The impact of EU-China tariff escalation and retaliation

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Executive summary

Context. EU–China trade relations are under increasing strain. Following the European Commission's November 2024 decision to impose definitive countervailing duties on Chinese electric vehicles, the risk of a broader tariff escalation has moved to the centre of EU trade policy debate. This report quantifies the economic cost of three potential escalation scenarios: a uniform +10% ad-valorem EU tariff on all Chinese goods imports —raising, for instance, the current average manufacturing tariff from around 4% to 4.4% (Scenario 1), an extension of that tariff to services (Scenario 2), and targeted Chinese retaliation on selected EU export sectors (Scenario 3). All three are counterfactual simulations: they quantify what escalation would cost if it occurred, not an assessment of measures that have been implemented.

Methodology. We apply the quantitative general equilibrium framework of Magerman and Palazzolo (2026), calibrated to the RHOMOLO V4 inter-regional input–output accounts of the European Commission's Joint Research Centre. The model captures classical terms-of-trade effects, external economies of scale, and propagation through input–output linkages, and resolves welfare and GDP changes at the level of individual member states and NUTS2 regions (the EU's sub-national statistical classification).

Welfare and GDP impact. EU-average welfare falls by 0.06% under goods tariffs (Scenario 1) and 0.09% when extended to services (Scenario 2); GDP losses are smaller on average (0.02% in both scenarios) because tariff revenues and domestic production gains partly offset household purchasing-power losses—and in some countries (France, Croatia, Portugal) GDP actually rises even as welfare falls. These EU-wide averages, however, mask wide cross-country variation in both metrics. Central and Eastern European manufacturing hubs—Czechia (welfare -0.26% to -0.32%; GDP -0.16% across Scenarios 1 and 2), Poland (welfare -0.25% to -0.28%; GDP -0.18% to -0.19%), Slovakia (welfare -0.17% to -0.21%)—consistently bear losses two to five times larger than the EU average, while North-Western economies with strong external economies of scale (EES)—Luxembourg (welfare $+0.08\%$; GDP $+0.03\%$ to $+0.06\%$), the Netherlands (welfare $+0.02\%$ to $+0.04\%$; GDP $+0.04\%$ to $+0.05\%$)—often gain in both. Any EU-level aggregate figure thus substantially understates the cost borne by the most exposed member states.

Downstream sectors bear the import-side burden. A sector's position in the value chain almost perfectly correlates with its welfare loss on the import side. Sectors that depend most on Chinese intermediate inputs suffer the largest welfare and output losses, regardless of scenario. On the export side, losses in both welfare and real output are driven by the overall contraction of Chinese demand and spread relatively uniformly across sectors. The asymmetry between the import and export sides is one of the clearest structural findings of this analysis.

Services matter. Extending tariffs from goods to services increases the EU-average welfare loss by 50% and shifts the geographic distribution towards near-universal losses. Services tariffs raise costs most sharply in logistics, feeding through to all downstream users, and amplify the price-cost channel substantially. Ireland is the clearest illustration: both welfare and GDP deteriorate meaningfully from Scenario 1 to Scenario 2—welfare losses deepen from 0.04% to 0.08%, and GDP from 0.07% to 0.11%—driven by the centrality of services in its highly open economy. EU–China trade policy discussions focused exclusively on goods tariffs are therefore incomplete.

Retaliation shifts the source of harm. Chinese retaliation adds a qualitatively new channel—export-revenue losses—that depresses GDP far more severely than in the earlier scenarios. While EU-average welfare losses under retaliation (0.07%) remains close to Scenario 1, GDP losses are three times larger, jumping from -0.02% in Scenarios 1 and 2 to -0.07% under retaliation. The two metrics converge because the dominant harm is now income loss rather than a price-level increase. The countries most exposed—Ireland (GDP -0.23%), Czechia (GDP -0.25%), Slovakia (GDP -0.20%), Germany (GDP -0.13%)—are largely different from those hardest hit in Scenarios 1 and 2, reflecting that the burden has shifted from downstream importers to export-intensive manufacturers. The EES channel, which partially offset losses for open economies in Scenarios 1 and 2, now compounds them: firm exit in targeted sectors pushes prices upward, reinforcing the income losses from collapsed export revenues.

Policy implications. Escalation is costly for the EU under all three scenarios, but the costs are unevenly distributed and the nature of the harm changes as the conflict deepens. Goods tariffs hurt downstream manufacturing hubs in Central and Eastern Europe most; services tariffs extend that harm more broadly; and Chinese retaliation pivots the damage towards the EU's most export-intensive manufacturing sectors in Germany, Ireland, and Central Europe. A coordinated EU approach that prioritises negotiated de-escalation—through WTO dispute settlement, the Anti-Coercion Instrument (the EU's legal mechanism to respond to economic coercion by third countries), or bilateral engagement—over unilateral tariff escalation is strongly preferable from a welfare standpoint. Should escalation proceed, the heterogeneity of outcomes across member states argues for compensatory mechanisms within the EU to ensure that the costs of a common trade policy are not borne disproportionately by a subset of economies.

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1 Introduction

This report analyses the potential economic impact of an escalating trade war between the European Union (EU) and China across three plausible scenarios. In Scenario 1, the EU imposes a uniform +10% multiplicative increase in ad-valorem tariffs on all Chinese goods imports—that is, existing tariff rates are scaled up by a factor of 1.10, so a 4% tariff becomes 4.4%. Scenario 2 extends this tariff to services as well. In Scenario 3, China retaliates by levying targeted tariffs on selected EU export sectors. All three scenarios are counterfactual simulations: they quantify the cost of escalation under specific policy assumptions, not assessments of real-world measures that have been implemented up to date.

The scenarios are motivated by a concrete policy moment. In November 2024, the European Commission imposed definitive countervailing duties on Chinese electric vehicles, ranging from 7.8% to 35.3% above the existing 10% MFN rate, following an anti-subsidy investigation. China responded with anti-dumping probes on European dairy, spirits, and pork, and threatened broader countermeasures. Against this backdrop, the three scenarios in this report represent a structured escalation ladder—from a uniform EU goods tariff, through an extension to services, to targeted Chinese retaliation—designed to quantify the cost of each step.

The economic logic runs as follows. EU tariffs on Chinese goods stimulate domestic production in import-competing sectors. Governments collect higher tariff revenues, improving fiscal positions and effectively lowering the tax burden—a terms-of-trade gain for the EU. Countries whose sectors exhibit stronger external economies of scale (EES) benefit further: as import substitution expands domestic production, new firms enter, the mass of available varieties grows, and prices fall through the love-of-variety effect. Conversely, member states that relied heavily on Chinese goods as intermediate inputs are forced to source from more expensive suppliers, incurring welfare losses that are especially pronounced in more downstream sectors. Extending tariffs to services amplifies all these effects, since services are deeply embedded in manufacturing value chains. Appendix C provides a non-technical overview of the model's main economic channels.

On the international trade side, EU imports from China fall and are diverted towards EU partners. Even without Chinese retaliation, EU exports to China contract slightly as the Chinese economy adjusts to lower exports. When China retaliates, the export contraction deepens: China targets EU sectors in which it is most import-dependent—machinery, electronics, and automotive—inflicting sizable GDP losses on manufacturing intensive member states.

Table 1 summarises the EU-average welfare and GDP outcomes across the three scenarios. Throughout this report, *welfare* refers to real household purchasing power—nominal income deflated by the local price index plus any tax burdens —while GDP measures total production value. The two can diverge when tariff revenues or price changes affect income and prices differently across countries.

Scenario	Avg. EU ΔWF (%)	Avg. EU ΔGDP (%)
Scenario 1 — Goods tariffs	−0.06	−0.02
Scenario 2 — Goods & services	−0.09	−0.02
Scenario 3 — Chinese retaliation	−0.07	−0.07

Table 1: EU-average welfare and GDP changes across the three simulation scenarios.

2 The context of current EU–China trade relations

Before turning to the scenarios, it is useful to establish the scale and structure of EU–China trade that underlies the analysis. China is the European Union's largest source of imports and its third-largest export destination. In 2023, the EU imported approximately €516 billion worth of goods from China and exported around €223 billion, yielding a bilateral goods trade deficit of roughly €293 billion—the largest such deficit the EU records with any single partner.[1] Services trade is more balanced but substantially smaller, with EU services exports to China of around €40 billion and imports of around €28 billion.[2]

The existing tariff baseline is low. EU average most-favoured-nation (MFN) tariffs on Chinese goods are around 4% across manufacturing sectors, with higher rates in food and beverages (around 12%) and lower rates in machinery and electronics (around 2–3%).[3] This means the +10% multiplicative tariff in Scenario 1 raises effective protection proportionally across all sectors—adding around 0.2–0.3 percentage points to machinery and electronics tariffs, around 0.4 percentage points to broader manufacturing tariffs, and around 1.2 percentage points to food and beverage tariffs—a moderate but economically meaningful escalation given the scale of EU–China trade flows.

EU imports from China are heavily concentrated in manufactured goods, particularly machinery and electronics (C26–C28, around 40% of total goods imports), textiles and apparel (C13–C15), and chemical products. EU exports to China are similarly concentrated: motor vehicles (C29), machinery (C28), and chemicals (C20–C21) together account for more than half of EU goods exports to China.[4] This sectoral concentration explains both why EU tariffs on Chinese goods hit manufacturing supply chains hardest (Scenarios 1 and 2) and why Chinese retaliation on machinery and automotive is so effective at targeting specific member states (Scenario 3).

The geopolitical backdrop matters too. Since 2020, EU–China relations have been shaped by a succession of trade disputes: anti-subsidy investigations on Chinese solar panels and electric vehicles, Chinese anti-dumping measures on European spirits and dairy, and a bilateral Comprehensive Agreement on Investment that remains unratified. The November 2024 decision to impose countervailing duties on Chinese electric vehicles—ranging from 7.8% to 35.3% on top of the existing 10% MFN rate—represents the most significant escalation to date and is the direct motivation for the three scenarios analysed in this report.[5]

3 Scenario 1: EU Tariffs on Goods

3.1 Welfare and GDP impact

When the EU levies a +10% tariff on Chinese goods, domestic producers of competing goods gain market share, tariff revenues rise, and the terms of trade improve. The full country-level breakdown is in Table 2. Member states whose sectors exhibit strong external economies of scale (EES — the cost reductions that arise as domestic production expands and more firms enter the market) —principally Luxembourg, the

[1] European Commission, Directorate-General for Trade, *EU Trade Relations with China: Facts and Figures*, 2024. https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/china_en

[2] Eurostat, *International Trade in Services*, 2023. https://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_services

[3] WTO, *Tariff Profiles*, 2023; UNCTAD–TRAINS HS6-level tariff schedules, as used in the analysis (see Appendix A).

[4] Eurostat, *COMEXT: EU Trade Since 1988 by HS2–4–6 and CN8*, 2023. https://ec.europa.eu/eurostat/web/international-trade-in-goods/data/database

[5] European Commission, Commission Implementing Regulation (EU) 2024/2603 of 29 October 2024, *Official Journal of the European Union*, L 2024/2603. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202402603

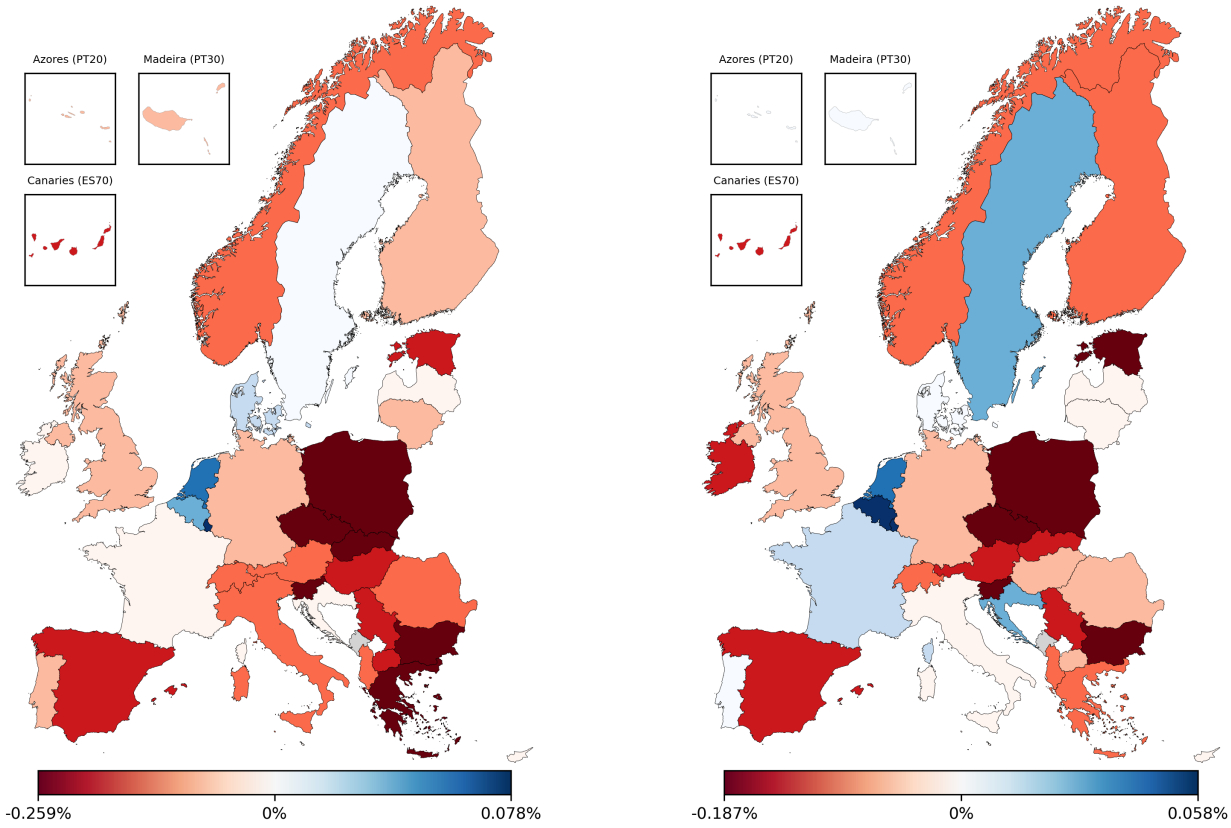
Netherlands, Belgium and Denmark—benefit as tariff-induced import substitution expands domestic production, attracting firm entry and lowering prices through greater product variety. Conversely, countries that relied heavily on Chinese goods as intermediate inputs face sharply higher production costs and must source from more expensive domestic or third-country suppliers. These cost pressures propagate through the supply chain and are most severe in *downstream* sectors: electronics assembly, automotive supply chains, and textiles in Central and Eastern Europe. The EU-average welfare loss is -0.06%, but Czechia (-0.26%), Poland (-0.25%), Slovakia (-0.17%), and Slovenia (-0.15%) absorb the largest hits, while Luxembourg ($+0.08\%$), the Netherlands ($+0.04\%$), and Belgium ($+0.02\%$) record small gains.

Country	**ΔWF** *(%)*	**ΔGDP** *(%)*	**Country**	**ΔWF** *(%)*	**ΔGDP** *(%)*
Austria	−0.10	−0.05	Italy	−0.09	−0.01
Belgium	+0.02	+0.05	Latvia	−0.03	0.00
Bulgaria	−0.13	−0.09	Lithuania	−0.04	−0.02
Croatia	−0.03	+0.04	Luxembourg	+0.08	+0.06
Cyprus	−0.03	−0.02	Malta	−0.02	−0.01
Czechia	−0.26	−0.16	Netherlands	+0.04	+0.05
Denmark	+0.02	+0.02	Poland	−0.25	−0.19
Estonia	−0.12	−0.08	Portugal	−0.06	+0.01
Finland	−0.06	−0.03	Romania	−0.10	−0.02
France	−0.01	+0.03	Slovakia	−0.17	−0.06
Germany	−0.05	−0.02	Slovenia	−0.15	−0.10
Greece	−0.13	−0.05	Spain	−0.11	−0.05
Hungary	−0.10	−0.02	Sweden	+0.01	+0.04
Ireland	−0.04	−0.07	**EU**	−0.06	−0.02

Table 2: Welfare and GDP changes (%) by EU member state — Scenario 1 (goods tariffs).

GDP effects partly diverge from welfare: several countries with negative welfare changes show positive GDP changes (France $+0.03\%$, Portugal $+0.01\%$, Croatia $+0.04\%$) because tariff revenues and domestic production gains boost national income even as household welfare falls. The geographic distribution is shown in Figure 1.

Sector-level prices rise broadly, most sharply in textiles (C13-C15), computer and electronics (C26) and electrical equipment (C27)—sectors directly competing with Chinese imports, and for which EU domestic capacity to source cheaper substitutes is limited. Services sectors see more modest price increases since they were not hit by the tariff directly and their indirect exposure to Chinese goods competition is limited. Figure 2 and Figure 3 show sectoral aggregate and top 10/bottom 10 sector–country real output changes. The welfare decomposition (Figure 4) confirms that the ACR channel (the welfare cost of being forced to source from more expensive domestic suppliers, as in Arkolakis et al. (2012)) dominates, consistent with the broad price increases documented above, as reduced trade with China forces EU firms to source from costlier suppliers. This is partly offset by higher tariff revenues. Moreover, the EES channel contributes positively for open economies such as Belgium, Luxembourg and the Netherlands, where tariff-induced import substitution expands domestic production sufficiently to generate firm entry and variety gains that lower the local price index.



(a) Welfare change (%)

(b) GDP change (%)

Figure 1: Geographic distribution of welfare and GDP changes — Scenario 1 (goods tariffs).

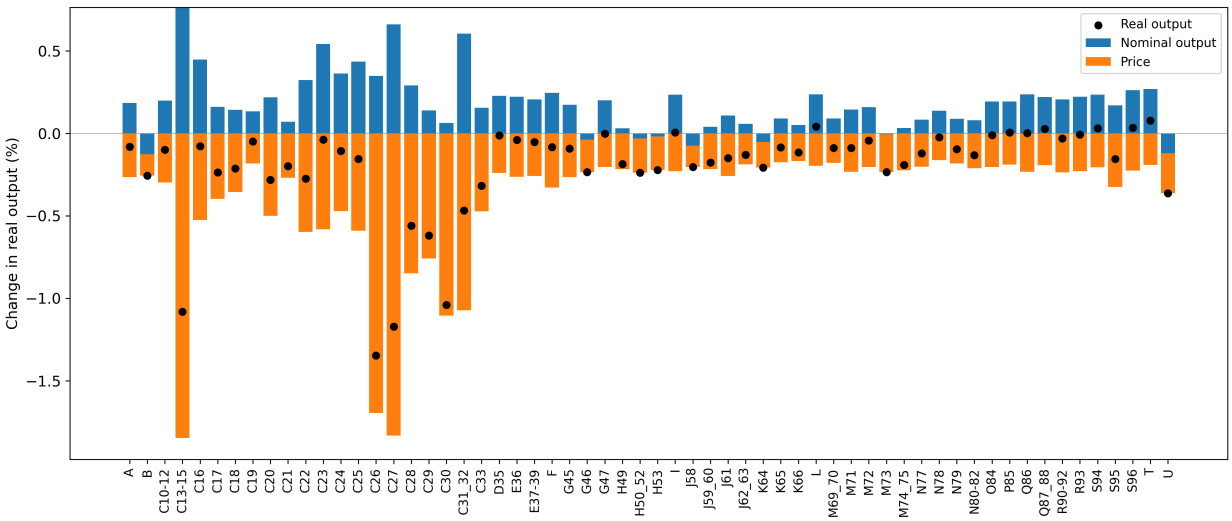


Figure 2: Real output changes decomposed into nominal output and price effects — Scenario 1.

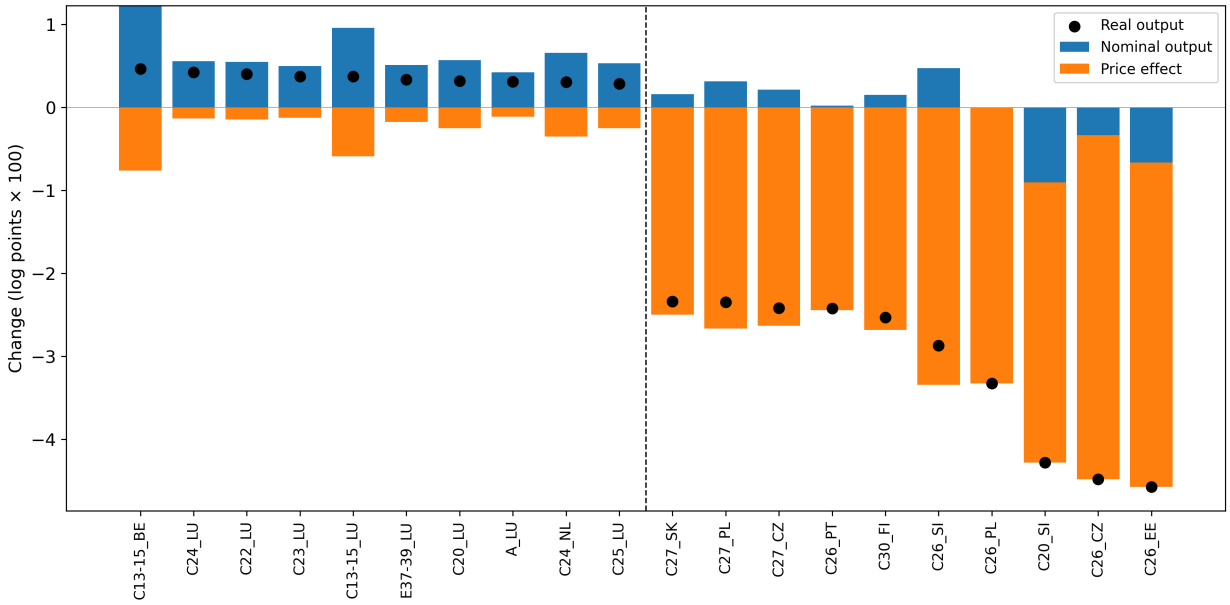
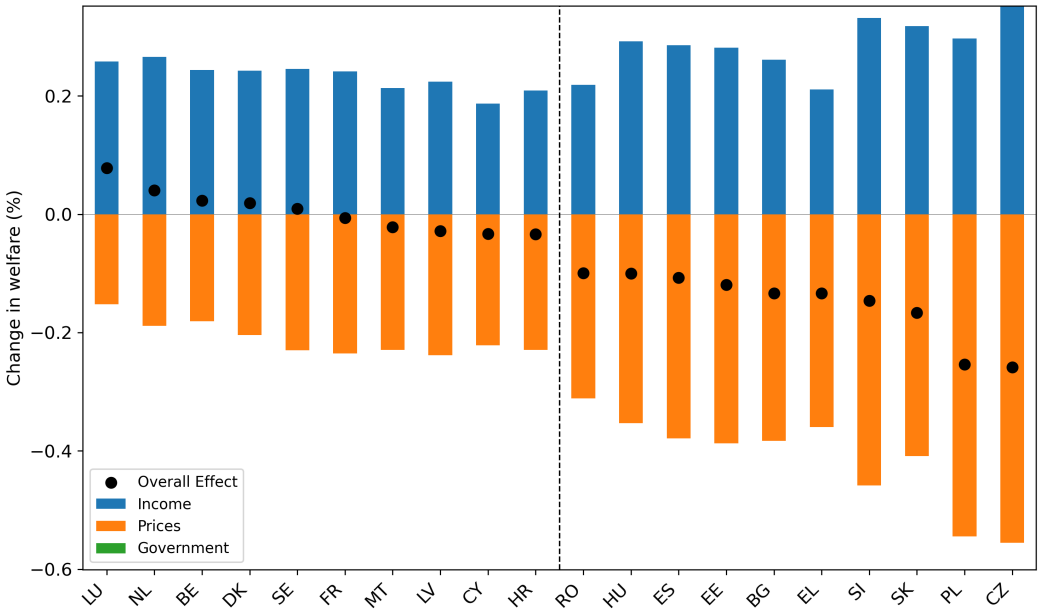
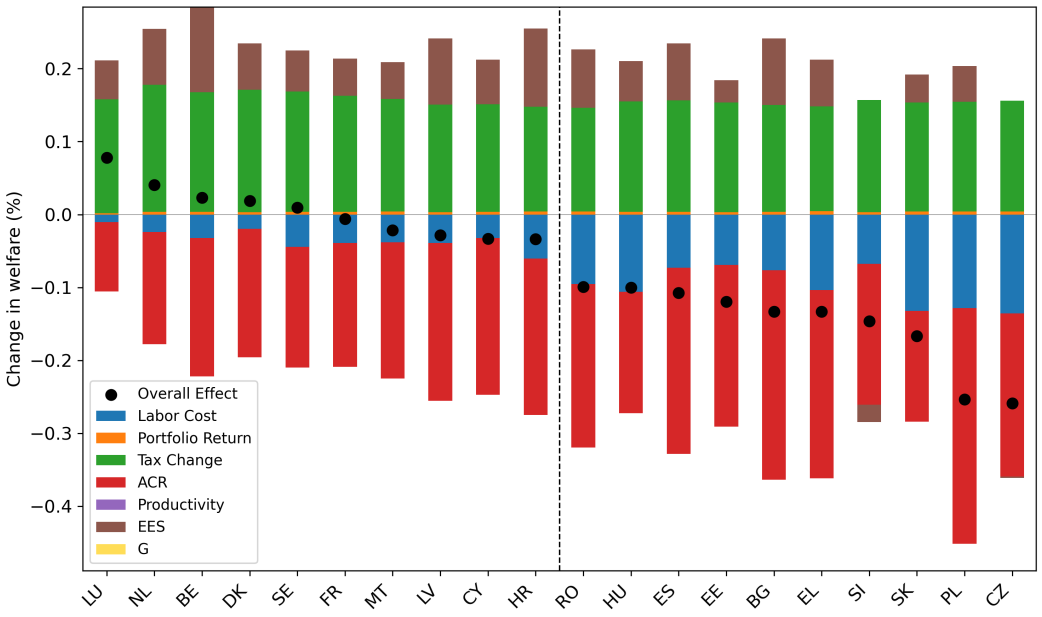


Figure 3: Top and bottom sector–country pairs by real-output change — Scenario 1 (goods tariffs). Black dots indicate real output; blue bars nominal output; orange bars the price-level component.



(a) Reduced decomposition (income vs. prices)



(b) Full decomposition (all channels)

Figure 4: Welfare decomposition by member state — Scenario 1. Top: income and price channels (top 10/bottom 10). Bottom: full decomposition into labour cost, portfolio return, tax change, ACR, productivity, EES, and government channel.

3.2 Imports

Figure 5 shows that EU tariffs on Chinese goods trigger an immediate reallocation of import flows. Imports from China (green bars) fall sharply for all member states, as the +10% tariff wedge makes Chinese goods substantially less competitive. This contraction is partially offset by trade diversion: member states substitute Chinese supplies mostly with goods from intra-EU partners (orange bars) and from domestic producers (blue bars), while imports from the rest of the world (red bars) decrease slightly. For Germany, the absolute magnitudes are very large and the own-domestic substitution is also sizeable, reflecting the depth of Germany's manufacturing base.

Downstreamness measures how far a sector sits from primary inputs: a sector that buys heavily from other sectors before selling to final consumers is more downstream and therefore more exposed to cost increases that cascade through the supply chain. Figure 6 reveals a strikingly strong negative relationship between a sector's position in the value chain and its welfare change. Sectors that rely most heavily on Chinese intermediate inputs—directly or indirectly—suffer by far the largest welfare losses, while upstream primary and resource sectors experience minimal welfare effects. This pattern reflects the propagation mechanism at the core of the model: the tariff raises the price of protected goods, and this cost increase cascades downstream through the EU production network. With a slope of -0.168 and $R^2 = 0.89$, downstreamness correlates very strongly with the welfare losses at the sector–country level.

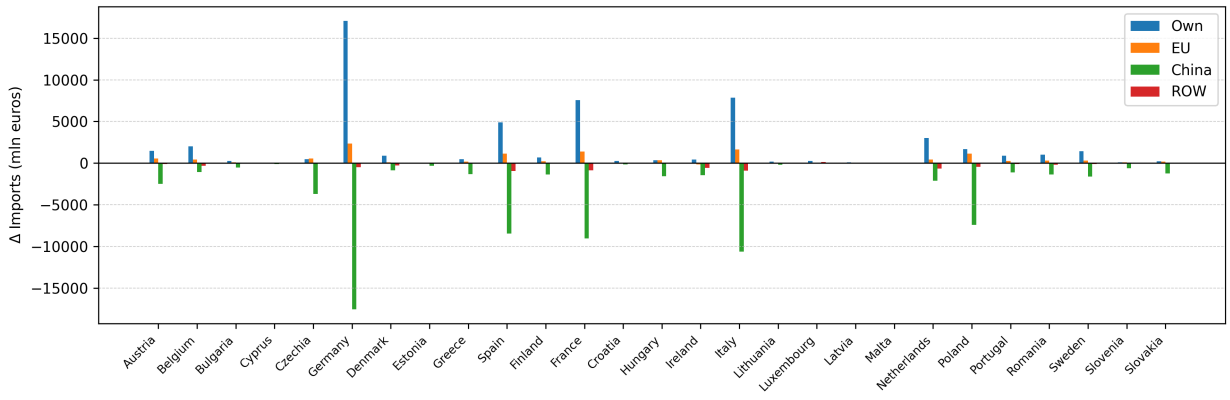


Figure 5: Changes in imports by origin — Scenario 1 (goods tariffs). Own: domestic substitution; EU: intra-EU imports; China: imports from China; ROW: imports from Rest of World. Units: million euros.

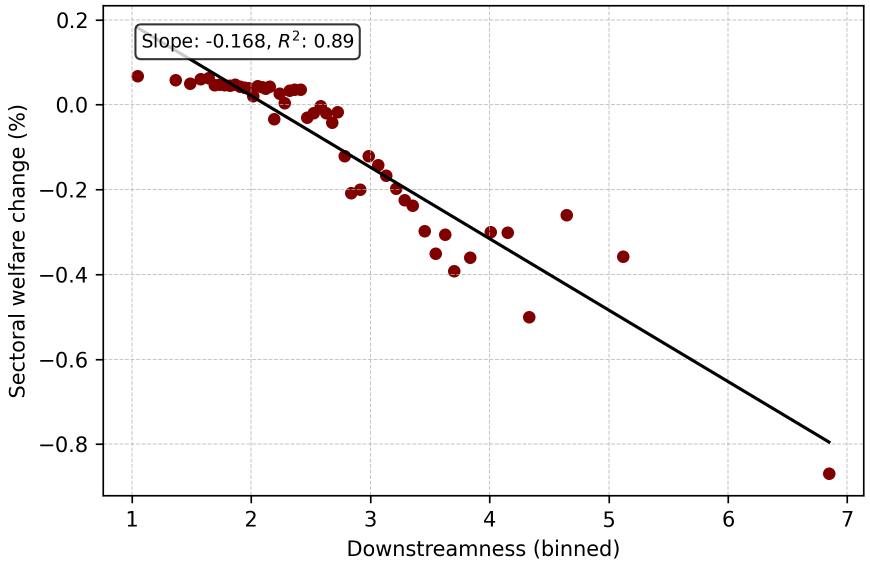


Figure 6: Downstreamness and sectoral welfare change — Scenario 1.

3.3 Exports

Even in the absence of explicit Chinese retaliation, EU exports are not fully shielded from the tariff shock. As Chinese exports to the EU decline, China's own economic activity contracts slightly, reducing its demand for all goods, including these from the EU. A secondary effect compounds this: other rest-of-world countries, facing lower Chinese demand for their own exports, in turn reduce their imports from the EU. Germany records the largest absolute export loss to China, followed by Italy and France. These losses are partly offset by higher exports within the EU as relative prices shift in favour of European producers.

Even in the absence of explicit Chinese retaliation, EU exports are not fully shielded from the tariff shock (Figure 7). The upstreamness binscatter (Figure 8) shows a positive but weak relationship between sectoral upstreamness and welfare change: more upstream sectors—those supplying intermediates further from final demand—experience marginally smaller welfare losses, as higher domestic demand propagates upstream through EU supply chains. With a slope of 0.033 and $R^2 = 0.03$, however, the relationship is far weaker than on the import side. This asymmetry is informative: on the import side, value-chain position is the dominant driver of welfare outcomes, while on the export side, losses are spread more uniformly across sectors, driven by the overall contraction of Chinese demand rather than by any sector's specific position in the supply chain.

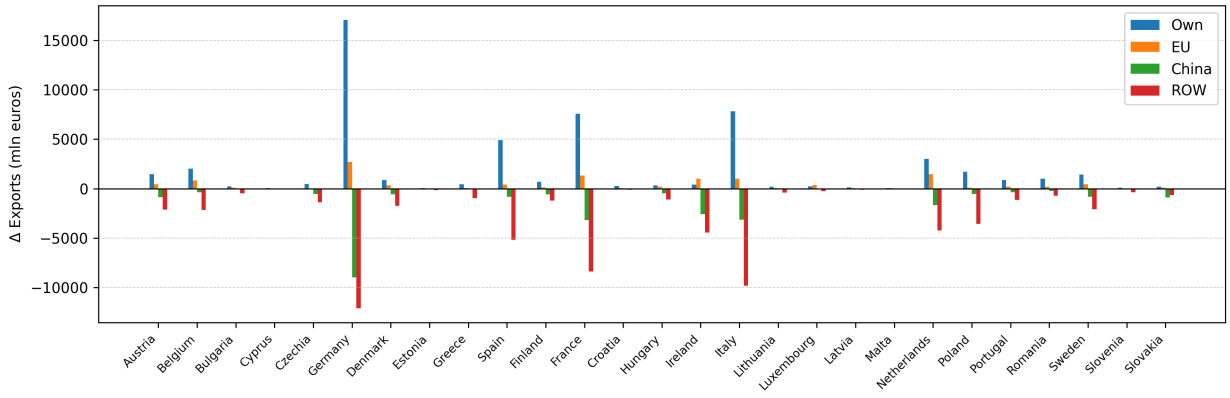


Figure 7: Changes in exports by destination — Scenario 1 (goods tariffs). Own: domestic sales; EU: exports to EU partners; China: exports to China; ROW: exports to Rest of World. Units: million euros.

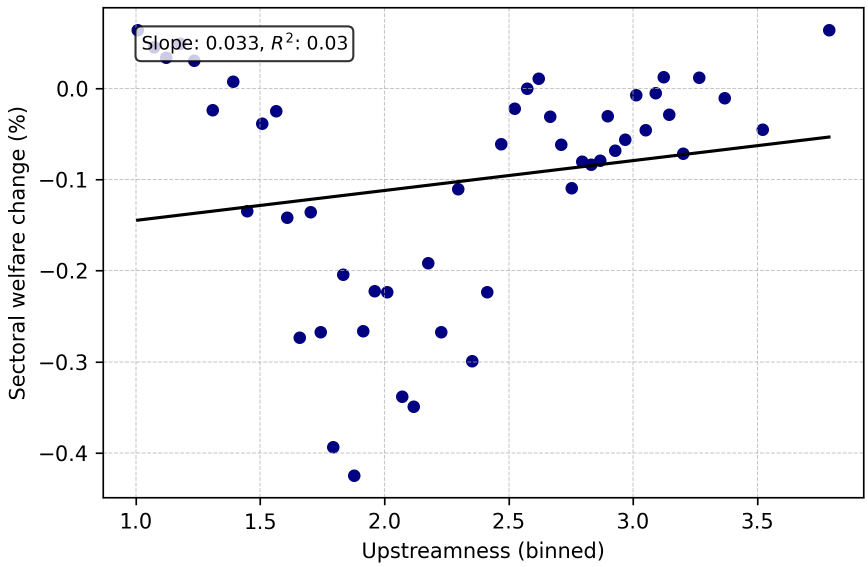


Figure 8: Upstreamness and sectoral welfare change — Scenario 1.

4 Scenario 2: EU Tariffs on Goods and Services

4.1 Welfare and GDP impact

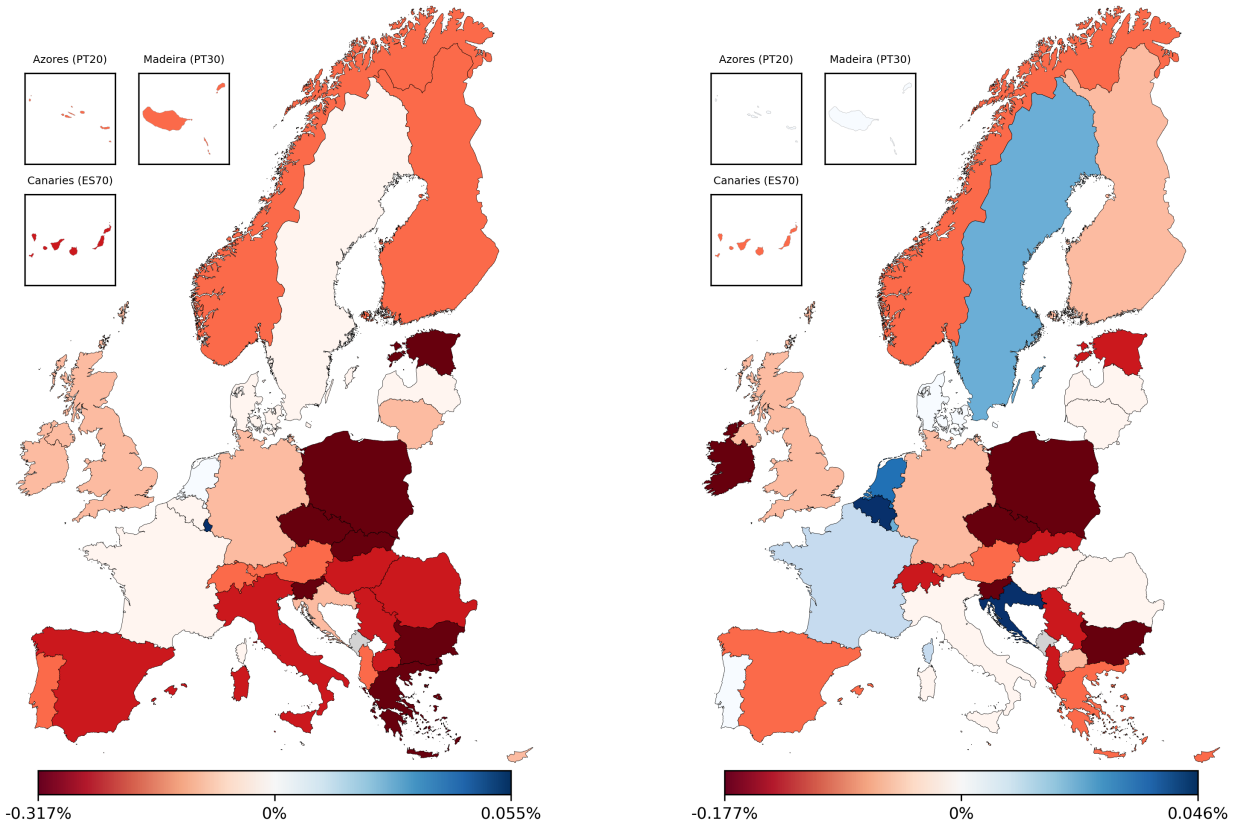
Extending the tariff to services amplifies all the mechanisms identified in Scenario 1. Services inputs—logistics, business services, ICT, finance—are deeply embedded as intermediates across all production activities. Making them more expensive compounds the cost increases already driven by goods tariffs, raising production costs further and deepening welfare losses across a broader set of countries and sectors.

The EU-average welfare loss deepens from -0.06% to -0.09%, a deterioration of 50%. The geographic pattern shifts towards near-universal losses: only Luxembourg ($+0.05\%$) and the Netherlands ($+0.02\%$) remain in positive territory. Czechia (-0.32%), Poland (-0.28%), Slovakia (-0.21%), Slovenia (-0.18%), and Greece (-0.17%) record the largest losses—all noticeably larger than in Scenario 1 (Table 3). Ireland's GDP loss deepens to -0.11%, reflecting the importance of services in its highly open economy. The geographic distribution is shown in Figure 9.

The EES channel remains operative for North-Western economies—expanded domestic production still induces firm entry and variety gains—though its offsetting effect is smaller given the larger price increases now affecting both goods and services. Sector-level price increases broaden accordingly: where Scenario 1 concentrated price rises in manufacturing, adding services tariffs raises costs most sharply in logistics (H sectors), feeding through to all downstream users. Figure 10 and Figure 11 show the aggregate price and real-output changes; Figure 12 confirms that the ACR channel deepens while the tax-revenue and EES gains grow proportionally but remain insufficient to offset the larger allocative distortion.

Country	ΔWF (%)	ΔGDP (%)	Country	ΔWF (%)	ΔGDP (%)
Austria	−0.12	−0.05	Italy	−0.13	−0.01
Belgium	0.00	+0.05	Latvia	−0.06	−0.01
Bulgaria	−0.17	−0.09	Lithuania	−0.07	−0.02
Croatia	−0.07	+0.04	Luxembourg	+0.05	+0.03
Cyprus	−0.07	−0.03	Malta	−0.06	−0.03
Czechia	−0.32	−0.16	Netherlands	+0.02	+0.04
Denmark	−0.01	+0.01	Poland	−0.28	−0.18
Estonia	−0.15	−0.08	Portugal	−0.10	+0.01
Finland	−0.09	−0.03	Romania	−0.14	−0.02
France	−0.03	+0.03	Slovakia	−0.21	−0.05
Germany	−0.08	−0.02	Slovenia	−0.18	−0.10
Greece	−0.17	−0.05	Spain	−0.13	−0.04
Hungary	−0.14	−0.02	Sweden	−0.02	+0.03
Ireland	−0.08	−0.11	EU	−0.09	−0.02

Table 3: Welfare and GDP changes (%) by EU member state — Scenario 2 (goods & services tariffs).



(a) Welfare change (%)

(b) GDP change (%)

Figure 9: Geographic distribution of welfare and GDP changes — Scenario 2 (goods & services tariffs).

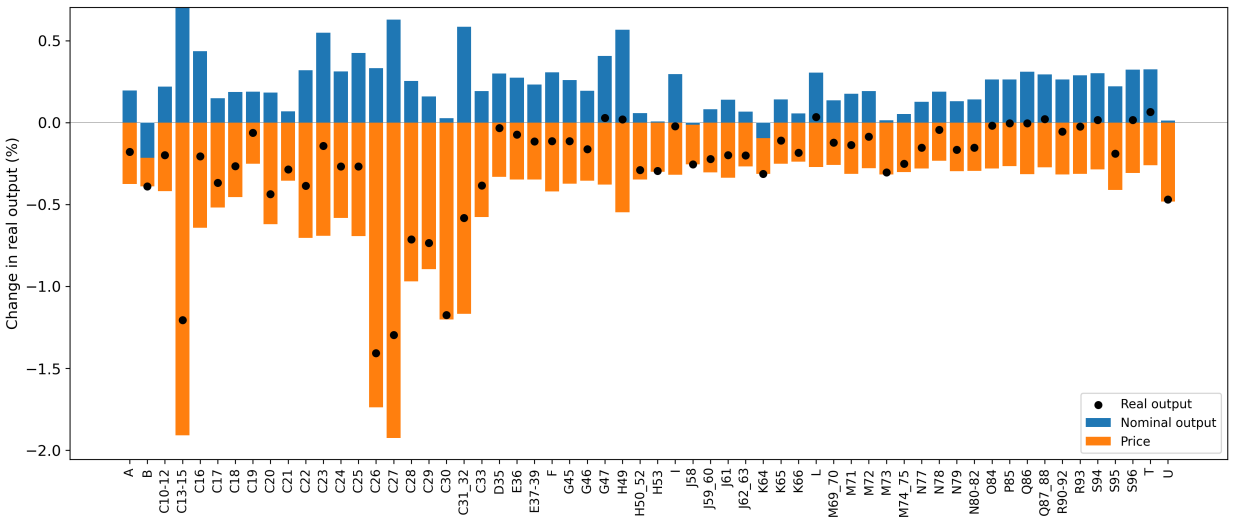


Figure 10: Real-output changes — Scenario 2.

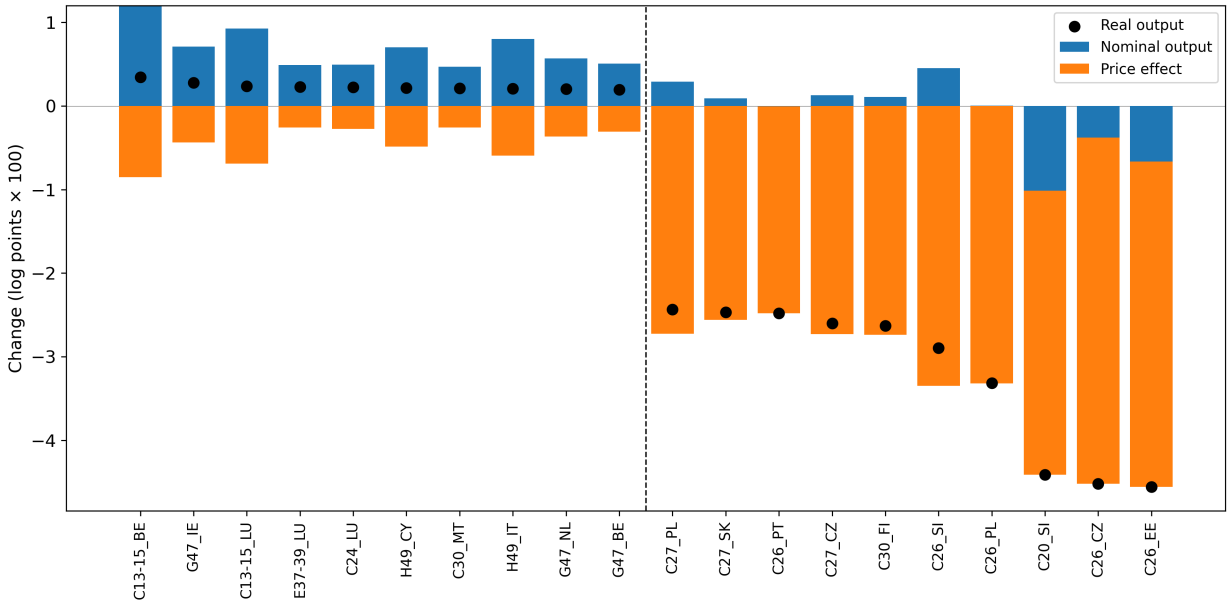
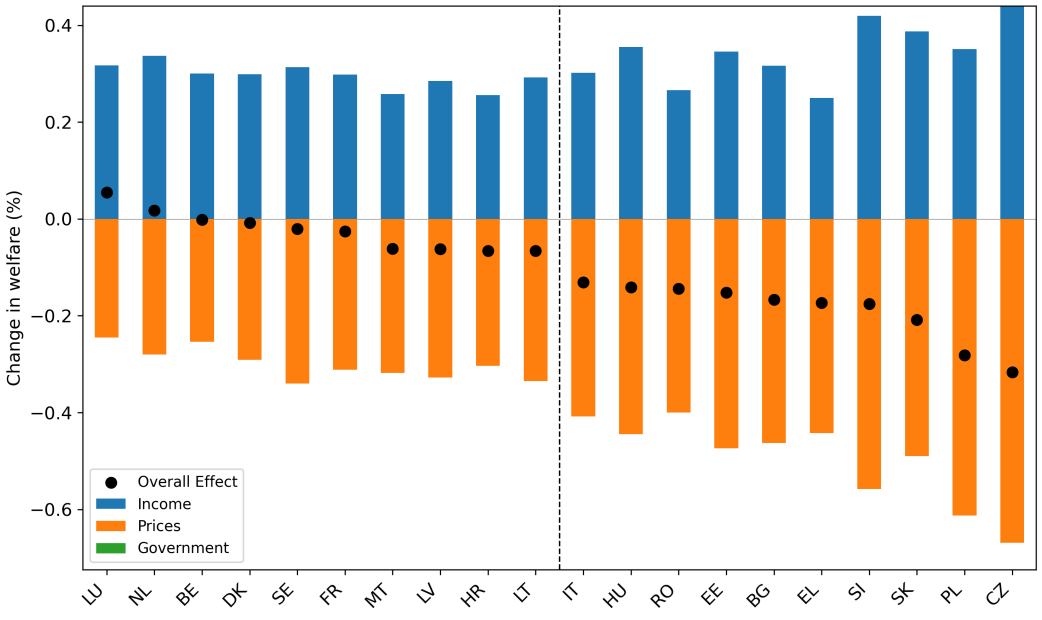
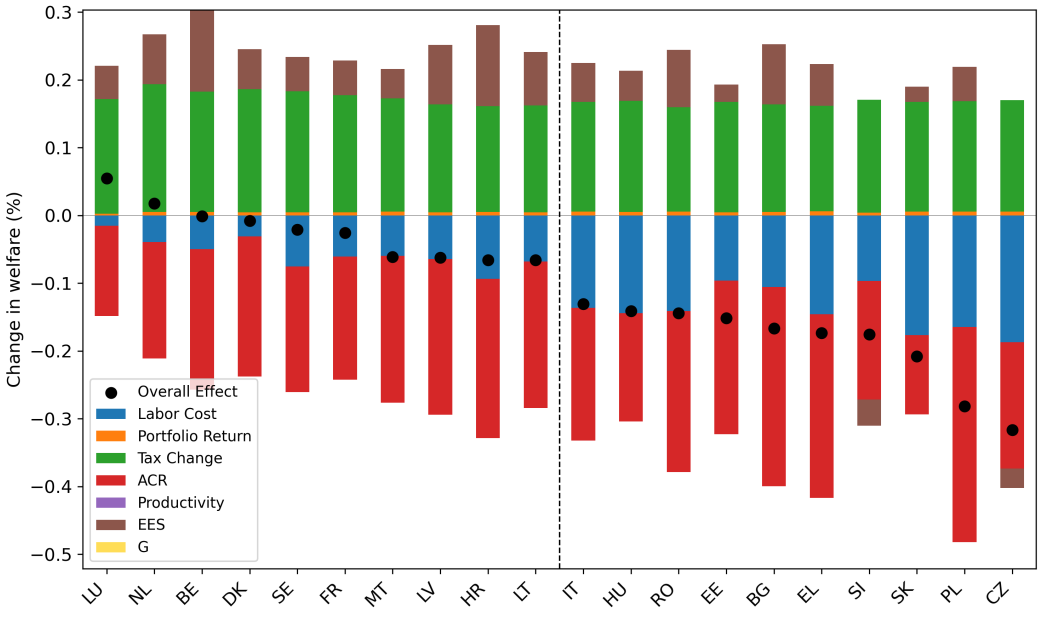


Figure 11: Top and bottom sector–country pairs by real-output change — Scenario 2.



(a) Reduced decomposition



(b) Full decomposition

Figure 12: Welfare decomposition by member state (top 10/bottom 10) — Scenario 2.

4.2 Imports

The addition of a services tariff introduces a second layer of import substitution pressure (Figure 13). EU imports of Chinese services decline as their cost rises, and firms must procure business services and logistics

from EU-internal or third-country suppliers. Import declines from China are somewhat larger in absolute terms than under Scenario 1 for countries with high services trade intensity, most notably Ireland.

The downstreamness relationship continues to hold with similar strength (Figure 14), with a slope of -0.172 and $R^2 = 0.90$—broadly unchanged from Scenario 1. This stability is informative: extending tariffs to services does not alter the fundamental structure of who bears the burden on the import side. Downstream sectors remain the hardest hit regardless of whether the tariff covers goods alone or goods and services together. The additional welfare cost of Scenario 2 relative to Scenario 1 operates through the price level rather than through any reordering of sectoral exposure.

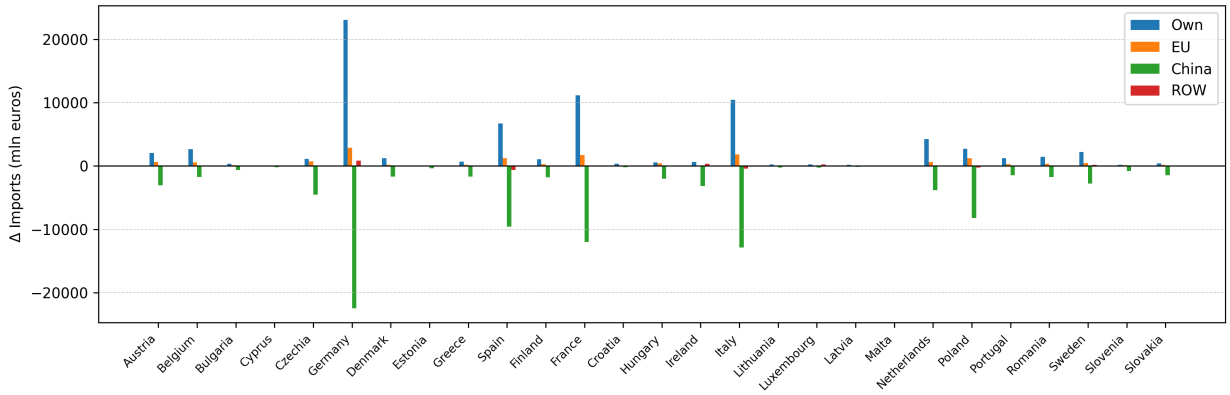


Figure 13: Changes in imports by origin — Scenario 2 (goods & services tariffs).

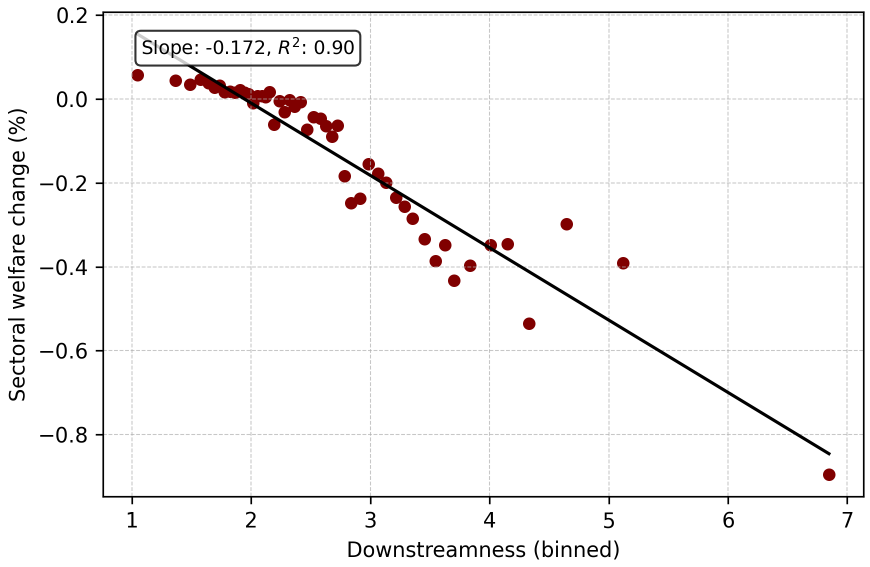


Figure 14: Downstreamness and sectoral welfare change — Scenario 2.

4.3 Exports

Export effects under Scenario 2 remain qualitatively similar to Scenario 1 but are marginally larger (Figure 15). China's economy contracts more strongly as both goods and services exports to the EU fall, reducing its demand for EU products across a broader range of sectors. Services exporters, particularly in Ireland, now also face reduced Chinese demand for their services.

The upstreamness pattern remains weak but positive (Figure 16), with a slope of 0.025 and $R^2 = 0.02$—slightly weaker than in Scenario 1. The same asymmetry observed in Scenario 1 applies here: value-chain position matters greatly on the import side but provides only marginal insulation on the export side. The dominant driver of export losses remains the overall contraction of Chinese demand, which compresses EU export revenues relatively uniformly across sectors regardless of their position in the supply chain. The main difference relative to Scenario 1 is that Ireland now also absorbs meaningful export losses through the services channel, in addition to the goods channel shared with other member states.

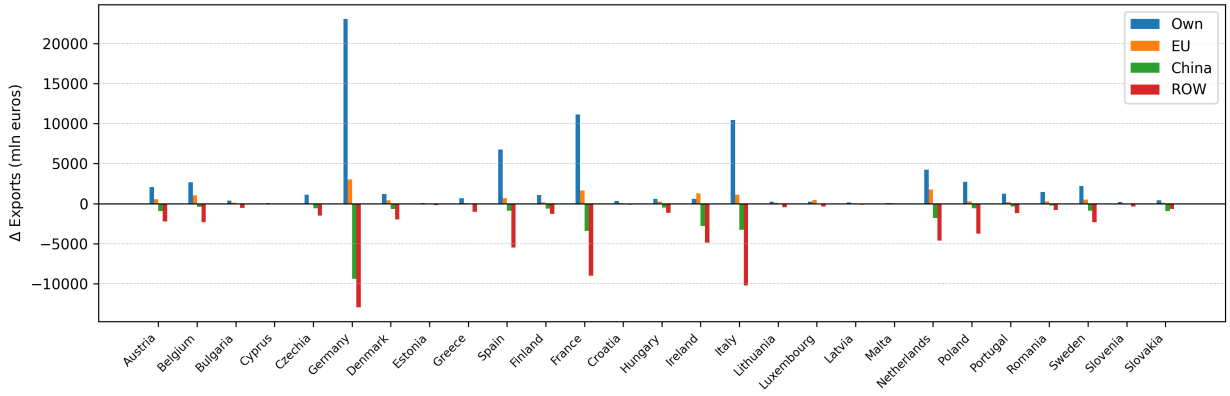


Figure 15: Changes in exports by destination — Scenario 2 (goods & services tariffs).

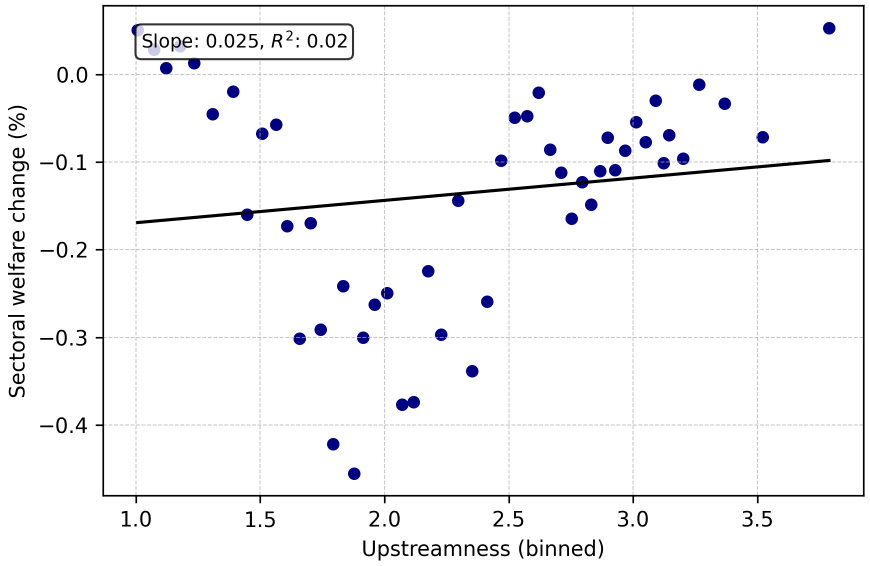


Figure 16: Upstreamness and sectoral welfare change — Scenario 2.

5 Scenario 3: Chinese Retaliation

In Scenario 3, China retaliates against EU tariff measures by imposing targeted tariffs on selected EU export sectors. Retaliation reflects the combined effect of two simultaneous policy changes: EU tariffs on Chinese goods and Chinese countermeasures. This distinguishes Scenario 3 from Scenarios 1 and 2, which measured the impact of EU tariffs alone. China's retaliatory strategy is designed to maximise the economic cost imposed on EU member states by targeting the sectors where the EU holds the largest import share in the Chinese market (Figure 17). China's import dependence is highly concentrated in manufacturing, particularly in three sectors that each account for roughly 11% of China's total sectoral imports from the EU:

- **Computers and electronics (C26):** European firms—especially from the Netherlands and Germany—supply high-precision electronic components and semiconductor equipment for which few non-EU substitutes exist at comparable quality.
- **Machinery and equipment (C28):** German and Italian capital goods, similarly difficult to substitute in the short run.
- **Motor vehicles (C29):** Luxury and premium vehicles, largely German-branded, with significant Chinese market share.

As with the preceding scenarios, this retaliation is modelled as a counterfactual: it represents what China *could* do to maximise economic pressure, not a measure that has been announced or implemented. Air and sea transport (H49–H53, $\sim$ 5–7%) and ICT services (J62–J63, $\sim$ 4%) round out the most exposed sectors. Unlike the EU's uniform tariff, China's measure is sector-specific and geographically targeted, concentrating political and economic pressure on manufacturing-intensive member states. This asymmetry drives

the results below: while the EU-average welfare loss under retaliation is broadly similar to Scenario 1, the composition and geographic distribution of that loss change fundamentally.

5.1 Welfare and GDP impact

Chinese retaliation fundamentally changes the character of the trade shock. The EU-average welfare loss (-0.07%) is similar to Scenario 1, but the composition is very different: rather than import-cost increases, the dominant channel is now export-revenue losses, which compress labour income and depress GDP.

The GDP impact is dramatically larger and more geographically uniform than in either preceding scenario. The EU-average GDP loss jumps to -0.07%, compared with just -0.02% in Scenarios 1 and 2. Countries previously shielded from large GDP losses now absorb significant hits: Ireland (-0.23%), Czechia (-0.25%), Slovakia (-0.20%), and Germany (-0.13%) are the most exposed, reflecting the deep concentration of Chinese retaliation on their core manufacturing sectors (Table 4). Conversely, some smaller open economies—Croatia ($+0.03\%$) and France ($+0.002\%$)—see small positive GDP effects, as the reorientation of EU trade creates new market opportunities for them. The geographic distribution of welfare and GDP changes is shown in Figure 18.

Sector-level price and real-output changes are shown in Figure 19. The price pattern differs markedly from Scenarios 1 and 2: rather than broad price increases driven by costlier imports, prices rise in sectors that lose scale as Chinese demand collapses, while sectors outside the retaliation targets are comparatively unaffected. The concentration of output losses in C26, C28, and C29 is immediately visible relative to the earlier scenarios.

Welfare losses also deepen or change character relative to Scenario 2. Luxembourg ($+0.08\%$) and the Netherlands ($+0.02\%$) retain small welfare gains, as their trade structure is less directly exposed to the sectors targeted by Chinese retaliation. Germany and Central and Eastern European manufacturing hubs are hit hardest. The welfare decomposition (Figure 21) reveals two important shifts relative to earlier scenarios. First, the labour-cost component is now more prominently negative in manufacturing-exposed countries, reflecting the sharp compression of export revenues. Second, countries that lose most also record a negative EES term: the contraction of production in targeted sectors forces firms to exit, pushing prices upward and compounding the welfare loss through a mechanism that ran in the opposite direction—favourably—in Scenarios 1 and 2 for these same economies. The sectors losing most in terms of real output are precisely those hit by retaliatory tariffs: C26, C28, and C29 (Figure 20).

Country	ΔWF (%)	ΔGDP (%)	Country	ΔWF (%)	ΔGDP (%)
Austria	−0.11	−0.13	Italy	−0.09	−0.04
Belgium	+0.02	+0.02	Latvia	−0.03	−0.02
Bulgaria	−0.14	−0.12	Lithuania	−0.04	−0.04
Croatia	−0.03	+0.03	Luxembourg	+0.08	+0.04
Cyprus	−0.03	−0.02	Malta	−0.02	−0.05
Czechia	−0.28	−0.25	Netherlands	+0.02	−0.02
Denmark	+0.01	−0.02	Poland	−0.26	−0.23
Estonia	−0.12	−0.10	Portugal	−0.06	−0.01
Finland	−0.07	−0.08	Romania	−0.10	−0.05
France	−0.01	0.00	Slovakia	−0.18	−0.20
Germany	−0.09	−0.13	Slovenia	−0.16	−0.15
Greece	−0.13	−0.05	Spain	−0.11	−0.07
Hungary	−0.11	−0.09	Sweden	0.00	−0.01
Ireland	−0.07	−0.23	EU	−0.07	−0.07

Table 4: Welfare and GDP changes (%) by EU member state — Scenario 3 (Chinese retaliation).

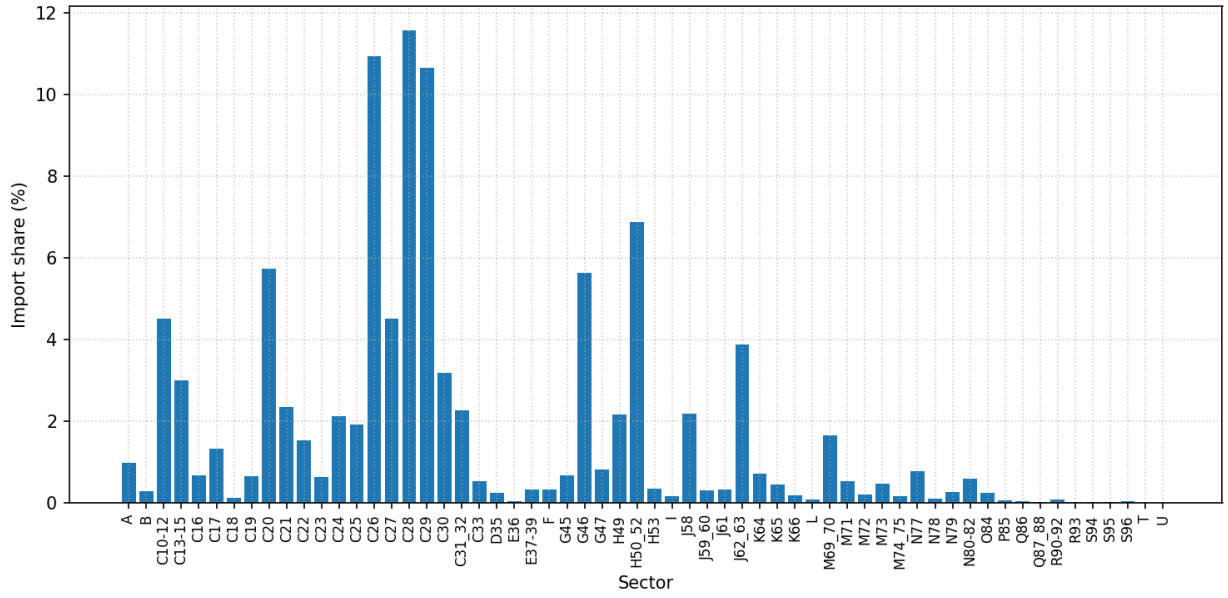
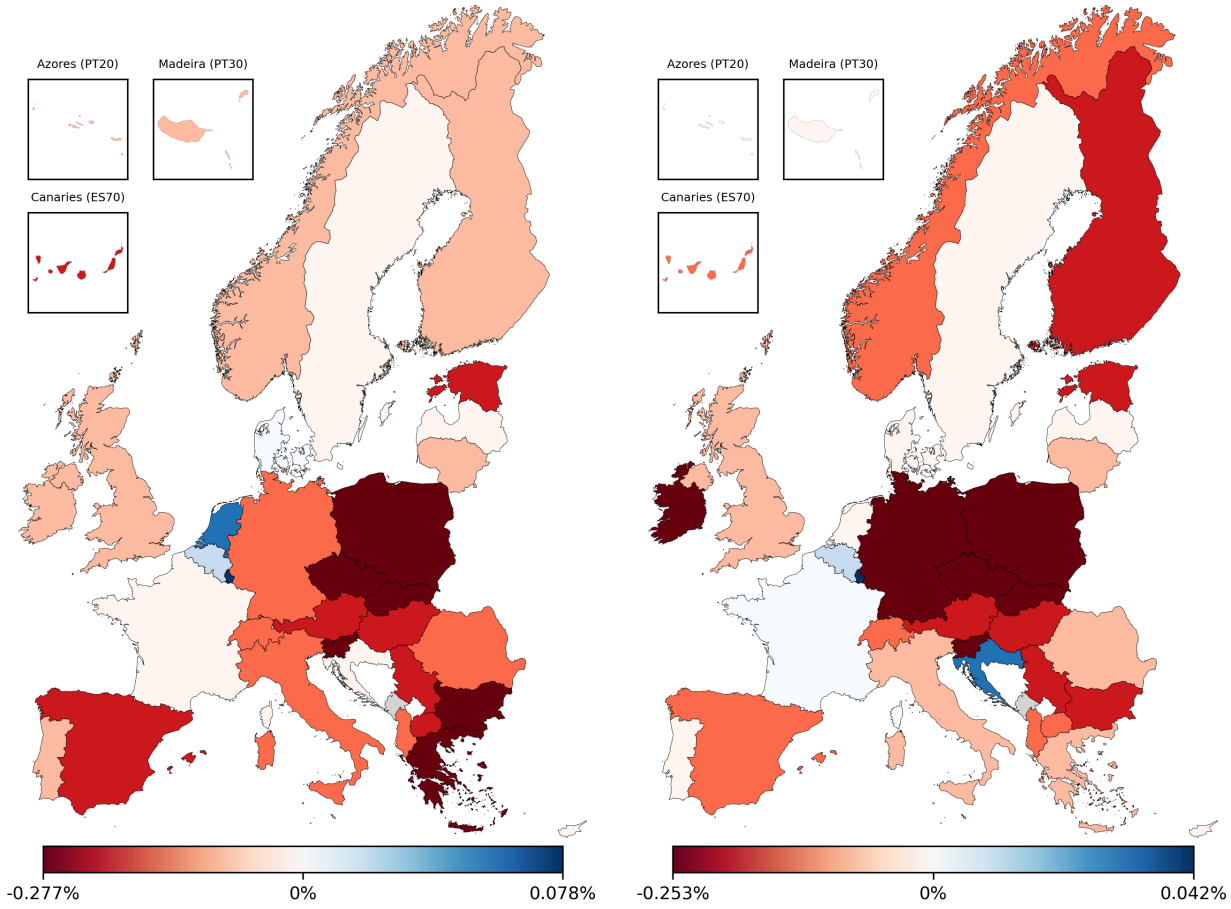


Figure 17: EU import share in China's total sectoral imports (%). Sectors C26–C29 (computers and electronics, electrical equipment, machinery, motor vehicles) exhibit the highest EU import shares ($\sim$ 11%), followed by air and sea transport (H49–H53, $\sim$ 5–7%) and ICT services (J62_63, $\sim$ 4%).



(a) Welfare change (%)

(b) GDP change (%)

Figure 18: Geographic distribution of welfare and GDP changes — Scenario 3 (Chinese retaliation).

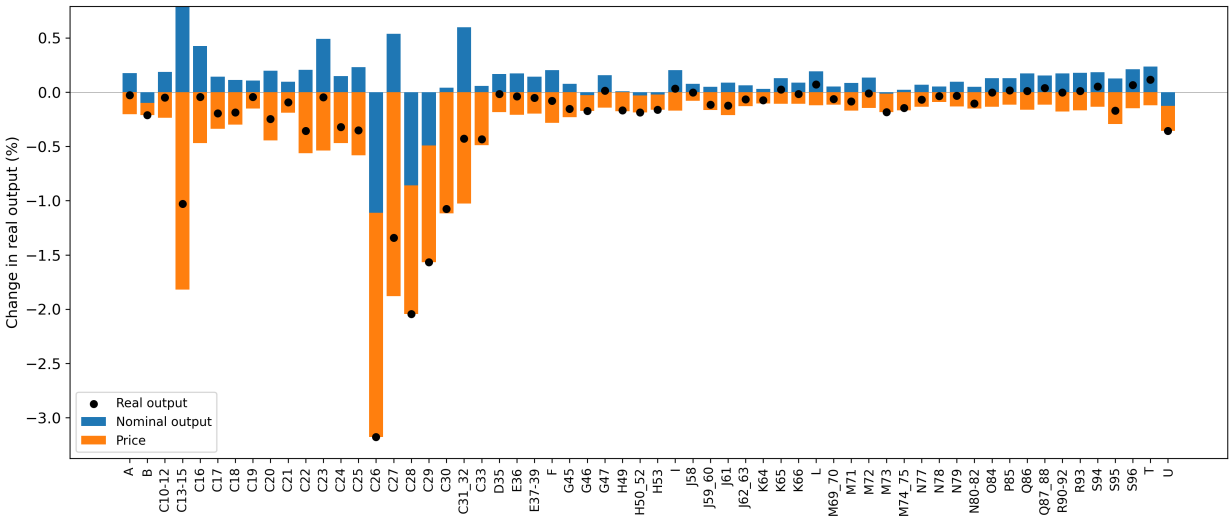


Figure 19: Aggregate sector-level price and real-output changes — Scenario 3.

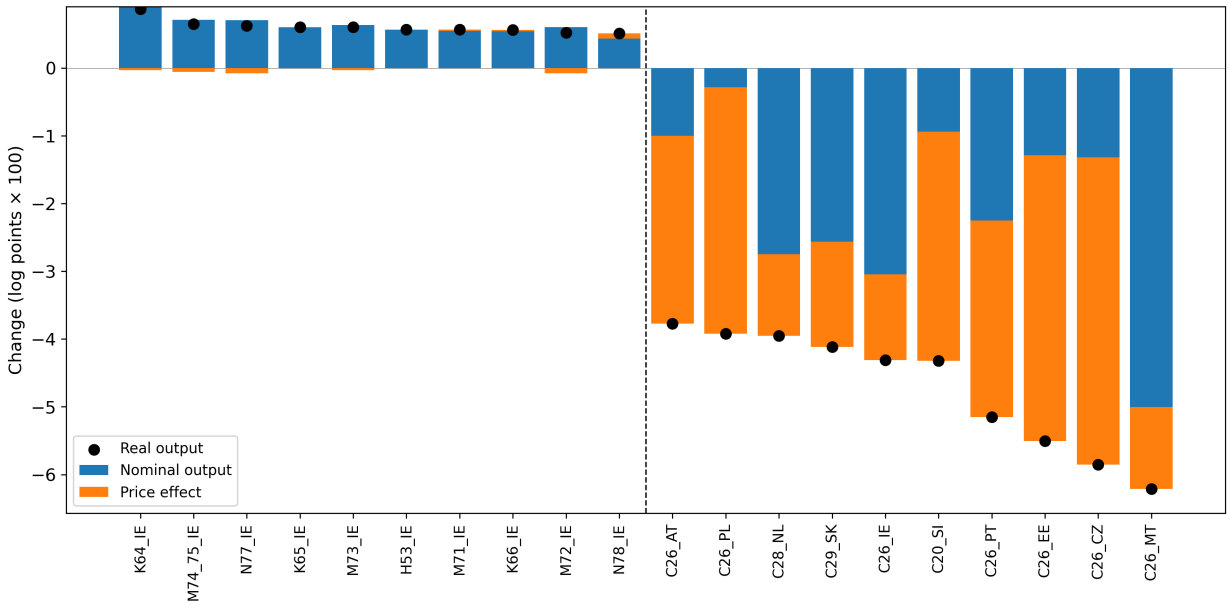
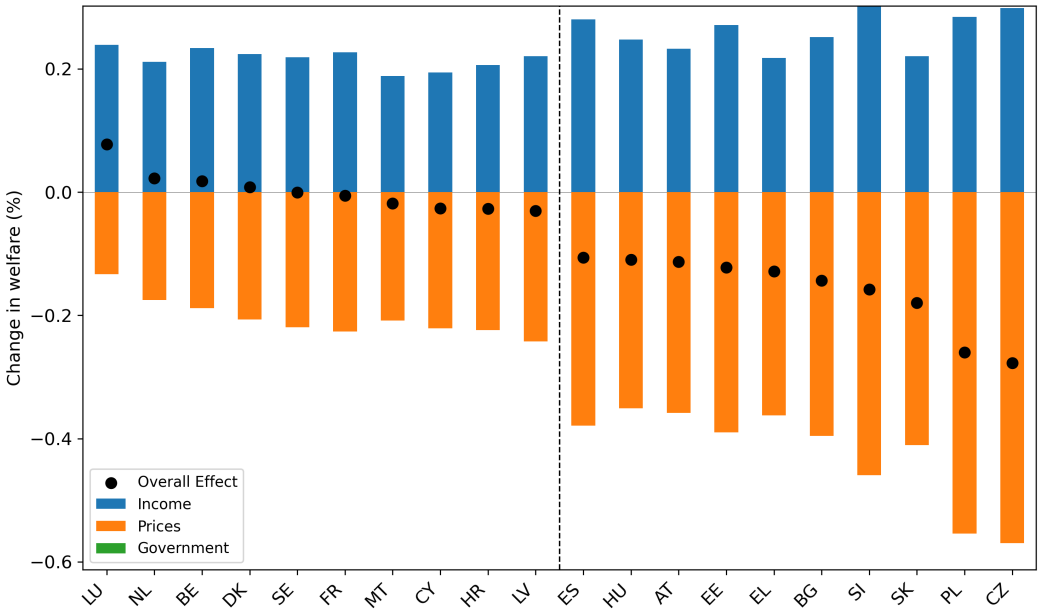
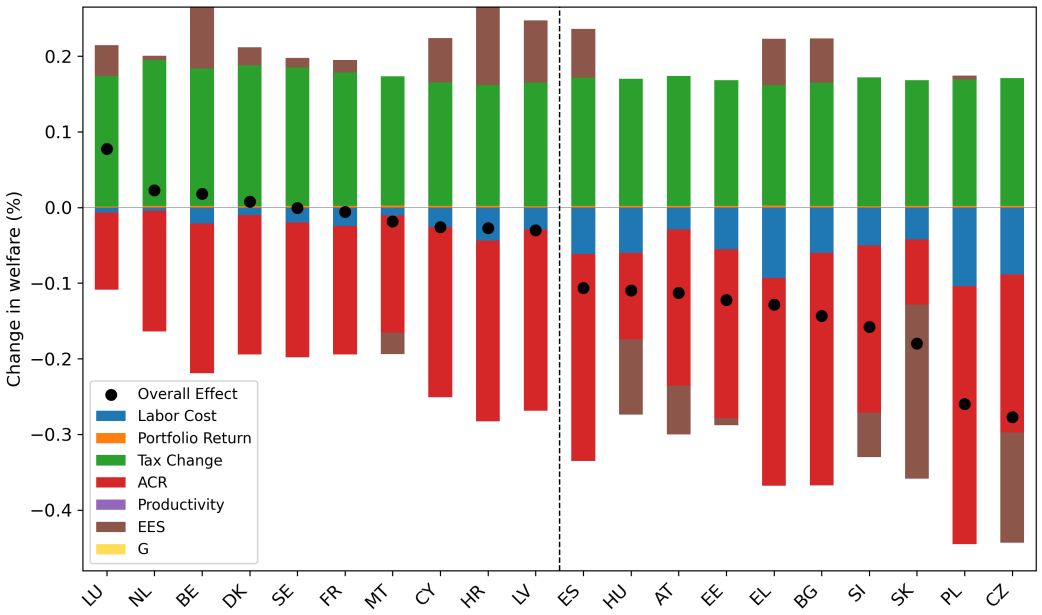


Figure 20: Top and bottom sector–country pairs by real-output change — Scenario 3.



(a) Reduced decomposition



(b) Full decomposition

Figure 21: Welfare decomposition by member state — Scenario 3.

5.2 Imports

The import channel under retaliation reflects the combined effect of two simultaneous policy changes: EU tariffs on Chinese goods and Chinese countermeasures. This distinguishes Scenario 3 from Scenarios 1

and 2, which measured the impact of EU tariffs alone. The EU's own tariffs continue to suppress Chinese imports, while trade diversion towards EU-internal sources persists and, in some cases, deepens (Figure 22). For member states where retaliation induces large income losses, import demand contracts more broadly, moderating some of the import substitution observed in earlier scenarios: households and firms with lower incomes simply spend less, reducing import volumes across all origins.

The downstreamness relationship remains strongly negative (Figure 23), with a slope of -0.196 and $R^2 = 0.90$—slightly steeper than in either Scenario 1 or Scenario 2. This confirms that the structural import-cost channel from EU tariffs remains fully operative alongside the new export-revenue channel introduced by retaliation. The two channels are additive rather than offsetting on the import side: downstream sectors continue to bear disproportionate welfare losses from higher input costs, even as the aggregate level of imports contracts further due to the income losses induced by retaliation.

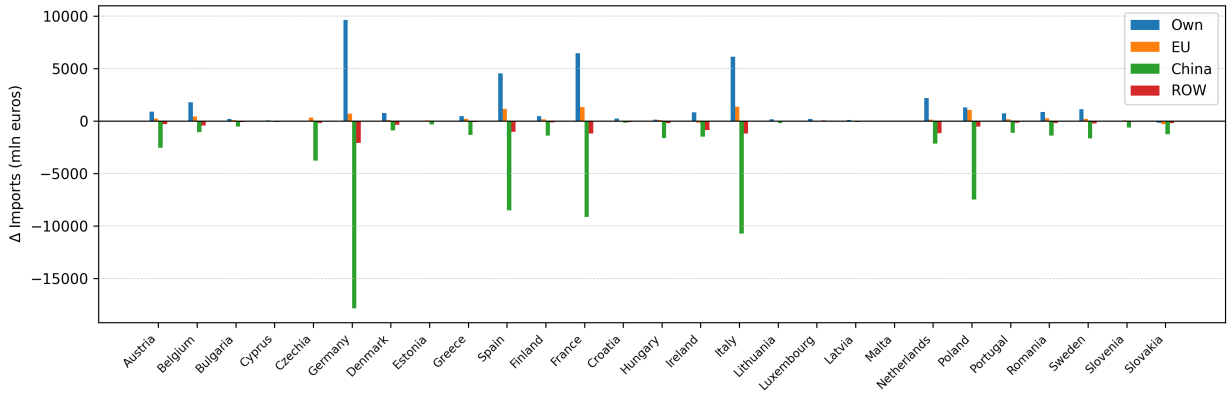


Figure 22: Changes in imports by origin — Scenario 3 (Chinese retaliation).

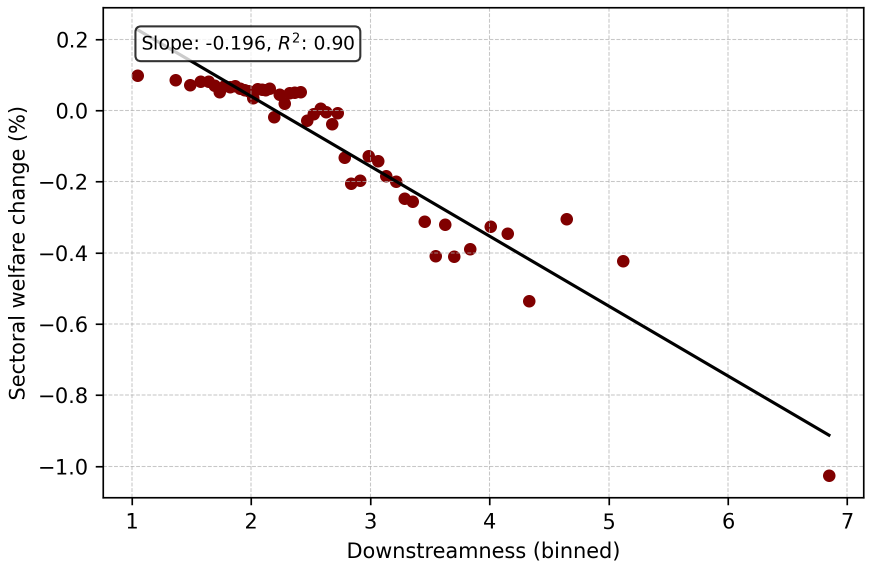


Figure 23: Downstreamness and sectoral welfare change — Scenario 3.

5.3 Exports

The export channel is where retaliation bites most clearly. Unlike the import-cost channel of Scenarios 1 and 2, which operated through higher input prices, the export-revenue channel works through a direct collapse in Chinese demand for EU goods: retaliatory tariffs raise the cost of EU products in the Chinese market, depressing export volumes substantially and compressing labour income in the most exposed manufacturing sectors.

Germany records the largest absolute export loss to China across all three scenarios (Figure 24), driven by the concentration of Chinese retaliation on machinery (C28) and automotive (C29)—sectors where Germany holds an outsized share of EU exports to China. Italy, Ireland, France, and the Netherlands also record large declines. The intra-EU export reorientation provides some offset as relative prices shift, but cannot fully compensate the loss: the Chinese market represents too large a share of export revenues in these sectors for internal EU demand to absorb the shortfall.

The upstreamness binscatter (Figure 25) continues to show a weak but positive relationship, with a slope of 0.034 and $R^2 = 0.03$—virtually unchanged from Scenarios 1 and 2. The mechanism is the same as before but now operates in reverse: as downstream producers reduce exports to China, they redirect output towards other EU markets, generating higher demand for intermediates that propagates upstream through the supply chain and partially compensates upstream suppliers for the lost Chinese market. The insulation is real but modest. The overall level of export welfare losses under Scenario 3 is substantially higher than in Scenarios 1 and 2, and the near-zero R^2 confirms once more that value-chain position explains little of the cross-sectoral variation in export losses—it is the depth of exposure to the Chinese market that determines who is hurt most.

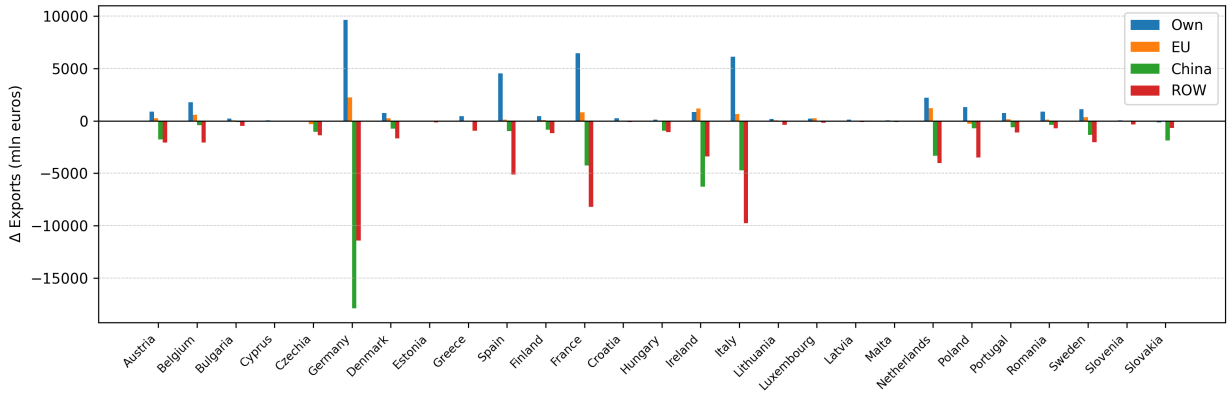


Figure 24: Changes in exports by destination — Scenario 3 (Chinese retaliation).

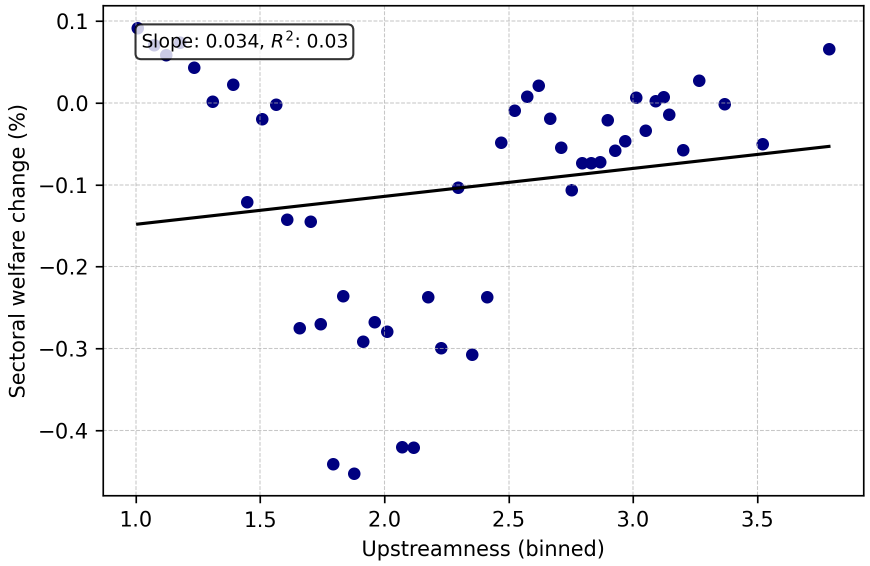


Figure 25: Upstreamness and sectoral welfare change — Scenario 3.

6 Conclusion

The three scenarios analysed in this report share a common finding: tariff escalation between the EU and China is costly, and the costs fall unevenly. The EU-average welfare losses are modest in aggregate—ranging from -0.06% to -0.09% depending on the scenario—but these figures obscure a wide and structurally determined distribution across member states and sectors. Central and Eastern European economies deeply integrated into Chinese intermediate input chains bear losses several times larger than the EU average, while a handful of North-Western economies with strong scale economies can partially offset the damage through import substitution. This heterogeneity is not a side effect of escalation—it is its central distributional consequence, and any serious policy response must reckon with it.

What the scenarios also reveal is that the nature of the harm changes as the conflict deepens. Goods tariffs operate primarily through the price channel: they raise input costs for downstream producers and compress household purchasing power. Extending tariffs to services amplifies this mechanism substantially—a 50% increase in the aggregate welfare loss—by hitting logistics and business services that are embedded across the entire production system. Chinese retaliation introduces a qualitatively different shock: rather than raising costs, it collapses revenues. The GDP losses under retaliation are three times larger than under goods tariffs alone, and they fall on a different set of countries—Germany, Ireland, Czechia, Slovakia—whose exposure runs through exports rather than imports. A policy that is calibrated to protect against one type of harm may offer little protection against the other.

Several important dimensions lie outside the scope of this analysis and warrant acknowledgement. The scenarios are static: they capture the new equilibrium after tariffs are imposed, but not the path of adjustment. The scenarios also treat retaliation as a single discrete event, whereas in practice escalation tends to be sequential and uncertain, with each round of measures reshaping the incentives for the next. The political economy of retaliation—which sectors China would actually target, and when—depends on factors beyond the current scope, including domestic political constraints, third-party alliances, and the broader state of EU–China diplomatic relations. Finally, the analysis holds the rest of the world passive: in reality, US tariff policy, the reconfiguration of global supply chains, and the responses of third countries would all interact with an EU–China escalation in ways that could plausibly alter the results.

These caveats do not diminish the central message. The question facing EU policymakers is not whether escalation is costly—it is—but whether the costs of escalation are lower than the costs of the dependencies that tariffs are designed to address. That question requires weighing the welfare losses quantified here against the strategic vulnerabilities documented elsewhere, including Europe's reliance on Chinese critical raw materials, its exposure to Chinese dominance in clean energy supply chains, and the broader geopolitical trajectory of EU–China relations. This report provides one essential input to that calculus.

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Consonni, N. and Magerman, G. (2026). Quantifying EU strategic dependence. Working paper, ECARES, Université libre de Bruxelles.

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Appendix A: Data sources

The quantitative analysis in this report relies on three main data sources: the RHOMOLO V4 inter-regional accounts, global trade and tariff data from UNCTAD–TRAINS, and regionalized cohesion policy payments from the European Commission.

FIGARO inter-country Input-Output tables. The quantitative framework is calibrated to the FIGARO inter-country input-output tables, produced jointly by Eurostat and the Joint Research Centre (JRC) of the European Commission. We use the 2025 FIGARO edition, extracting tables for the reference year 2023. In its original form, the dataset covers 50 explicitly identified economies—the 27 EU member states, 5 EU candidate countries (Albania, Montenegro, North Macedonia, Serbia, and Türkiye), and 17 main EU trading partners (Argentina, Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Norway, Russia, Saudi Arabia, South Africa, South Korea, Switzerland, the United Kingdom, and the United States)—plus a Rest of the World (ROW) aggregate, across 64 industries classified according to NACE Rev. 2. For each country and sector, the tables report gross output, intermediate consumption, value added components (compensation of employees, gross operating surplus, net taxes on products and production), final demand (household consumption, government consumption, gross fixed capital formation), and bilateral trade flows. All entries are denominated in millions of current euros at basic prices.

To ensure internal consistency of the input-output accounts, we implement the following adjustments. On the sectoral side, sectors H50 (water transport), H51 (air transport), and H52 (warehousing and support activities for transportation) are merged into a single transport sector H50_52, and sectors A01 (crop and animal production), A02 (forestry and logging), and A03 (fishing and aquaculture) are combined into a single primary sector A. On the geographic side, Montenegro is aggregated into the ROW block. The resulting dataset covers 49 individually identified countries across 60 sectors, plus the ROW aggregate.

EU budget payments. The second data source is the European Commission's EU spending and revenue dataset, which reports total EU budget payments to and revenues from each member state by year over the period 2000–2024.[6] We extract total payments received by each country to match the FIGARO base year. These payments enter the model as a component of government expenditure, calibrating the net fiscal transfer flows between the EU supranational budget and member states.

Tariff data. Effectively applied tariffs are constructed using the UNCTAD–TRAINS HS6-level tariff schedules. The TRAINS database reports *ad valorem* tariffs for 171 reporters (importers) and 241 partners (exporters). We extract the EU common external tariff using the EU aggregate as reporter, aggregate all non-EU countries into a single ROW block, and incorporate EU-UK and UK-EU tariffs for 2021 (the earliest post-Brexit year available), assigning the UK to the ROW block. Tariffs are converted to sector-level rates using import-weighted averages.

Calibration. The remaining model parameters, including trade elasticities and love-of-variety parameters are estimated following Consonni and Magerman (2026), fully consistent with the model and the data. For more information, see Magerman and Palazzolo (2026).

[6] Additional information is available here.

Appendix B: A non-technical overview of the model

To evaluate the impact of a potential tariff escalation and retaliaion between the EU and China, we apply the methodology developed in Magerman and Palazzolo (2026). The method provides a quantitative general equilibrium framework to assess how trade, industrial, and public policies affect sectoral production, income, prices, GDP, and welfare at both very detailed local (NUTS2) and aggregate (EU) levels. In this report, we focus on the trade policy channel, while the other policy instruments (industrial policies, taxes and subsidies, and public policy expenditures) are kept at their baseline (pre-2025) settings as they appear in the data.

The quantitative framework allows us to simulate how changes in international trade policies affect economic outcomes 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 trade with China but also the indirect effects transmitted through partner countries and domestic supply chains. Welfare changes reflect the combined adjustments once the economy settles into a new equilibrium.

The global economy is represented as a system of interdependent locations connected through input–output linkages across sectors both within and across locations. The model distinguishes 235 EU regions (NUTS 2 level), the United States, and an aggregate block of 18 non-EU countries representing the rest of the world. Each region contains 54 NACE Rev. 2 sectors that combine labor, capital, and intermediate inputs sourced domestically and abroad. Output from each sector is supplied to other sectors or to final demand within and outside the region.

Firms operate under monopolistic competition and charge constant markups over marginal costs. Sector-level external economies of scale generate decreasing average costs as the number of active firms increases, reflecting agglomeration and knowledge-spillover effects. This structure allows the analysis of sector-specific or place-based industrial interventions within a unified framework.

Households earn income from labor and capital and pay lump-sum taxes. Preferences are defined over sectoral goods originating from multiple regions and over differentiated product varieties within each sector. For example, consumers have a demand for cars from France, Germany, the US, etc., as well as for particular brands, like Peugeot, Renault, Citroën, Mercedes, Audi, etc. Governments levy taxes and deploy policy instruments. EU regions share a supranational government that collects part of national revenues, sets the common external tariff, and redistributes funds through the EU budget.

All quantities and prices are jointly determined in general equilibrium. Production, trade, income, taxation, and welfare in each region are outcomes of the policy environment and the structure of inter-regional linkages.

Appendix C: Main economic channels

The GDP and welfare effects of any EU-China trade policy 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 the European Union is a highly open economy embedded in complex local and global value chains, even

small disturbances in trade flows can propagate widely through intermediate-input relations.

Classical channels. The starting point mirrors a classical result from standard trade theory. When the EU raises import tariffs on goods from China, the import prices of these goods increase for EU buyers (both firms and households), and demand for these foreign goods fall. Moreover, if the EU 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 EU, buyers substitute away from foreign varieties and towards domestic ones, increasing both EU domestic output and prices. This generates a potential Terms-of-Trade (ToT) gain for the EU: the relative price of its exports rises compared to its imports. Conversely, China experiences a deterioration in its terms of trade, as it receives lower prices for their exports. However, these potential EU 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 EU. China experiences unambiguous welfare losses, driven by lower export volumes and the efficiency cost of distorted trade patterns.

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.[7] Following the EU tariff increase, EU domestic production expands, encouraging entry and thereby lowering EU domestic and export prices. For Chinese 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) EU price reductions partly attenuate the EU ToT gains, while (ii) Chinese price increases exacerbate the welfare loss for Europe. Its net effect depends on the quantitative characteristics of all sector-locations.

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 Chinese exports to the EU 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, Chinese firms might gain from the lower input or consumer prices from the EU. These interdependencies explain why tariff shocks generate heterogeneous outcomes across EU regions, even if the direct exposure to the EU market may be limited.

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