No 452 – February 2025

La Lettre du CEPII

Trade Dependencies: While China Is in a Dominant Position, the European Union Is Not Without Advantages

Pauline Wibaux*

The Covid-19 pandemic and the war in Ukraine have confronted economies with new risks and highlighted the issue of import dependencies. In this respect, China occupies a dominant position as the main supplier of its trading partners' dependent products. While the United States and the European Union have the same level of dependency, the European Union stands out by also exporting a good number of products on which its partners depend. China is further consolidating its dominant position, as in recent years it has reduced its dependence, while the European Union and the United States have become more dependent on the Chinese economy.

The Covid-19 pandemic and the war in Ukraine have exposed economies to new risks, highlighting the fragility of global supply chains and the issue of trade dependencies. Due to countries' increasing specialization, these dependencies are significant: in 2022,[1] a quarter of countries imported most of their products from a single exporter. Inevitable in a globalized economy, these dependencies can turn into vulnerabilities when trade relations are disrupted.

These new economic risks are exacerbated by geopolitical risks. International tensions are on the rise, particularly in the wake of the trade war between the United States and China, and political proximity has become a new determinant for deepening or limiting trade links with other economies. Moreover, episodes of economic coercion are multiplying. Following the opening of a Taiwanese representative office in Vilnius, China suspended its trade with Lithuania in December 2021, without recognizing any form of embargo or economic sanction.

In this new international environment, the major economies, such as the United States and the European Union (EU), which have been particularly hard hit by the pandemic and the war in Ukraine, are implementing industrial and trade policies to reduce their trade dependencies, particularly their exposure to the Chinese economy.

In such an economic and geopolitical context, identifying dependencies has become a key element in responding to an economic shock, whether global or bilateral.

The US and the EU far more vulnerable than China

In this environment of heightened geopolitical tensions, the major economies have put in place strategies to ensure their economic security, aimed at limiting their vulnerability. The EU, for example, has developed a derisking strategy to reduce the risks associated with its trade dependencies. This strategy involves, among other things, diversifying its trading partners into "strategic" sectors and subsidizing European production in these sectors via important projects of common European interest (IPCEI). Without naming it, China is the targeted trading partner. Since 2019, the EU has considered China to be "a systemic partner, competitor and rival". China is therefore particularly concerned by the investment screening mechanism put in place in Europe. The United States, on the other hand, is adopting a tougher strategy, designed to distance itself from the Chinese economy in strategic sectors. To this end,

* Pauline Wibaux is an Economist at CEPII.

1. Source: BACI, CEPII.

Box – Identifying dependent products

Several studies have analyzed import dependency.* Most of them identify dependencies at the level of a single country, based on data that is not available in a homogeneous way for all countries, such as firm-level data. The Geo-Dep database developed at CEPII uses world trade data at a detailed level (HS6) to identify the import dependencies of each economy and compare them with each other. Three criteria are used to identify dependent products.

- The first criterion measures the degree of concentration of imports, in order to take account of diversification possibilities: The more imports of a product are concentrated in a small number of exporters, the more difficult it will be for the economy in question to import from another country. For each importing country, product and year, the level of import concentration is measured by a Herfindahl-Hirschman index: a value greater than 0.4 defines a concentrated product. For a market with three producers, the level of concentration exceeds this 0.4 threshold if one of the producers represents at least 50% of the market share. It is also a common threshold in the literature.
- The second criterion takes into account the level of concentration of world exports: The more exports are concentrated in a single economy, the more difficult it will be to find an alternative exporter. For each product and year, the level of concentration of world exports is again calculated using a Herfindahl-Hirschman index: a value greater than 0.4 defines a concentrated product.
- The third criterion considers the non-substitutability of exports for imports: A product is considered non-substitutable if exports are lower than imports, *i.e.* if what was intended for export cannot compensate for a drop in supply from abroad.
- If these three criteria are valid for at least two years out of a three-year window, the imported product is considered dependent.

* Arriola, C., Cai, M., Kowalski, P., Miroudot, S. & van Tongeren, F. (2024). Towards Demystifying Trade Dependencies: At What Point Do Trade Linkages Become a Concern? *OECD Trade Policy Papers*, no. 280; Baur, A. & Flach, L. (2022). German-Chinese Trade Relations: How Dependent is the German Economy on China? *EconPol Policy Report*, no.38; Bonneau, C. & Nakaa, M. (2020). Vulnérabilité des approvisionnements français et européens. *Trésor-Éco*, no. 274; Chimits, F. (2024). Mapping Trade Dependencies in China Relations: A Fact-based Approach. MERICS; European Commission (2021). Strategic Dependencies and Capacities. *Commission staff working document*, SWD (2021) 352; Jaravel, X. & Méjean, I. (2021). Quels intrants vulnérables doit-on cibler ? Conseil d'analyse économique, *Focus*, no. 57; Méjean, I. & Rousseaux, P. (2024). Identifying European Trade Dependencies. ITCEI Paris Report; Vicard, V. & Wibaux, P. (2023). EU Strategic Dependencies: A Long View. *CEPII Policy Brief*, no. 41.

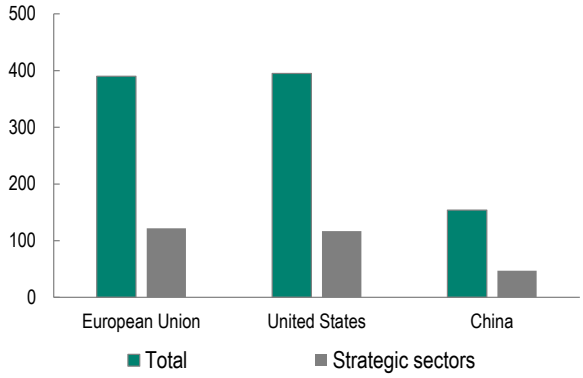
restrictions on high-tech exports to China were introduced in 2022 and then tightened in 2023, 2024 and 2025. With the new administration and President Trump's obsession with tariffs, the strategy is changing and expanding, with many more countries and products being targeted. In the case of China, after Trump's campaign declarations to raise tariffs on all products imported from China by 60 percentage points, he has so far raised them by only 10 percentage points.

The analysis of import dependencies makes it possible to assess the exposure of each economy to a global shock, such as the Covid-19 pandemic, or to a trade war. Figure 1 shows the number of products identified as dependent for the EU, the US and China (box), taking all sectors together and considering only the strategic sectors as defined by the European Commission: agri-food, chemicals, health, steel and metallurgy, defense and aerospace, transport and electronics.[2] The EU and the US have a similar number of dependent products across all sectors (390 and 395 respectively) and strategic sectors (122 and 117). China stands out, with a much lower number of dependent products (fewer than 50 in strategic sectors, and 154 across all sectors). The European and US economies thus appear to be much more vulnerable to a global economic shock than the Chinese economy, which is half as exposed overall and three times less exposed in strategic products (Figure 1).

Among these strategic sectors, more than half of the dependent products come from the chemical industry, followed by the pharmaceutical and electronics sectors (Figure 2). This composition of dependencies is common to all three economies. These are mainly intermediate products, used in the production of other goods. This increases the vulnerability of the economies. China and the EU are the main suppliers of dependent products, particularly in the chemicals, pharmaceuticals and electronics sectors. China also supplies metallurgical products to its trading partners on which they are dependent, particularly strategic metals such as magnesium and manganese.[3]

Figure 1 – The EU and the USA have a similar number of dependent products, while China stands out with a much lower number of dependencies

Number of imported products by country in 2022



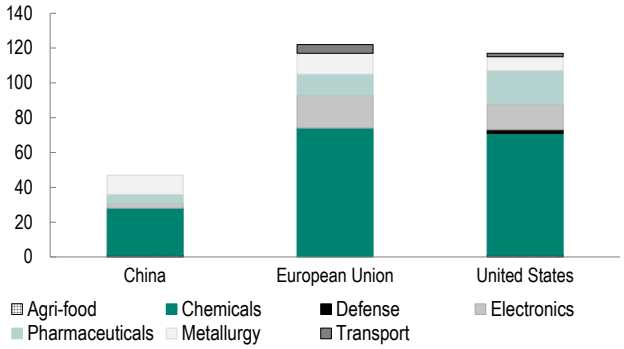
Source: CEPII, Geo-Dep database.

2. The U.S. Cybersecurity & Infrastructure Security Agency (CISA) lists the following 16 critical sectors, which are similar to those identified by the European Commission: chemicals, communications, critical industries (metals, machinery, electrical, transport), energy, agri-food, healthcare and pharmaceuticals, and information technology.

3. Other strategic metals such as lithium, bismuth, or gallium are not identified as dependent products in this classification, as they do not meet at least one of the required criteria. For these products, alternative suppliers exist, which invalidates the second criterion.

Figure 2 – More than half of all strategic dependent products come from the chemical industry, followed by pharmaceuticals and electronics

Sectoral composition of strategic dependencies in 2022



Source: CEPII, Geo-Dep database

From dependencies to interdependencies

An economy's resilience to external shocks depends on its dependence on a particular region or country. China is the main exporter of strategic products that both the EU (60% of these products) and the United States (almost 50%) depend on (Figure 3). Among the strategic products on which the EU depends are chemicals used in the production of fertilizers (phosphate esters), medicines (chloramphenicol, an antibiotic) and textiles, as well as electronic products (from screens to electronic watches).

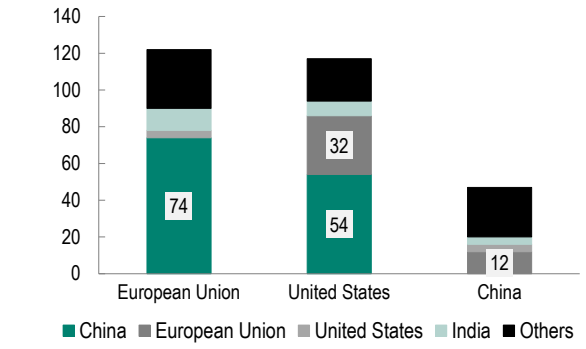
While the major economies are dependent on China, China is far more dependent on the EU than on other countries. The EU is the leading exporter of a quarter of China's dependent products, which makes it its leading supplier of dependent products. In other words, China is three times more exposed to a shock to its imports from the EU than from the United States.

In a tense geopolitical context, the interdependence of economies can be a bulwark against trade conflicts or economic coercion. The level of interdependence can in fact be interpreted as a level of influence over the partner economy, and from this can derive a degree of negotiating power. In the face of rising geo-economic tensions, the management of dependencies by public decision-makers has become essential. This can be done by reducing dependence on one economy or by increasing the dependence of others. This second, more offensive strategy enables the economy to integrate more deeply into international value chains. By making itself indispensable, the risks of economic coercion are reduced. While few countries have explored this path to date, Japan has made it one of the pillars of its economic security strategy, known as strategic indispensability. The Japanese government is seeking to make itself indispensable in cutting-edge electronics and digital sectors, by supporting the activities of Japanese companies. For their part, the United States and the European Union have not yet established a strategy along these lines.

Interdependencies, measured by the difference between the number of dependent products from the partner economy in question and the number of dependent products supplied to that economy, show that, although the EU's exposure to a trade conflict with China is reduced by the dependent products it exports to China, interdependencies remain in China's favor, with 62 more strategic dependent products supplied to the EU than by the EU to Beijing (Figure 4). The US position is similar to that of the EU, with a difference of 50 strategic dependent products. However, if transatlantic relations become strained, as Donald Trump's statements on the use of tariffs against European products suggest, the EU could take advantage of the negotiating power conferred by the fact that it supplies 24 more strategic dependent products to the United States than the

Figure 3 – Major economies are dependent on China, and China is far more China is far more dependent on the EU than on other countries.

Number of dependent products in strategic sectors, by geographic origin

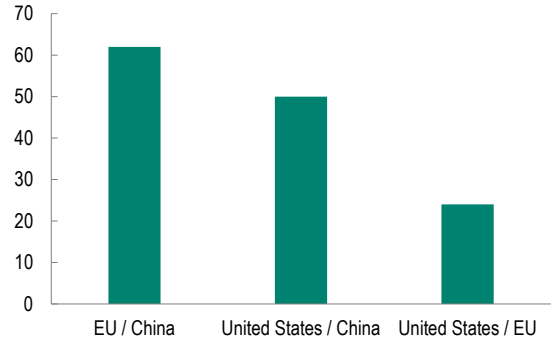


Source: CEPII, Geo-Dep database.

Note: For each dependent product, the geographic origin is attributed to the leading exporting economy (which does not rule out the possibility that there are other economies exporting this dependent product, but they are less important), and only the top three economies (in terms of number of dependent products) on which the European Union, the United States and China depend in strategic sectors are isolated here.

Figure 4 – The level of interdependence of the USA and the EU with China is high, but the USA is also dependent on the EU.

Interdependencies in strategic sectors in 2022



Source: CEPII, Geo-Dep database.

Note: Bilateral interdependencies are represented here, *i.e.* the balance of the number of dependent products between two partners. A positive balance means that the number of dependent products is greater for the first partner than for the second. For example, the number of EU-dependent products originating from China (74 – see Chart 3) is greater than the number of China-dependent products originating from the EU (12 – see Chart 3) by 62 products.

latter supplies to it. These interdependencies underline China's dominant position, but also the difference in the balance of power between the US and the EU.

In strategic sectors, the EU and the US are becoming more dependent on China

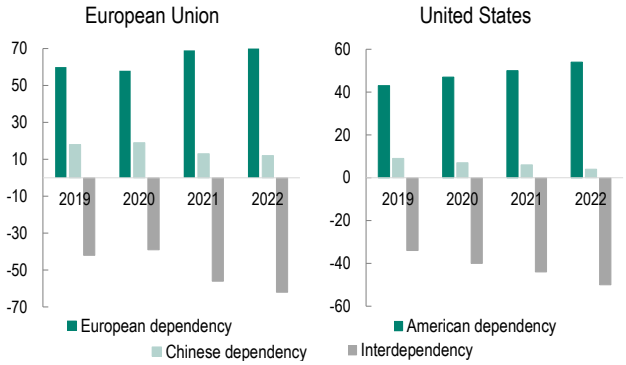
This Chinese domination in 2022 was the result of an increase in the dependence of the EU and the US on China in strategic sectors between 2019 and 2022 (Figure 5). Over the period, the total number of products on which the EU depended increased, without any change in the composition of its suppliers. The number of dependent products imported mainly from China increased by 20% (74 in 2022 compared to 60 in 2019), due to increased dependency in the electronics and transport sectors.

Across the Atlantic, the total number of dependent products remained stable, but the share of products imported from China increased. While China was the main supplier of 36% of dependent products to the US in 2019, it supplied 46% in 2022. This increase was mainly in the chemicals sector, where the number of dependent products imported from China rose by 30% between 2019 and 2022. Conversely, China reduced its dependence on the EU and the US by at least a third, mainly in the transport, electronics and defense sectors.

As a result, the level of interdependence between the EU and the US and China increased by almost 50% over the period, due to the increase in European and American dependence on China and the decrease in Chinese dependence. China's strategy of self-sufficiency and risk reduction seems to be bearing fruit. Between 2009 and 2022, the large number of subsidies granted in high-tech sectors – three times more than in the G20 economies over the same period – led to a fall in Chinese imports in key technology sectors, high-tech and electronic products, while its exports in these sectors continued to rise.[4]

Figure 5 – China reduces its dependencies, the EU and US become more dependent

Evolution of EU and US dependencies and interdependencies with China in strategic sectors



Source: CEPII, Geo-Dep database.

The European and US strategies are more recent. To increase the resilience of the US economy and its production capacity in strategic sectors, the Biden administration introduced several major public investments (Infrastructure Investment and Jobs Act of 2021, American Rescue Plan of 2021, Inflation Reduction Act of 2022, CHIPS and Science Act of 2022). This active industrial policy came on top of reforms to export and foreign investment control instruments. On the European side, the von der Leyen Commission has taken numerous decisions, combining an active industrial strategy (Chips Act, Hydrogen Strategy, Pharmaceutical Strategy, Important Projects for Common European Interest, etc.) and import restrictions (Critical Raw Materials Act, Anti-Dumping and Countervailing Duties). But these initiatives can take several years to produce tangible results. Furthermore, the divergent interests of the Member States limit European determination. In this respect, the position of Germany, whose economy is heavily dependent on its trade with China, the leading destination for its exports – and well ahead of the US, the Netherlands and France – contrasts with that of France, which is more inclined to take a firmer stance on China.

4. Rotunno, L & Ruta, M.(2024). Trade Implications of China's Subsidies. *IMF Working Paper*, no. 2024/180.

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Centre d'études prospectives
et d'informations internationales
20, avenue de Ségur
TSA 10726
75334 Paris Cedex 07

contact@cepii.fr
www.cepii.fr – @CEPII_Paris
Contact presse : presse@cepii.fr

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ISSN 2493-3813

February 2025

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