The world's major economies are expected to be affected by the increase in US customs duties beyond the simple trade channel

Since January 2025, the introduction of tariff barriers on US imports has destabilised world trade. The various measures taken (universal customs duties of 10%, 30% on Chinese products, 25% on Canadian and Mexican imports, 25% on certain products such as automobiles, and 50% on steel and aluminium) have raised the average effective rate of US customs duties to a historically high level.

For US enterprises and consumers, the customs duties mean a sharp rise in the price of imported products and therefore losses of purchasing power and margins, leading to a reduction in US imports. These measures will therefore first spread to the world's different economies via the trade channel. In the rest of the world, the introduction of customs tariffs is likely to reduce the output of sectors that export to the United States. In Germany, the automotive industry is set to be the main sector affected; in China, it is expected to be textiles, and in France, it is likely to be the transport-equipment-manufacturing, beverages and food-product sectors. The French departments with the greatest exposure are those specialising in aeronautics (Haute-Garonne, Hautes-Pyrénées, Seine-et-Marne), shipbuilding (Loire-Atlantique) and wines and spirits (champagne in Marne, cognac in Charente).

The impact of the trade shock should initially be limited to the industrial branches, before gradually spreading to the entire production system and extending into the tertiary sector. These comprehensive trade effects can be quantified using an analysis based on an Inter-Country Input-Output Table (ICIO). All in all, via trade channels, Germany and China should be more vulnerable to the increase in US customs duties (by -0.2 and -0.3 points of GDP respectively) than France (-0.1 point). However, the shock is set to hit certain sectors very hard: for the German car industry, the loss of value added is expected to reach 1.3 percentage points. However, these are medium-term effects once all the adjustments have been made.

In addition to the trade channel, the announcements by the new US administration have triggered a wave of reactions affecting the entire global economy, including a sharp decline in oil prices, a drop in world stock market values, tensions on bond markets, depreciation of the dollar against the euro and growing economic uncertainty. In the short term, the uncertainty caused by the US announcements may trigger anticipatory behaviour, such as precautionary imports, generating temporary but volatile effects on trade. A comprehensive international economic model is required to take account of all these phenomena, outside the confines of the trade channel. In the absence of a response from partners, simulations using the Oxford Economics model estimate an effect of around -0.1 GDP point for France and Germany in 2025, and a slightly higher effect for China (-0.2 points). The effect in 2026 is expected to be greater for Germany and China (-0.7 points) than for France (-0.4 points). The implementation of countermeasures by the United States' partner economies is likely to exacerbate the shock for all the world's economies. However, these estimates do not take account of potential non-tariff measures, such as quantitative restrictions on inputs (such as rare-earth metals in China).

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In spring 2025, the average effective rate of US customs duties has reached a level not seen since 1934

Since taking office in January 2025, the new US administration has launched a series of tariff increases targeting several trading partners. On 4 February, additional customs duties of 10% were imposed on Chinese imports and then increased several times over the following weeks. At the same time, an increase of 25% on imports from Canada and Mexico was announced, before being postponed and then actually applied in March. However, goods that comply with the rules of origin[1] of the United States-Mexico-Canada Agreement (USMCA), which account for around half of all North American trade, are exempt from these increases.

On 12 March 2025, a uniform customs duty of 25% on steel and aluminium products,[2] whatever their origin, came into force, followed at the end of March by a similar measure on imported automobiles. At the beginning of April, the United States imposed customs duties of 10% on all its partners, with additional "reciprocal" duties for certain partners adjusted according to the US trade deficit with the partner. However, these additional duties were suspended from 9 April as part of a 90-day moratorium. The beginning of April was also marked by a specific trade escalation between China and the United States, resulting in bilateral trade tariffs of over 100% on both sides of the Pacific.

However, the United States and China reached a temporary agreement on 12 May, providing for the suspension of a large proportion of the announced tariff increases

1 To qualify for tariff preferences under the USMCA, a product must be sufficiently processed in North America, meet minimum regional content thresholds and, for certain sectors, be sourced almost entirely from the region.
2 Customs duties on steel and aluminium were raised to 50% on 4 June.

for three months and setting a 30% ceiling on bilateral customs duties. Despite this pause, the level of US customs duties at the end of this sequence remains exceptionally high. According to estimates by the Yale Budget Lab (►Yale Institute, 2025), the average effective rate of US tariffs is expected to reach 18% after the agreement on 12 May 2025, compared with 28% at the end of April following the escalation between China and the US (►Yale Institute, 2025), a level not seen since 1934 and far higher than the average tariff of 2.4% that was still in force at the end of 2024 (►Figure 1). If implemented, the 50% tariff threat on the EU mooted by the US President at the end of May 2025 should generate an effective US customs duty rate of 22% (►Yale Institute, 2025).

In the very short term, the US measures have boosted world trade as an anticipatory reaction

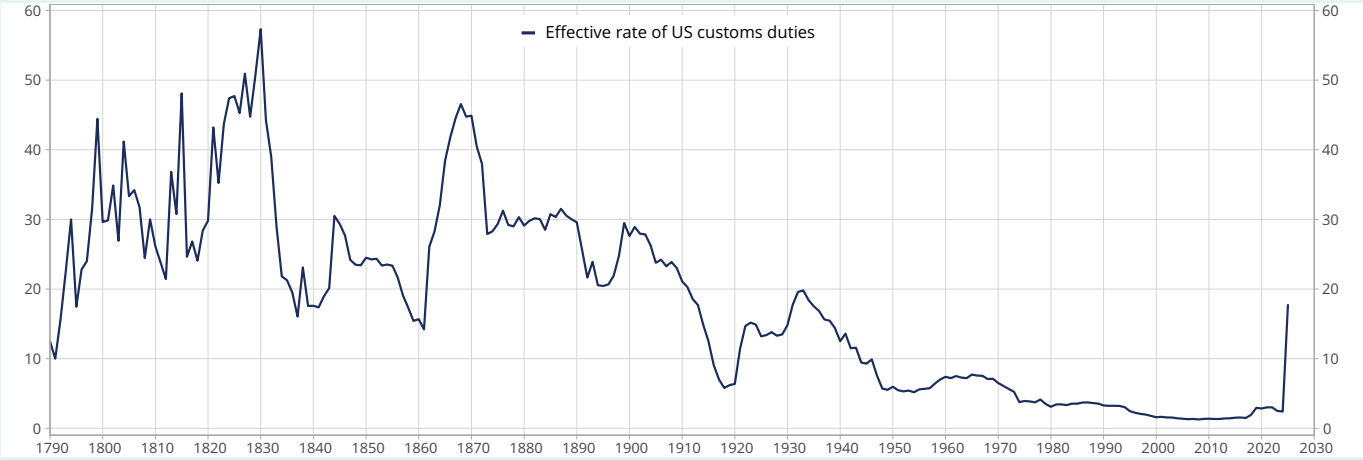
Against this backdrop of tougher trade conditions and heightened bilateral tensions, the economic effects have been felt since Q1 2025. US activity has contracted (-0.1% after +0.6% in Q4 2024), for the first time since the beginning of 2022. This downturn has been largely due to an exceptional rebound in imports (+9.3%), in anticipation of the tariff increases, notably on consumer goods (especially pharmaceuticals) and technological equipment. On the Chinese side, exports accelerated at the start of the year (+2.0%), driven mainly by higher sales to other Asian countries. In Europe, activity has been surprisingly robust in Germany, Italy and the UK, temporarily buoyed by a sharp rise in exports, especially to the United States. In contrast, Chinese exports to the United States fell sharply in April 2025 prompting a weakening of bilateral trade.

The customs duty shock should lead to a drop in US imports

The customs duty shock triggered in the United States at the beginning of 2025 is likely to have a significant negative impact on domestic demand. According to estimates by the Yale Institute's Budget Lab, the package of tariff measures adopted until 12 May should reduce US GDP growth in both the short and long term. These increases in customs duties are likely to push up the prices of imported goods, leading to a loss of purchasing power and a drop in private consumption for households, and a rise in the cost of inputs and fixed capital for enterprises, which would hamper their investment capacity. Having become more expensive, imports should decline sharply. This was already seen in April 2025, when US imports of goods plummeted by 20%.

According to the Yale institute, if the increase in customs duties is not offset by budgetary measures, it will improve the federal government's budget and therefore amounts to fiscal consolidation of just under one GDP point. In fact, most estimates consider that the increase in revenue from customs duties should more than offset the reduction in other tax revenues caused by the slowdown in activity. If the federal government were simultaneously to implement expansionary measures (as proposed in the budget currently being debated in Congress), the impact on the US economy would be much less recessionary, but the decline in imports would still be highly significant, as they would become more expensive relative to products manufactured in the United States. The analysis developed here focuses primarily on the transmission of the US protectionist shock, with particular emphasis on the impact of the expected drop in US imports on the rest of the world.

►1. Effective rate of US customs duties
(in %)



Last point: 2025.
Note: the last point is an estimate.
How to read it: the Yale Budget Lab estimates the effective rate of US customs duties at 18% for 2025 after the 12 May 2025 agreement, without the threat of 50% for the European Union.
Source: Budget Lab Yale Institute.

The available estimates point towards a significant negative impact on world trade

The high level of trade protection in place is expected to trigger a sharp slowdown in world trade, particularly between China and the United States. Before the agreement, the IMF was anticipating a sharp contraction in Sino-US bilateral trade (►**IMF, 2025**), and the WTO has forecast a 0.2% drop in world trade in goods in 2025 (►**WTOC, 2025**). In its scenario, the WTO estimates that world trade in 2025 is set to be around three percentage points lower than it would have been without the changes in US trade policy. Recent judicial developments in the United States concerning the legality of certain customs duties have heightened the uncertainty about their permanence and their medium-term impact on trade.

These tensions are chiefly felt through the trade channel

First and foremost, these measures are likely to affect the world economy though the global trade channel. To analyse this effect, an estimate can be carried out based on data from the OECD's Inter-Country Input-Output Table (ICIO). This tool can be used to assess the impact of a sectoral shock to final demand in the United States on the output and value added of the world's different economies, assuming an unchanged trade structure. The modelling of the effect of the tariff increases decided by the United States in 2025 on US demand assumes the elasticity of imports at their unit price, which is in line with the results of the literature, although some estimates report higher elasticities (►**methodological box**). On the basis of this shock, this model quantifies the losses in value added by sector for the main partner economies (notably France, Germany and China), distinguishing between first-round effects (drops in sales in the United States) and total effects, after the shock has spread from one supplier sector to another and to all the world's economies.

The tariffs applied by the United States in May 2025 are incorporated according to a sectoral and geographical calibration. For Canada and Mexico, a general tariff of 25% has been applied, with adjustments to incorporate exemptions under the USMCA, while the tariff increase for China is 30%, excluding electronic equipment. For the other partner economies, the default increase in customs duties is 10%. In addition to these geographical rules, specific rules apply to certain products: for example, steel and aluminium are taxed at 50%[3] and automobiles at 25%. Conversely, some other products are exempt, such as oil, pharmaceuticals and even timber (►**methodological box**). Only the increase in US customs duties is taken into account in this study, without considering any retaliation, whether potential (European Union) or actual (China).

This differentiated calibration of customs duties produces heterogeneous effects from one country to another, depending on the sectoral composition of their exports to the United States.

Exports of goods to the United States account for a moderate proportion of national economic activity. Using the ICIO, they are estimated at around 3% of GDP in Germany and China, compared with 1% in France. This relatively restricted exposure partly limits the direct effects of the tightening of US trade on the growth of these economies. Nonetheless, it remains important for certain key sectors, which are exposed to the targeted tariff measures announced since the start of the year.

In this regard, US imports of goods from Germany are dominated by motor vehicles (26%), machinery and equipment (21%), and chemicals and pharmaceuticals (almost 20% between them; ►**Figure 2**). The vast majority of goods imported from China consist of electrical and electronic equipment (25% for IT, 10% for electrical equipment), textiles (16%), and rubber and plastic products (6%). Conversely, US imports of goods from France have a more disparate profile, dominated by "other transport equipment" (26%), which includes aeronautical and naval equipment, followed by pharmaceutical and chemical products (together amounting to around 24%), food and beverages (15%) and machinery (8%).

In France, exposure to trade with the United States varies greatly from one region to another, and is high in 11 departments

In France, the geographical areas most affected by the introduction of US customs duties are the departments in which aeronautical and naval equipment, wines and spirits, and chemical products are produced. The departments with the greatest exposure to tariff measures can be mapped using detailed export and employment data by department (►**Figure 3**). A department is considered all the more exposed if it is a large exporter to the United States and if employment in the sectors concerned is high (►**methodological box**).

Haute-Garonne, Seine-et-Marne and Hautes-Pyrénées appear to be highly exposed due to their substantial exports of aeronautical products to the United States, with this sector accounting for a significant proportion of employment in all three departments. Loire-Atlantique is also likely to be impacted due to its specialisation in shipbuilding. The exposure of other departments, such as Marne for champagne and Charente for cognac, is explained by their specialisation in wines and spirits. Lastly, certain departments are likely to be exposed due

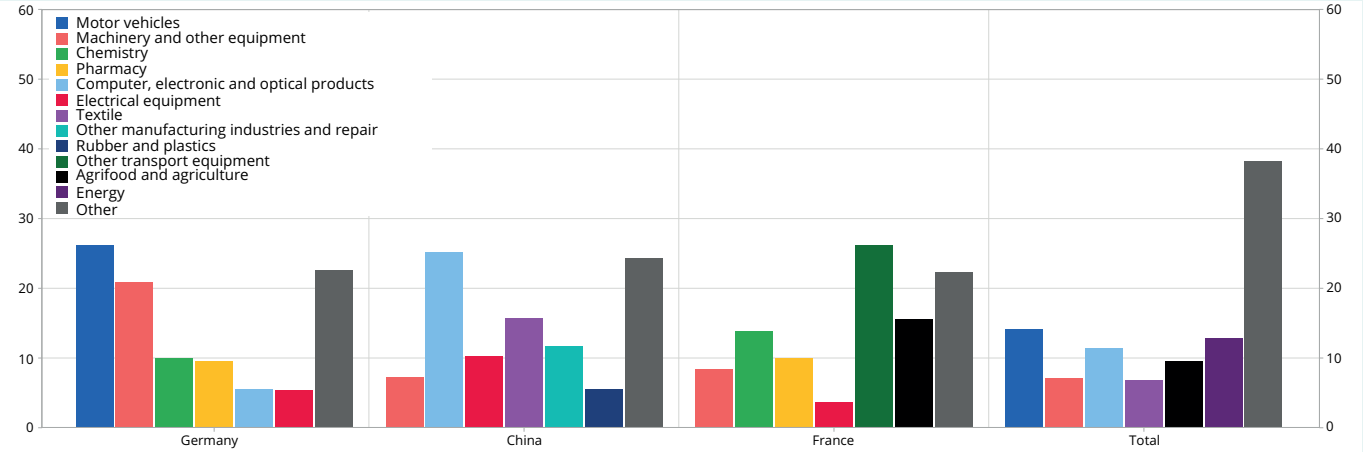
3 These are simplistic assumptions, as specific agreements are in place for certain products in certain countries. For example, steel and aluminium from the UK will continue to be taxed at 25%.

to their high concentration of chemical, petrochemical or pharmaceutical industries, such as the departments of the Rhone corridor, notably Drôme, in addition to Bas-Rhin, Seine-Maritime, Somme and Eure.

However, activity in France should not be severely affected via the trade channel, in contrast to Germany and China.

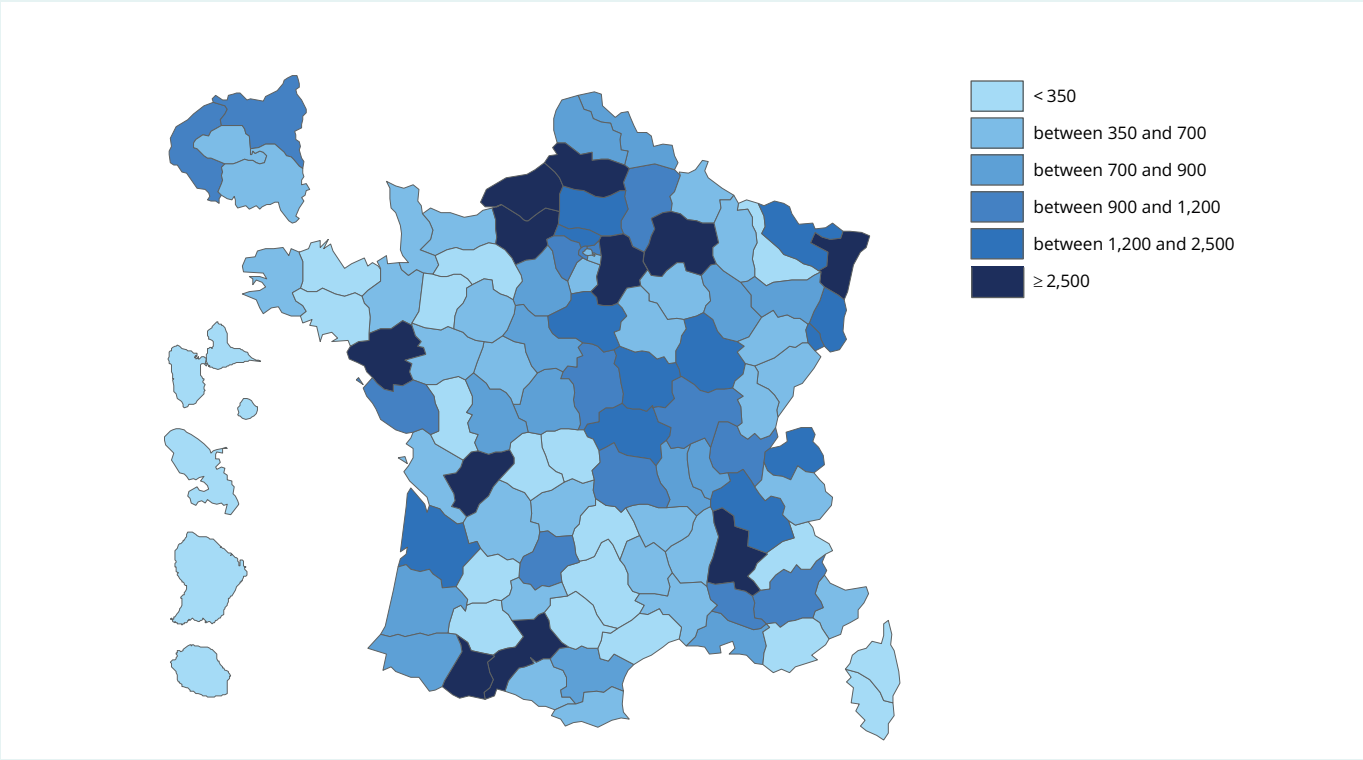
The simulated tariff shock affects the activity of all the United States' major trading partners, albeit to differing extents. In Germany, the total loss of value added via the trade channels alone is eventually expected to reach 0.2 GDP points. The total impact should be more limited for France, at 0.1 GDP point (►**Figure 4**). Finally, activity in China is likely to contract in a quite similar manner to Germany: a total loss of 0.3 GDP points is expected, reflecting a more pronounced bilateral exposure. For China, the effect of the exemption from customs duties on electronic products is significant: without this provision, the total loss of could amount to 0.4 GDP points.

►2. Composition of US imports of goods by country of origin
(in %)



Note: only the first six products have been kept per country and the rest of the 12 products have been grouped together under the "Other" label. Services and construction are not represented in this chart.
How to read it: 26% of US imports of goods from France are in the "other transport equipment" category, 16% in food processing and agriculture, 14% in chemicals, 10% in pharmaceuticals, 8% in machinery and other equipment and 22% in other products.
Source: OECD, INSEE calculations.

►3. Exposure of different French departments to exports of goods to the United States
(in euros per year and per employee)



Note: a methodology for calculating the exposure indicator is presented in ►**methodological box**.
How to read it: exports of goods to the United States correspond to more than €2,500 per employee per year in the department of Haute-Garonne.
Source: Customs (DGDDI) and FLORES (INSEE).

In France, as in Germany, the effects of the tariff shock are focused on a few industrial sectors, but their scale and profile are markedly different

The sectoral impact of the customs duties on partner economies differs greatly between the first-round effect and the total effect. The first-round effect concerns industrial goods only. In Germany, the automotive industry is expected to be hit the hardest in the first round. Value added in this sector is likely to drop by almost one percentage point, contributing to more than half of the first-round effect for the German economy. In China, textiles and capital goods are set to be the main sectors affected by the first-round effect.

In the long term, the shock is expected to spread to all the sectors supplying the United States, notably the service sector. In France, around half of the long-term effect on activity should come from the tertiary sector. In Germany, the tertiary sector should account for around a third of the long-term effect through a feedback effect, with the bulk of the impact concerning industry, notably the automotive and capital goods sectors.

However, in terms of the share of their value added, the industrial sectors are bearing the brunt of the shock. In Germany, the long-term decline in industrial value added should be 0.5% and is expected to be concentrated in machinery and equipment (-0.6%), metallurgy (-0.7%) and above all in the automotive sector (-1.3%), which remains the hardest-hit (►**Figure 6**). In China, the long-term decline in industrial value added should be of the same order of magnitude (-0.6%), with a particularly sharp decline in textiles. Conversely, in France (►**Figure 5**), the long-term decline in industrial value added is expected to be more moderate (-0.2%), which, combined with the low weight of industry in activity, explains the modest impact of the tariff shock on the French economy via trade channels. Amongst the industrial branches, the biggest decline concerns “other transport equipment» (-0.7%), especially aeronautics.

The disruptions caused by the new US administration’s announcements extend beyond the trade channels

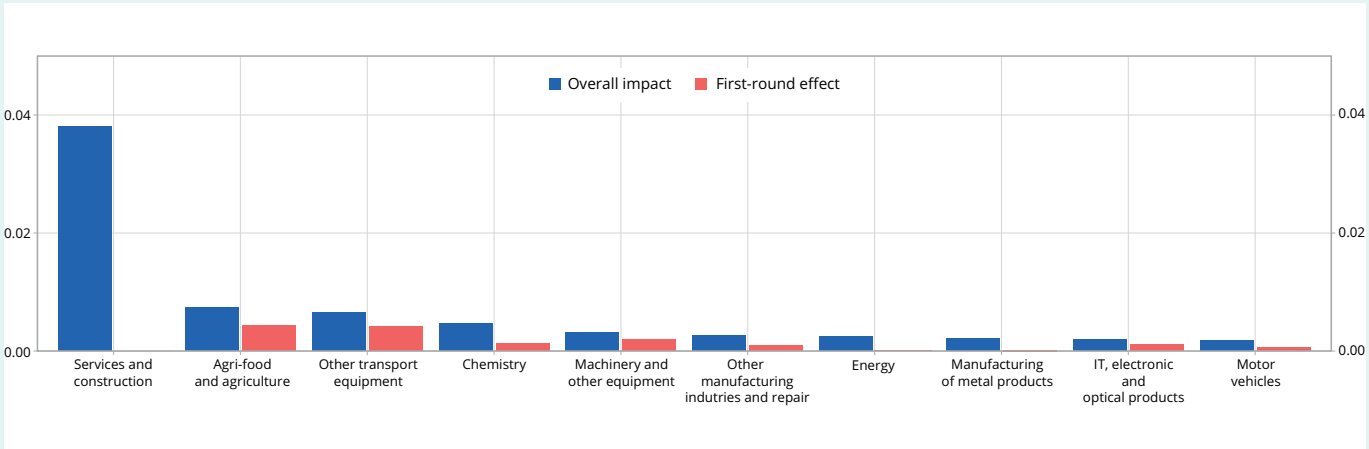
The succession of US announcements has triggered a wave of reactions affecting the entire global economy in ways that are not limited to pure trade channels. Recent events have included a sharp drop in oil prices, a slump in world stock market values, tensions on bond markets, a depreciation of the dollar against the euro and a significant increase in economic uncertainty. These effects are compounding those felt in the trade channels mentioned above.

Oil prices have plummeted since the start of the year

Oil prices fell sharply following the announcement of US customs measures (►**Figure 7**), with markets anticipating a slowdown in the global economy. However, US tariff measures have not been the only factor driving oil prices recently, with announcements of production increases by the OPEC countries also helping to ease prices.

In the Eurozone, the drop in oil prices should lead to an improvement in the trade balance and a marked

►4. The strongest effect on GDP in France concerns services and construction, but the direct effect on these sectors is nil
(in points)



Note: as an approximation, GDP is calculated as the sum of value added in all sectors for a country.
How to read it: the shock should ultimately contribute -0.04 GDP points for France via the services and construction sector, and the first-round effect is expected to be nil in this sector.
Source: OECD, INSEE calculations.

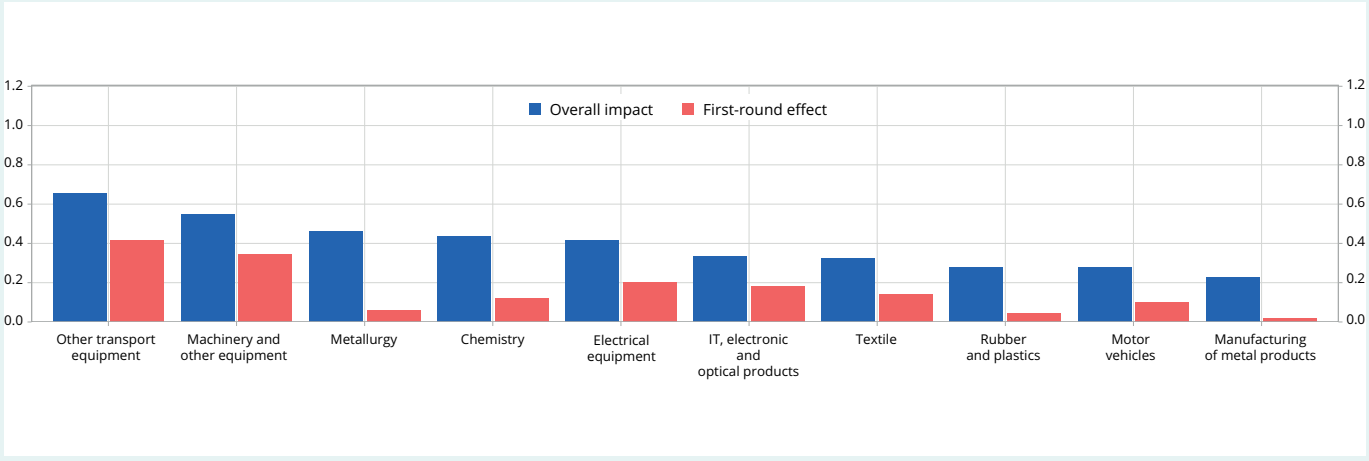
slowdown in consumer prices. It should also help to boost the competitiveness of enterprises by reducing their production costs. For France, the results of the *Mésange model* (►INSEE, 2017) indicate that a $10 drop in the price per barrel should increase GDP by 0.1 points in the first year and by 0.2 points in the second. Household consumption prices are likely to be cut by 0.3 percentage points in the first year, and then by 0.4 percentage points in the second year.

The dollar has depreciated sharply against the euro

Over the recent period, the dollar has depreciated sharply, particularly against the euro (►Figure 8). However, the dollar has not undergone any sharp exchange rate movements against the Chinese renminbi (yuan) or, by definition, the currencies pegged to it.

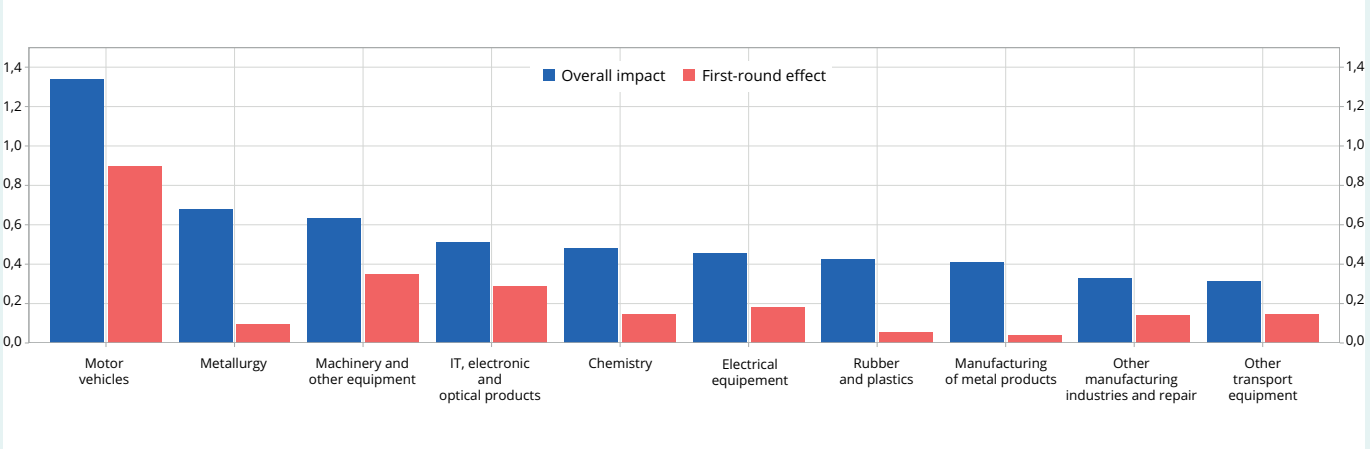
This appreciation of the euro against the dollar (but also against currencies pegged to the dollar or the renminbi) should have fairly positive effects for European households in the short term by reducing the price of imports (especially energy products, for which the depreciation of the dollar adds to the drop in dollar prices), thereby slowing consumer prices. At the same time, the effect for European enterprises is expected to be more negative. Their export price competitiveness should deteriorate, while the price of their imports and the inflationary pressure on wages should ease slightly, thereby curbing their production costs. In the United States, the opposite effects are likely to be observed, with higher inflation for households and gains in price competitiveness for enterprises. For France, the results of the *Mésange model* suggest that a 10% appreciation of the euro would reduce activity by 0.5 points in the first year, and by 1.0 point in

►5. The impact of the shock on sectoral value added is stronger in France for "other transport equipment" (including the aeronautical and naval industries).
(in %)



Note: as an approximation, GDP is calculated as the sum of value added in all sectors for a country.
How to read it: the shock for the other transport equipment sector in France is likely to represent -0.7% of value added in this sector, including -0.4% for the first-round effect.
Source: OECD, INSEE calculations.

►6. The impact on sectoral value added in Germany is greater than in France
(in %)



Note: as an approximation, GDP is calculated as the sum of value added in all sectors for a country.
How to read it: the shock to the automotive sector in Germany should amount to -1.3% of value added in this sector, including -0.9% for the first-round effect.
Source: OECD, INSEE calculations.

the second. Regarding inflation, the results of ►**Milin, 2017** point towards a 0.4 points reduction in household consumer prices in the first year and a 0.7 points reduction in the second year.

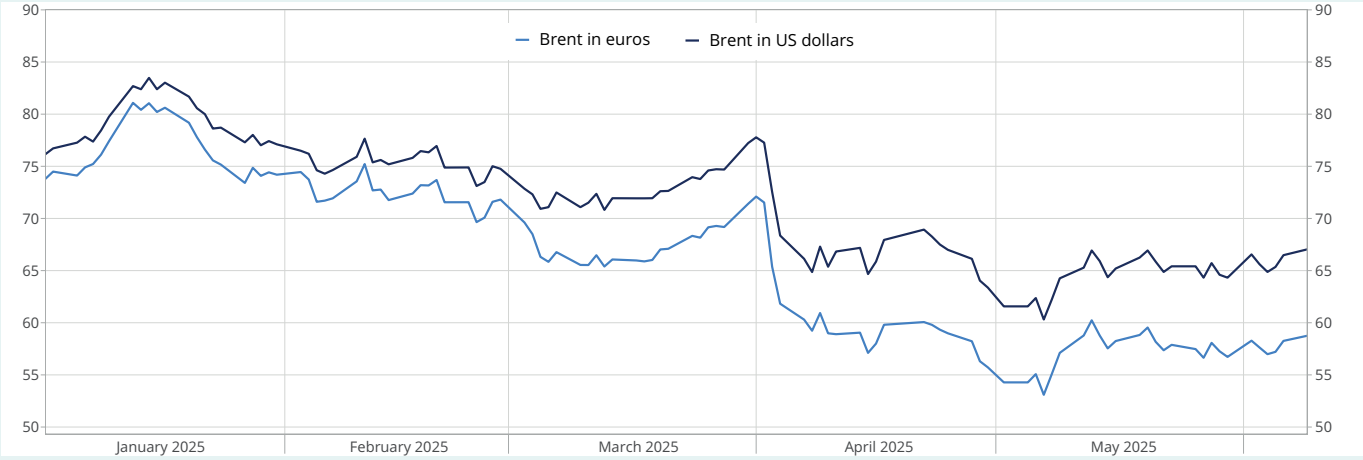
A climate of political and financial uncertainty has set in worldwide

Finally, the customs measures implemented by the US administration and the succession of announcements by President Donald Trump, on the one hand, and the retaliatory measures implemented or planned by the partner countries targeted, on the other, have helped to generate a climate of uncertainty at the global level, combined with a lack of confidence in the US bond markets. This climate of uncertainty contributed directly to the sharp drop in the main stock market indices in April 2025, but also to higher US borrowing costs, and may negatively affect many macroeconomic variables, such as growth and unemployment (►**Carriero and al., 2018**). A shock wave of uncertainty can spread to the real economy via many different channels. In particular, private investment is likely to be affected by a deterioration in financial conditions for households and enterprises alike, on the one hand, and by the postponement or cancellation of productive investment decisions, on the other. Similar effects are also likely to apply to household consumption, via a postponement of major purchases and an increase in the savings ratio.

The political origin of the uncertainty can be revealed by using the indicator calculated on the basis of press cuttings by ►**Baker and al., 2016**. This indicator has risen sharply in Europe in recent months, due to the policies of the new US administration (►**Figure 9**). The effect is particularly pronounced in Germany, which has a higher exposure to trade with the United States.

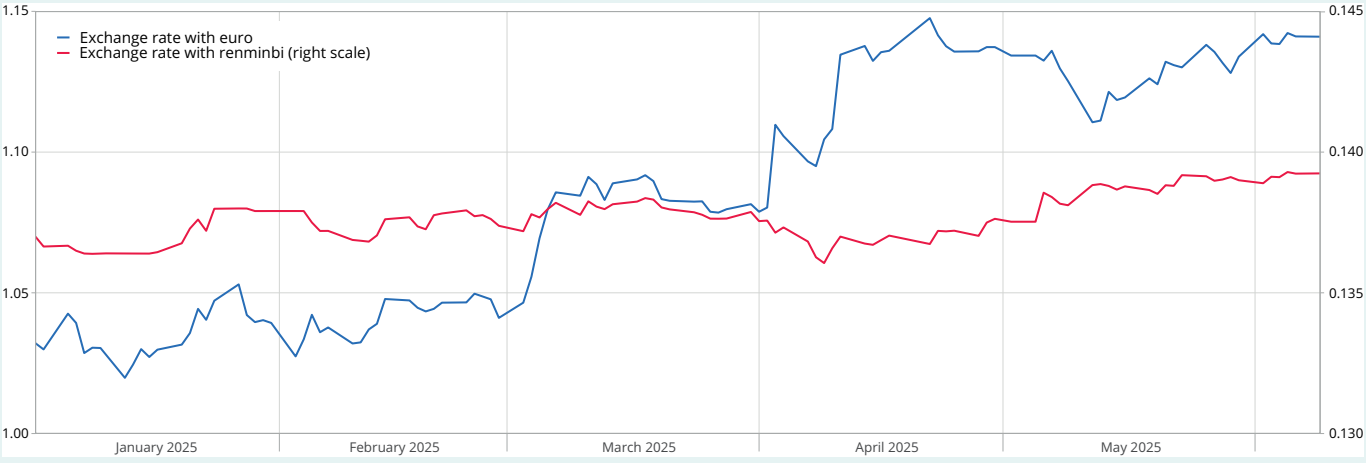
To quantify the increase in financial volatility in recent

►7. The price of oil fell following the announcement of US customs measures
(price of a barrel of Brent in euros or dollars)



Last point: 9 June 2025.
How to read it: in 9 June 2025, the price of a barrel of Brent crude was €59.
Source: S&P Global.

►8. The dollar fell against the euro following the announcement of US customs measures
(dollar exchange rate in levels)



Last point: 9 June 2025.
Note: a rise in the curve on this graph corresponds to a depreciation of the dollar against the other currency.
How to read it: 9 June 2025, €1 was trading at $1.14. On the same date, ¥1 was trading at just under $0.14.
Source: Insee.

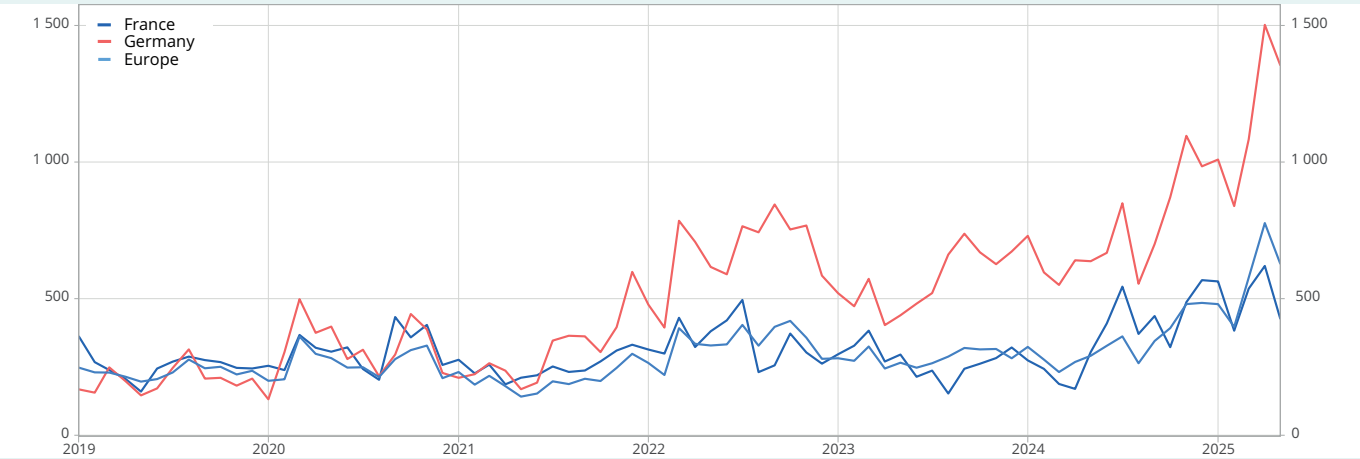
months, an indicator can be calculated on the basis of studies conducted for France by ►Zakhartchouk, 2012 and ►Adjerad and Vermersch, 2024. Calculated by comparing the monthly variance of a stock price with its average level over the month, this indicator, which is based on the equity markets, reflects the increased uncertainty related to financial volatility. In France, this index shows greater volatility over the recent period than when the dissolution of the French National Assembly was announced (►Figure 10). However, this index depends solely on the equity markets, whereas some of the shock may have been transmitted via the bond markets.

The cumulative effects of all these factors will have a more negative impact on growth in Germany and China than on France

The cumulative effects of these different factors can be estimated using an international macroeconomic model. Compared with the OECD's ICIO, this approach has the advantage of incorporating all the channels used to estimate the impact of US tariff measures on the various world economies, without being limited to the trade channel alone. However, while such a model can be used to identify the different levels of the tariff shock on a country-by-country basis, it cannot be used to conduct a sectoral analysis.

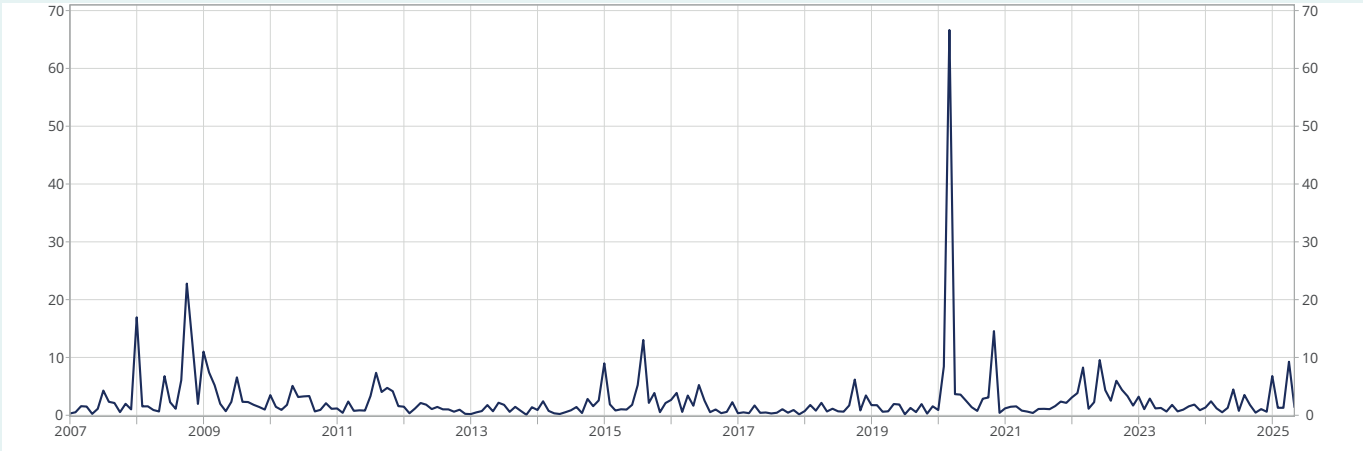
The chosen simulation is based on the application by the United States of a customs duty increase of 10% on the rest of the world, except for China, which is subject to a 30% increase. The Global Economic Model by Oxford Economics was used to perform an initial simulation without any countermeasures by partners. The model's findings indicate that these tariff barriers are likely to have a negative effect on GDP in most countries (►Figure 11). In 2025, without recycling the budgetary gains from customs duties in the form of tax cuts or increases in public spending, the United States is likely to be hit very hard, and could lose up to 0.7 GDP points, while the partner

►9. Political uncertainty in Europe soared with the inauguration of the new US President and the announcement of customs measures
(level in points)



Last point: May 2025.
How to read it: in May 2025, the political uncertainty index in Europe stood at 626.
Source: Economic Policy Uncertainly Index, Baker and al.

►10. In France, financial uncertainty soared with the announcement of US customs measures
(volatility index relative to its average level)



Last point: May 2025.
Source: NYSE Euronext Paris, INSEE calculations.

countries are expected to emerge relatively unscathed, with France and Germany losing only 0.1 GDP point and China 0.2 GDP points. In 2026, the effects should be more pronounced: activity is likely to be reduced by 0.8 points in the United States, 0.7 points in China and Germany, and 0.4 points in France. Over this horizon, the impact of US tariff measures for partner economies, estimated using the Oxford Economics model, is expected to be greater than the trade impact alone measured using the ICIO.

The impact on world economies of reciprocal retaliation measures by trading partners can also be measured (►**Figure 12**). Such countermeasures are likely to amplify the shock caused by the introduction of tariff measures in the United States, for the partner economies but above all for American activity. In the event of countermeasures, activity would be reduced by 1.0 percentage point in the United States in 2025 and by 1.8 percentage points in 2026.

Despite the considerable uncertainty surrounding these impact estimates, the different forecasters' models result in equivalent outcomes

These results from the Oxford Economics model used by INSEE can be compared with those of other institutes that have published estimates. The scale of the increase in customs duties is unprecedented, and the uncertainty surrounding the modelling is greater than for shocks that are more commonly observed in the economy (such as a public investment plan or an isolated rise in the price of oil, for example).

The MIRAGE-Power model from **CEPII** can be used to estimate the long-term effect of the customs duty shock. ►**Bouët and al., 2025** retains a 60% increase in customs duties on Chinese imports, and 10% on other partner countries (except Mexico and Canada), including reciprocal customs duties. The results of this modelling indicate that China and the United States would be the two hardest-hit countries, each likely to lose 1.3 GDP points in the long term. France and Germany would be only marginally affected, with GDP in both countries down by just 0.1 percentage points, as they would benefit from the bilateral trade war between the United States and China, through the postponement of trade flows. This model primarily estimates trade effects and is therefore similar to our estimate based on the ICIO.

The World Trade Organization, through its WTO Global Trade Model, also carries out an impact assessment, which includes an estimate of uncertainty effects. The assumptions used correspond to the customs barriers announced on 14 April, including 145% customs duties on Chinese products entering the United States (scenario 2 of the ►**Global Trade Outlook and Statistics, April 2025**). The results of this modelling highlight a major impact on the GDP of North American countries, with a drop of 1.6 points in 2025. The effect in Europe is expected to be more limited (-0.1 point), as in Asia (-0.3 points).

In its ***World Economic Outlook* for April 2025**, the **International Monetary Fund (IMF**) has revised its growth outlook downwards following the announced trade measures, including China's 34% customs duties applied to US goods. For the United States, growth is expected to be 0.9 points lower in 2025 and 0.4 points lower in 2026 than forecast in January. China's activity is also likely to be penalised, with revisions of -0.6 points in 2025 and -0.5 points in 2026. In Europe, the revisions are more moderate, but still significant: -0.2 points for France and -0.3 points for Germany in 2025, followed by drops of 0.1 and 0.2 points respectively in 2026.

The **OECD**, in its ►**Economic Outlook** of June 2025, has presented the results obtained from the National Institute Global Econometric Model (NiGEM). The OECD models an increase in tariffs imposed by the United States on all countries and the imposition by all countries of retaliatory customs duties of 10%. Added to this shock is a 10% downturn in equity prices in all countries, a 50 basis-point

►11. Impact estimates by the Oxford Economics model, without countermeasures by partners
(estimates of the difference between GDP with and without a customs barrier shock, in pp)

	China	France	Germany	United States
2025	-0.2	-0.1	-0.1	-0.7
2026	-0.7	-0.4	-0.7	-0.8

Note: the simulated shock corresponds to a 10% increase in US customs duties on the rest of the world, except for China, which faces tariffs of 30%.
How to read it: in United States, the measures are likely to reduce GDP by 0.7 points in 2025.
Source: INSEE calculations, modelisation via *Global Economic Model* d'*Oxford Economics*.

►12. Impact estimates by the Oxford Economics model, with countermeasures by partners
(estimates of the difference between GDP with and without a customs barrier shock, in pp)

	China	France	Germany	United States
2025	-0.3	-0.1	-0.2	-1.0
2026	-1.0	-0.6	-1.0	-1.8

Note: the simulated shock corresponds to a 10% increase in US customs duties on the rest of the world, except for China, which faces tariffs of 30%, in addition to the reciprocal tariffs imposed by the rest of the world on the United States.
How to read it: in United States, the measures are expected to reduce GDP by 1.0 point in 2025.
Source: INSEE calculations, modelisation via *Global Economic Model* d'*Oxford Economics*.

rise in investment risk premiums worldwide, a one-percentage-point increase in household savings ratios in all countries and a 10% reduction in oil and natural gas prices. According to these simulations, the real level of world GDP could be reduced by more than one point after two years. The biggest impact concerns the United States, with GDP falling by more than 1.5 percentage points after two years.

The **European Commission**, as part of its ►**Spring Forecast 2025**, and via the Directorate-General for Economic and Financial Affairs (DG ECFIN) QUEST model, provides an estimate of the effect of the US customs duty hikes announced up to 2 April, assuming a scenario with no retaliation from US trading partners. Under these assumptions, the effect on US GDP is a drop of 0.6 points in 2025 and 1 point in 2026. The effect on the European Union is expected to be more limited, at -0.2 on the level of GDP in 2025 and 2026. If retaliatory customs duties were to be added by the United States' trading partners, the effects would be even more damaging, reaching -0.3 to -0.4 points of GDP in Europe.

Yale Budget Lab (►**Yale Institute, 2025**) regularly updates its estimated impact of the measures announced by the US president based on the Global Trade Analysis Project (GTAP) model. The May 2025 estimate takes account of the additional 40% customs duties announced by Donald Trump on the European Union, as well as the latest developments in customs measures. The greatest long-term effect is expected to be felt in the United States, at -0.5 GDP points. The effect is likely to be minor in China, at -0.3 points, and nil in Europe. Compared with the analyses presented above, the estimated impact appears to be lower, but it corresponds to the long-term effect. The short-term estimates for the United States are more consistent with the other results, showing an effect of around one GDP point in 2025-2026.

All the models ultimately point towards a fairly substantial negative short-term impact in the United States in the absence of budgetary compensation, and a less pronounced impact in Europe and China. Among European countries, the impact on France appears to be systematically lower than on than Germany. ●

Box 1: Data and methodology

Data used

The OECD's Inter-Country Input-Output Table (ICIO) is a database covering the output of 77 countries for 45 product types, as well as their intermediate and final uses. The year used for this analysis is 2019.[1]

The table has 3,465 rows, each in the form of a resources-uses balance corresponding to a (product×country) combination. For each of the rows, the manufacture of a specific product in a given country is associated with the different possible uses:

- intermediate uses by the 3,465 branches considered;
- final uses in the 77 countries considered.

The Inter-Country Intermediate Use Table (ICIUT) is a square matrix covering 3,465 items, describing the intermediate uses of 77×45=3,465 (country×product) pairs in the production of the 3,465 industries considered. The final employment matrix has 3,465 rows, corresponding to the (product×country) pairs, and 77 columns, with each column representing the final demand of one of the countries in question.

Imports and exports are therefore not directly identified in the ICIO: these flows are treated implicitly, since a country's production of a given product is directly linked to the final or intermediate uses of that product, whether in the domestic economy or abroad.

For the purposes of this study, the initial base of 77 countries and 45 products is reduced to 21 countries and 18 products,[2] or 378 (country×product) pairs. The 21 countries selected are the United States' main partners and the United States itself.[3]

1 The latest available year – 2020 – has not been included because of the pandemic.
2 The following 18 products are covered: agri-food and agricultural products, energy (including refined products), services and construction, textiles, wood, paper, chemicals, pharmaceuticals, rubber and plastics, other non-metal mineral products (including cement), metal products, IT, electronic and optical products, electrical equipment, other machinery and equipment, motor vehicles, other transport equipment and other manufactured products.
3 These 21 countries are: United States, Mexico, China, Canada, Germany, Japan, Vietnam, South Korea, Ireland, India, Italy, France, Malaysia, Brazil, Singapore, Netherlands, United Kingdom, Switzerland, Belgium, Spain and the rest of the world.

Formally, the resource-uses balance of a (country×product) pair ***i*** is expressed by the equality between its output and the sum of its final uses (noted EF_i) and its intermediate uses. Accounting equality can therefore be expressed in matrix form:

$$X = EF + ICIUT$$

With:

• ***X*** is a column vector (378×1) of outputs for each (country×product) pair;

• ***ICIUT*** is the square matrix (378×378) of the intermediate inputs;

• ***EF*** is a column vector (378×1), each row of which corresponds to the aggregate final demand of all countries for a given pair. This vector can be interpreted as the product (on the right) of the matrix (378×21) of final demands in each country by a column vector (21×1) filled with 1.

The Inter-Country Intermediate Use Table ***ICIUT*** can be reformulated as the matrix product of a square matrix (378×378) of technical coefficients ***A*** and the column vector (378×1) of output ***X***:

$$ICIUT = A.X$$

The resources-uses balance can then be expressed as follows:

$$X = EF + A.X$$

Let:

$$X = (I-A)^{-1}.EF$$

Level of customs duties retained

This study is based on a model of the US customs duties applicable in May 2025: it incorporates all the measures announced by the new US administration since it took office, up to and including the Sino-American agreement of 12 May. These measures can be summarised as follows:

• for **Canada and Mexico**, a general tariff of 25% is applied to the majority of products imported by the U.S. However, goods that comply with the rules of origin of the USMCA (United States-Mexico-Canada Agreement of 2020) are exempt from these duties: the assumption used in this study is that 40% of Canadian products and 50% of Mexican products imported into the United States comply with the USMCA. Consequently, with the exceptions listed below, average tariff shocks of **15% on Canadian manufactured and food products** (25% applied to the 60% of non-compliant imports) and **12.5% on Mexican products** (based on the same principle) have been retained;

• for **China**, a general tariff increase of **30%** is applied to all Chinese imports, except for electronic products which are exempt;

• for **other countries** (excluding China, Canada and Mexico), a uniform rate of **10%** is applied to manufactured and agri-food products, with the exceptions listed below;

• a customs duty of **25% is in force in the automotive sector**. However, imports from Canada and Mexico are exempt if the products comply with the USMCA. The 25% tariff shock is therefore applied to all the other countries, compared with 15% in Canada and 12.5% in Mexico (for the latter, the average tariff applied to cars is therefore indistinguishable from other manufactured products);

• since February 2025, a tariff of **50% has been applied to steel and aluminium**. This shock is applied directly to the "Metallurgy" sector in the model;

• concerning **energy**, crude oil is explicitly exempt from customs duties, except for Mexico and Canada where it is covered by the more general taxation rules under the USMCA. Given that crude oil accounted for 66% of US energy imports in 2023 (►**EIA**), a 10% customs duty initially applied to energy products is reduced to 3.4% (=10%×34%) for partner countries excluding Canada and Mexico. For Canada, energy products that do not comply with the USMCA are taxed at 10%, with the residual tariff set at 6% (=10%×60% of non-compliant goods). For Mexico, a customs duty of 12.5% is applied (25%×50%);

• finally, **pharmaceutical products** and timber are temporarily exempt from customs duties. Similarly, **services and construction** are not affected by the tariff measures.

Chosen model

Customs duties are modelled at the (country×product) level, assuming a unit elasticity of US imports for all (country×product) pairs (this elasticity assumption is discussed in ►**Adjerad and al., 2024**). As imports and exports are not directly identified in the ICIO, a shock to US imports cannot be directly implemented in this tool. To model the effect of the introduction of customs duties, a shock is directly applied to US final uses (one of the columns in the final uses matrix), by distinguishing between US final uses in products manufactured in the United States (18 rows) and those in foreign products (all the other rows).

• US final demand for foreign products consists, by definition, entirely of imports. Consequently, for the rows corresponding to these products,[4] the decline retained in US final demand corresponds to the increase in customs duties for the (country×product) pair in question: for example, US final demand for German automobiles will be reduced by 25%, and for French textiles by 10%.

• Regarding US final demand for US-made products,[5] its decline for each product is proportional to the share of intermediate consumption of foreign goods needed to manufacture that product. This share can be calculated using the ICIUT, and is multiplied by 18%, which corresponds to the average tariff shock on US imports of goods.[6] This method can be used to account for the rise in the cost of inputs by assuming, for the sake of simplicity, a complete "pass-through" and an elasticity of final demand that is always unitary according to its price. The results reveal a marked heterogeneity per product (►**Figure 13**): the share of intermediate consumption of foreign goods exceeds 15% in textiles and automobiles, approaches 10% in metallurgy, chemicals and electrical equipment, but remains very low in services (2%).

►13. Share of intermediate consumption of foreign goods in output by industry in the United States
(in %)

Sector	Share of intermediate consumption of foreign goods
Food and agriculture	9.9
Energy	10.3
Services and construction	1.6
Textiles	11.5
Wood	6.9
Paper	7.5
Chemicals	8.3
Pharmacy	7.9
Rubber and plastics	9.3
Other non-metal mineral products	5.6
Metallurgy	10.1
Manufacture of metal products	7.7
Computer, electronic and optical products	3.9
Electrical equipment	10.5
Other machinery and equipment	9.9
Motor vehicles	15.1
Other transport equipment	7.7
Other manufacturing and repair	7.1

How to read it: in United States, to produce goods for domestic final demand, the agri-food sector uses 9.9% of intermediate consumer goods from abroad.
Source: OECD, INSEE calculations.

4 These are the rows corresponding to all the (product×country) pairs except for the 18 rows corresponding to products manufactured in the United States.
5 These are the 18 rows corresponding to products manufactured in the United States.
6 This is a simplification: in theory, it should be possible to calculate a more precise tariff shock for each product manufactured in the United States by precisely applying the detailed tariff increases defined for each (country×product) pair to the foreign inputs of these products.

Based on the shock calibrated according to US final demand, the OECD's ICIO can be used to measure the impact of the Trump administration's tariff hike in 2025 on the economies of the various countries tracked via the trade channel. The methodology, outlined below, is identical to that used in ► **Adjerad R.and al., 2024**. This estimate is based on an unchanged world trade structure, i.e. the reduction in countries' final demand does not take account of any reorganisation of value chains or of global demand for goods and services.

To assess the total impact of a decline in US final demand, the matrix equation is expressed as follows:

$$X = (I - A)^{-1}.EF$$

The transition from production to value added can be expressed as:

$$VA = V.\ (I-A)^{-1}.EF$$

where ***V*** is a diagonal matrix (378×378) containing the share of value added in the output of each (country×product) pair.

A downward change in US final demand, ***ΔEF***, thus results in a total effect on the value added of each (product×country) pair calculated as:

$$\Delta VA = V\ (I - A)^{-1}\ \Delta EF$$

Finally, the total impact of US tariff measures on GDP is obtained for each country by adding up the changes in value added for all industries.

Breakdown of the total effect into successive rounds

The total effect described above is calculated using the inverse of the Leontief matrix, which incorporates all of the propagation effects in the value chains. This matrix can be expressed as the sum of a Neumann series:

$$(I - A)^{-1} = I + A + A^2 + \ldots$$

In this formulation, the first term corresponds to the first-round effect, i.e. the direct impact of the initial drop in demand, while the subsequent terms reflect the indirect cascading effects. Therefore, the first-round effect is simply expressed as:

$$\Delta VA = V.\Delta EF$$

Box 2: Mapping of French departments exposed to trade with the United States: data and methodology

The mapping of the departments' exposure to trade with the United States is based on localised sectoral information concerning both exports of goods and salaried employment. Exports, like uses, are broken down by department using the 88-branch NAF nomenclature.

Data on exports by department is sourced from the French General Directorate of Customs and Excise (DGDDI). In order to limit the impact of the volatility of goods exports, the exports considered for each sector in each department are the average value of exports over the years 2022 to 2024. The local employment statistics for each sector are derived from INSEE's Localised Compensation and Payroll Employment File (FLORES). They also refer to total salaried employment at 31 December 2022.

The indicator of departmental exposure to trade with the United States is defined as the ratio of total exports of goods to the United States to salaried employment in the department. However, for the sake of robustness, sectors with a negligible share of employment (less than 0.25%) in the department are excluded from the analysis. Formally, let X_{is} be the department's exports in goods to the United States ***i*** in sector ***s***, L_i be the department's total salaried employment (in goods and services) and $1_{(.)}$ be a binary variable. The exposure indicator is calculated as:

$$\frac{\sum_s X_{is} \times 1_{(\frac{L_{is}}{L_i} > 0{,}25\%)}}{L_i}$$

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