaluation of the impact of the 2025 US tariffs on the US itself. The US faces a drop of 0.9% in welfare and a drop of 1.6% in terms of GDP. These results are broadly in line with other recent work on the same US tariff scheme as in Ignatenko et al. (2025). In particular, when tariff revenues are rebated lump-sum, they find a negative welfare effect for the US (-0.01%) and the rest of the world (-0.57%). The negative welfare change is mainly driven by the big increase in prices (+3.7%), which outweighs the increase in income (+2.6%) generated by the additional tariff revenues collected. This is because the US raises its tariffs significantly above the optimal tariff of 19% it could impose uniformly across the board as a large economy that can influence world prices and its terms of trade. Moreover, our results are larger, as input-output linkages further aggravate both positive and negative effects of a trade policy.

average cost curve. One would need a model with variable markups, in which US firms would (partially) absorb the price decrease and not pass it on to other input users, to offset or dampen this effect.

4.2 Results for the EU and its regions

For the European Union as a whole, the 2025 US tariff shock induces a welfare loss of 0.23%, though with substantial variation across EU regions, with a standard deviation of 0.11%. Figure 2 shows that in fact, each EU region loses, with losses ranging from 0.037% up to 0.937%. The largest losses are concentrated in regions that are generally more open to trade, such as Belgium, the Netherlands, Ireland, and Germany.

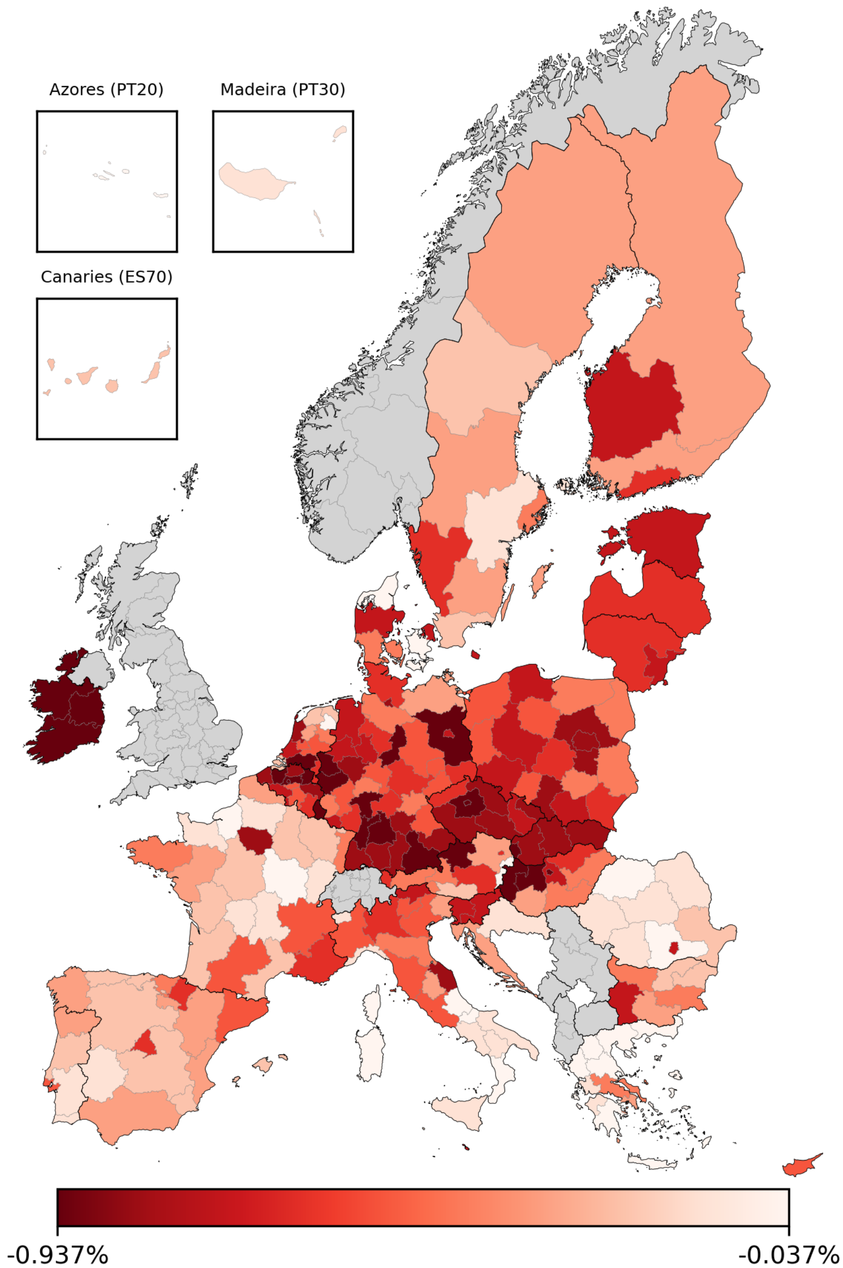
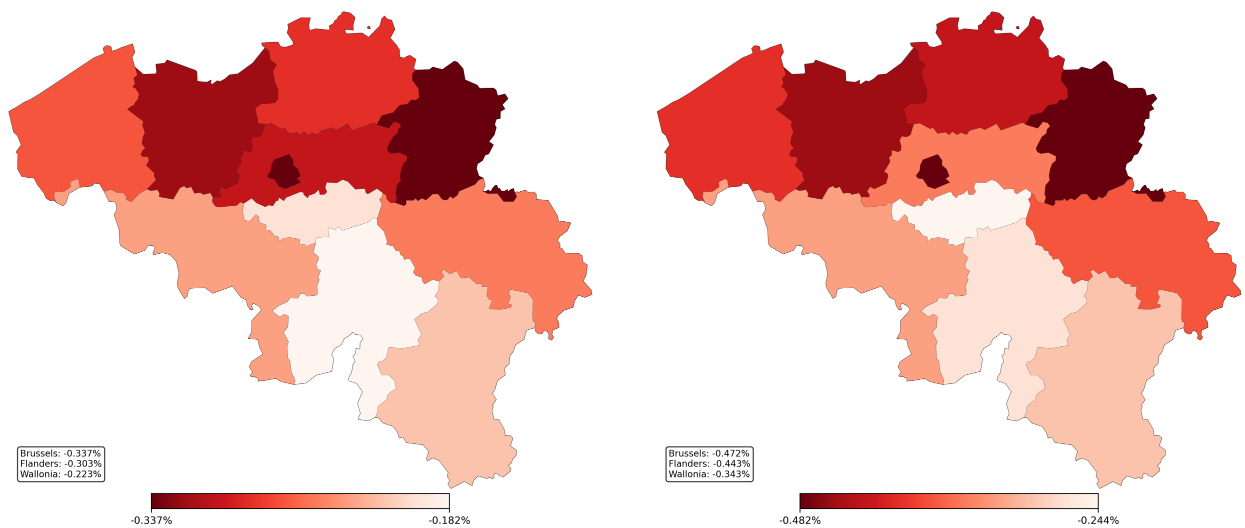


Figure 2: Welfare effects of the 2025 US tariffs on EU welfare.

4.3 Impact for Belgium and its provinces

Next, Figure 3 summarizes the macro-level effects of the 2025 US tariff package for Belgium and that of its provinces. Panel (a) shows the impact of the tariffs in terms of welfare. For Belgium, the overall welfare loss is slightly larger than the EU average: The model predicts a fall of about 0.28%, relative to the pre-2025 tariff baseline. At the regional level, Brussels faces the largest loss at -0.34%, followed by Flanders with -0.30%, while Wallonia is slightly less affected at -0.22%. In terms of real GDP (panel (b)), there is loss of 0.42% for Belgium. Again, Brussels loses most (-0.47%), followed by Flanders (-0.44%) and Wallonia (-0.43%). These results are in line with the intuition that Brussels and Flanders are generally more open to trade than Wallonia, thereby exposing these Regions more to international trade shocks.

Table 3 reports the welfare and GDP changes in further detail by province. Again, welfare changes are quite heterogeneous across provinces, even within the Regions. Brussels Capital Region sees the largest losses at -0.34%, followed by Limburg (-0.32%), East Flanders (-0.31%), Flemish Brabant (-0.30%) and Antwerp (-0.30%). Losses are smallest for Namur (-0.18%), Walloon Brabant (-0.18%), and Luxemburg (-0.20%). The GDP declines follow largely the same ordering and size across provinces.



(a) Welfare.

(b) GDP.

Figure 3: Welfare effects of US tariffs.

4.4 Decomposing the welfare channels

Figure 4 decomposes the welfare impact of the 2025 US tariffs into its main components for each of the Belgian provinces. Changes in welfare are expressed in terms of changes in real income, i.e., nominal income from labor, capital, and taxes over the price index for all goods in that region).[4] The overall effect (black dot) can be decomposed into changes in nominal income (blue bar), and regional price indices (red bar). For each of the provinces, nominal income declines while local prices increase, both contributing negatively to

[4]The model in Magerman and Palazzolo (2025) also includes changes in government-provided goods, which we keep at the status quo for this analysis.

Table 3: Welfare effects of the 2025 US tariff shock across Belgian provinces (NUTS 2).

Province	**Welfare change (%)**	**GDP change (%)**
Brussels Capital Region (BE10)	-0.3373	-0.4725
Antwerp (BE21)	-0.3009	-0.4428
Limburg (BE22)	-0.3237	-0.4824
East Flanders (BE23)	-0.3139	-0.4651
Flemish Brabant (BE24)	-0.3016	-0.4141
West Flanders (BE25)	-0.2824	-0.4197
Walloon Brabant (BE31)	-0.1849	-0.2442
Hainaut (BE32)	-0.2243	-0.3483
Liege (BE33)	-0.2652	-0.4181
Luxembourg (BE34)	-0.1993	-0.3070
Namur (BE35)	-0.1820	-0.3017
Belgium	-0.2849	-0.4189

Notes: Welfare and GDP changes are expressed in percentage deviations from the pre-2025 tariff equilibrium.

welfare changes. While the negative impact on nominal income is relatively comparable across provinces, the impact on prices varies more by province. This is driven by their difference in direct and indirect exposure to US imports.

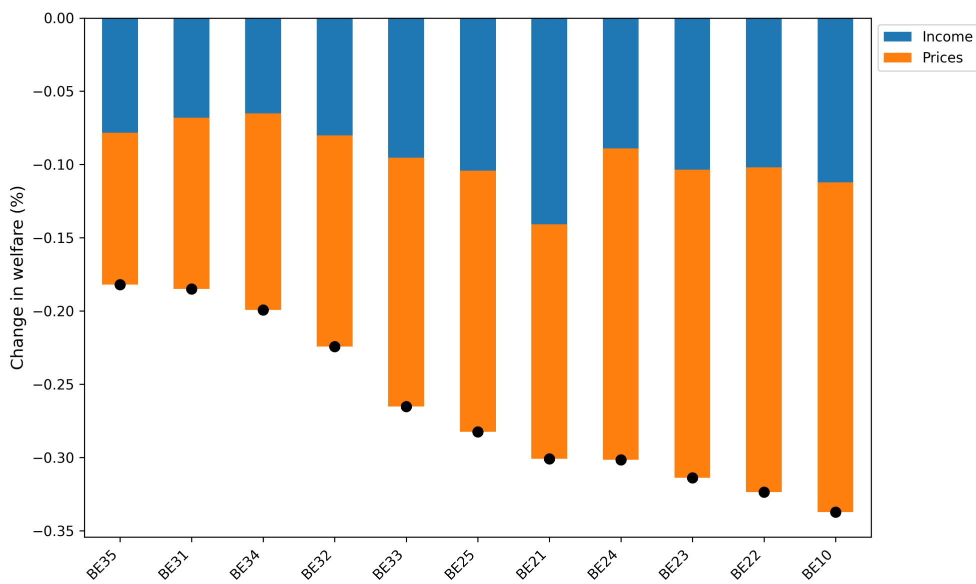


Figure 4: Decomposition of welfare effects into its main channels.

Next, Figure 5 provides a more detailed breakdown of the income and price channels. In particular, the income channel can be further decomposed into a labor cost channel (blue bar), capital returns from a global portfolio (orange bar), and tax changes (green bar). The price channel can be further decomposed into an import diversion channel (red bar), and economies of scale (brown bar). The labor income channel shows a modest positive welfare effect for all provinces: as production costs and sectoral output prices increase, nominal wages also increase, which contribute positively to welfare. Next, each region holds a share of a global portfolio, which through the reshuffling of capital used in production worldwide, yields a small negative effect for all provinces in this scenario. The last piece of the income channel is the change in local and EU taxes. As output decreases, the tax burden also lessens, providing a modest positive impact on welfare. Turning to the price effects, by far the largest component is the negative effect of the trade diversion ("ACR") channel as in Arkolakis et al. (2012). Finally, as output decreases, sectors scale down production, leading to higher prices via the economies of scale ("EES") channel.

Taken together, the largest welfare impact comes from increases in import prices, with an additional kick-on effect via reduced output. Any positive effects from nominal wage increases and tax rebates are swamped by these negative effects, generating net welfare losses for each of the provinces.

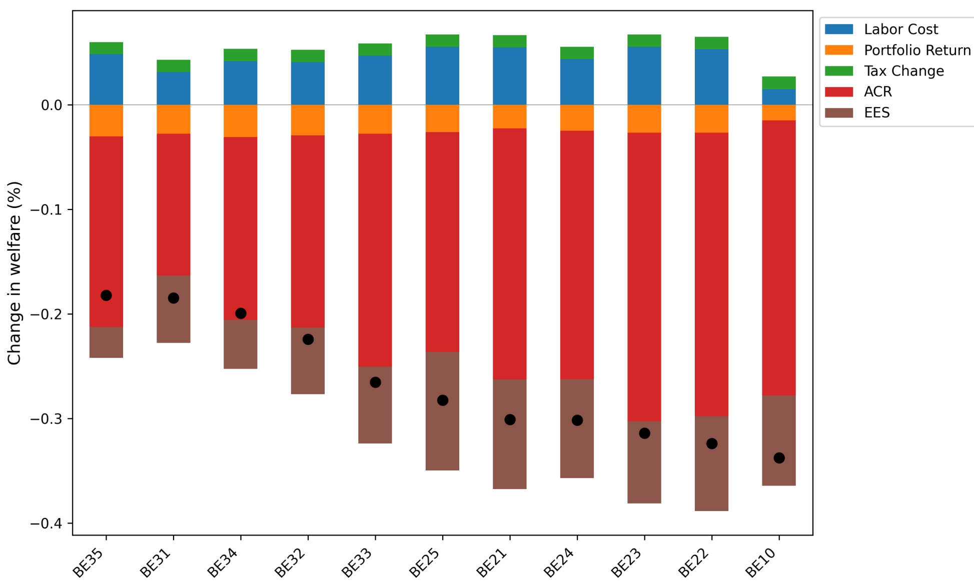


Figure 5: Decomposition of welfare effects into detailed channels.

5 Impact for Belgian imports and exports

Finally, we evaluate the impact of the US tariffs on trade flows for Belgium. We first measure the shift in total imports and exports for each of the Belgian provinces with respect to their global trading partners. Then, we further decompose the changes in trade flows by sector for each province. This allows us to study the total exposure (direct + indirect) to the US tariffs, their general equilibrium effects through the reshuffling of trade flows for each of the sectors by province, and which sectors are most affected through these tariff changes. Appendix C provides an overview of all the NACE sector codes used in this section.

5.1 Exports

Figure 6 shows the change in exports from Belgian provinces to all global trading partners following the increase in US tariffs. The decomposition distinguishes between exports within the province (blue), exports to other EU regions including other Belgian provinces (orange), exports to the United States (green), and exports to the rest of the world (red). All changes are expressed in million euros relative to the baseline tariff scenario. All Belgian provinces experience a decline in total exports. Antwerp (BE21) shows the largest contraction of a value of around 1.6 billion euro, with exports to the United States falling by approximately 600 million euro and exports to the rest of the world by another 650 million euro. Moreover, local sales and exports to other EU regions also decline. Most other provinces exhibit similar patterns, with substantial reductions in exports to both the United States and non-EU markets. A few provinces, notably the Brussels Capital Region (BE10) and Flemish Brabant (BE24), record some increase in exports to the United States (up to 200 million euro). However, these gains are insufficient to offset the broader losses across other destinations.

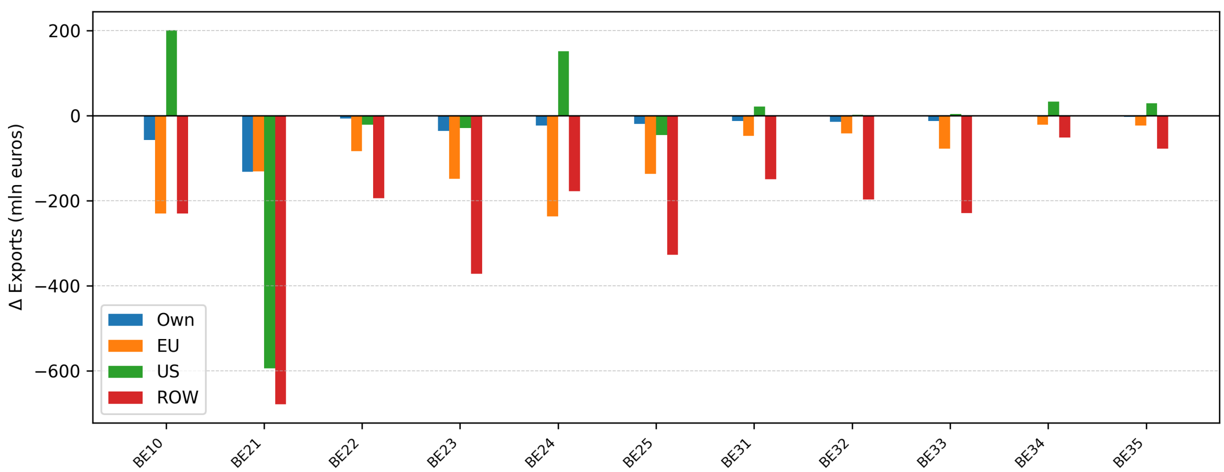


Figure 6: Changes in total exports by province.

Next, Figure 7 shows the change in exports to the United States by sector and province. The largest declines are concentrated in manufacturing sectors, some of which are directly affected by the tariff increases. Manufacturing exports (NACE C10-C33) drop across the board for all provinces, with the largest losses in *manufacture of coke and refined petroleum products* (NACE C19), *manufacture of chemicals and chemical products* (NACE C20), and *manufacture of basic pharmaceutical products and pharmaceutical preparations* (NACE C21) in Antwerp (BE21), each declining with between 100 and 200 million euro. In contrast, several service-related activities, most notably *financial services* (NACE K) in the Brussels Capital Region (BE100, display increases in exports of almost 80 million euro. This expansion arises because the tariff induces US output gains, supporting higher demand for imported goods and services that are not affected by the tariffs. Other increases include *wholesale trade, except of motor vehicles and motorcycles* (NACE G46) in Flemish Brabant (BE24) of around 70 million euro.

Figure 8 shows the correlation between upstreamness of a sector in each province, defined as the average sectoral distance from final demand, and the welfare change of that sector predicted by the model. The positive correlation shows that the tariff increases hit sectors that are downstream (less upstream) in the production chain, while more upstream sectors are on average less exposed to price shocks of their suppliers, allowing them to avoid large indirect effects accumulating through value chains.

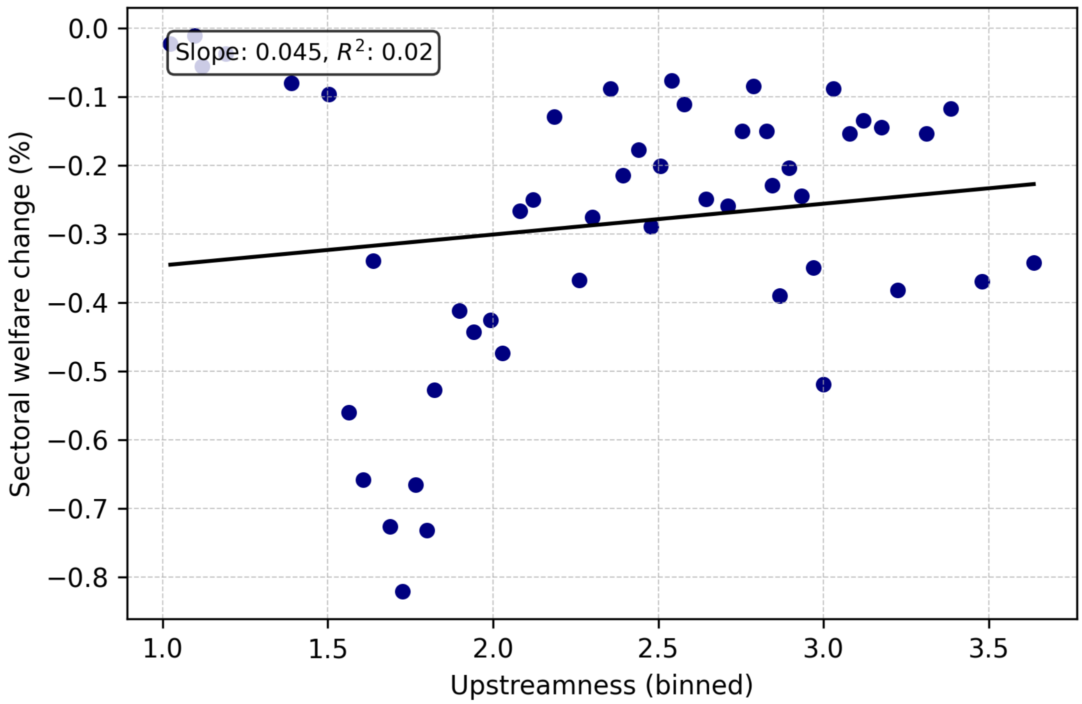


Figure 8: Correlation between welfare impact and upstreamness.

5.2 Imports

We also evaluate the impact of the tariff scheme on imports. Figure 9 shows how imports change across global partners. These include local inputs (blue bar), imports from other EU regions including other Belgian provinces (orange bar), imports from the US (green bar), and imports from the rest of the world (red bar). Across the board, all Belgian provinces import significantly less from the US, with drops in imports ranging between 5.5 and 280 million euro. In response to the trade shock, Belgian provinces also reduce imports from ROW, with Antwerp (BE21) facing a total import reduction of around one billion euro. Interestingly, intra-EU imports also drop significantly for most provinces. Again, these reductions are not offset with increases of local inputs or imports from elsewhere in the EU, and in fact are all negative for all provinces.

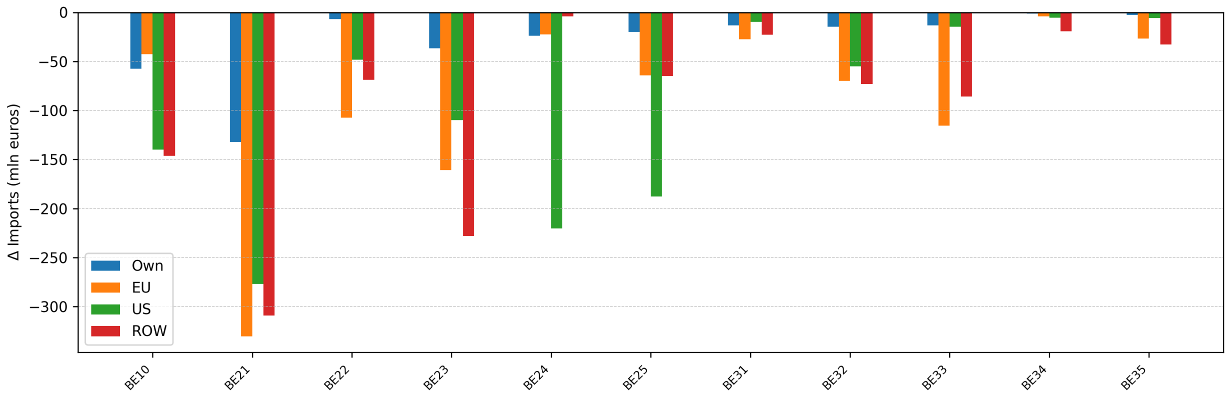


Figure 9: Changes in total imports by province.

Next, Figure 10 illustrates the variations in imports from the United States attributable to the tariff shock, disaggregated by sector and province. All provinces experience a decline in their import levels, and that for all sectors. However, the extent of the sectoral reduction depends on the specific specialization of each province and its dependency on particular goods. For example, the Brussels Capital Region (BE10) predominantly curtails its imports in the manufacturing sectors (NACE 10-33), which constitute a significant portion of its import portfolio. In contrast, provinces with a less industrial focus, such as West Flanders (BE25) and Namur (BE35), exhibit a reduction in imports within its *financial* (NACE K) and *architectural and engineering activities* (NACE M72) sectors. Notably, the province of Antwerp experiences a reduction exceeding 150 million euro in the *chemical sector* (NACE C20), representing a core industry in the province.

Finally, Figure 11 shows the correlation between the degree of downstreamness of a sector in each province and the change in welfare of that sector predicted by the model. Downstreamness, as opposed to upstreamness, is defined as the average sectoral distance from value added. The figure clearly shows a negative correlation between the proximity of a sector to final demand (i.e. high downstreamness) and the predicted welfare change after the US tariffs increase, underlying how the indirect propagation through input-output linkages mainly takes place through higher prices which then cascade downstream affecting final consumers. This is indeed the case for the Brussels region, which sees a slight increase in exports in service-related activities, but at the same time experiences a large increase in prices due to its position in the value chain and its close proximity to final consumers.

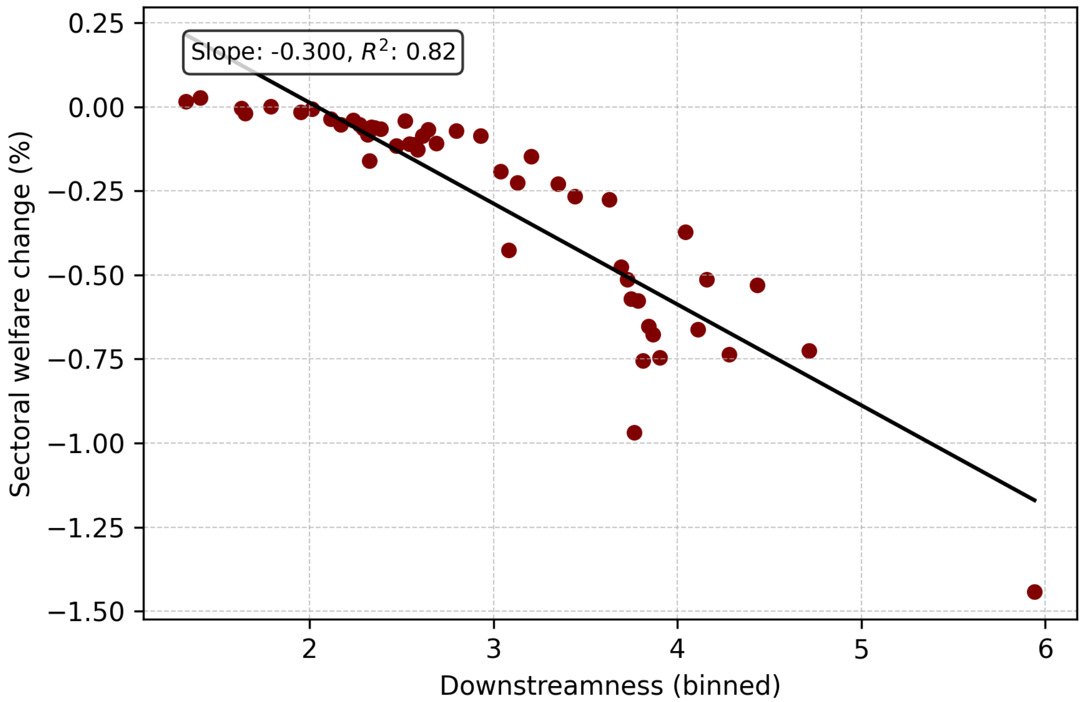


Figure 11: Correlation between welfare impact and downstreamness.

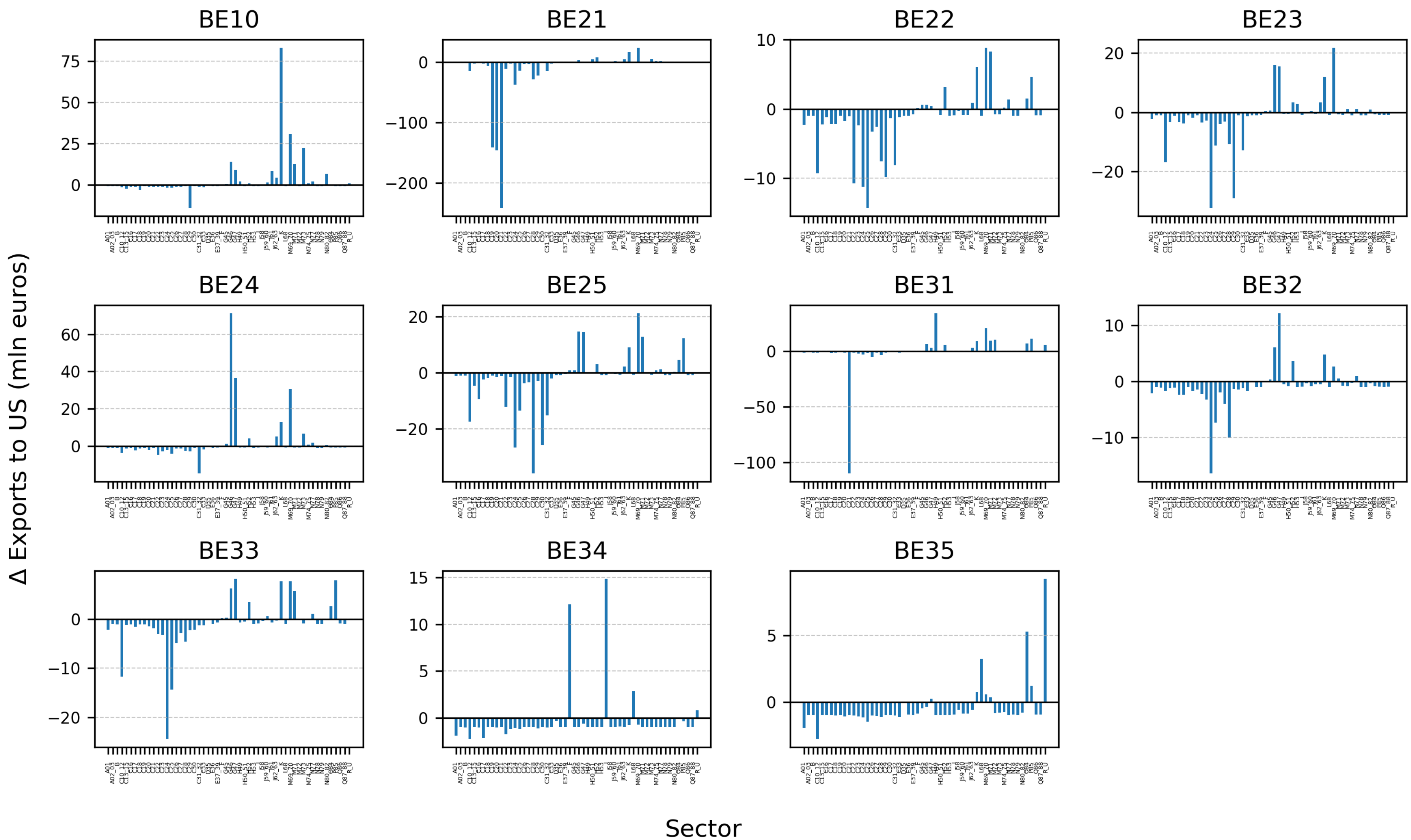


Figure 7: Changes in sectoral exports by province.

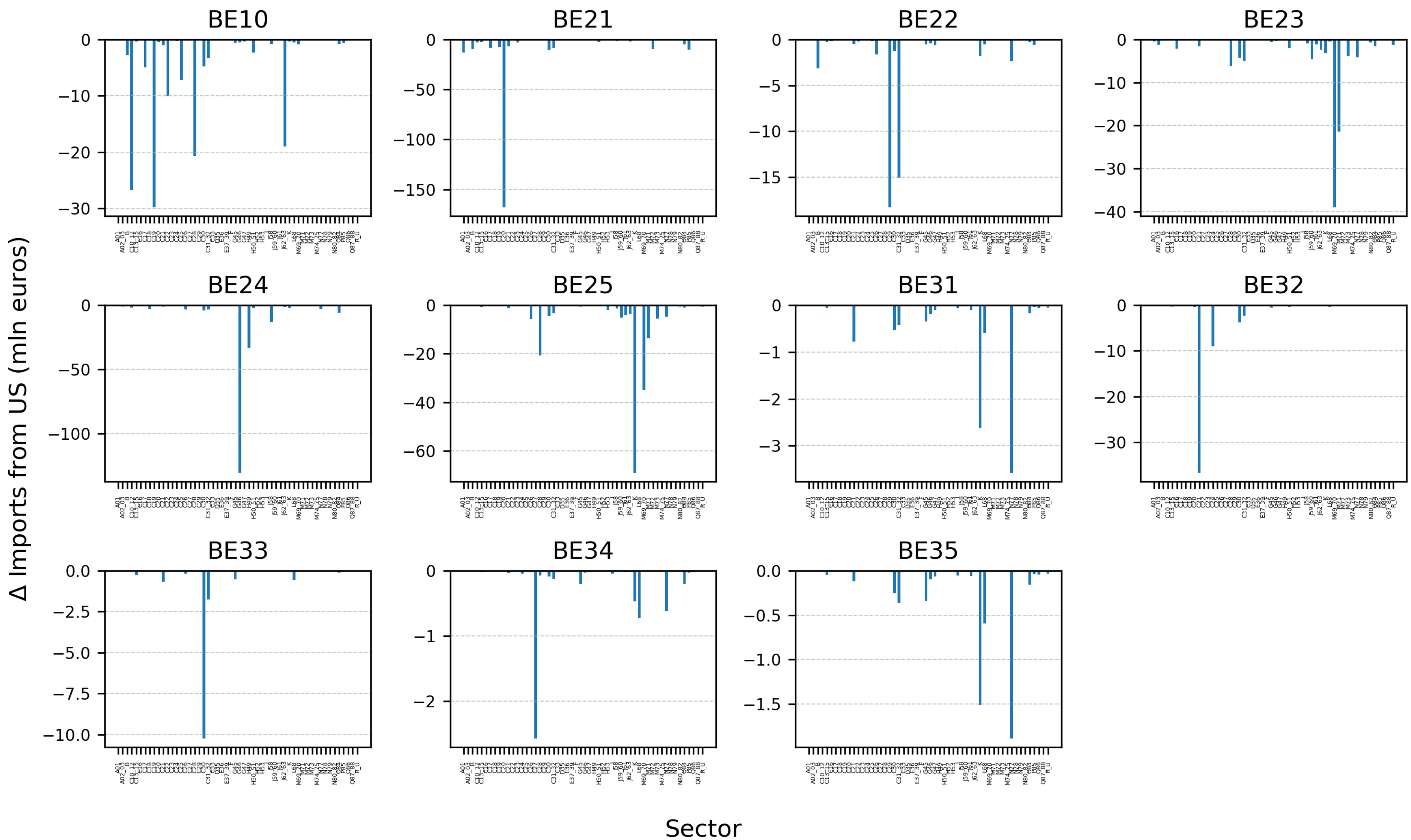


Figure 10: Changes in sectoral imports by province.

References

Arkolakis, C., Costinot, A., and Rodríguez-Clare, A. (2012). New trade models, same old gains? *American Economic Review*, 102(1):94–130.

Consonni, N. and Magerman, G. (2025). Quantifying eu dependence. Mimeo, Université libre de Bruxelles.

Garcia Rodriguez, A., Lazarou, N., Mandras, G., Salotti, S., Thissen, M., and Kalvelagen, E. (2023). A nuts-2 european union interregional system of social accounting matrices for the year 2017: The rhomolo v4 dataset. JRC Working Papers on Territorial Modelling and Analysis 01/2023, European Commission, Joint Research Centre (JRC). JRC132883.

Gaulier, G. and Zignago, S. (2010). Baci: International trade database at the product-level. the 1994–2007 version. CEPII Working Paper 2010-23, CEPII.

Ignatenko, A., Lashkaripour, A., Macedoni, L., and Simonovska, I. (2025). Making america great again? the economic impacts of liberation day tariffs. *Journal of International Economics*, 157:104138.

Magerman, G. and Palazzolo, A. (2025). Deglobalization and the reorganization of supply chains: Effects on regional inequalities in the eu. Technical report, ECARES, Université libre de Bruxelles. Working paper.

Teti, F. (2024). Missing tariffs. Revise & Resubmit, *American Economic Review*.

UNCTAD (2023). Unctad-trains database. Available at: https://trainsonline.unctad.org/home.

A Construction of the tariff dataset

A.1 Tariffs before the US trade shock

To construct the tariff data before 2025 (i.e. the baseline equilibrium), we combine the following data sources: (i) global tariffs from UNCTAD-TRAINS for the years 2016-2017, (ii) tariff files for the UK for the year 2021, and (iii) country-pair product-level trade flows from CEPII-BACI.

Tariffs in the UNCTAD-TRAINS and UK files are reported at the 6-digit Harmonized System (HS) level for each reporter–partner pair and year. The UK tariff schedule (2021) is imported separately and harmonised to the UNCTAD-TRAINS structure (reporter = importer, partner = exporter). After merging with BACI trade values, UK tariffs are aggregated to the model's sectoral level using import weights in the same way as for other reporters. Because the quantitative model distinguishes only three external blocks (EU, US, and ROW), the UK is subsequently assigned to the ROW block, both as importer and as exporter. Only the EU block is regionalised to NUTS 2, since the UK does not share the EU Common External Tariff.

We merge the tariff data with CEPII-BACI trade values (in thousand current USD) to obtain import weights used to aggregate the product-level information to the sectoral detail of the model. Using concordance tables between HS6, ISIC Rev. 3, ISIC Rev. 4, and NACE Rev. 2 two-digit sectors, and grouping countries into three geographical blocks (EU, US, and ROW), we compute import-weighted average tariffs as:

$$t_{rpk} = \frac{\sum_{i \in \mathcal{I}_{rpk}} \text{tariff}_i \cdot \text{imports}_i}{\sum_{i \in \mathcal{I}_{rpk}} \text{imports}_i},$$

where r denotes the *reporter* (importing country), p the *partner* (exporting country), and k the *sector*. Intra-EU trade (flows where both reporter and partner are EU regions) carries a tariff rate of zero, and any missing reporter–partner–sector cell is assigned a zero tariff.

In a final step, the EU block is expanded to the NUTS 2 regional level used in the model. Because the European Union applies a Common External Tariff (CET), all EU member regions face identical import duties vis-à-vis non-EU partners. When the United States imposes tariffs on EU exports, each EU NUTS 2 region's exports to the US face the same US import duty, weighted later by the region's sectoral export shares during model calibration.

A.2 The 2025 US tariff shock

The US tariff shock is based on the Global Tariff Database (Trade War Extension) by Teti (2024). This database provides daily product-level data on US import and export tariffs vis-à-vis all trading partners from January 2018 through August 2025. We extract the counterfactual tariff rates applicable to EU and ROW exporters as of August 2025 and map them to the same sectoral structure as in the baseline dataset. All other tariffs remain at their baseline levels.

B Tariff rates pre-2025 and post-2025

This Appendix provides a full overview of the imposed sectoral tariffs pre and post the US tariff announcements for the US, EU, and ROW vis-a-vis their trading partners. The reporter is the importing country, while the partner is the exporting country.

Table 4: Average tariffs – Reporter EU

Reporter-Partner	NACE	Avg. tariff (%)	Reporter-Partner	NACE	Avg. tariff (%)
EU – USA	A01	9.40	EU – ROW	A01	5.14
EU – USA	A02_03	9.30	EU – ROW	A02_03	5.11
EU – USA	B	0.03	EU – ROW	B	0.02
EU – USA	C10_12	18.17	EU – ROW	C10_12	14.35
EU – USA	C13_15	5.86	EU – ROW	C13_15	3.95
EU – USA	C16	3.13	EU – ROW	C16	2.88
EU – USA	C17	1.52	EU – ROW	C17	2.09
EU – USA	C18	1.19	EU – ROW	C18	1.14
EU – USA	C19	3.88	EU – ROW	C19	1.56
EU – USA	C20	5.47	EU – ROW	C20	3.29
EU – USA	C21	4.75	EU – ROW	C21	2.12
EU – USA	C22	4.15	EU – ROW	C22	2.87
EU – USA	C23	4.10	EU – ROW	C23	2.93
EU – USA	C24	1.64	EU – ROW	C24	1.04
EU – USA	C25	2.25	EU – ROW	C25	1.69
EU – USA	C26	3.02	EU – ROW	C26	1.89
EU – USA	C27	2.24	EU – ROW	C27	1.55
EU – USA	C28	2.37	EU – ROW	C28	1.44
EU – USA	C29	5.02	EU – ROW	C29	2.16
EU – USA	C30	2.74	EU – ROW	C30	1.69
EU – USA	C31_32	2.87	EU – ROW	C31_32	2.29
EU – USA	C33	2.26	EU – ROW	C33	1.57

Table 5: Average tariffs – Reporter USA

Reporter-Partner	NACE	Avg. tariff (%)	Reporter-Partner	NACE	Avg. tariff (%)
USA – EU	A01	7.13	USA – ROW	A01	3.03
USA – EU	A02_03	6.19	USA – ROW	A02_03	2.97
USA – EU	B	0.40	USA – ROW	B	0.01
USA – EU	C10_12	9.54	USA – ROW	C10_12	5.72
USA – EU	C13_15	5.10	USA – ROW	C13_15	5.27
USA – EU	C16	4.19	USA – ROW	C16	3.49
USA – EU	C17	2.06	USA – ROW	C17	2.42
USA – EU	C18	1.43	USA – ROW	C18	0.75
USA – EU	C19	2.77	USA – ROW	C19	1.22
USA – EU	C20	3.46	USA – ROW	C20	2.20
USA – EU	C21	3.01	USA – ROW	C21	1.53
USA – EU	C22	3.62	USA – ROW	C22	2.90
USA – EU	C23	5.39	USA – ROW	C23	3.49
USA – EU	C24	1.13	USA – ROW	C24	0.50
USA – EU	C25	1.75	USA – ROW	C25	1.38
USA – EU	C26	2.63	USA – ROW	C26	1.31
USA – EU	C27	1.77	USA – ROW	C27	1.11
USA – EU	C28	1.56	USA – ROW	C28	1.03
USA – EU	C29	1.88	USA – ROW	C29	0.88
USA – EU	C30	1.79	USA – ROW	C30	1.47
USA – EU	C31_32	2.89	USA – ROW	C31_32	2.70
USA – EU	C33	1.63	USA – ROW	C33	1.21

Table 6: Average tariffs – Reporter ROW

Reporter-Partner	NACE	Avg. tariff (%)	Reporter-Partner	NACE	Avg. tariff (%)
ROW - EU	A01	10.28	ROW - USA	A01	11.01
ROW - EU	A02_03	10.29	ROW - USA	A02_03	10.98
ROW - EU	B	2.56	ROW - USA	B	0.41
ROW - EU	C10_12	13.92	ROW - USA	C10_12	15.13
ROW - EU	C13_15	4.26	ROW - USA	C13_15	3.14
ROW - EU	C16	3.12	ROW - USA	C16	3.41
ROW - EU	C17	3.04	ROW - USA	C17	2.35
ROW - EU	C18	3.41	ROW - USA	C18	2.33
ROW - EU	C19	2.28	ROW - USA	C19	2.04
ROW - EU	C20	3.10	ROW - USA	C20	3.38
ROW - EU	C21	2.40	ROW - USA	C21	2.38
ROW - EU	C22	3.40	ROW - USA	C22	2.61
ROW - EU	C23	4.49	ROW - USA	C23	3.29
ROW - EU	C24	1.68	ROW - USA	C24	1.62
ROW - EU	C25	3.56	ROW - USA	C25	2.58
ROW - EU	C26	2.89	ROW - USA	C26	2.52
ROW - EU	C27	3.42	ROW - USA	C27	2.37
ROW - EU	C28	3.41	ROW - USA	C28	2.55
ROW - EU	C29	4.73	ROW - USA	C29	2.80
ROW - EU	C30	4.02	ROW - USA	C30	3.19
ROW - EU	C31_32	3.06	ROW - USA	C31_32	2.65
ROW - EU	C33	3.44	ROW - USA	C33	2.54

Table 7: Counterfactual average tariffs – Importer USA

Importer-Exporter	NACE	Avg. tariff (%)	Importer-Exporter	NACE	Avg. tariff (%)
USA - EU	A01	16.85	USA - ROW	A01	15.97
USA - EU	A02_03	15.36	USA - ROW	A02_03	15.78
USA - EU	B	9.48	USA - ROW	B	15.03
USA - EU	C10_12	15.33	USA - ROW	C10_12	18.77
USA - EU	C13_15	21.03	USA - ROW	C13_15	32.95
USA - EU	C16	14.42	USA - ROW	C16	29.92
USA - EU	C17	15.22	USA - ROW	C17	32.85
USA - EU	C18	22.53	USA - ROW	C18	37.85
USA - EU	C19	11.50	USA - ROW	C19	20.20
USA - EU	C20	11.94	USA - ROW	C20	21.16
USA - EU	C21	11.67	USA - ROW	C21	20.39
USA - EU	C22	16.13	USA - ROW	C22	30.69
USA - EU	C23	15.66	USA - ROW	C23	29.68
USA - EU	C24	32.08	USA - ROW	C24	36.00
USA - EU	C25	20.06	USA - ROW	C25	34.41
USA - EU	C26	14.57	USA - ROW	C26	30.19
USA - EU	C27	17.17	USA - ROW	C27	31.29
USA - EU	C28	16.34	USA - ROW	C28	28.56
USA - EU	C29	23.80	USA - ROW	C29	25.80
USA - EU	C30	15.72	USA - ROW	C30	28.79
USA - EU	C31_32	15.43	USA - ROW	C31_32	28.90
USA - EU	C33	16.85	USA - ROW	C33	29.70

C List of sector NACE codes and description

Table 8: NACE2 sectors

NACE	Sector name	NACE	Sector name
A01	Crop and animal production, hunting and related service activities	G46	Wholesale trade, except of motor vehicles and motorcycles
A02_03	Forestry and logging, Fishing and aquaculture	G47	Retail trade, except of motor vehicles and motorcycles
B	Mining and quarrying	H49	Land transport and transport via pipelines
C10_12	Manufacture of food products, beverages and tobacco products	H50_51	Water and air transport
C13_15	Manufacture of textiles, wearing apparel and leather products	H52	Warehousing and support activities for transportation
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	H53	Postal and courier activities
C17	Manufacture paper and paper products	I	Accommodation and food service activities
C18	Printing and reproduction of recorded media	J58	Publishing activities
C19	Manufacture of coke and refined petroleum products	J59_60	Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities
C20	Manufacture of chemicals and chemical products	J61	Telecommunications
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	J62_63	Computer programming, consultancy and related activities; information service activities
C22	Manufacture of rubber and plastic products	K	Financial services and insurance activities
C23	Manufacture of other non-metallic mineral products	L68	Real estate activities
C24	Manufacture of basic metals	M69_70	Legal and accounting activities; activities of head offices; management consultancy activities
C25	Manufacture of fabricated metal products, except machinery and equipment	M71	Architectural and engineering activities; technical testing and analysis
C26	Manufacture of computer, electronic and optical products	M72	Scientific research and development
C27	Manufacture of electrical equipment	M73	Advertising and market research
C28	Manufacture of machinery and equipment n.e.c.	M74_75	Other professional, scientific and technical activities; veterinary activities
C29	Manufacture of motor vehicles, trailers and semi-trailers	N77	Rental and leasing activities
C30	Manufacture of other transport equipment	N78	Employment activities
C31_32	Manufacture of furniture; other manufacturing	N79	Travel agency, tour operator and other reservation service and related activities

Continued on next page

Table 8: NACE2 sectors.

NACE	Sector name	NACE	Sector name
C33	Repair and installation of machinery and equipment	N80_82	Security and investigation activities, Services to buildings, Business support activities
D35	Electricity, gas, steam and air conditioning supply	O84	Public administration and defence; compulsory social security
E36	Water collection, treatment and supply	P85	Education
E37_39	Sewerage; waste collection, treatment and disposal activities; materials recovery; remediation activities and other waste management services	Q86	Human health activities
F	Construction	Q87_88	Residential care and social work activities
G45	Wholesale and retail trade and repair of motor vehicles and motorcycles	R_U	Arts, entertainment and recreation, Activities of extraterritorial organizations, Other services activities