September 2025

Technical Annex to the Policy Brief "A Missing Pillar: Economic Security Cooperation in the EU-UK Partnership"

Mapping EU-UK Import Dependencies and Shared Vulnerabilities

1 | Context

Recent supply-chain disruptions and rising geoeconomic tensions have highlighted the importance of understanding critical supply-chain risks and dependencies. This priority is reflected in both the EU's Economic Security Strategy and the UK's Trade Strategy. Since the UK left the EU in 2020, cooperation between the two sides on such economic security risks has been limited. Identifying areas of shared vulnerabilities can provide a valuable starting point for renewed cooperation in this field.

A particular concern for both the EU and the UK is overreliance on third-country suppliers for specific imports. This annex to the aforementioned Policy Brief presents an empirical mapping of import concentration risks for both the EU and the UK, with a focus on identifying shared external dependencies (i.e. products where both rely on the same third-country supplier) and mutual dependencies (i.e. products where each relies on the other). Areas where such dependencies exist can contribute to more targeted EU-UK cooperation on economic security, including coordinated diversification or defensive trade measures.

2 | Approach and methodology

The analysis aimed to assess import concentration risks for the EU and the UK through three steps:

1. Identify products where the EU and UK each exhibit external import dependencies, based on consistent criteria;
2. Identify products where the EU and UK are mutually dependent on each other, highlighting shared risks and/or interest in reinforcing supply chain resilience;
3. Identify products where both are reliant on the same third-country supplier, revealing common external vulnerabilities.

The sample covered HS 6-digit (HS6) products traded by the EU and the UK, respectively, between 2021 and 2023. There were approximately 5800 such products, which were then evaluated for import dependence based on three criteria. A product was classified as import dependent if it met all three of the following conditions:

1. High import concentration: The product must have few alternative suppliers as measured by the Herfindahl-Hirschman Index (HHI) of at least 4000. The HHI, a common method of market concentration, is calculated as the sum of squared market shares by origin for each HS6 product. An HHI above 4000 indicates a highly concentrated supplier base, typically one or two dominant suppliers and few alternatives.

2. Low substitutability: The product must not be easily substituted by domestic production, which is approximated by an import-to-export ratio greater than 1, suggesting limited domestic alternatives from which the product can be easily substituted in the event of disruption.

3. Dominant supplier: A single importing country must account for at least 50% of total imports. Stricter thresholds (at ≥80%, ≥90%, and ≥95%) are also applied to test for acute dependencies.

Bilateral trade data were drawn from UN Comtrade, covering the period 2021-2023. The analysis used the three-year average for 2021-2023 to smooth out short-term fluctuations and reduce the impact of anomalies (e.g. import surges during the Covid-19 pandemic, Russia's invasion of Ukraine). Imports were reported in US dollars, in line with the Comtrade data. Data were analysed at the detailed HS6 classification (approximately 6800 product lines) and HS2-level data (around 100 lines).

This approach broadly aligns with comparable studies, including the European Commission's reviews (European Commission, 2021; Arloja et al., 2023), and work by Bonneau and Nakaa (2020) and Vicard and Wibaux (2023), but with some methodological differences. For example, unlike the European Commission (2021), this study does not apply the condition that extra-EU imports account for more than 50% of total imports; this study omits that condition to allow for consistent comparison between the EU and UK. Second, this study uses multi-year averaging than single-year trade data that helps reduce trade data volatility. Finally, we do not pre-select "critical" or "strategic" products (e.g. health, green transition). The European Commission (2021) and Arloja et al. (2023) narrow down EU dependencies to "sensitive", "critical" or "strategic" ecosystems, all used interchangeably. In this study, all dependencies are mapped agnostically of their strategic importance, while acknowledging that not all dependencies have the same salience for economic-security reasons. We leave the "strategic" designation to subsequent policy judgement.

As with similar studies, there are some limitations. One is that the analysis captures direct trade flows and may overlook "hidden" dependencies embedded in upstream supply chains. Another is that it provides a retrospective snapshot, based on recent historical patterns, which may not fully reflect emerging risks. Nevertheless, the multi-year averaging provides a robust picture of sustained dependencies, offering a solid empirical basis for comparing import risks across trading partners.

3 | Results

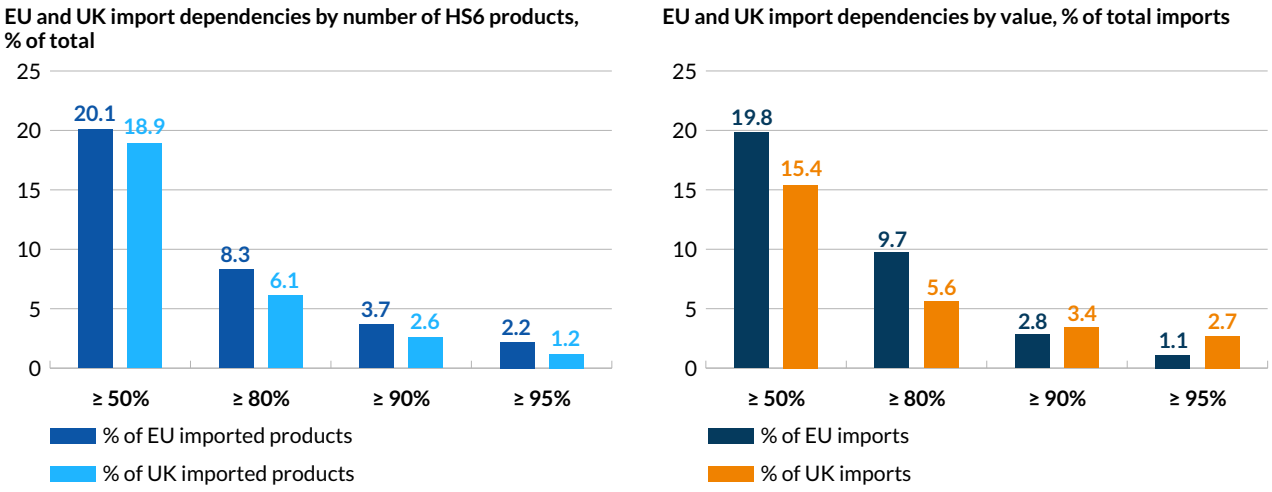
3.1 Import dependencies

The first stage of the analysis examines import dependencies in the EU and the UK by product count and import value, and explores their geographical and sectoral concentration.

The EU shows a slightly higher degree of import dependence by product count than the UK (figure 1, left panel). About one in five imported HS6 products (20.1%) into the EU meet the dependence criteria, compared with 18.9% for the UK. As the supplier dominance threshold increases, the number of dependent products falls. At the extreme end (where 95% or more imports are sourced from a single third-country supplier), 2.2% of the EU's imported products were critically dependent on a single third-country supplier, compared with 1.2% for the UK.

Measured by value, the EU remains more exposed overall (figure 1, right panel). Dependencies account for 19.8% of total EU imports, compared to 15.4% for the UK. At the most acute threshold (95%+), however, the UK is more exposed, with 2.7% of total imports compared to 1.1.% for the EU.

Figure 1 | **EU and UK import dependencies by product count (left) and by import value (right)**



Source: UN Comtrade, authors' calculations. Note: Measured as the 3-year average (2021–23). X axis shows the dominant supplier threshold (e.g., at ≥50%, a dominant supplier accounts for more than 50% of imports for a given HS6 product).

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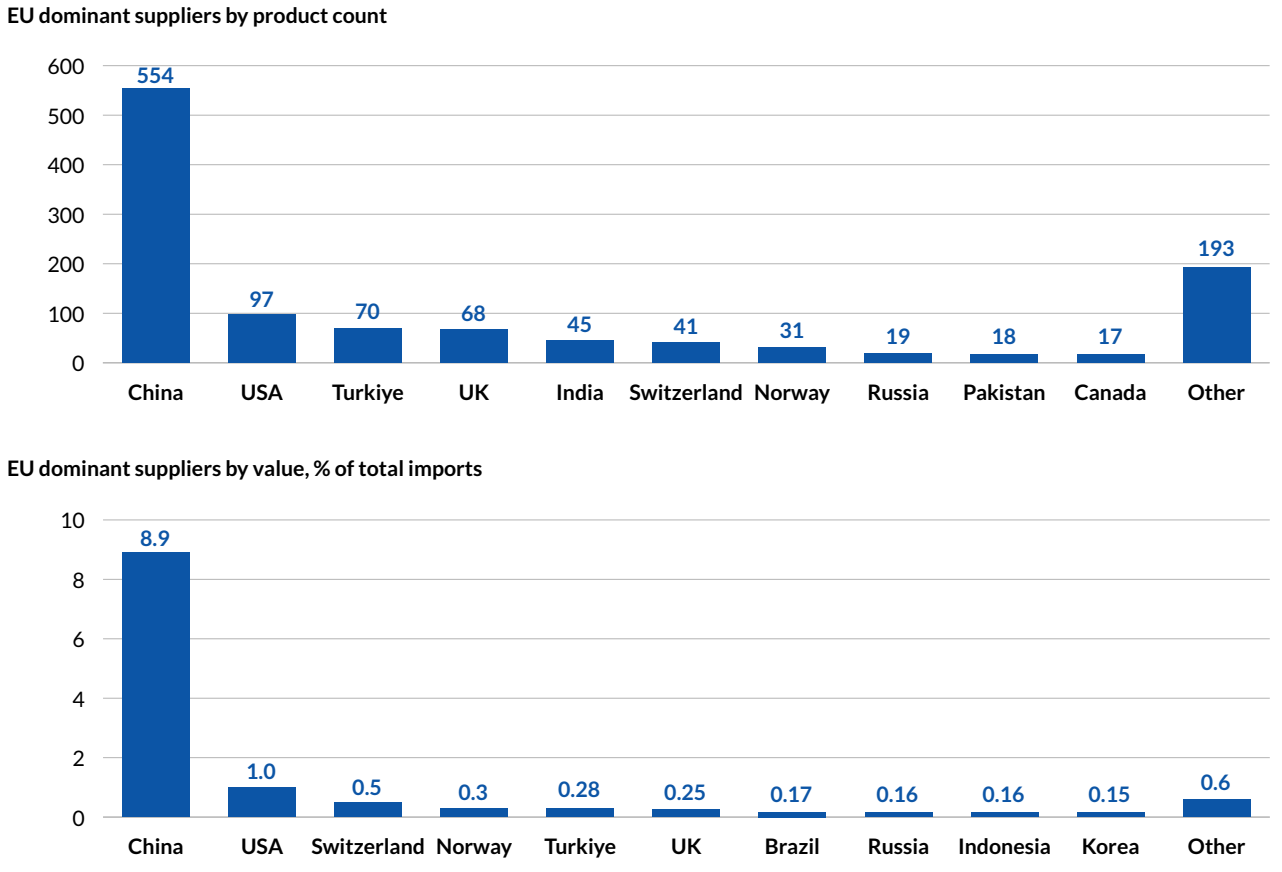
Figure 2 | **EU dominant suppliers by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations. Note: Measured as the 3-year average (2021–23). Dominant supplier threshold set at ≥50%.

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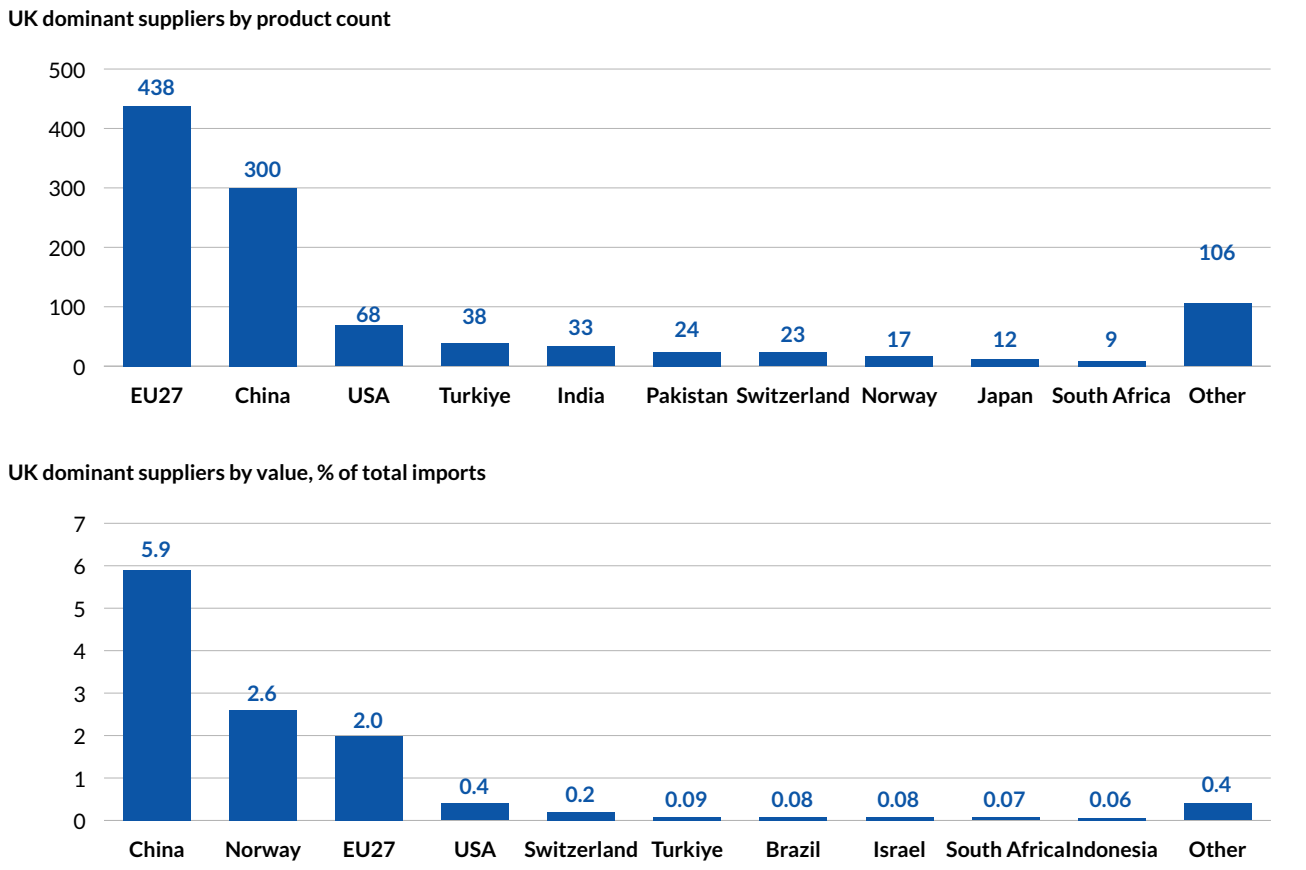
Geographical concentration. For the EU, dependencies are overwhelmingly concentrated on China, which accounts for 8.9% of total EU imports as the dominant supplier. The next largest sources are the US (1%), Switzerland (0.5%) and a group of smaller trading partners. UK-origin imports account for just 0.3% of total EU imports under these criteria. This indicates that the issue of import concentration risks for the EU is largely synonymous with dependence on China and the associated risks that entails. By product count, China again ranks highest (554 HS6 products), followed by the US (97), Türkiye (70), and the UK (68). The UK's role is more significant in product variety than in trade value, reflecting continued supply-chain integration and geographical proximity.

For the UK, China is also the top source of import dependencies, though to a lesser degree: 5.9% of total UK imports come from China as the dominant supplier, compared to 8.9% for the EU. This is followed by Norway (2.6%), then the EU27 (2%). By product count, however, the EU27 rank first (438 HS6 products), ahead of China (300), and the US (68). This suggests an asymmetry in the UK's risk profile: deeper value-based dependencies on China, but broader product-line dependencies on the EU27.

Both economies are most import dependent on China, as shown in figure 4. While the EU is marginally more exposed, China is the dominant third-country supplier for both, making import-concentration risks closely tied to a single country.

Figure 3 | **UK dominant suppliers by product count (left) and imports value (right)**



Source: UN Comtrade, authors' calculations. Note: Measured as the 3-year average 2021–23. Dominant supplier measured at the ≥50% threshold.

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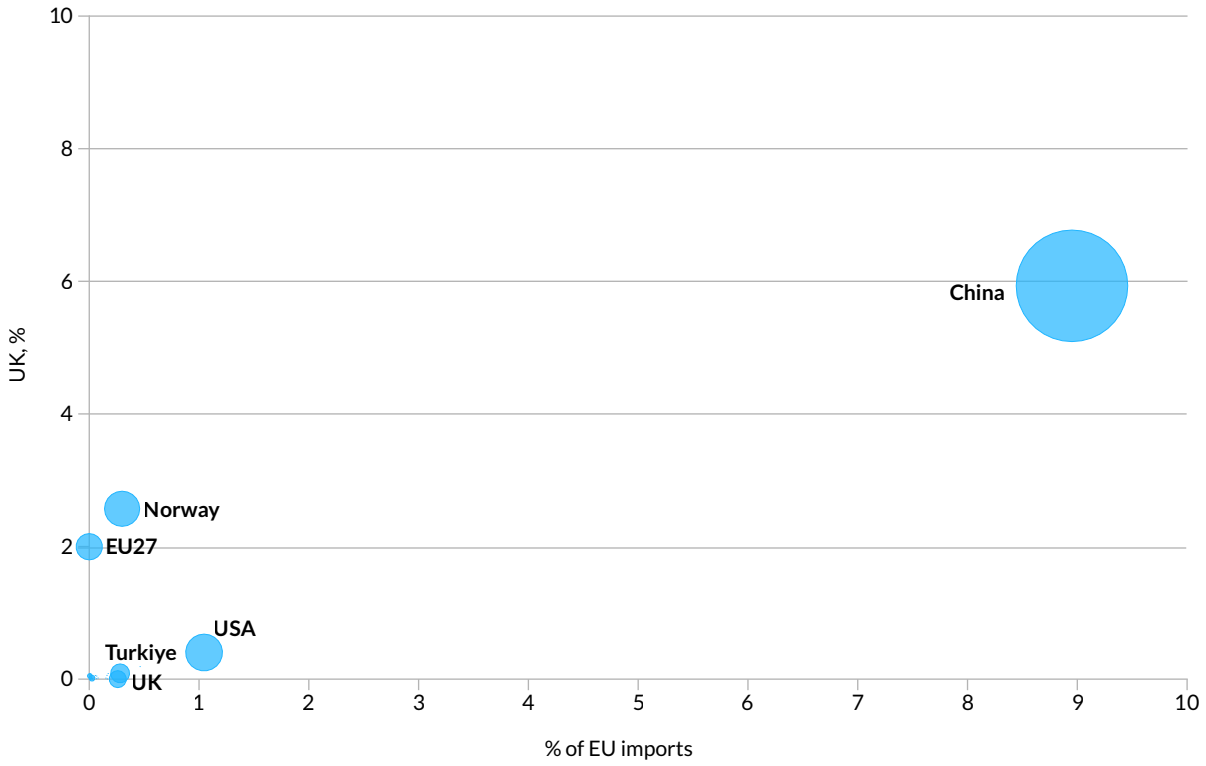
Figure 4 | **EU and UK dominant supplier by imports value, % of total imports**



Source: UN Comtrade, authors' calculations. Notes: Measured as the 3-year average (2021–23). Bubble size represents combined import value.

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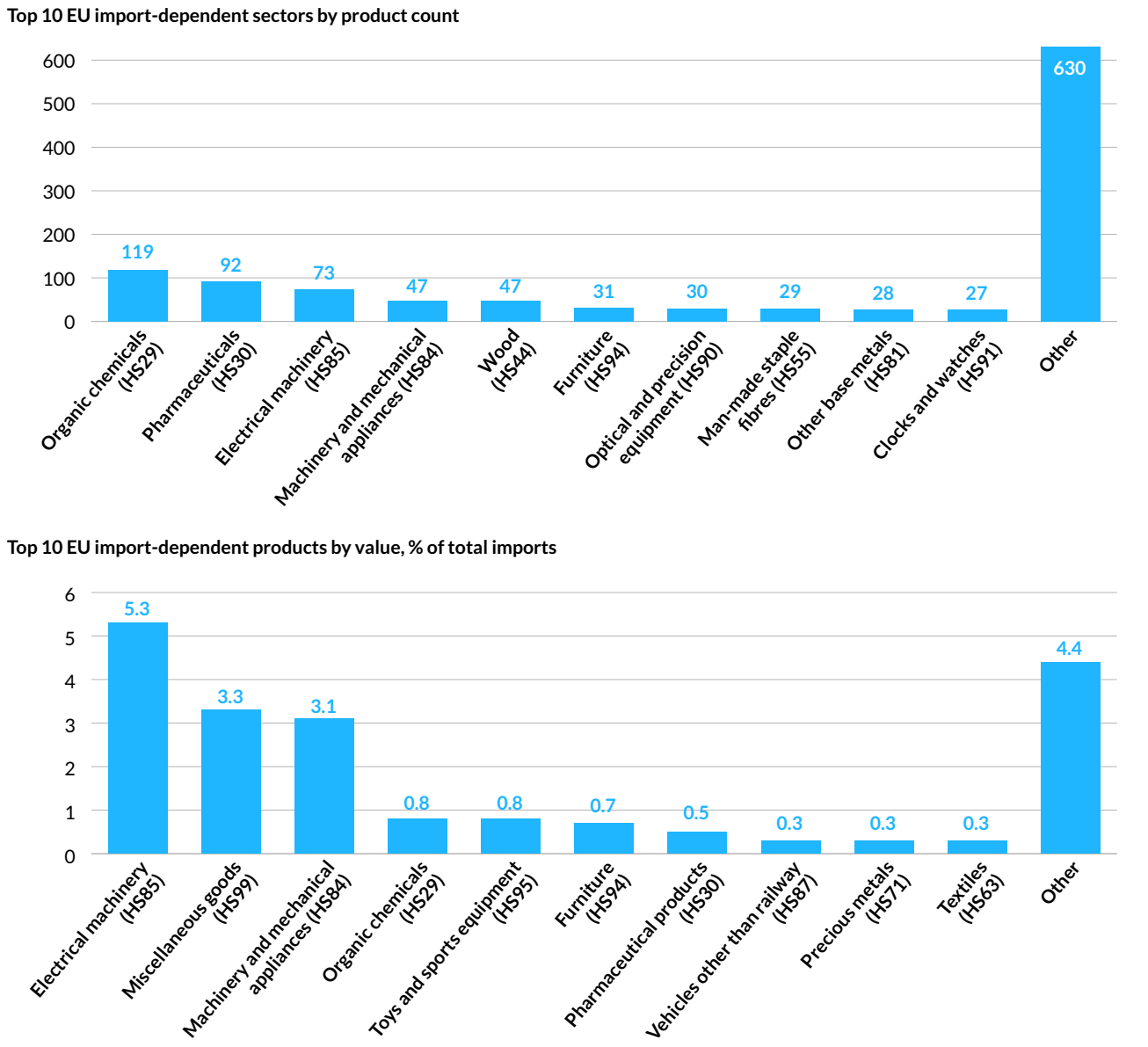
Sectoral concentration. By product count, the EU's import dependencies are spread across a broad range of product sectors (figure 5, left). The most affected areas include organic chemicals, pharmaceuticals, electronic machinery and equipment, and mechanical machinery and appliances. In value terms (figure 5, right), dependencies are far more concentrated in a small number of sectors: approximately one-third of the EU's import dependent products (by value) fall within electrical machinery and equipment, equivalent to about 5.3% of total EU imports. This is followed by miscellaneous goods (3.3%) and mechanical machinery (3.1%), with a long tail of smaller sectors. This pattern suggests that while the EU is exposed across a wider range of product sectors – including strategic areas like pharmaceuticals – its most significant vulnerabilities in value terms are concentrated in a few high-impact sectors. Crucially, some of the most exposed sectors align with the EU's strategic objectives for technological sovereignty, decarbonisation, and industrial resilience.

Figure 5 | **Top 10 EU import-dependent sectors by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations. Measured as the 3-year average (2021–23).

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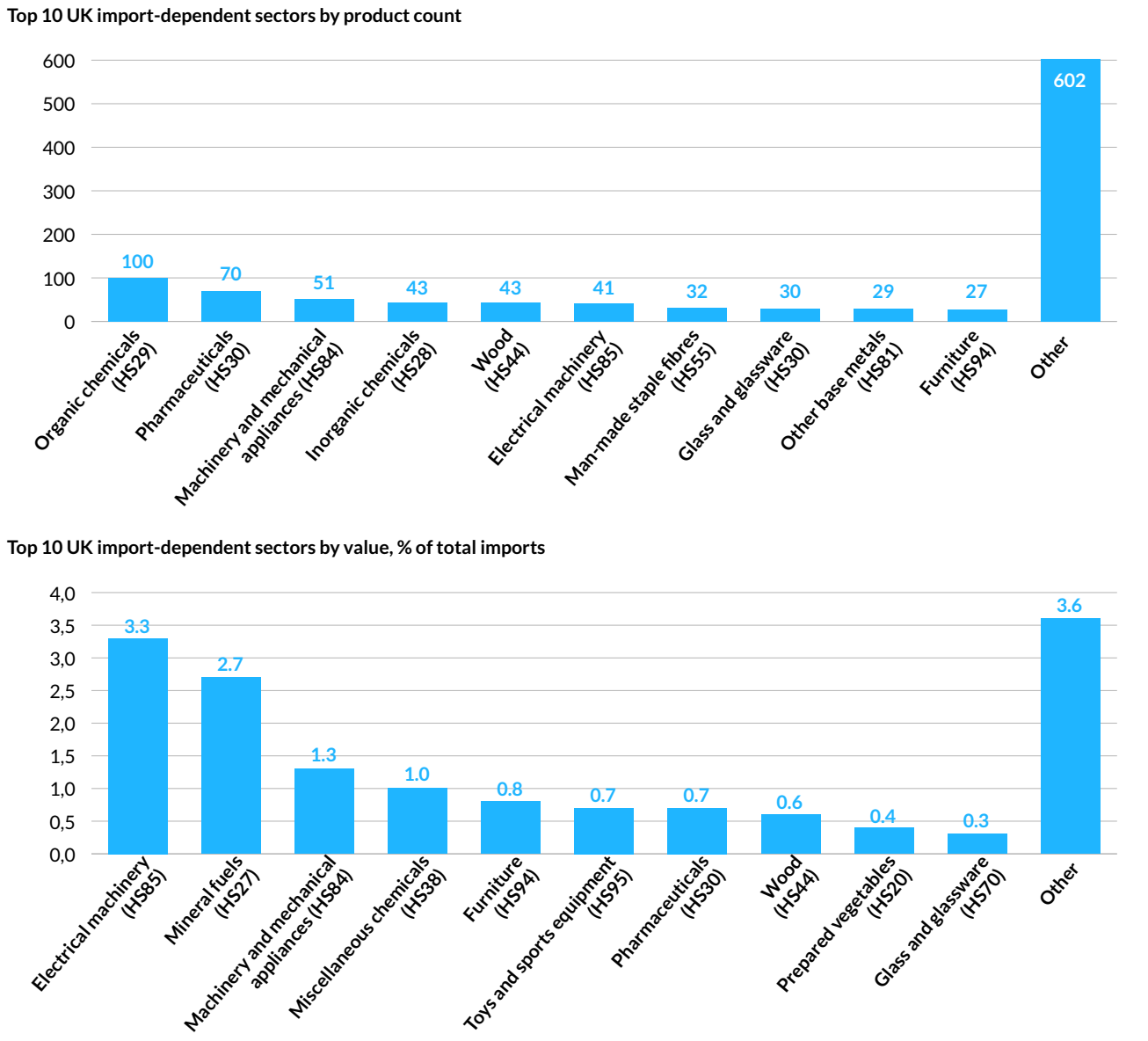
The UK displays a similar pattern. By product count, its dependencies are distributed across a diverse set of products, with organic chemicals and pharmaceuticals again ranking highest (figure 6, left). By value, dependencies are more concentrated in electrical machinery (3.3% of total UK imports), followed by fuels (2.7%) and mechanical machinery (1.3%) (figure 6, right).

When comparing sectoral concentration across both economies, there are similar structural patterns, though with differences in magnitude. A small number of sectors account for a disproportionate share of dependent import value in each (figure 7).

Critical dependencies. Products for which a single third-country supplier provides 95% or more of total imports represent near-total reliance on one country, with minimal scope for short-term diversification.

Figure 6 | **Top 10 UK import-dependent sectors by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations. Measured as the 3-year average (2021–23).

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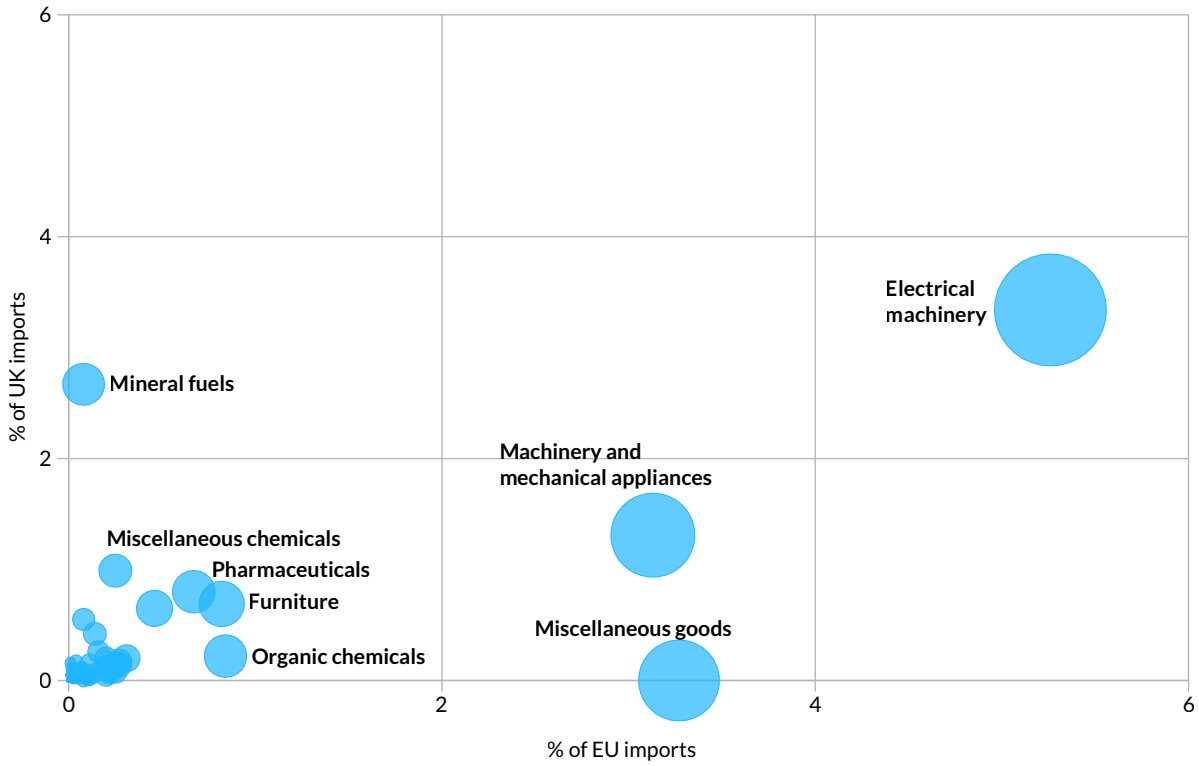
The EU has critical dependencies in 125 such HS6 products. The largest is photovoltaic panels, with imports almost entirely sourced from China. Other such products include nickel from Russia, magnesium and various chemical compounds from China, silver compounds from the UK, and several agri-food products from the UK and Türkiye.

The UK is critically dependent on 66 HS6 product. The vast majority of this comes from natural gas imports from Norway, followed by lower-value industrial goods from China, pharmaceutical intermediates from Ireland, and a range of agri-food products and live plants and seeds from various EU countries.

3.2 Mutual dependencies: how dependent are the EU and the UK on each other?

The second part of this analysis examines mutual dependencies – cases where the EU and the UK are each the dominant supplier to the other for specific products.

Figure 7 | **EU and UK sectoral concentration of dependencies by value of imports (% of total imports)**



Source: UN Comtrade, authors' calculations. Note: Measured as the 3-year average (2021–23). Bubble size reflects combined import values.

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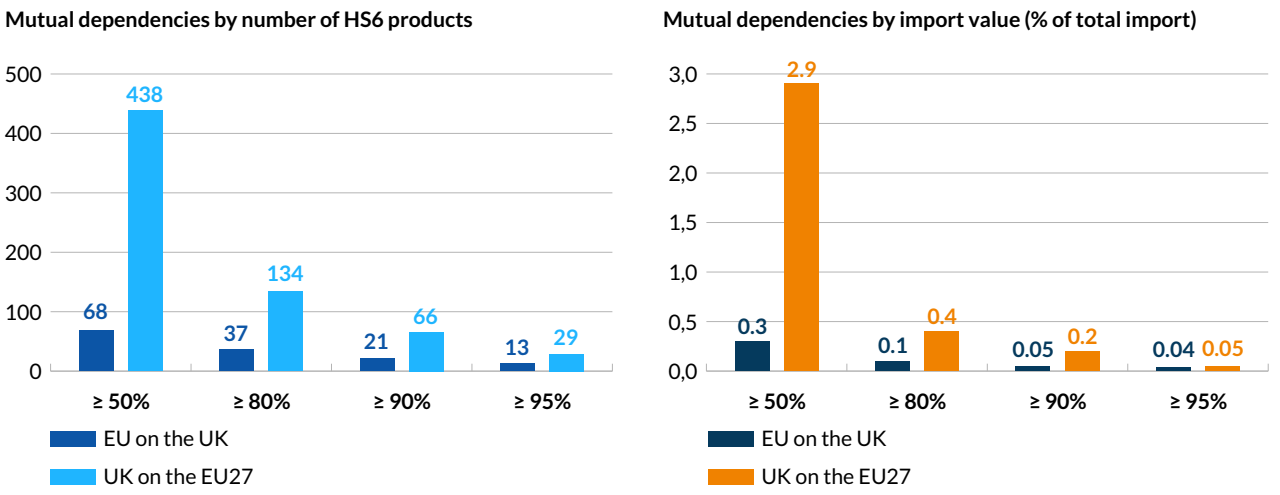
The EU is dependent on the UK for 68 HS6 products, accounting for just 0.3% of its total imports. By contrast, the UK is dependent on the EU27 for 438 products, representing 2.9% of its total imports and revealing a clear asymmetry between the two.

For the EU, dependencies on the UK are relatively modest, concentrated in a few areas: beverages and spirits (notably Scotch whiskey and gin); agricultural and seafood products (e.g. processed sheep meat); pharmaceutical inputs; chemical compounds (e.g. anillin); raw materials particularly silver compounds, and some industrial machinery, notably excavators. At the 95% threshold, the EU is almost entirely reliant on the UK for 13 HS6 products. These included processed lamb, silver nitrate, calcined dolomite, and oats. At lower thresholds, the UK is also a leading supplier of specialised chemical inputs, indicating its role in niche but important supply chains.

The UK's dependencies on the EU27 are broader in scope and value. They include vaccines and pharmaceutical intermediates; a wide arrange of agricultural and food products (e.g. beef and dairy from Ireland, vegetable oils from Spain, pre-packaged pasta from Italy); beverages (e.g. French sparkling wine); a range of machinery and mechanical equipment, including cars and car parts, nuclear reactor components); and plastics and chemical intermediates. At the ≥95% threshold, the UK was almost entirely dependent on the EU for 30 HS6 products. These include live plants and flowers from the Netherlands; various chemical compounds; industrial goods, such as dredgers from the Netherlands and steam boilers from Spain; and a mix of fresh and processed meat, seafood and dairy products.

While the overall trade value of these mutual dependencies is limited, they are concentrated in sectors tied to food security, health, energy, and key industrial inputs. This highlights that, despite Brexit, the UK and EU

Figure 8 | **Mutual dependencies by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations. Measured as the 3-year average (2021–23).

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remain structurally interconnected in several strategically important supply chains – areas that could serve as a practical basis for future cooperation on economic resilience and risk management.

3.3 Shared dependencies: how exposed are the EU and the UK to the same risks?

The final stage of the analysis examines shared external dependencies – cases where the EU and the UK both rely on the same dominant third-country supplier for the same products. These are particularly relevant in the context of global supply chain risks and point to opportunities for cooperation.

There are 437 HS6 products for which both the EU and the UK show the same product-level import dependencies. Of these, 335 products involve dependencies on the same external supplier (figure 9, left), representing just over 7% of total HS6 products for both. In value terms (figure 9, right), shared dependencies account for 7.5% of total EU imports and 7.2% for the UK.

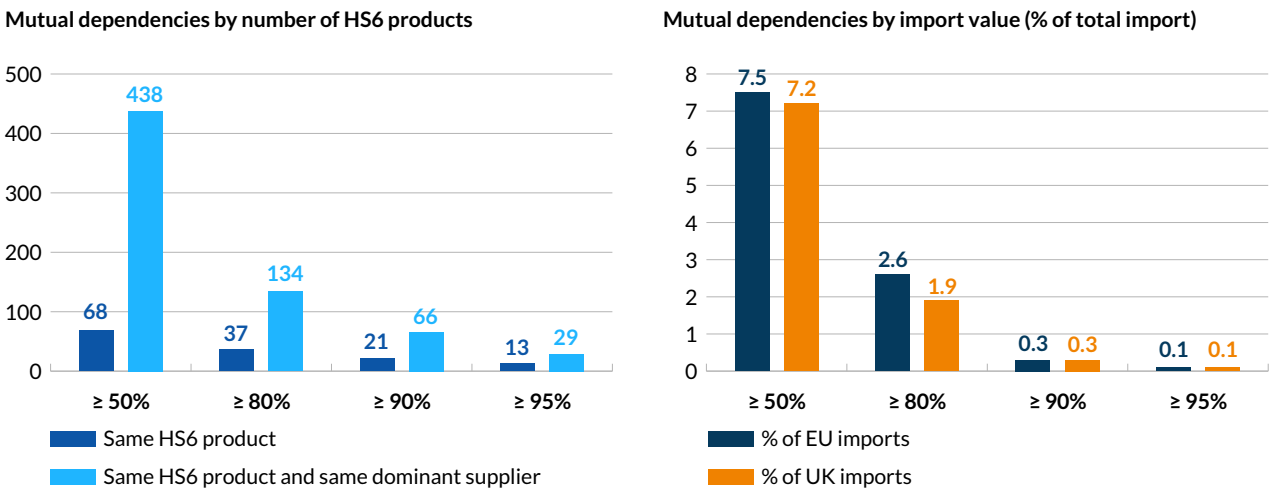
Geographic concentration. China dominates as the key source of shared dependencies, both in terms of affected products and import value (figure 10). Of the 393 shared dependencies where a common dominant supplier is identified, 250 – involve imports from China.

These represent 5.5% of total EU imports and 4.1% of the UK's. Other notable shared suppliers include the US, Switzerland, Turkey, Pakistan, and a range of smaller trading partners.

Sectoral concentration. Shared dependencies span a wide range of sectors, with industrial goods and chemical products most prominent (figure 11, left). By value (figure 11, right), shared dependencies are concentrated in high-tech and machinery products, largely reflecting China's central role. Major products include computers, telephones, photovoltaic panels, various consumer goods such as toys, footwear and furniture. Smaller-value shared dependencies typically relate to specialised or niche goods (e.g. Swiss wristwatches) or agri-food imports (e.g. cashew nuts from Vietnam)

At the ≥90% threshold, there are 25 HS6 products where both the EU and the UK are critically dependent on the same supplier. Examples include wristwatches from Switzerland; consumer goods from China (e.g. toasters, electric blankets artificial flowers and Christmas trees); Chinese manufactures such as lightweight drones and radios; and a range of seafood and agri-food products.

Figure 9 | **Shared EU and UK dependencies by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations. Measured as the 3-year average (2021–23).

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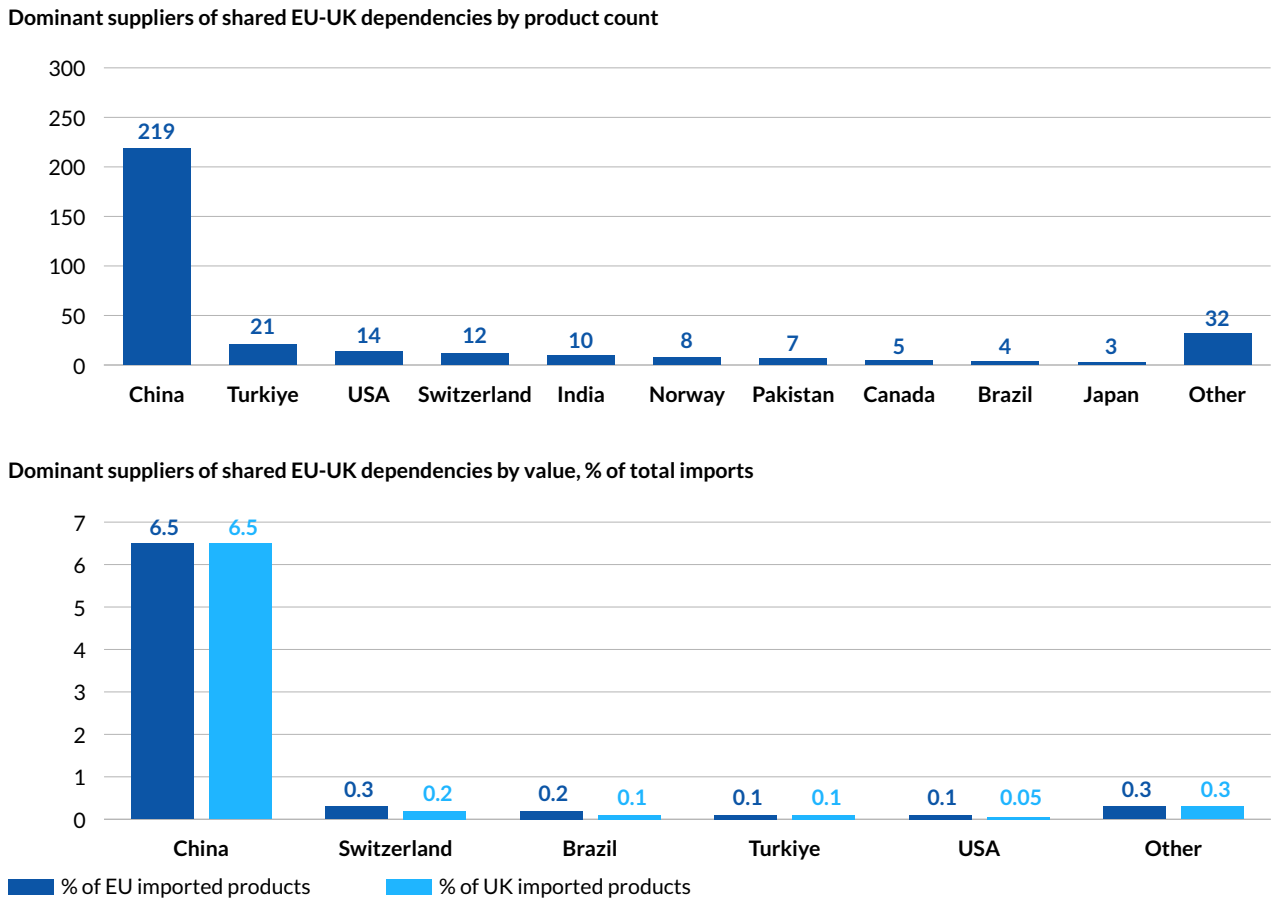
Figure 10 | **Dominant suppliers of shared EU-UK dependencies by product count (left) and import value (right)**



Source: UN Comtrade, authors' calculations.

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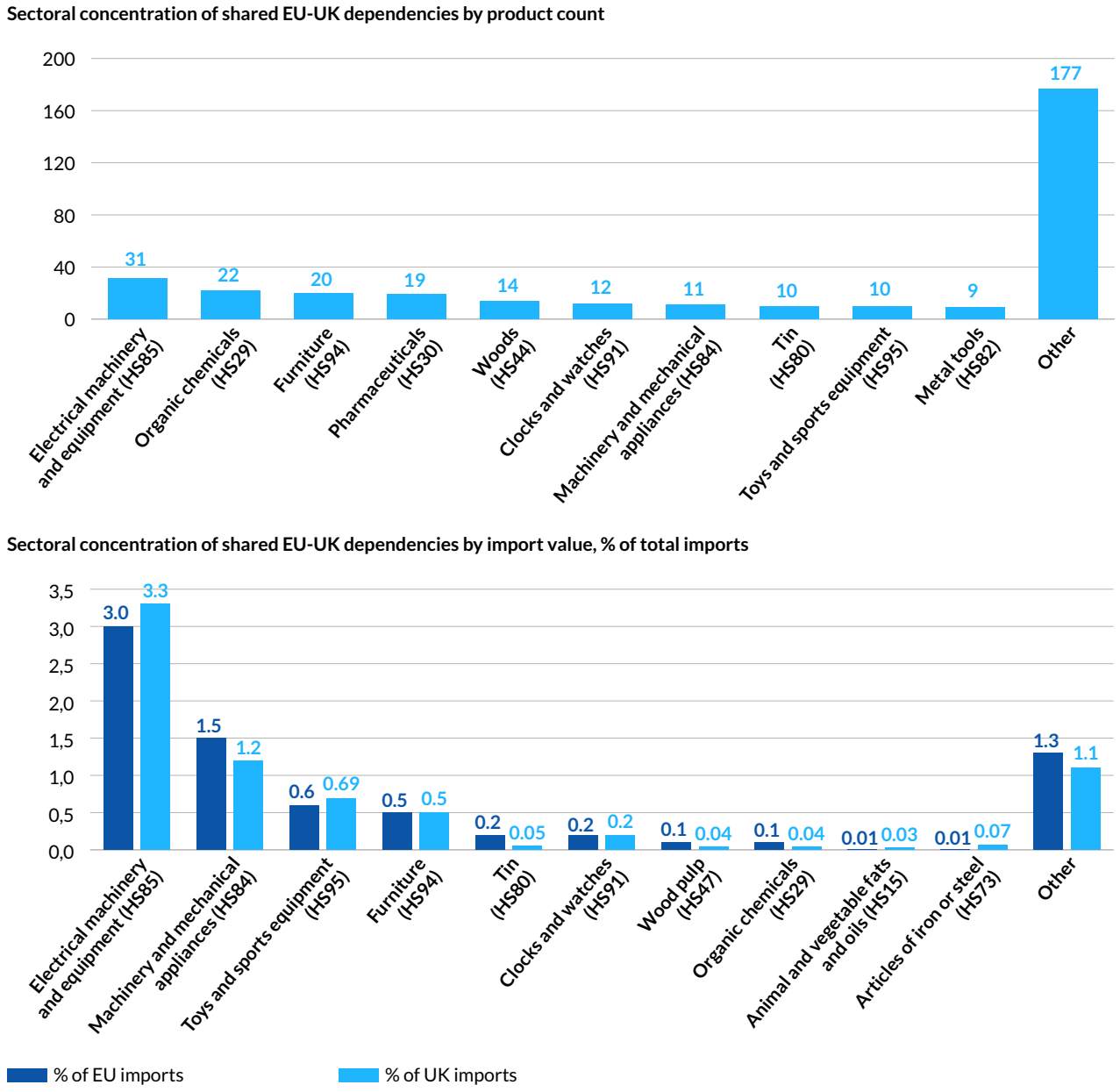
Figure 11 | **Sectoral concentration of shared EU-UK dependencies by product count (left) and import value (% of total imports)**



Source: UN Comtrade, authors' calculations. Measured as the 3-year average (2021–23).

4 | Conclusion

Any cooperation between the EU and the UK on economic security should start with a clear-eyed assessment of where their vulnerabilities align and where coordinated action could mitigate and manage external risks. This paper provides the first systematic mapping of EU-UK trade dependencies using detailed product-level data and a consistent methodology that builds on the assessments by the European Commission.

Four top-line findings emerge from this analysis. Firstly, both economies are significantly import dependent. The EU's dependencies are larger in value terms, but the UK faces a broader set of product-level dependencies. The EU's reliance is concentrated in high-value

sectors (particularly electronics and machinery), whereas the UK's dependencies span more products, often in lower volumes. Secondly, China is the dominant external supplier for both, accounting for the majority of shared dependencies across electronics, consumer goods, industrial components, and renewable energy inputs. Thirdly, despite economic divergence post Brexit, the UK and EU remain interdependent in key areas. These include agri-food, pharmaceuticals, specialised chemicals, and industrial goods. The UK is especially reliant on EU supply chains for semi-finished and processed products and the EU, while comparatively less reliant, retains dependencies on the UK for niche products, including some raw materials. Fourthly, shared exposures are significant. Nearly 400 products are sourced from the same dominant supplier, China. These account for around 7% of total imports by value and are concentrated in product sectors that are central to the green transition and industrial resilience.

Not all import dependencies constitute strategic vulnerabilities. Dependence on imports of Chinese artificial flowers or Christmas trees, for example, could hardly qualify as a critical risk. While our analysis stops short of pre-selecting which products are 'strategic', among many dependent products are high-tech manufactures, critical raw materials, and clean energy components, that are essential to both the EU's and the UK's long-term economic resilience.

These findings point to clear areas where future cooperation on economic security could benefit both the EU and the UK. Both economies face similar risks from supply chain overconcentration; both depend on trusted supply routes for strategically sensitive input; and both would benefit from early-warning mechanisms, joint monitoring of critical inputs, and coordinated diversification, especially to address acute overreliance on China. This analysis offers a shared map of external exposures that can anchor the logic of more structured cooperation that is grounded in evidence and mutual interest. The evidence suggests that, in a volatile global environment where resilience is a strategic asset, such cooperation would be both timely and well-founded.

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September 2025
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DOI 10.11586/2025075