

Winners and Losers

Quantifying the Impact of Trump's Tariffs on Developing Economies

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Trump's 2025 "Liberation Day" tariffs raised concerns that the impacts on developing countries would be catastrophic. However, these concerns turned out to be misplaced. It seems that many, if not most, developing and least developed countries, may be better off. This is because most of the tariffs have been downgraded, and many countries gain from trade diversion away from China. That is, developing country exports replace Chinese exports to the U.S.

This paper assesses these impacts using the GTAP computable general equilibrium trade model, applying tariff shocks derived from official US Executive Orders. Three scenarios are examined: (i) Liberation Day tariffs, adjusted for numerous exemptions; (ii) Retaliation, where partners impose equivalent tariffs on US exports; and (iii) Realignment, in which the U.S. scales back tariffs for most partners except China, which maintains higher protection.

Modelling results indicate that the impact on developing countries is diverse. Under the three scenarios, U.S. imports are reduced by 13, 25 and 10 per cent, but global trade is reduced by only two to three per cent. Even in the worst case, the Liberation Day tariffs, which include tariffs as high as 50 per cent, national exports are reduced by five or six per cent, because exporters shut out of the U.S. find other markets. For most countries, the reduction in exports is less than one per cent. In terms of real GDP, 24 out of 37 regions show a positive result for the Liberation Day scenario. This drops to six for the Retaliation scenario, but rises to 28 for the more realistic Realignment scenario.

Overall, Trump's tariffs are bad policy for the U.S. and China, and bad policy globally, but the effects are not catastrophic and may even be positive for many countries. Opportunities exist for those that can adjust to changing circumstances.

Keywords: Tariffs, trade wars, Trump, CGE, GTAP

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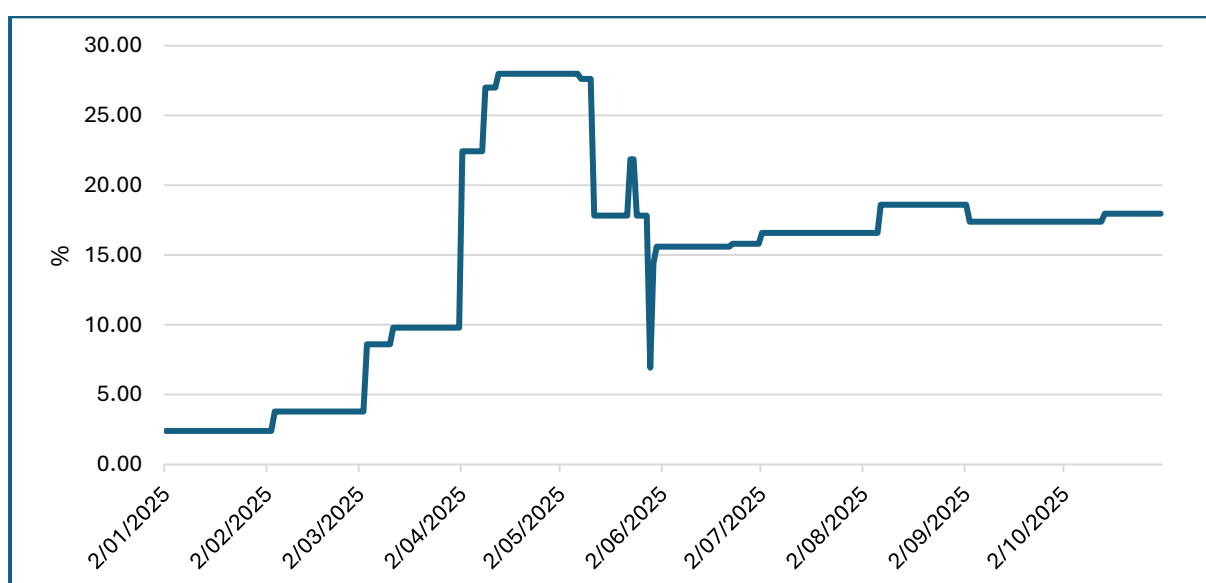
1 Introduction

Is globalisation coming to an end? At least, the world trading system has entered a period of turbulence. Since the re-election of President Trump in 2024, the United States has adopted a series of tariff measures under the banner of “economic liberation” and “reciprocity.” The Liberation Day tariffs, proclaimed on 2 April 2025, were presented as a comprehensive response to perceived unfair trade practices and chronic trade imbalances, aimed at reducing the U.S. trade deficit and bringing manufacturing back onshore. Raising revenue, perhaps enough to reduce other taxes, was another stated objective. Tariffs as high as 50 per cent were announced on countries with little trade with the United States. Additional tariffs of 34 percentage points were imposed on imports from China, 25 percentage points on Canada, and Mexico, 20 percentage points on the European Union, and 10 percentage points on most other trading partners. These rates were partially offset by exemptions under Annex II and the long-standing Section 232 exclusions on iron, steel, and aluminium. Subsequent Executive Orders and Federal Register notices clarified procedures for exemption applications but did not substantially reverse the tariff increases. By August 2025, when the temporary 90-day pause expired, most tariffs remained in place, albeit with a complex pattern of carve-outs.

1.1 Evolution of U.S. tariffs

Tariff protection in the United States has a long and cyclical history. According to data compiled by the Budget Lab at Yale University, average effective U.S. tariff rates on imports have fallen from over 30 per cent in the 1930s to below 2 per cent by the mid-2010s, reflecting successive liberalisation rounds under the GATT and WTO. This steady decline has coincided with rising trade volumes, complex supply chains, and a persistent trade deficit. Effective U.S. tariff rates for 2025 are shown in figure 1. The large increase in April from 10 to 28 per cent was wound back in May and eventually reached a plateau of around 17 per cent.

Figure 1 U.S. Average Effective Tariff Rate in 2025



Source: The Budget Lab (2025)

Seen against the historical backdrop, the 2025 tariff increases mark a turning point in the use of tariffs as an instrument of industrial policy. It signals a shift from decades of multilateralism towards managed trade, in which access to the U.S. market depends on U.S. policy objectives, particularly as regards a perceived threat from China. The problem with this strategy is that both China and the United States need each other, hence we see a range of exemptions and carve-outs.

On April 2nd, the administration introduced what became known as the “Liberation Day” tariffs, a sweeping set of measures announced in Executive Order 14257.² The policy’s stated purpose was to rebalance U.S. trade by imposing a country specific reciprocal tariff to rectify the bilateral trade imbalance. Thus, the tariff varied according to the bilateral deficit. These ranged from ten to 50 per cent. These were replaced with a ten per cent uniform tariff on September 5th. In its revised form, the order was deliberately broad, covering nearly the entire U.S. tariff schedule and intended as a simple, across-the-board mechanism to encourage reshoring, reduce trade imbalances, and strengthen domestic production. In the months that followed, the ten per cent baseline tariffs gave way to a growing set of carve-outs, exemptions, and negotiated arrangements. Annex II³ removed the baseline tariff from many agricultural and specialty products; Executive Order 14289⁴ established rules for handling overlapping tariff authorities; and a series of country-specific deals — including agreements with the United Kingdom, Japan, South Korea, Canada, and Mexico — replaced the universal 10 per cent rate with partner-specific tariff tiers, exemptions, or sectoral caps.⁵ As a result, the once-uniform ten per cent baseline tariffs now function as the foundational layer of a far more differentiated and complex tariff structure.

Since early 2025, the United States has operated a substantially revised and more complex tariff system. The new regime combines a universal baseline tariff, additional surcharges targeted at specific countries, and product-specific measures linked to industrial and national-security goals. Together these policies form a multi-layered structure in which the tariff on any import depends both on what the product is and where it comes from.

A central component of this system is the 10 per cent “reciprocal” base tariff, introduced by Executive Order 14257 on April 2, 2025. This tariff applies broadly to imported goods from most countries. However, a set of exemptions defined in Annex II — covering mainly agricultural goods not produced in the United States, such as coffee, tea, cocoa, tropical fruit, juices, and select industrial inputs — eliminates the baseline tariff for these products. The baseline tariff also does not apply to goods covered under Section 232, which carry much higher rates on selected metals.

In addition to the baseline tariff, China faces an additional 10 per cent “fentanyl tariff,” imposed under emergency authorities (IEEPA). This measure applies to all Chinese-origin imports and

² The White House (2025a).

³ Federal Register (2025b).

⁴ Federal Register (2025c).

⁵ Federal Register (2025d).

stacks on top of other tariff layers. Although Annex II exemptions remove the baseline tariff for certain product lines, Chinese goods still face this surcharge, as well as any applicable product-specific duties.

Several product-specific tariff programs continue to operate alongside the universal measures. The first is the Section 301 tariff regime, originally imposed in response to concerns over Chinese technology-transfer practices. Section 301 tariffs remain in effect on a wide range of Chinese industrial and manufactured goods, with ad-valorem rates of 7.5 per cent or 25 per cent, depending on the tariff list. A cycle of temporary exclusions continues, with the latest extensions running into late 2026.

The second major product-specific regime is Section 232, covering metals and metal-containing goods. Under Proclamation 10947, issued on June 3, 2025,⁶ the tariffs on steel, aluminium, and downstream derivatives were raised from 25 per cent to 50 per cent, and the scope was broadened to include hundreds of additional metal-containing products. Earlier country-level exemptions were largely revoked, though later negotiations created exceptions for the United Kingdom. Section 232 operates independently of Section 301, meaning that some products — especially Chinese metal-containing goods — are subject to both.

Because Annex II products consist mainly of agricultural and natural-resource goods, there is almost no overlap with either Section 301 or Section 232.

Several partners have negotiated country-specific tariff arrangements. The United Kingdom remains subject to the 10 per cent baseline tariff but has secured tariff eliminations for UK steel and aluminium as well as zero tariffs on pharmaceuticals and medical devices under the 2025 Economic Prosperity Deal.⁷ Japan and South Korea have each negotiated into a 15 per cent reciprocal tariff tier, replacing the 10 per cent baseline. For these partners, Annex II exemptions do not reduce the 15 per cent rate. Both countries also face Section 232 tariffs on metal products unless otherwise specified. Meanwhile, Canada⁸ and Mexico⁹ operate largely under USMCA rules: tariff-free treatment applies to the majority of trade, while non-USMCA-compliant goods face surcharges, typically between 25 and 35 per cent. However, both countries still face full Section 232 tariffs on metal products.

China remains the most heavily affected trading partner. It uniquely faces the combination of the 10 per cent baseline tariff (except for Annex-II goods), the 10 per cent fentanyl tariff, Section 301 tariffs, and Section 232 metal tariffs. For some Chinese industrial products — especially those containing steel or aluminium — these measures can accumulate to some of the highest effective tariff rates in the U.S. system.

Overall, the contemporary tariff regime blends a general import tariff, country-specific measures, and product-specific industrial and national-security instruments. Two otherwise identical products may face dramatically different tariff burdens depending on their country of

⁶ Federal Register (2025b).

⁷ United Kingdom Government (2025).

⁸ Canadian Department of Finance (2025).

⁹ Mexican Secretariat of Economy (2025).

origin, with China being most affected and other key partners such as the United Kingdom, Japan, Korea, Canada, and Mexico navigating bespoke arrangements layered on top of the global tariff structure.

1.2 The Administration's grievances

The Administration's stated grievances fall into three broad categories:

1. Chronic trade deficits and perceived loss of manufacturing capacity. The U.S. trade deficit is portrayed as evidence that trading partners impose hidden barriers or manipulate exchange rates, leading to "unbalanced" trade. The U.S. trade deficit was \$1.2 trillion annually in 2024, much of it vis-à-vis China, Mexico, Vietnam and the European Union, according to the U.S. Bureau of Economic Analysis.
2. National security and supply chain vulnerabilities. Drawing on Section 232 of the Trade Expansion Act of 1962, the White House argues that excessive dependence on foreign suppliers for steel, aluminium, semiconductors, and critical minerals endangers national resilience.
3. Unreciprocated market access. The U.S. contends that partners such as the European Union, Japan, and China maintain higher tariffs and non-tariff barriers, particularly in agriculture and services, while benefitting from low U.S. tariffs on their exports.

Whether these grievances are valid is open to debate. Economically, a trade deficit reflects macroeconomic savings and investment imbalances rather than tariff asymmetries. The U.S. cannot reduce its trade deficit without bringing its savings and investment into balance, because of the requirements that the current account (exports minus imports) must offset the capital account (savings minus investment). China has a glut of savings and runs a trade surplus. The U.S. is the opposite.

Strategically, supply chain diversification and reshoring can improve resilience but is likely to raise costs. That is why offshoring occurred in the first place.

Reciprocity, narrowly defined as equal tariffs on each side, makes little sense. It overlooks structural factors such as income levels, production efficiency, and the legacy of WTO commitments. Yet politically, these arguments resonate with sections of a domestic audience that views globalisation as a source of industrial decline.

Thus, the Administration's actions can be understood as a mixture of economic nationalism and bargaining leverage — an attempt to reset trading relationships by making market access conditional on concessions in other domains (investment, technology, or defence cooperation).

Apart from grievances, an argument in favour of tariffs advocated by the Administration concerns tariff revenue. In 2024, U.S. merchandise imports amounted to \$4.1 trillion, in an economy with a GDP of \$29.18 trillion. Simplistically, a tariff of 18 per cent would raise \$738 billion, about 2.5 per cent of GDP. This compares with personal income tax revenue of \$2,410 billion. In principle, tariff revenue could replace a quarter or more of personal income tax. The

problem with this argument is two-fold. First, higher tariffs imply a reduction in imports, reducing the tax take. The extent of the reduction is an empirical question. Second, the revenue is largely coming from American consumers, assuming the price increasing effects of the tariffs are passed on to consumers. The extent to which this happens is also an empirical question, which depends on the terms of trade. Fortunately, we can make a good attempt at answering these questions.

1.3 A developing country perspective

For developing countries, the implications of this shift towards higher tariffs may be significant. Some of the Liberation Day tariffs were very high on some countries that had very little trade with the U.S. This is because the Administration was concerned about trans-shipment. That is, Chinese goods being shipped through other countries, such as Vietnam. Even in the absence of these tariffs, most countries are indirectly affected through trade diversion and preference erosion. Developing country merchandise trade tends to be heavily concentrated in a small number of commodities, such as textiles, agriculture, or minerals. SIDS tend to rely on textiles and tourism. LDCs have preferential access. A uniform tariff would remove this preference. When large economies such as the United States and China restrict bilateral trade, competitors and customers adjust accordingly, shifting demand and supply across markets in ways that can amplify or offset national welfare effects.

Understanding the indirect effects of U.S. tariffs requires a global, multi-sectoral framework rather than a partial analysis of bilateral flows. The modelling framework used in this paper captures these substitution effects explicitly. By tracing the changes in bilateral trade flows across multiple regions and commodities, the simulations quantify not only the direct impact of tariffs on developing countries' trade balance but also the indirect gains from trade diversion. Whether these gains materialise depends on the persistence of the United States–China standoff and the flexibility of other countries' production systems to respond to changing world prices.

This study therefore examines how the new U.S. tariff regime and possible foreign responses affect trade, output, and national income. It does so using the Global Trade Analysis Project (GTAP) computable general equilibrium trade model, which captures interlinkages across sectors, regions, and factor markets.

Three policy experiments are conducted:

1. **Liberation Day:** baseline U.S. tariff package with exemptions for Annex II, Section 232, and specific partners.
2. **Retaliation:** Scenario 1 plus reciprocal, trade-weighted tariffs on U.S. exports.
3. **Realignment:** post-August configuration retaining U.S. tariffs with exemptions, but with retaliation limited mainly to China.

Preliminary results indicate heterogeneous GDP impacts for developing countries under Scenarios 1 and 3 but small gains under the retaliation scenario. However, there are large sectoral changes under the Retaliation scenario, with large increases in wheat, coarse grains,

cotton and beef. Under the most realistic, Realignment scenario, agricultural impacts are muted but mixed. These outcomes highlight the delicate balance between trade diversion benefits and losses from displaced exports. These results are sensitive to the tariffs the United States and China place on each other. From time to time, the United States and China threaten each other with tariffs of 100 per cent or more. If these came to be implemented, the effects would be much more significant. However, most countries would likely gain slightly from the diversion of trade.

Section 2 describes the model, data sources, aggregation, and scenarios. Section 3 presents simulation results. Section 4 discusses the policy implications. Appendices provide detailed tariff matrices, regional and sectoral aggregation, and supplementary tables.

2. Data and Methodology

2.1 GTAP modelling framework

The analysis uses a computable general equilibrium (CGE) approach implemented with the Global Trade Analysis Project (GTAP) model and database. GTAP provides a consistent, global representation of production, trade, and income linkages across countries and sectors. Each region's economy is modelled as a set of interlinked industries using intermediate inputs, primary factors (land, labour, capital), and imported goods. Bilateral trade is captured through Armington elasticities that distinguish products by source, allowing substitution among suppliers when relative prices change.

The CGE structure is particularly suited to examining bilateral tariff shocks because it captures economy-wide feedback effects—changes in relative prices, resource reallocation, and shifts in trade flows that partial-equilibrium approaches miss. The model is implemented in GEMPACK using a comparative-static closure, holding the global current account fixed and allowing capital mobility across regions depending on the rate of return. Labour cannot move across regions but can move between sectors within regions. Simulations are comparative static, showing deviations from a baseline in 2025. The baseline has been updated from 2017 in real terms, hence the trade and welfare data are in 2017 constant U.S. dollars.¹⁰

The tariff shocks are estimated at the six digit level and aggregated to the GTAP sectors using the TASTE, a Gempack utility. The tariffs shocks are trade weighted, using the trade values consistent with the 2017 database.

2.2 Capital-account adjustment and the trade balance

In the modelling, the current account (export minus imports) must offset changes in the capital account (Savings-Invest). Because savings are relatively constant in real terms, the trade balance is determined by investment. A nation's external balance is determined by the savings–investment gap, not by trade policy per se. This means that tariff policy has little influence on

¹⁰ The 2017 database, described in Aguiar et al. (2022), is updated to 2025 using data from CEPII (Fontagné et al. 2022) and IMF (2025).

the trade deficit, unless it changes investment behaviour. In fact, tariffs may widen the deficit by increasing the value of the dollar, attracting capital inflows.¹¹

In the model results, the U.S. deficit remains relatively stable across scenarios. The composition of trade shifts—less from China, more from nearby partners—but the aggregate gap persists.

2.3 Regional and sectoral aggregation

To make the analysis tractable, the 160 GTAP regions are aggregated into 37 composite regions, including the United States, China, the European Union, Canada, Mexico, Japan, and 30 other trading partners grouped by geography or trade significance (e.g. ASEAN, Other Europe, Rest of World). The regions are shown in Appendix table A1.

Sectors are aggregated from GTAP’s 65 commodity groups to 27 tradeable sectors (plus utilities and services). Key disaggregations are retained for major agricultural exports—wheat, coarse grains, beef and veal, pork and poultry, dairy products, other animal products, processed foods, textiles, iron and steel, aluminium, and pharmaceuticals. Sectors with limited international trade (electricity, gas and water) are aggregated to a single “utils” category. Tourism, recreation and various business services are captured in the services sector (servic). Public services include health and education. The sectors are shown in Appendix table A2.

2.4 Scenarios

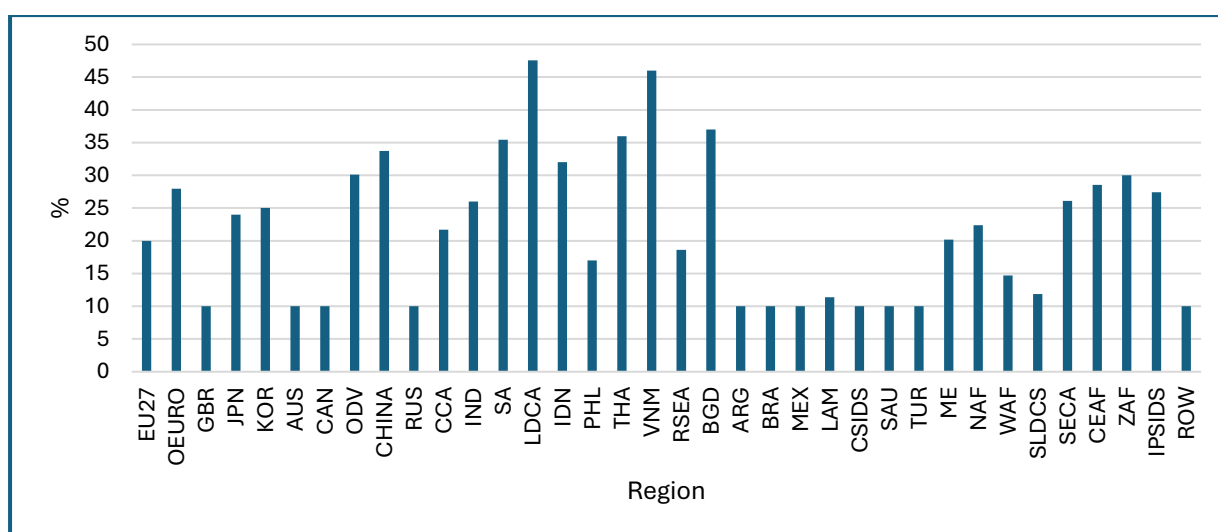
The initial scenario—Liberation Day—replicates the U.S. tariff schedule announced on 2 April 2025 and specified in Annex I (The White House (2025a). This includes:

- A 34 per cent tariff on imports from China
- 20 per cent on imports from the European Union
- Tariffs as high as 50 per cent on some countries
- 10 per cent on imports from many other partners

The spread of tariffs is shown in figure 2 for specified GTAP regions. Country level tariffs are shown in Appendix table A3. High tariffs are imposed on some LDCs and south-east Asian countries that may act as a transit country.

¹¹ Pettis (2025).

Figure 2 Trump's Liberation Day Tariffs



Source: The White House (2025a). Excludes exemptions.

Exemptions were applied according to Annex II of the proclamation and subsequent notices which list sectoral exclusions for iron, steel, and aluminium under Section 232 of the Trade Expansion Act. Initially, Argentina, Australia, Canada, Mexico, the European Union (EU), and the United Kingdom had preferential treatment on exports of iron, steel, and aluminium, but this was removed on 18th February 2025.

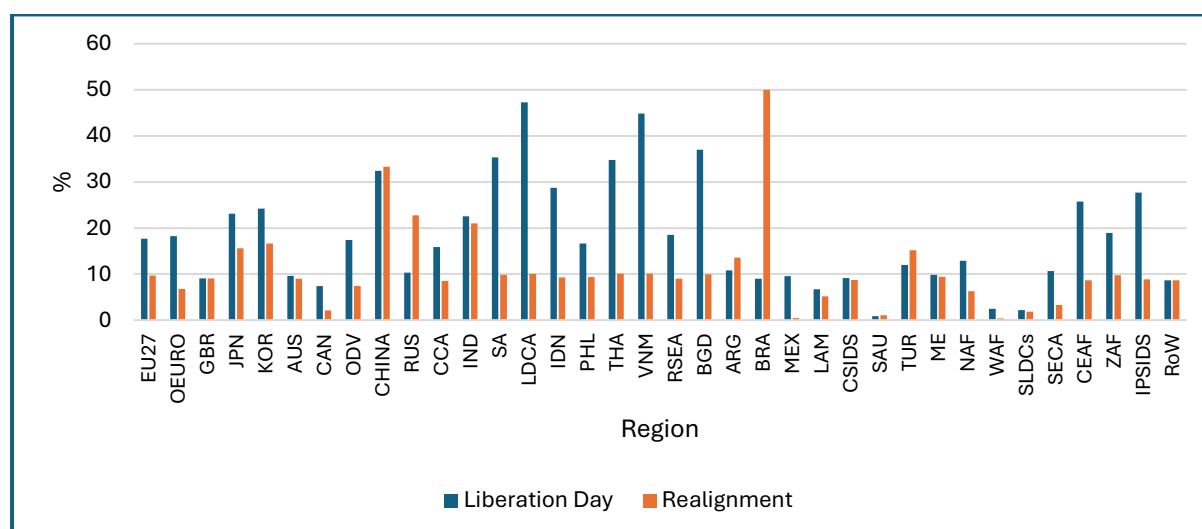
To implement the scenario, tariffs are set to zero using GTAP's Altertax facility, so that the model's percentage point shocks represent the full ad valorem rate of the additional measures. This avoids the need to add shocks to existing rates.

The second scenario, Retaliation, imposes similar tariffs on U.S. exports, at a sectoral level. This means the European Union imposes the same tariffs on motor vehicles that the United States imposes on its exports. This makes some sense with motor vehicles, which both countries export, but little sense with some agricultural products or textiles where the trade is one way.

The third scenario, Realignment, represents the most recent (December 2025) tariff landscape. It assumes modified U.S. tariffs and exemptions but limited retaliation except by China, which imposes tariffs of ten per cent across the board. The rest of the world largely absorbs the new U.S. structure without further escalation. This hybrid design captures the observed stability of tariff rates after August 1, 2025, when the temporary suspension expired but no significant new measures were introduced. As a result of specific negotiations, tariffs on Japanese imports are capped at 15 per cent, the European Union 20 per cent, Canada and Mexico mostly zero per cent, other countries 20 per cent, except those which were initially ten per cent. Annex II exemptions apply. For metals, the 50 per cent tariff applies unless countries are exempt under Section 232. Trading partners do not retaliate. The tariff on China averages 33 per cent, although this is somewhat contentious, as from time to time each country threatens the other with high tariffs and exports controls. Average trade weighted tariffs are shown in figure 3.

Generally, they are much lower than the Liberation Day tariffs, with the notable exception of Brazil.

Figure 3 U.S. Liberation Day and Realignment Tariffs



Source Trade weighted tariffs derived from The White House (2025a,b)

Each simulation reports changes in key macroeconomic and sectoral indicators relative to the pre-April 2025 baseline: real and nominal GDP, export and import values, trade balance, tariff revenue, real wages and sectoral output. For agriculture, results focus on export volumes of wheat, coarse grains, beef, dairy, and horticulture.

The results should be interpreted as medium-run static equilibria, not forecasts. They capture comparative outcomes once prices and quantities have adjusted, assuming land and labour are in fixed quantities nationally but are mobile domestically. Monetary and fiscal responses are held constant.

3. Results

The impacts of U.S. tariff changes on the U.S. economy are important because these determine what happens elsewhere. The most obvious impact is a reduction in imports, plus a similar reduction in exports. The change in national output is minimal, but there are shifts in the composition of output. There is also an increase in tariff revenue. These changes are summarised in table 2.

3.1 U.S. Economic Impacts

Under Scenario 1, Liberation Day, U.S. real GDP falls marginally (around 0.35 per cent) despite the apparent protection for domestic producers.¹² The key mechanism is a terms of trade improvement—export prices rise relative to import prices—offset by reduced allocative efficiency and higher input costs. Imports fall by 13 per cent, but exports fall further, by 17 per

¹² This is consistent with the Tax Foundation estimate that a ten per cent tariff would reduce US GDP by -0.4 per cent (York and Durante 2025).

cent. This results in a slight deterioration in the balance of trade, rather than the hoped for improvement. The additional tariff revenue, after adjusting for all fall in imports, amounts to 14 per cent of the value of imports. Consumer prices rise 4.4 per cent, driven by higher import prices. The price rise leads to an increase in nominal GDP, which is much higher than real GDP. This is a one-off impact, like a sales tax, bringing prices to a new level. The effect on inflation should be transitory. There is an increase in industrial output, but real wages fall.

Once trade partners retaliate, Scenario 2, U.S. real GDP falls further to -0.51 per cent. Like-for-like partner retaliation cuts export volumes, the U.S. terms of trade turn negative, and allocative efficiency deteriorates even further. Tariff revenue falls relative to the first scenario because imports are reduced by a quarter. The average tariff remains at around 14 per cent. The trade balance improves in this instance.

Under global realignment, Scenario 3, outcomes resemble a less dramatic version of Liberation Day: that is, a modest real GDP loss, -0.30 per cent, a large fall in trade in both directions, a slight worsening in the balance of trade and a more subdued increase in consumer prices, and hence nominal GDP.

In all three scenarios, there is a fall in agricultural output (including processed agricultural products). The good news is that the without retaliation, industrial output rises. This is one of the stated objectives of the Administration's tariff policy. However, this has little impact on real wages, which remain negative because of the rise in consumer prices.

Table 2 Impacts on United States under alternative scenarios

	Liberation Day	Retaliation	Realignment
Real GDP %	-0.35	-0.51	-0.30
Nominal GDP %	4.74	-1.52	2.04
Imports %	-13.5	-24.7	-9.6
Exports %	-17.1	-29.1	-11.8
Trade balance \$m	-22358	9012	-9251
Tariff revenue \$m	267183	227019	142529
Average tariff %	14.1	13.9	7.0
Consumer prices %	4.4	-0.9	2.1
Agricultural output %	-0.3	-3.0	-0.4
Industrial output %	1.2	-0.9	1.4
Real wages %	-0.8	-1.5	-0.6

Source: GTAP simulations

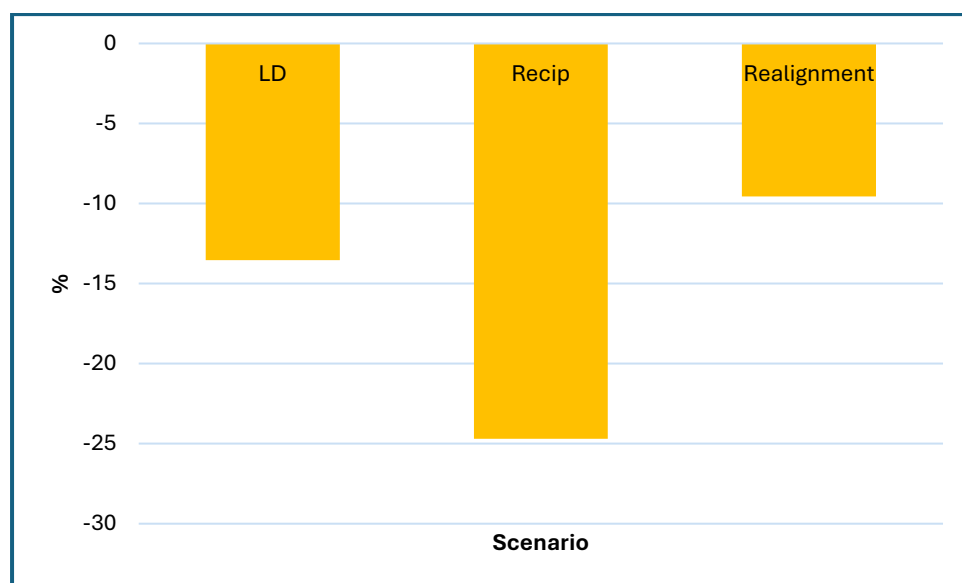
3.2 Who pays the tariffs

One of Trump's claims in support of the tariff policy is that foreigners would pay the tariffs. That is, instead of higher import costs being passed on to consumers, exporters would accept lower prices. Traditional thinking among economists is that tariffs are passed on to consumers and tariff revenue is merely a transfer from consumers to government, but so-called large countries have some monopoly power to influence prices. The GTAP model accounts for this by treating imports as imperfect substitutes for domestically produced goods. Thus, who pays is an empirical issue, depending on the relative elasticities and the ability of the importer to influence prices. The modelling suggests that the United States does not gain from lower import prices (-\$3.5 billion in the Liberation Day scenario), but there are terms of trade gains (\$96 billion) from higher export prices following a reduction in U.S. exports. These gains disappear when trade partners impose their own tariffs (-\$41 billion). Thus, the modelling does not support Trump's intuition.

3.3 Global trade

We have seen that U.S. trade is substantially reduced under each scenario (figure 4). It is these changes that drive the impacts on other countries. The quantity of world trade decreases 2.5, 3.8 and 1.7 per cent under the three scenarios. Trade diversion is evident. Countries shut out of the United States can find other markets. Changes in exports and imports for each region for each scenario are detailed in Appendix tables A4 and A5.

Figure 4 Change in U.S. imports



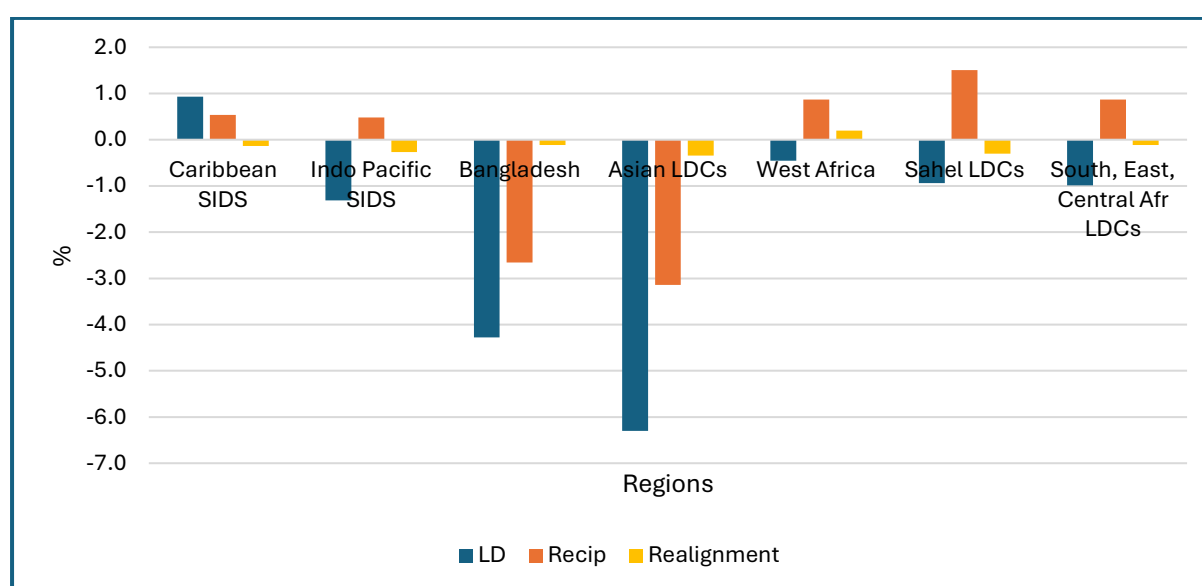
Source: GTAP simulations

Under the Liberation Day scenario, only four regions enjoy an increase in exports, Canada, Mexico, Rest of Latin America and Caribbean SIDS. However, in Scenario 2, Retaliation, 26 regions gain. This is from trade diversion, particularly between the United States and China, which have the largest trade and impose the highest tariffs on each other. The major

beneficiaries in relative terms are the United Kingdom, Australia, Russia, Argentina, Brazil, Turkey and Sahel LDCs.

Of particular interest is the impact on the poorest countries, LDCs and SIDS. These are grouped into seven regions, shown in figure 5. The regions are Caribbean SIDS, Indo-Pacific SIDS, Bangladesh, Asian LDCs, West Africa, Sahel LDCs and South, East and Central African LDCs. The effects are quite different, with African regions and the Caribbean and Indo-Pacific SIDS gaining from the Retaliation scenario, while Bangladesh and Asian LDCs do not. That because these countries are exporting different products.

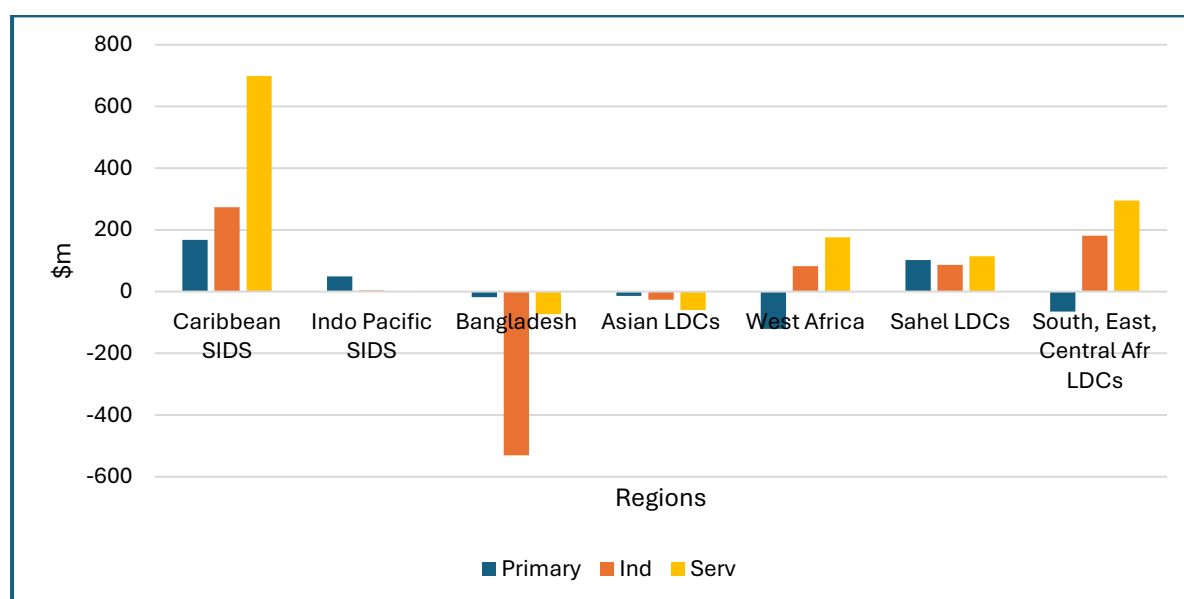
Figure 5 Change in exports from SIDS and LDC regions



Source: GTAP simulations

The sectoral decomposition of terms of trade effects (figure 6) indicates that welfare outcomes are primarily driven by price changes in a small number of traded sectors. The Caribbean SIDS and Sub-Saharan Africa, industrial (including metal products) and services (including transport) sectors tend to dominate, generating positive terms of trade effects. In contrast, manufacturing-oriented economies—especially Bangladesh and Asian LDCs—experience deteriorating export prices, leading to negative terms of trade outcomes. In Bangladesh, the main sector is textiles, including apparel. This reinforces the importance of sectoral composition in determining third-country effects.

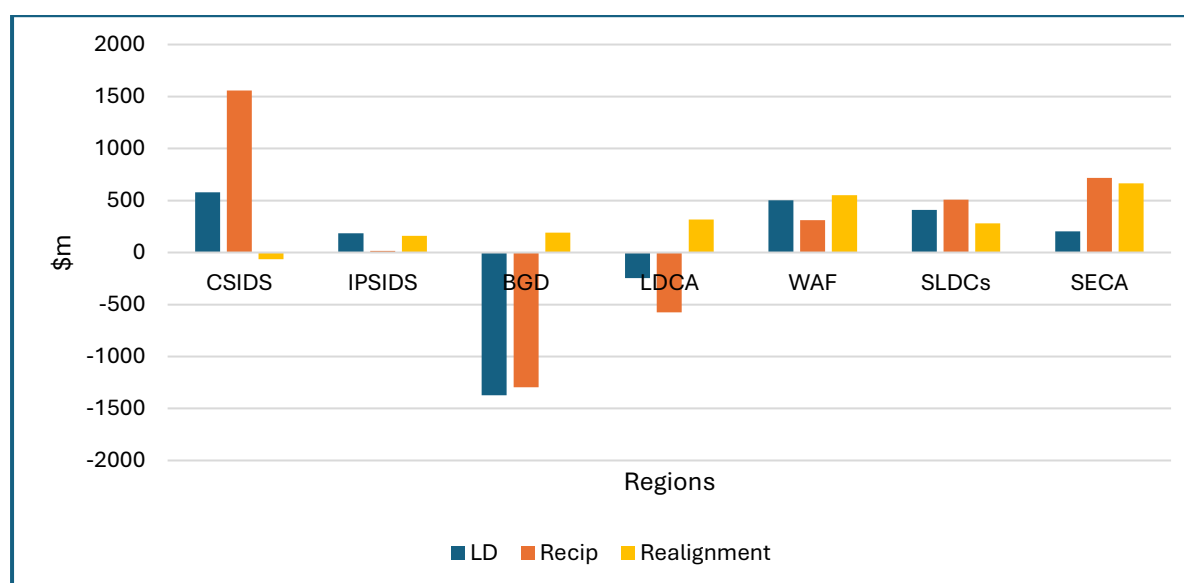
Figure 6 Decomposition of terms of trade effects in SIDS and LDC regions, Retaliation scenario



Source: GTAP simulations. Primary includes agriculture, minerals and energy.

Welfare effects, as measured by equivalent variation, are comprised of allocative efficiency, terms of trade and changes in capital flows. Welfare outcomes in developing countries are driven primarily by sector-specific terms of trade effects, rather than improvements in allocative efficiency. Of course, terms of trade effects cancel out, as an increase in the exports price in one country is an increase in the import price in another. The observed gains in some regions are due to favourable price movements associated with trade diversion, rather than from structural improvements in productivity or competitiveness. The changes in welfare are detailed in Appendix table A6 and illustrated for selected regions in figure 7.

Figure 7 Welfare effects in SIDS and LDC regions, All scenarios



Source: GTAP simulations

Global losses (\$94 billion, \$182 billion and \$87 billion for the three scenarios respectively) reflect mainly allocative efficiency effects, but the distribution of gains and losses are driven by terms of trade effects. Note that SIDS tend to gain from the tariff upheaval although CSIDS are marginal losers from the Realignment scenario. Indo-Pacific SIDS gain in welfare terms even though exports are reduced in two of the three scenarios. In fact, most regions shown in figure 7 gain from the Realignment scenario. It is the U.S. and China that are worst off, as it is these countries that impose tariffs on each other.

In summary, the results demonstrate that welfare gains in developing countries are uneven and scenario dependent. Third-country effects are driven primarily by terms of trade changes, and these depend on sectoral composition. In particular, textiles and apparel are an important sector but falls in industrial exports can be offset by an increase in services exports.

4 Policy implications

The results suggest that the 2025 U.S. tariff measures have limited aggregate macroeconomic effects but generate substantial changes in global trade patterns and welfare distribution. The primary transmission mechanism is through terms of trade adjustments and trade diversion, rather than changes in productive efficiency.

For the United States, the simulations indicate that tariffs reduce trade volumes significantly while having only modest effects on real GDP. Initial gains in terms of trade under unilateral tariffs are offset when trading partners retaliate, leading to a deterioration in welfare. Tariff revenue increases, but this largely reflects a transfer from domestic consumers rather than gains from foreign exporters. Overall, the results suggest that tariffs are an inefficient instrument for achieving macroeconomic objectives, such as reducing the trade deficit or raising real incomes.

For the global economy, the dominant effect is a contraction in trade volumes and a reallocation of trade flows across regions. Although some countries benefit from trade diversion, these gains occur alongside a decline in global allocative efficiency. The emergence of fragmented trade patterns—particularly between the United States and China—reduces the efficiency of global production and undermines the gains from specialisation.

The implications for developing economies are mixed and highly heterogeneous. In particular, diversification of export structures can minimise exposure to sector-specific price shocks. Access to multiple markets can mitigate the risks associated with bilateral trade disruptions. Strengthening the rules-based multilateral trading system is particularly important for smaller economies, which lack the market power to influence prices and are disproportionately affected by policy changes in large economies. This means that retaliation is unlikely to be a sound policy. The country that imposes the tariffs bears most of the cost.

More broadly, the results underscore that unilateral trade policies by large economies generate global spillovers that are difficult to predict and unevenly distributed. These spillovers are

transmitted through general equilibrium channels, reinforcing the need for coordinated approaches to trade policy.

5 Conclusions

This paper has examined the global and distributional impacts of the 2025 U.S. tariff regime using a computable general equilibrium framework. The results show that the primary effects of the tariff measures are not large changes in aggregate output but rather shifts in trade patterns and relative prices.

A central finding is that welfare outcomes are driven predominantly by terms of trade effects. For large economies, tariffs can generate temporary ToT gains by influencing world prices, but these gains are eroded when trading partners respond. For third countries, including developing economies, welfare effects depend on how global price adjustments interact with their export structure.

The results highlight substantial heterogeneity across developing regions:

- Some LDCs, particularly in Sub-Saharan Africa, benefit from trade diversion through improved export prices in agriculture and resource sectors.
- Others, especially manufacturing-oriented economies in Asia, experience welfare losses due to declining export prices and reduced demand.
- SIDS are not badly impacted by the tariff changes. They may gain from lower import prices as well as higher export prices. Textiles are important, but so are services.

Importantly, these outcomes do not reflect improvements in productivity or competitiveness. Rather, they arise from second-best reallocations of trade, as tariffs distort global markets. At the global level, allocative efficiency declines, although some regions experience gains. Trade wars redistribute welfare across countries through price adjustments, but do not generate net global gains.

The policy implications are therefore clear. While some countries may benefit in the short run from trade diversion, these gains are uncertain and potentially temporary. The broader effect of tariff escalation is to reduce global trade, increase inefficiencies, and heighten uncertainty in the trading system.

Limitations of our analysis include uncertainty. Sudden tariff revisions, export controls, or countervailing measures can reverse trade gains overnight. The next U.S. Administration may reverse or moderate the tariff policy, although Biden kept many of Trump's first term tariffs, and added a few more of his own. Firms are unlikely to invest if they think tariffs may be reversed. In addition, unexpected supply side shocks may upset trade.

Not taken into account here are possible adjustment costs. Moving from wheat to barley is easy enough, but from textiles to financial services may be more difficult. The modelling assumes this adjustment is costless.

Developing countries should monitor and evaluate likely tariffs and non-tariff changes. They should look for opportunities to expand market access in countries outside of China and the U.S. and support the strengthening of the WTO and other rules-based institutions. In this context, maintaining and strengthening a rules-based multilateral trading system remains critical, particularly for developing economies that are most exposed to external shocks and least able to influence their outcomes.

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Appendices

Table A1 Regional aggregation

Label	Description
EU27	European Union 27
OEURO	Other Europe
GBR	United Kingdom
USA	USA
JPN	Japan
KOR	South Korea
AUS	Australia
CAN	Canada
ODV	Other developed
CHINA	China & HK
RUS	Russia
CCA	Caucasus and central Asia
IND	India
SA	Other South Asia
LDCA	Asian LDCs
IDN	Indonesia
PHL	Philippines
THA	Thailand
VNM	Viet Nam
RSEA	Rest of South-East Asia
BGD	Bangladesh
ARG	Argentina
BRA	Brazil
MEX	Mexico
LAM	Rest of Latin America
CSIDS	Caribbean SIDS
SAU	Saudi Arabia
TUR	Turkey
ME	Middle East
NAF	North Africa
WAF	West Africa
SLDCs	Sahel LDCs
SECA	South, East, Central African LDCs
CEAF	South, East, Central Africa
ZAF	South Africa
IPSIDS	Indo Pacific SIDS
RoW	Rest of World

Table A2 Sectoral aggregation

Label	Description
ric	Rice
wht	Wheat
gro	Coarse grains
v_f	Vegetables, fruit and nuts
osd	Oil seeds
pfb	Cotton
ocr	Other crops
sug	Sugar
oap	Animal products nec
fsh	Fishing
cmt	Beef & sheep meat
omt	Pork & poultry
vol	Vegetable oils and fats
mil	Dairy products
ofd	Food products nec
b_t	Beverages and tobacco products
lstk	Livestock products
frs	Forestry
cog	Coal, oil & gas
min	Minerals
p_c	Petroleum, coal products
txt	Textiles,
mvh	Motor vehicles and parts
crp	Chemicals, rubber, pharma
wood	Wood & paper
metl	Metal products
man	Manufactures
ele	Computer & electronics
eeq	Electrical
utils	Utilities
tsp	Transport nec
whs	Warehousing
tcc	Transport and Communication
servic	Business services nec
pub	Public services, health, education
dwe	Dwellings

Table A3 Liberation Day tariffs

Country	Tariff (%)	Country	Tariff (%)
Algeria	30	Moldova	31
Angola	32	Mozambique	16
Bangladesh	37	Myanmar (Burma)	45
Bosnia and Herzegovina	36	Namibia	21
Botswana	38	Nauru	30
Brunei	24	Nicaragua	19
Cambodia	49	Nigeria	14
Cameroon	12	North Macedonia	33
Chad	13	Norway	16
China	34	Pakistan	30
Côte d'Ivoire	21	Philippines	18
Dem Rep Congo	11	Serbia	38
Equatorial Guinea	13	South Africa	31
European Union	20	South Korea	26
Falkland Islands	42	Sri Lanka	44
Fiji	32	Switzerland	32
Guyana	38	Syria	41
India	27	Taiwan	32
Indonesia	32	Thailand	37
Iraq	39	Tunisia	28
Israel	17	Venezuela	15
Japan	24	Vietnam	46
Jordan	20	Vanuatu	22
Malawi	18	Zambia	17
Malaysia	24	Zimbabwe	18
Mauritius	40		

Source [Annex-I.pdf](#)

Table A4 Exports under alternative scenarios

Region	Liberation Day	Retaliation	Realignment
	%	%	%
European Union 27	-0.8	0.8	-0.3
Other Europe	-1.4	0.7	-0.2
United Kingdom	-0.1	1.3	-0.4
USA	-17.1	-29.1	-11.8
Japan	-2.6	-1.2	-1.7
South Korea	-2.2	-0.6	-1.2
Australia	-0.5	1.2	-0.2
Canada	1.0	-2.4	5.6
Other developed	-1.7	0.4	-0.5
China & HK	-3.2	-1.9	-4.0
Russia	-0.4	1.1	-0.5
Caucasus and central Asia	-0.6	1.0	-0.1
India	-2.0	-0.9	-2.0
Other South Asia	-4.0	-2.9	-0.2
Asian LDCs	-6.3	-3.1	-0.3
Indonesia	-2.5	-1.1	-0.2
Philippines	-1.0	0.8	-0.3
Thailand	-2.7	-1.0	-0.3
Viet Nam	-5.4	-2.9	0.0
Rest of South-East Asia	-1.4	0.8	-0.2
Bangladesh	-4.3	-2.7	-0.1
Argentina	-0.5	1.4	-0.5
Brazil	-0.1	1.6	-2.9
Mexico	4.5	0.2	10.9
Rest of Latin America	1.2	1.2	0.9
Caribbean SIDS	0.9	0.5	-0.1
Saudi Arabia	-0.4	0.5	-0.1
Turkey	-0.6	1.6	-0.6
Middle East	-0.7	0.6	-0.3
North Africa	-0.8	0.9	-0.2
West Africa	-0.5	0.9	0.2
Sahel LDCs	-0.9	1.5	-0.3
South, East, Central African LDCs	-1.0	0.9	-0.1
South, East, Central Africa	-1.4	0.9	-0.1
South Africa	-1.2	0.3	-0.1
Indo Pacific SIDS	-1.3	0.5	-0.3
Rest of World	-0.7	1.0	0.1
World	-2.9	-3.0	-1.7

Source: GTAP simulations. Change in value of exports.

Table A5 Imports under alternative scenarios

Region	Liberation Day	Retaliation	Realignment
	%	%	%
European Union 27	-1.3	1.0	-0.4
Other Europe	-1.4	0.7	-0.2
United Kingdom	-0.1	1.3	-0.3
USA	-13.5	-24.7	-9.6
Japan	-2.6	-1.3	-1.7
South Korea	-2.3	-0.7	-1.2
Australia	-0.5	1.2	-0.2
Canada	1.0	-2.1	5.5
Other developed	-1.7	0.4	-0.5
China & HK	-3.2	-2.0	-4.2
Russia	-0.5	1.1	-0.5
Caucasus and central Asia	-0.7	1.1	-0.1
India	-1.9	-0.7	-1.9
Other South Asia	-2.0	-1.4	-0.1
Asian LDCs	-2.8	-1.4	-0.2
Indonesia	-2.5	-1.1	-0.2
Philippines	-0.7	0.6	-0.2
Thailand	-3.0	-1.1	-0.3
Viet Nam	-4.6	-2.5	0.0
Rest of South-East Asia	-1.4	0.7	-0.2
Bangladesh	-3.3	-2.1	-0.1
Argentina	-0.4	1.2	-0.4
Brazil	-0.1	1.5	-3.0
Mexico	4.6	-0.3	11.1
Rest of Latin America	1.1	1.1	0.8
Caribbean SIDS	0.7	0.4	-0.1
Saudi Arabia	-0.5	0.6	-0.1
Turkey	-0.4	1.2	-0.5
Middle East	-0.8	0.6	-0.4
North Africa	-0.6	0.7	-0.2
West Africa	-0.4	0.7	0.2
Sahel LDCs	-0.5	0.9	-0.2
South, East, Central African LDCs	-0.8	0.7	-0.1
South, East, Central Africa	-1.0	0.6	-0.1
South Africa	-1.2	0.4	-0.1
Indo Pacific SIDS	-0.7	0.3	-0.1
Rest of World	-0.5	0.7	0.1
World	-2.9	-3.0	-1.7

Source: GTAP simulations. Change in value of imports.

Table A6 Change in welfare under alternative scenarios

Region	Liberation Day	Retaliation	Realignment
	\$m	\$m	\$m
European Union 27	-26743	4355	-8891
Other Europe	-3385	-2096	-417
United Kingdom	3883	4122	-766
USA	37130	-171503	-30137
Japan	-12305	-1832	-8835
South Korea	-8082	-1145	-4975
Australia	4	2274	44
Canada	-4930	4846	9521
Other developed	-2069	402	-392
China & HK	-61862	-30343	-57657
Russia	1341	-221	707
Caucasus and central Asia	163	84	462
India	-7800	-2381	-8648
Other South Asia	-835	-1128	225
Asian LDCs	-247	-577	316
Indonesia	-1957	-1317	170
Philippines	174	542	178
Thailand	-3725	-2189	-170
Viet Nam	-10158	-10602	852
Rest of South-East Asia	-2661	640	-271
Bangladesh	-1372	-1295	190
Argentina	314	1528	73
Brazil	1234	5256	-3583
Mexico	4838	12148	21276
Rest of Latin America	1871	5289	1124
Caribbean SIDS	578	1558	-66
Saudi Arabia	315	-217	531
Turkey	-114	1302	-1155
Middle East	745	-422	1171
North Africa	689	-231	484
West Africa	503	311	550
Sahel LDCs	410	508	281
South, East, Central African LDCs	202	717	665
South, East, Central Africa	-35	-42	112
South Africa	-211	4	187
Indo Pacific SIDS	184	15	161
Rest of World	71	32	135
Total	-93840	-181608	-86548

Source: GTAP simulations.