PIIE PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

WORKING PAPER

25-13 The global economic effects of Trump's 2025 tariffs

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June 2025

ABSTRACT

This paper explores the implications of President Donald Trump's so-called Liberation Day tariffs on the US and global economies under five alternative scenarios. As he continues to change his tariffs daily, the paper starts with a snapshot of two plausible, core, tariff scenarios based on his recent comments—one with high tariffs and one with low tariffs. We then consider two more scenarios in which other economies retaliate to the high or low US tariffs by imposing matching tariffs on US exports. Our fifth scenario includes high US tariffs with retaliation plus a rise in the risk of holding US assets. This increase in risk causes a depreciation of the US dollar similar in scale to the shifts seen in the week following the Liberation Day tariffs announcement on April 2, 2025.

The paper starts by exploring the details of the changes made to the original tariff announcements from April 2 to May 10. This is particularly important for understanding the tariffs on Canada and Mexico, which were substantially reduced during the period through exemptions under the United States-Mexico-Canada Agreement (USMCA).

We find the tariffs significantly reduce US and global economic growth and increase inflation in many economies, depending on how countries respond. However, the outcomes are less severe than the original April 2 announcements implied. Many exemptions and tariff adjustments have been made since then for particular goods and countries. We find that retaliation by other countries worsens the economic losses, and inflation increases. The tariffs disproportionately hurt the US agriculture and durable manufacturing sectors by reducing output and employment and increasing prices. Finally, in the fifth scenario, the falling dollar and higher longer-term interest rates accentuate US losses in employment and income as foreign capital flows away from the United States to other countries.

JEL codes: F13, F47, C69
Key words: Trump, tariffs, China, Mexico, Canada

Note: The Peterson Institute for International Economics has no partisan goal in publishing this research. Our objective is to educate policymakers and the public about the effects these policies would have on Americans and other people around the world.

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The authors thank colleagues at PIIE for feedback and suggestions.

INTRODUCTION

On April 2, 2025—the Orwellian named Liberation Day—President Donald J. Trump invoked the International Emergency Economic Powers Act (IEEPA) of 1977 to announce the most sweeping US tariff increase since the Smoot-Hawley tariff of 1930.[1] His so-called reciprocal tariffs on individual economies covered 86 percent of US imports.[2] The targets included such free trade partners as South Korea (assigned a 25 percentage point increase in tariff), Jordan (20 percentage points), and Israel (17 percentage points). The remaining 14 percent of US imports from countries escaping these arbitrary unilateral tariffs received a blanket 10 percentage point additional tariff (except for trade with Canada and Mexico compliant with the United States-Mexico-Canada Agreement [USMCA]). Noncompeting products like bananas and tin were included for the first time since the 19th century. Average US tariffs increased from 3 percent to approximately 30 percent, before subsequent retreats lowered that number (Irwin 2025).

The financial markets' reaction was swift and negative, forcing Trump to allow some sectoral carveouts and to postpone the imposition of the "reciprocal" tariffs for 90 days.[3] In the meantime, Trump announced sectoral tariffs on steel, aluminum, and autos, while suggesting that other sectors such as pharmaceuticals could be targeted for special protection. The upshot is tremendous uncertainty about the ultimate level and structure of US tariffs. Will the reciprocal tariffs snap back after the 90-day postponement? Will bilateral negotiations yield new tariff rates lower than those announced on April 2? Will additional sectors be targeted for special protection or special attention?

In this paper, we attempt to model these possibilities. The chaotic nature of the introduction and subsequent amendment of these policies require us to end our period of analysis on May 10, 2025. Developments after this date, such as a threatened 50 percentage point tariff on imports from the European Union will be addressed in subsequent analyses.

Similarly, Trump's legal authority to impose many of the tariffs analyzed in this paper has been challenged in court. On May 29, a three-judge panel of the US Court of International Trade ruled that Trump exceeded his legal authority in unilaterally imposing the Liberation Day "reciprocal" tariffs. A higher court subsequently issued a temporary stay of that ruling. It is possible that the decision will be appealed all the way to the Supreme Court with unpredictable consequences.

For purposes of this analysis, we assume that under each scenario the courts permit the tariffs of the scenario to stay in place.

1 This action is currently under legal challenge related to the emergency that it intends to address.

2 The "reciprocal" tariffs are not reciprocal in any sense. Without any reference to tariffs or nontariff barriers, they are derived from partners' bilateral trade balances with the United States. See USTR (2025) for the formula. Wolff (2025) questions the legal basis for Trump's actions arguing that he has not been granted the legal authority by Congress. At the time of writing, the tariffs are subject to multiple challenges before the courts.

3 Carveouts were announced for copper, pharmaceuticals, semiconductors, lumber, critical minerals, and energy, but Trump subsequently hinted that these sectors might also receive protection.

We find the tariffs significantly slow US and global economic growth and increase inflation in many economies, depending on how countries respond. However, the outcomes are less severe than the original tariff announcements implied. Many exemptions and tariff adjustments have been made for particular goods and countries. We find that retaliation by countries magnifies the economic losses, and inflation increases in the United States and in the retaliating countries. Contrary to the claim that the tariff policy will spur an industrial revival in the United States, the tariffs disproportionately hurt the US agriculture and durable manufacturing sectors in terms of output losses, lower employment, and price increases. Among the large industrial economies, Germany is the hardest hit.

One of the surprising outcomes of the April 2 tariffs was the financial markets' reaction. The US dollar initially depreciated and between April 2 and May 10, it had depreciated by 5 percent relative to most major currencies. The results of the tariff simulations alone imply that the dollar should appreciate. The dollar's expected appreciation from a tariff increase is consistent with the results we have found in McKibbin, Hogan, and Noland (2024) and McKibbin and Noland (2025a) and the dollar's response to tariff announcements before April 2. The other notable market reaction was the sharp rise in US bond yields, which may have been due to the tariffs or the announcement of the Trump administration's new budget proposal, or both. These shifts, particularly the depreciation of the dollar, suggest a rise in global perceptions of the relative risk of holding US assets—a rise in the risk premium demanded by investors. To capture this effect, we model a scenario that includes a rise in the risk of holding US assets in addition to high tariffs with retaliation. We do this by finding a change in US country risk premium that generates a 5 percent depreciation of the dollar (including the high tariffs). Given the comovement in bond markets in Mexico and Canada with the US market at the same time (discussed below), we assume the increase in risk occurs in the United States, Canada, and Mexico.

This increase in risk accentuates US losses in employment and income as foreign capital flows away from the United States to other countries. Conversely, increased net capital inflows into most other countries lower their interest rates, stimulate investment, and cushion the impact of the US tariffs on those economies. The exceptions are Mexico and Canada.

Finally, the US tariff policy causes diversion of Chinese exports—particularly manufactured goods—away from the United States to other countries. This is felt most acutely in developing Asia.

CONTEXT

Trump's tariff campaign began two months before his April 2 announcement. On February 1, invoking IEEPA, he announced 25 percentage point tariff increases on Canada and Mexico and a 10 percentage point tariff increase on China, citing illegal cross-border migration and trafficking of fentanyl into the United States as emergency justifications.[4] Two days later, after the United States received commitments from Canada and Mexico to cooperate on these issues, as well as

4 For a summary of chronologically ordered developments, see Bown (2025a, 2025b).

pushback from the US auto and agriculture industries, the Trump administration paused the tariffs on those two countries for 30 days. But the 10 percentage point tariff increase on China went into effect on February 4. The same day, China announced retaliatory measures, which went into effect on February 10.

On March 4, Trump ended the 30-day pause on Canada and Mexico by imposing a lower 10 percentage point tariff increase on imports of Canadian oil and energy products and 25 percentage point tariff increase on rest of the imports from Canada and all imports from Mexico. He also raised the 10 percentage point tariff increase on China to 20 percentage points. On the same day, China announced that it would retaliate, targeting mainly US farm exports. Canada also immediately announced its own 25 percentage point tariff on $30 billion of US goods, and subsequently added tariffs on steel, aluminum, and autos. Two days later, on March 6, after facing criticism over the imposition of tariffs on free trade agreement partners, the United States announced that its tariffs would only apply to USMCA noncompliant goods (apart from steel and aluminum) and that the bulk of USMCA trade would continue duty free. Canada then matched the United States, circumscribing its tariff to apply only to USMCA noncompliant autos and parts. In the meanwhile, China's retaliatory tariffs and other measures in response to the additional March 4 US tariffs went into effect on March 10.

On March 12, the trade war globalized when Trump imposed tariffs of 25 percentage points on steel, aluminum, and derivative products from all sources, which he had announced on February 10 invoking his authority under Section 232 of the 1962 Trade Expansion Act. He added autos to the list on March 26 with the measures taking effect on April 3. The European Union responded with $22 billion in retaliatory tariffs on American products such as bourbon.

When Liberation Day, as Trump dubbed it, arrived on April 2, the pattern had been set: announcement of high tariffs, followed by pushback, postponement, carveouts, and occasional retaliation and counterretaliation, leaving questions about the ultimate level and structure of tariffs unanswered. The United States and China entered an escalatory spiral. On April 5 (10 percentage points), April 9 (74 percentage points, including the 34 percentage point Trump announced on Liberation Day), and April 10 (41 percentage points), the United States increased tariffs on imports from China by another 125 percentage points, but with some sectoral carveouts. China retaliated on April 10 and 12, increasing tariffs on US exports also by 125 percentage points.

Given the high level of "reciprocal" tariffs announced on China as well as countries such as Vietnam (46 percentage points), Bangladesh (37 percentage points), and Indonesia (32 percentage points), a key issue is whether the lower currently prevailing 10 percentage point tariff would be maintained, allowing them to continue as a low-wage alternative to China, or whether the punitive April 2 tariffs would foreclose that path.

Trump subsequently exempted Chinese electronics from the tariff. By May 14, as a result of the Geneva meeting between the two countries, the United States reduced to 10 percentage points from 125 percentage points the cumulative tariffs under IEEPA imposed on certain imports from China on April 5, 9 and 10. China also reduced to 10 percentage points from 125 percentage points the cumulative retaliation to the IEEPA tariffs China had imposed on April 10 and

12. Thus, as of mid-May average US tariffs on Chinese exports now stand at 51.1 percent and cover 100 percent of all goods. China's average tariffs on US exports are at 32.6 percent and cover 100 percent of all goods (Bown 2025b).

The European Union was hit by a 20 percentage point "reciprocal tariff" and indicated that it was mulling retaliation. When Trump announced the 90-day pause, Europe suspended its potential retaliatory restrictions—but not the $22 billion of tariffs imposed earlier in response to the steel, aluminum, and auto tariffs, which remained in place. In short, deep uncertainty surrounds the tariff levels, their permanence, and the permanence of various carveouts and special protection measures.

THE MODELING FRAMEWORK

We use the G-Cubed economic model to analyze several scenarios. The G-Cubed model is a hybrid of dynamic stochastic general equilibrium (DSGE) models and computable general equilibrium (CGE) models developed initially by McKibbin and Wilcoxen (1999, 2013). More details on the model can be found in appendix A.

In each country, consumers comprise a mix of households that maximize intertemporal utility and liquid-constrained consumers who spend their current income. Firms in each sector of each country produce goods using the primary factor inputs, capital (K) and labor (L), as well as intermediate inputs, energy (E), and materials (M), which are themselves produced from inputs of individual commodities. These production linkages exist both within and across countries.

We use the model to generate a baseline forecast for the US and global economies for the coming decade, assuming the tariffs are not adopted. We then use the model to project the tariffs' effects, measured as deviations from that baseline.

MODELING US TARIFFS

Recognizing the uncertainty, we model outcomes in five scenarios: high tariffs, low tariffs, high tariffs with retaliation, low tariffs with retaliation, and high tariffs with retaliation and a higher US risk premium. The high-tariff, high-disruption scenario assumes that the 90-day postponement of reciprocal tariffs is just that—a postponement—and tariffs will return to the levels announced on April 2 (with some exemptions in place). We assume that the migration and fentanyl issues are unresolved, and that the 25 percentage point tariff on USMCA noncompliant trade remains in place, as does the 20 percentage point fentanyl-related tariff on China. The special sectoral tariffs on steel, aluminum, and autos and parts remain in place, and the carveouts sunset. We assume that China and the European Union retaliate against the US. In the case of China, it is at the current 45 percentage point blanket rate plus an additional 20 percentage points due to the fentanyl dispute. Any tariffs above 65 percent caused US imports from China to cease. The European Union applies a 20 percentage point tariff on all US exports.

We also consider a low-tariff, low-disruption scenario. The "reciprocal" tariffs are allowed to die, leaving a 10 percentage point universal US tariff (apart from a higher tariff on China and some sectoral variation). The migration and fentanyl disputes with Mexico and Canada are resolved, allowing the USMCA

noncompliant tariff to be reduced to 12 percentage points. The sectoral carveouts become permanent. The European Union continues to suspend its blanket retaliation. China and the United States reach an accommodation in which the increase in tariffs on China are set to 30 percentage points (which includes the 20 percentage point fentanyl tariff add-on) on products not considered under special tariffs, the electronics carveout becomes permanent, and China mirrors tariffs imposed by the United States on its exports. The high- and low-disruption scenarios are summarized in table 1. Further details on the calculation are in appendix B.

In our fifth scenario, to illustrate the effect of the risk shock that apparently coincided with the tariff increase, we also add a 75 basis point increase in the risk of holding US assets on top of the tariff increases in the high-tariff scenario. This shock is broadly consistent with the observed depreciation of the dollar relative to the euro as of May 10 (after allowing for the tariff increase in the high scenario) of around 5 percent.

Table 1
High- and low-disruption scenarios

High-disruption scenario	Low-disruption scenario
25 percentage point tariff on steel, aluminum, and autos	25 percentage point tariff on steel, aluminum, and autos
25 percentage point tariff on USMCA noncompliant trade	12 percentage point tariff on USMCA noncompliant trade
April 2 reciprocal tariffs on other partners, excluding China	10 percentage point tariff on non-USMCA partners, other than China
45 percentage point tariff on China	10 percentage point tariff on China
Risk on: 75 basis point risk premium	Risk off
Mirror retaliation by China; 20 percentage point retaliation by the EU	Mirror retaliation by China, no EU retaliation
Sectoral carveouts sunset	Sectoral carveouts retained
Fentanyl tariff on China (20 percentage point on all products)	Fentanyl tariff on China (20 percentage point on all products)

Notes: These scenarios are used to construct tariff shocks used in the G-Cubed model. These shocks are represented in percentage point increases. See appendix B for more details. In the low disruption scenario, the 10 percentage point tariff on non-USMCA partners outside China is applied only to products not subject to tariffs on steel, aluminum, or autos, sparing exempted products. The 10 percentage point tariff on China is applied analogously to products not subject to tariffs on steel, aluminum, or autos, sparing exempted products. In the high disruption scenario, the April 2 "reciprocal" tariffs on trade partners outside China are applied to products not subject to tariffs on steel, aluminum, or autos. The fentanyl 20 percentage point increase in tariffs on imports from China is applied in addition to the other tariffs on all products. For USMCA partners, tariffs on auto parts are excluded in both scenarios; for the rest of the trading partners they are part of the auto sector subject to the 25 percentage point tariff.

MODELING CHANGES IN COUNTRY RISK

As mentioned, a curious aspect of the April 2 tariffs was the markets' reaction, in which US equity prices fell, bond yields rose, and the dollar depreciated. One way to capture these responses in the model is to introduce a change in the risk of holding US assets.

In the model, we assume that bond market participants arbitrage between holding US government bonds and foreign government bonds. They compare the expected return on US bonds with the expected return on foreign bonds in foreign currencies, adjusted for the expected rate of depreciation of the foreign currencies and the relative country risk of holding US versus foreign assets. If there is a rise in the risk of holding US bonds, then the dollar would depreciate as US bonds are sold in preference to holding foreign bonds.

In addition, US interest rates rise relative to foreign interest rates. with the difference between US and foreign rates adjusted by the expected change in the exchange rate, equal to the change in the country risk premium.

In practice when country risk changes, many variables change, particularly central bank interest rates, so changes in bond markets and exchange rates respond to a range of factors.

At the initial tariff announcements, the dollar depreciation was consistent with a risk shock of around 25 basis points. An analogous reaction in bond markets was reflected in both Mexican and Canadian sovereigns, with increases of 34 basis points for 10-year Canadian bonds and 59 basis points for Mexican bonds between April 1 and 11. Both markets are highly correlated with the United States.

By May 10 the US dollar had fallen by around 5 percent relative to major currencies. As an illustration of the additional impact of the change, we also add a 75 basis point increase in the risk of holding US assets in the fifth scenario, on top of the tariff increases in the high-tariff scenario. This shock is broadly consistent with the observed approximately 5 percent depreciation of the dollar relative to the euro as of May 10 (after allowing for the tariff increase in the high scenario). We also apply a 75 basis point increase in the risk premium to holdings of Mexican and Canadian assets given the strong financial market correlations.

RESULTS

After adjusting the high and low scenarios for various carveouts and exemptions, we arrive at the five scenarios. The tariff rate increases in the first two scenarios—high US tariffs without retaliation and high US tariffs with high retaliatory tariffs are set out by country/group and sector in tables 2a and 2b, respectively. The tariff rate increases in the third and fourth scenarios—low US tariffs without retaliation and the low US tariffs with retaliation—are set out in tables 3a and 3b, respectively. The tariff rates in these tables are higher than the "base" rates listed in table 1 due to the special protection measures and preexisting normal trade relations tariffs. These numbers also differ from earlier results (see McKibbin and Noland 2025a, 2025b) because of the importance of the exemptions for goods that comply with the USMCA for Canada and Mexico. Even in the high-tariff scenario, tariffs are substantially lower than the April 2 announcement for both Mexico and Canada. In the low-tariff scenario, in particular, energy tariffs are substantially lower than in the high-tariff scenario.

Table 2a

High-tariff scenario: US tariff increases by country/group and sector after adjusting for exemptions (percentage points)

Sector	Argentina	Australia	Brazil	Canada	China	France	Germany	Indonesia
Energy	10.0	10.0	10.0	5.6	65.0	20.0	20.0	32.0
Mining	10.0	10.0	10.0	5.6	65.0	20.0	20.0	32.0
Agriculture	10.0	10.0	10.0	5.6	65.0	20.0	20.0	32.0
Durable manufacturing	16.0	11.9	14.3	8.5	60.9	20.7	22.1	31.2
Nondurable manufacturing	10.0	10.0	10.5	5.5	64.8	20.1	20.1	31.6

	India	Italy	Japan	Mexico	Russia	Saudi Arabia	South Africa	South Korea
Energy	26.0	20.0	24.0	2.5	0	10.0	30.0	25.0
Mining	26.0	20.0	24.0	2.5	10.0	10.0	30.0	25.0
Agriculture	26.0	20.0	24.0	2.5	10.0	10.0	30.0	25.0
Durable manufacturing	25.8	21.2	24.5	6.0	10.1	15.8	28.9	25.0
Nondurable manufacturing	26.0	20.0	24.1	2.4	10.0	10.0	29.9	25.0

	Turkey	United Kingdom	Rest of Asia	Rest of Eurozone	Other advanced economies	Other oil-exporting economies	Rest of world
Energy	10.0	10.0	14.5	20.0	16.0	22.0	18.8
Mining	10.0	10.0	39.5	20.0	17.9	25.9	15.8
Agriculture	10.0	10.0	41.2	20.0	12.0	10.7	12.4
Durable manufacturing	13.9	15.2	32.6	21.8	27.0	17.6	20.0
Nondurable manufacturing	10.3	10.1	31.0	20.1	25.9	15.6	21.5

Source: Authors' calculations.

Table 2b
High-tariff scenario: Retaliatory tariff increases on US exported goods (percentage points)

Sector	China	Germany	France	Italy	Rest of Eurozone
Energy	65.0	20.0	20.0	20.0	20.0
Mining	65.0	20.0	20.0	20.0	20.0
Agriculture	65.0	20.0	20.0	20.0	20.0
Durable manufacturing	60.9	20.0	20.0	20.0	20.0
Nondurable manufacturing	64.8	20.0	20.0	20.0	20.0

Source: Authors' calculations.

A key point to note is that tariffs vary by country and good, so the results can be very different from those produced by uniform tariffs applied to all countries and all goods that we and other researchers have studied.

Figure 1 shows the key macroeconomic indicators for the United States under the five scenarios: high tariffs, low tariffs, high tariffs with retaliation, low tariffs with retaliation, and high tariffs with retaliation and a 75 basis point rise in the US country risk premium. A more complete set of results for most countries and regions can be found in the online dashboard.

Figure 2 presents key results in each scenario for the two US sectors most significantly impacted: agriculture and durable manufacturing. The online dashboard has a full set of results for each of the six sectors in most economies and regions examined in the G-Cubed model.

Both figures show the results of the scenario being explored relative to the no-tariff baseline. Each figure has six panels: one for each economic indicator being considered. We focus on six main indicators for the United States (figure 1), China (figure 3), Canada (figure 4), and Mexico (figure 5). In each figure, the top left-hand panel is the percent difference in the nominal effective exchange rate for the country, relative to the baseline. The top right-hand panel is the change in total imports, including both goods and services, expressed as a percent of baseline GDP. The third panel shows the change in the trade balance again as a percent of baseline GDP. (Note that for the United States, a positive deviation of the trade balance implies the trade deficit is reduced relative to the baseline, not that the deficit has become a surplus). The fourth panel is the difference in GDP as a percent of baseline GDP. The fifth panel is the percentage point difference in consumer price index (CPI) inflation rate relative to baseline. The final panel is the percentage point difference in each country's real 10-year bond yield relative to baseline.

It's helpful to initially focus on the direct impact on the United States of the low-tariff scenario, as shown by the solid blue line in each figure. When the United States imposes a tariff on imports from other countries, the price of the imported good rises, and the price received by the foreign exporter falls. The difference between the price change of the exporters and the importers is the tariff. The

Table 3a

Low-tariff scenario: US tariff increases by country/group and sector after adjusting for exemptions (percentage points)

Sector	Argentina	Australia	Brazil	Canada	China	France	Germany	Indonesia
Energy	0	0	0.02	2.7	0.5	0	5.1	0
Mining	9.4	0.8	9.5	2.7	4.7	9.1	5.2	9.4
Agriculture	8.9	10	7.8	2.7	26.8	9.6	4.2	5.9
Durable manufacturing	11.1	10.2	13.5	7	31	11.6	15.9	10.5
Nondurable manufacturing	6.9	5.6	9.8	2.6	24.7	7.3	4.2	10.1

	India	Italy	Japan	Mexico	Russia	Saudi Arabia	South Africa	South Korea
Energy	0	1.5	0	1.2	0	0	0	0.1
Mining	4.9	9.3	4.2	1.2	10	10	4.3	6.3
Agriculture	9.9	7.7	9.4	1.2	2.3	10	9.9	9.7
Durable manufacturing	11.8	13.4	17.7	5.3	0.9	11.9	9.5	17
Nondurable manufacturing	5.9	6.6	5.4	1.1	4.3	9.7	8.9	7.4

	Turkey	United Kingdom	Rest of Asia	Rest of Eurozone	Other advanced economies	Other oil-exporting economies	Rest of world
Energy	0	0	0.1	0.6	0	0	0
Mining	7.5	8.5	3.1	7.8	9.1	8.8	5
Agriculture	8.9	9.7	7.5	8.1	8.1	9.4	9.1
Durable manufacturing	13.7	14.8	8	15	11.7	9.6	11.2
Nondurable manufacturing	9.9	4.4	8.4	4.3	2.9	8.1	5.1

Source: Authors' calculations.

Table 3b
Low-tariff scenario: Retaliatory tariff increases on US exported goods (percentage points)

Sector	China
Energy	0.50
Mining	4.75
Agriculture	26.85
Durable manufacturing	30.99
Nondurable manufacturing	24.72

Source: Authors' calculations.

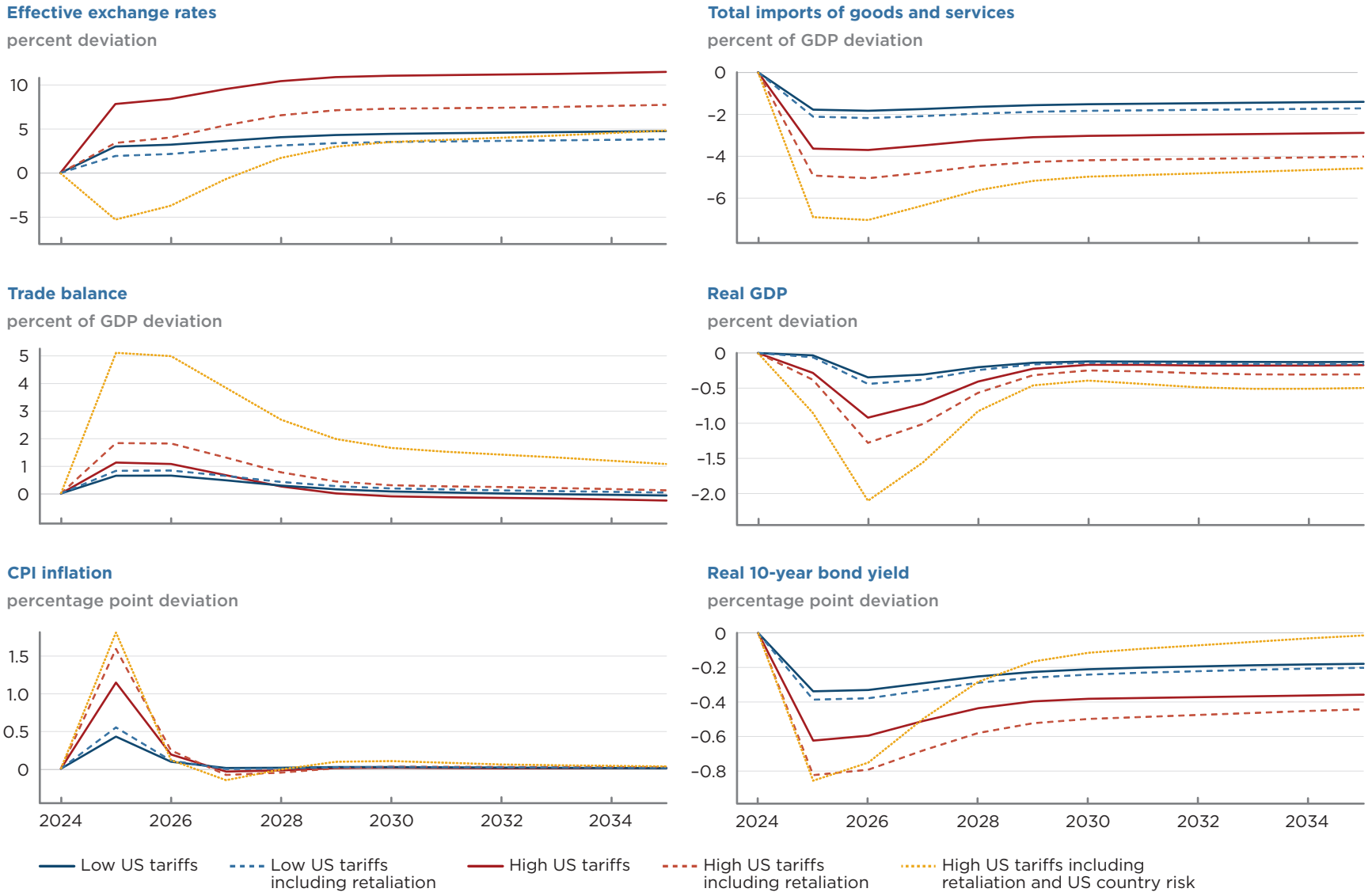
impact of a tariff on import prices is determined by the size of the tariff and the price sensitivity of households and firms consuming the goods or using them as production inputs. It also depends on the price sensitivity of the exporters. As seen in the sectoral results (figure 2), the price of all goods and services will tend to rise, but by differing amounts. This higher import price will reduce US demand for imports, as shown in the top right-hand panel of figure 1. The total import reduction in the low-tariff scenario without retaliation is roughly 2 percent of baseline GDP over 2025–35. Whether or not the trade balance improves depends on what happens to exports. The falling demand for imports reduces the demand for foreign currency for importing purposes and therefore increases the value of the US dollar. The US dollar appreciation makes US exports more expensive in foreign markets, reducing the demand for them. Whether or not US exports fall by more or less than US imports depends on the responsiveness of the US and foreign economies.

In fact, the trade balance in the G-Cubed model is directly related to the current account balance, which is determined by the difference between national savings and total investment. If investment falls by more than savings, the trade balance would improve because capital would flow out, depreciating the exchange rate and raising exports and reducing imports, generating a trade surplus consistent with the current account surplus. The trade balance will deteriorate if investment falls by less than savings. It is important to note that we assume that the US government uses the revenue from the tariff to reduce the budget deficit, which is an increase in government savings in the economy. Thus, the results for the trade balance in the low-tariff scenario without retaliation show that the trade balance would initially improve but eventually return to baseline and below by 2028 (figure 1). This shows that the decline in investment caused by the slowdown in the US economy dominates the improvement in the US trade balance via a net capital outflow from the US economy.

US real GDP in the low-tariff scenario without retaliation (figure 1) falls slightly in 2025, followed by a considerable slowdown going into 2026, with the US economy about 0.4 percent smaller than its baseline by 2026. Note that the US economy is permanently reduced in size every year because the tax wedge from the tariff creates an inefficiency where costs are permanently higher. This leads to a permanent fall in productivity.

Figure 1

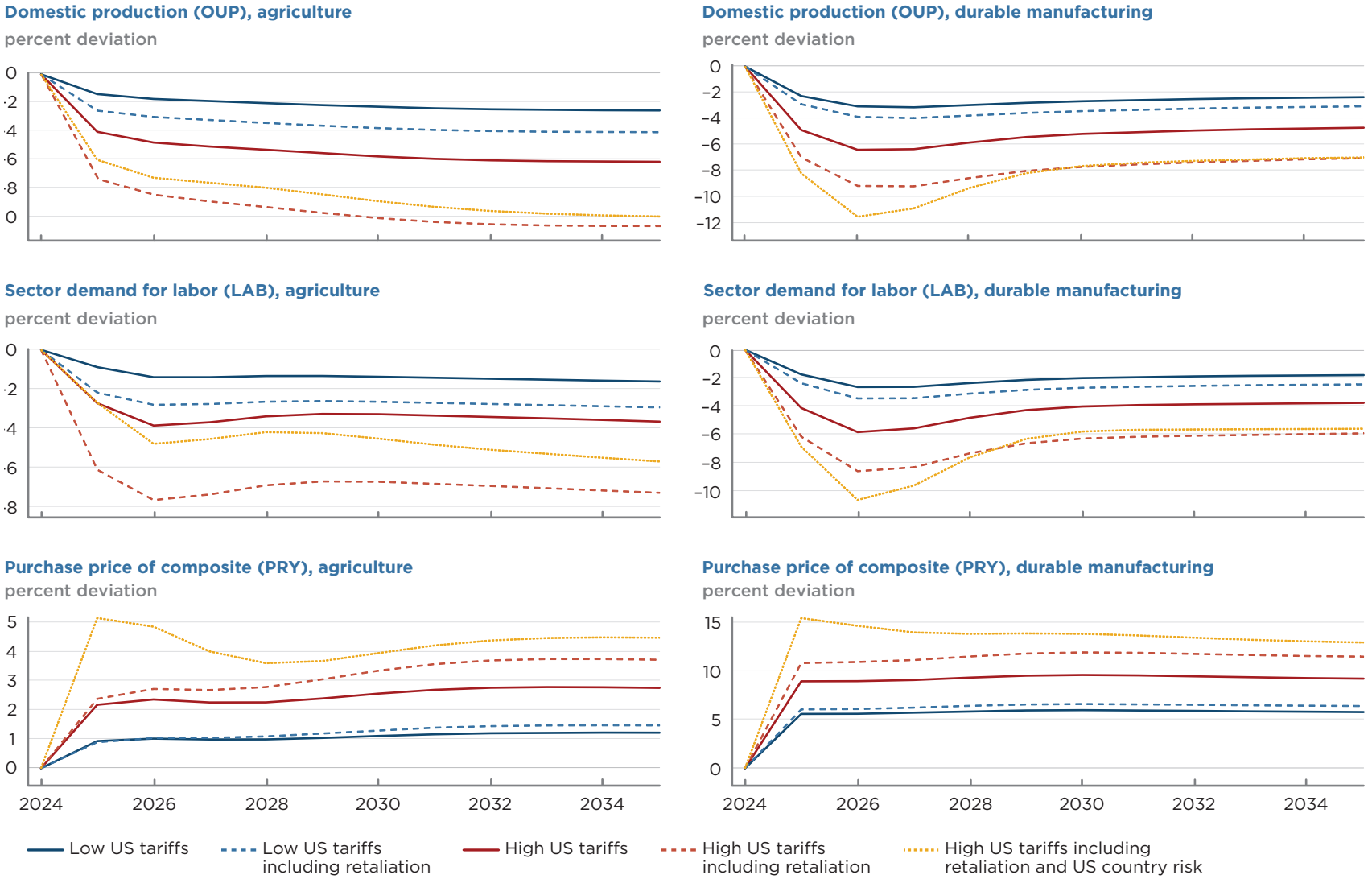
Results for the United States under five scenarios, 2025–35 (deviations from baseline for each year)



Source: Authors' calculations.

Figure 2

Results for the United States in agriculture and durable manufacturing under five scenarios, 2025–35 (deviations from baseline for each year)



Source: Authors' calculations.

US CPI inflation (figure 1) rises due to tariffs increasing import prices, which feed through the production networks in the US economy, increasing the cost of producing goods and services. The increased inflation pressures eventually disappear because we assume the US Federal Reserve will adjust interest rates to reduce inflation with the fall in real GDP to achieve its dual mandate of price stability and maximum employment. Real bond yields fall by roughly 40 basis points in 2025 in the low-tariff scenario (figure 1) due to the Federal Reserve's short-term policy response and the reduction in the return on capital caused by the increase in tariffs. The lower return on capital leads to a permanently lower real 10-year bond yield.

Figure 2 shows the results for the two most affected sectors in the US economy—agriculture and durable manufacturing—under all five scenarios. The output of these two sectors is most affected because they're both exposed to international trade, which means that when the US dollar appreciates, the demand for the exports of these products will tend to go down in foreign markets. These sectors also use intermediate inputs that are imported from abroad. That is an increase in the cost of production due to the increased imported input costs in the US economy. The decline in foreign demand and the rise in US production costs hit agriculture and manufacturing hardest. The durable manufacturing goods sector has an additional loss of demand because it is the primary sector that produces the goods that are used to produce capital for the rest of the US economy. Foreign investment is part of the demand for US durable goods. A fall in US and global investment due to the tariffs leads to a fall in demand, particularly for durable manufacturing goods. This fall in demand for agriculture and durable manufacturing goods leads to a decline in employment in both sectors. Rather than contributing to an industrial revival in the United States, the tariffs make the United States a high-cost island in the global economy and depress industrial output and employment.

The last two panels of figure 2 show the impact on the US domestic price of the output of these sectors (including both domestically produced and imported goods). In the low-tariff scenario without retaliation, prices will rise in 2025 by roughly 1 percent for agricultural products and by 6 percent for durable manufacturing goods. This is substantially less than the uniform tariffs without exemptions announced initially on April 2. Applying the USMCA exemptions on imports from Canada and Mexico is a significant reduction in the severity of the tariff war's effects.

Now, focus on the alternative scenarios shown in figures 1 and 2. The basic economic adjustment is very similar, except that the scale of the tariff changes and the retaliation by foreign governments is different in each case. Notably, the fifth scenario, which includes both high tariffs and retaliation, also includes a 75 basis point increase in country risk for the United States, Canada, and Mexico.

The line formats are consistent for each scenario. Blue lines represent low-tariff scenarios. Red lines represent high-tariff scenarios. Solid lines reflect scenarios that only involve US tariff increases. The dashed lines represent scenarios that add retaliatory tariff increases by non-US countries to the US tariff increases. Finally, the dotted yellow lines represent scenarios with high US tariff increases, high retaliatory tariff increases by foreign countries, and an increase in the country risk premium for the United States, Canada, and Mexico.

The top left-hand panel in figure 1 shows the nominal effective exchange rate of the US dollar in each of the five scenarios. The solid blue line shows that the dollar appreciates in effective terms by roughly 3 percent on the announcement of the

low tariffs without retaliation. The blue dashed line shows that if countries retaliate to the low tariffs, the dollar appreciates less. The red solid line shows that the high US tariffs, without retaliation, lead to a larger, 8 percent, dollar appreciation. The red dashed line shows that when other countries retaliate to the high US tariffs, the dollar appreciates substantially less than without retaliation. And finally, the dotted yellow line shows the effects in the fifth scenario, in which the United States imposes high tariffs, countries respond with high tariffs, and investors see a greater relative risk to holding US assets. Investors begin to lose confidence in the US economy, requiring a higher rate of return to hold US assets, and the dollar depreciates by 5 percent.

The top right-hand panel of figure 1 illustrates the impact on total US imports of goods and services in each scenario. Note that as countries respond to the US tariffs, the reduction in trade is larger across the scenarios.

Import reductions range from a 1.8 percent of GDP reduction in total imports under low US tariffs to a 7 percent of GDP reduction in imports in 2026 when there is a tariff war between the United States and its trading partners, and investors lose confidence in the US economy. The higher tariffs and the retaliation by countries amplify the mechanisms discussed above.

The outcomes for the macro economy and the individual sectors in all countries depend critically on whether the tariff changes are large (disruptive) or smaller and whether other countries retaliate. It is clear that a slight shift in US country risk can accentuate the negative impacts of a tariff war. However, it can also provide some offset to a particular sector due to the effect on US competitiveness from an increased risk premium depreciating the US dollar and reducing the global price of some US exports. This results in a 5 percent of GDP improvement in the US trade balance as capital flows overseas. While tariffs alone generate a small initial improvement in the US trade balance, which eventually disappears, the loss of confidence in the United States and subsequent capital outflow have a larger impact on the trade balance.

US real GDP is lower than otherwise in all scenarios, declining farther from the baseline as the scale of the tariffs and of the retaliation grows. Real GDP losses in 2026 range from 0.03 percent relative to baseline in the low-tariff scenario to 2.1 percent relative to baseline in the scenario of high tariffs with retaliation and increased risk. The tariffs and retaliation by themselves do not cause a US recession, but this ignores the hit to confidence more generally in the US economy in excess of the impact of US country risk. This indicates that the subsequent exemptions and adjustments to the original tariff announcements of April 2 significantly reduce the estimated economic costs in this model, as calculated in McKibbin and Noland (2025a, 2025b).

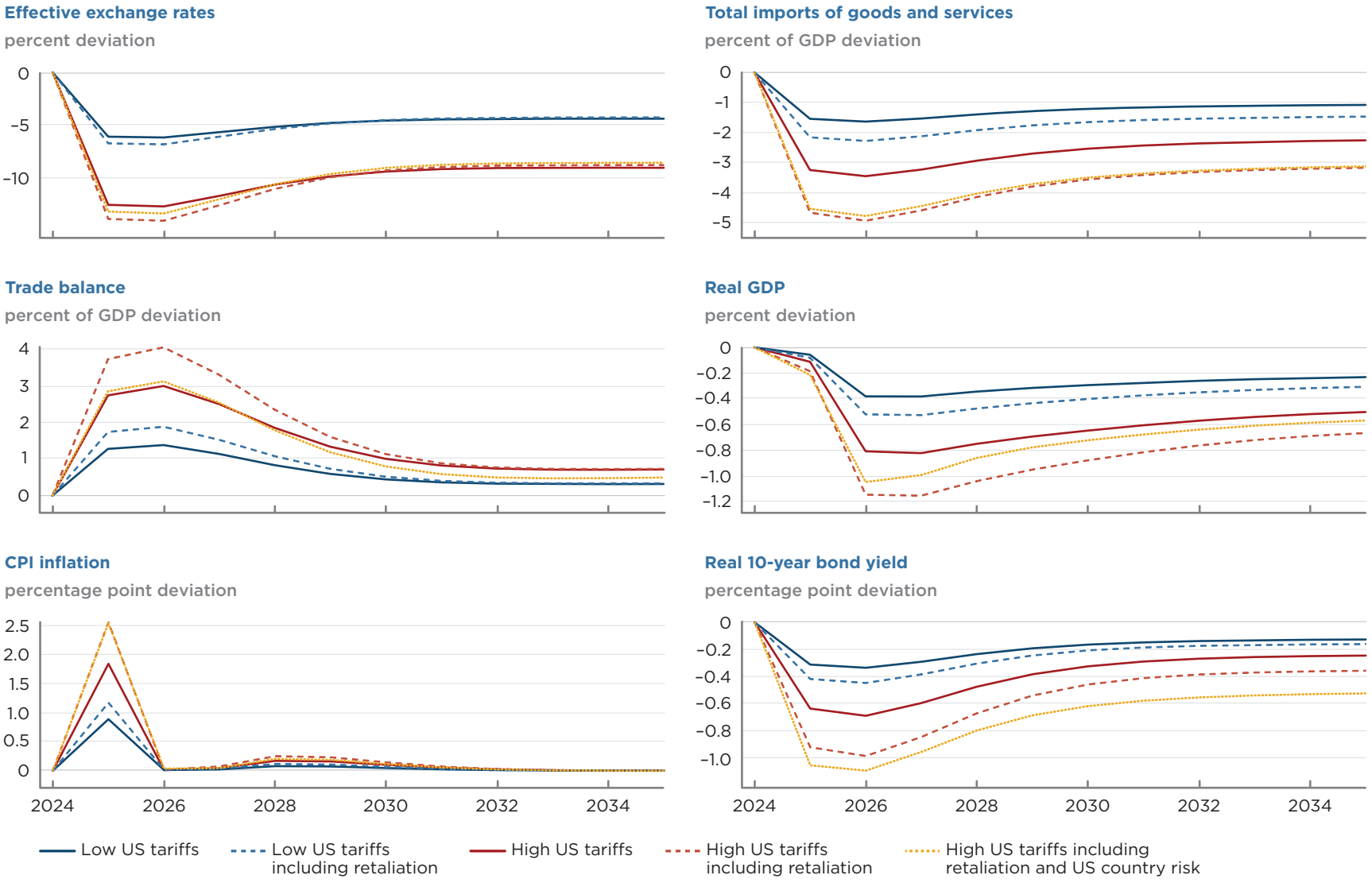
US inflation in 2025 rises by between 0.4 percentage point in the case of low tariffs and 1.8 percentage points in the case of high tariffs with retaliation and increased risk. This is not surprising, as the exchange rate depreciation resulting from the risk shock increases import prices, in addition to the rising import prices caused by the tariff increase.

The changes in key macroeconomic indicators are also shown for several other countries, including China, Canada, and Mexico. Sectoral analysis for these countries is available in the online dashboard.

China (figure 3) experiences a significant depreciation of its real exchange rate. Imports fall by more than exports, which are diverted from the United

Figure 3

Results for China under five scenarios, 2025–35 (deviations from baseline for each year)



Source: Authors' calculations.

States to other countries, and as a consequence, China's trade surplus grows, GDP declines, and the rise in risk in the United States reinforces that decline. In contrast to the textbook case of a large country retaliating to improve its terms of trade, retaliation does not improve China's terms of trade.

In the cases of Canada (figure 4) and Mexico (figure 5), the tariff exemption on USMCA-compliant trade acts as an effective trade preference relative to the other countries in the model. For Canada, contagion of risk has a bigger impact on GDP than the relatively low applied tariffs. Mexico benefits from the tariffs imposed on third-country competitors. Real GDP rises except in the case where the impact of risk swamps it.

TRADE DIVERSION EFFECTS

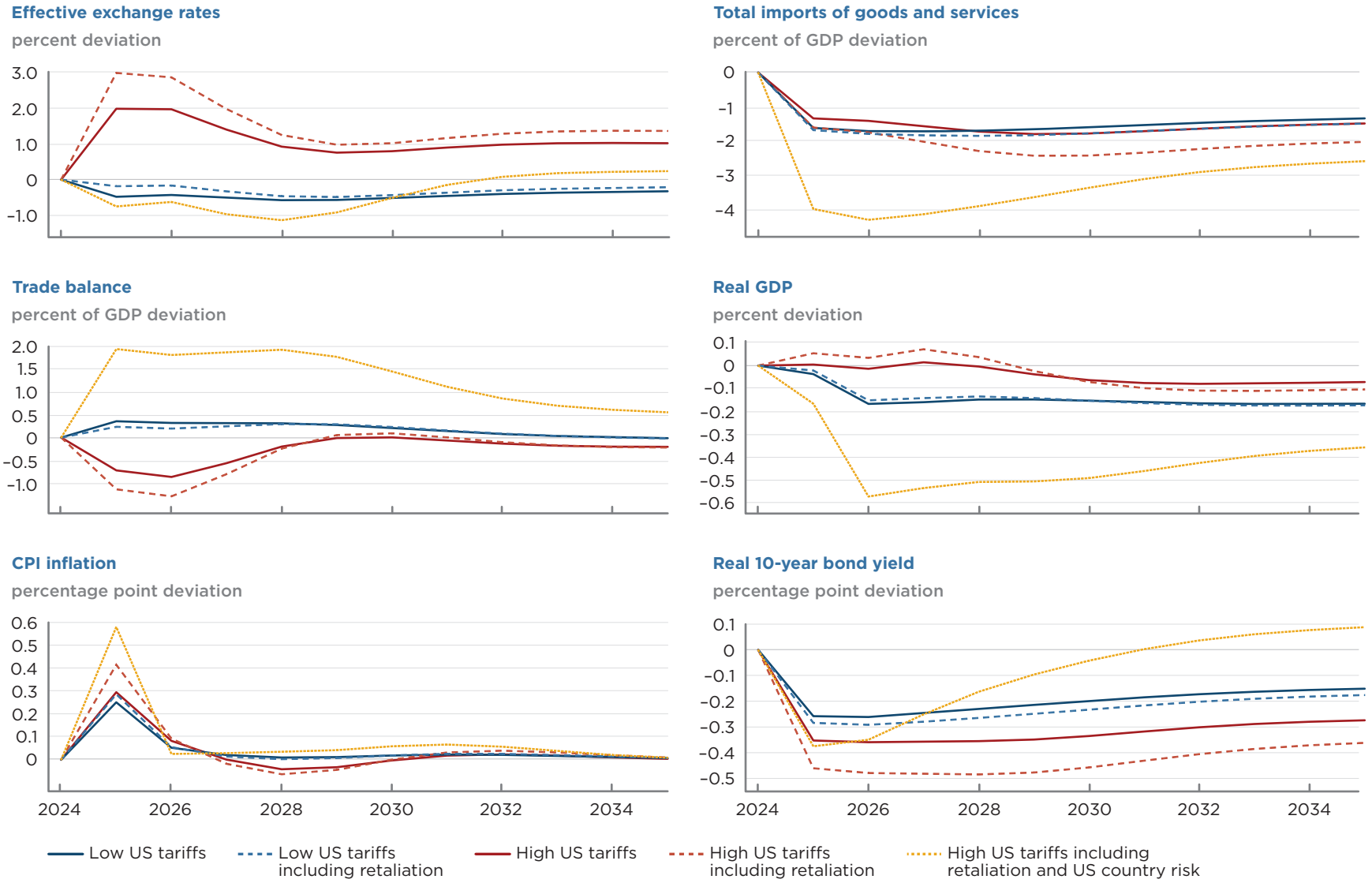
A primary concern of many countries is that goods that would have entered the US economy will be redirected into other markets. This is particularly concerning because of the size of US tariffs on Chinese exports. To some extent, exports of all countries facing a tariff increase in the United States will be redirected into non-US economies. This trade diversion has the disadvantage of undermining the competitiveness of sectors in the countries receiving these exports. It has the advantage of lowering inflation in the receiving economies.

Table 4 presents the results for the change in imports of goods from China in each economy as a share of the country's GDP, specifically for the two manufacturing sectors with the largest share of trade redirection. The other sectors have negligible quantities of redirection due to the bias of US tariffs against manufacturing imports.

Trade diversion is larger for durable manufactured goods and nondurable manufactured goods. Developing Asia shows the most significant increase in Chinese imports, followed by Mexico and Turkey. Among the large industrial economies, Germany is the most affected.

Figure 4

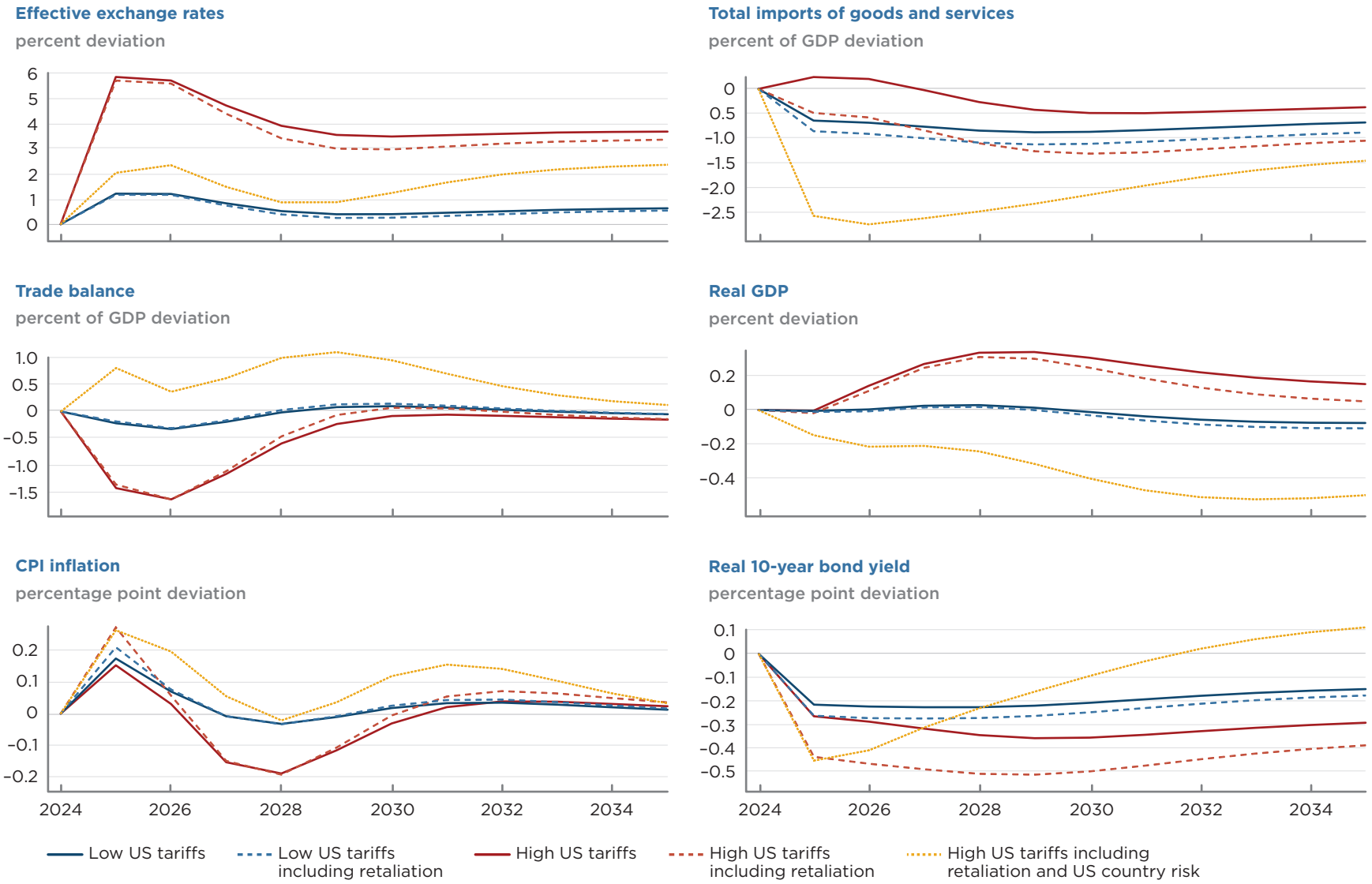
Results for Canada under five scenarios, 2025–35 (deviations from baseline for each year)



Source: Authors' calculations.

Figure 5

Results for Mexico under five scenarios, 2025–35 (deviations from baseline for each year)



Source: Authors' calculations.

Table 4

Change in durable and nondurable manufacturing imports from China as a percent of the importing country/group GDP

Country/group	Durable manufacturing		Nondurable manufacturing	
	High tariffs	*Low tariffs*	*High tariffs*	*Low tariffs*
Australia	0.40	0.18	0.15	0.07
Brazil	0.23	0.10	0.08	0.03
Canada	0.50	0.17	0.15	0.06
France	0.36	0.16	0.13	0.06
Germany	0.52	0.22	0.17	0.08
India	0.21	0.10	0.06	0.03
Indonesia	0.24	0.13	0.10	0.05
Italy	0.30	0.13	0.13	0.06
Japan	0.29	0.09	0.18	0.07
Mexico	0.81	0.31	0.09	0.04
Russia	0.47	0.22	0.18	0.08
Saudi Arabia	0.20	0.11	0.05	0.03
South Africa	0.31	0.16	0.16	0.08
South Korea	0.36	0.13	0.11	0.05
Turkey	0.71	0.32	0.27	0.13
United Kingdom	0.39	0.17	0.16	0.07
United States	–1.83	–0.9	–0.52	–0.19
Rest of Asia	1.28	0.72	0.32	0.18
Rest of Eurozone	0.29	0.13	0.10	0.05
Other advanced economies	0.21	0.10	0.10	0.05
Other oil-exporting economies	0.12	0.11	0.04	0.04
Rest of world	0.27	0.13	0.11	0.05

Source: G-Cubed model simulation.

CONCLUSION

There are several key lessons to be learned from the five scenarios examining the impact of Trump's tariffs on the global economy. US tariffs on major trading partners tend to reduce US GDP and raise inflation. How much output falls and prices rise depends on the scale of the tariffs that the United States imposes on other countries and the scale of the response of different countries to the US tariffs. We find that an increase in US country risk results in higher US inflation and significantly lower US GDP than in the other scenarios. The US trade deficit narrows under the configuration of tariffs and responses in the current scenarios. This contrasts with our earlier work on uniform tariffs, where we found that the US trade deficit could widen depending on the changes in savings and investment within the US economy. The rise in US country risk leads to a significant reduction in the US trade deficit.

China experiences a significant exchange rate depreciation relative to most countries due to the direct impact of US tariffs and the various retaliation scenarios, assuming Beijing allows the exchange rate to adjust. Part of this is because the Chinese are subject to the higher tariffs in the United States, and China depends significantly on the US economy for export demand. However, the hit to GDP is dampened by the significant depreciation of the Chinese currency, which improves China's competitiveness in other markets, helping increase Chinese exports to other countries, particularly in the Asia Pacific. This results in smaller GDP losses compared with previous studies, leading to a substantial increase in the Chinese trade surplus. The tariff war is inflationary in China, assuming the government permits its currency to weaken.[5]

The exclusion of USMCA-compliant trade from tariffs confers a trade preference to Canada and Mexico relative to the other countries in the model. But they are subject to an offsetting contagion of financial risk from the United States.

Globally the tariff war reduces interest rates by reducing global investment relative to global savings. It's also interesting that when investors lose confidence in the US economy, the outflow of capital from the United States to the rest of the world further depresses global interest rates and leads to an offset to the GDP losses that otherwise would be experienced by these economies from the tariff war alone. Overall global GDP falls relative to baseline.

It is particularly interesting that the recent adjustments to the evolving tariff threats have led to a substantial reduction in the economic costs of the US tariff war relative to earlier calculations based on headline tariff rates without adjustments. While the tariff war details change daily, it does appear that the adjustments being made by the US administration in response to industry feedback, political pressure, and market movements have significantly mitigated the economic impacts of US tariff policy.

Finally, it should be stressed that we haven't considered the impact of ever-changing tariffs on uncertainty and the impact of that uncertainty on investment decisions by households and firms in the US economy and in the global economy

5 In McKibbin, Hogan, and Noland (2024) it was assumed that the People's Bank of China would lean against the depreciation of the renminbi by tightening monetary policy, which explained the larger Chinese GDP loss in that paper.

more generally. As shown from the results for the increase in US country risk, small changes in risk perceptions can lead to very large economic adjustments and economic losses in addition to those caused directly by the change in tariffs.

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APPENDIX A

Details of the G-Cubed Model

The version of the G-Cubed model used in this paper is an updated version of the G20 version (McKibbin and Triggs 2018). The model has 19 sovereign economies from the G20 bloc plus four regions and the rest of the world. The model is summarized in table A.1.

Table A.1
Overview of the G-Cubed (G20) model

Countries (19)	**Regions (5)**
Argentina	Rest of Asia
Australia	Rest of the Eurozone
Brazil	Other advanced economies
Canada	Other oil-exporting economies
China	Rest of the world
France	
Germany	**Sectors (6)**
Indonesia	Energy
India	Mining
Italy	Agriculture
Japan	Durable manufacturing
Mexico	Nondurable manufacturing
Russia	Services
Saudi Arabia	
South Africa	**Economic Agents in Each Country (4)**
South Korea	A representative household
Turkey	A representative firm (in each of the 6 production sectors)
United Kingdom	Government
United States	Central banks

Key Features

The G-Cubed model has a number of important features that are particularly important for modeling the impact of tariffs on the global economy.

First, the model accounts for stocks and flows of physical and financial assets. For example, budget deficits accumulate into government debt, and current account deficits accumulate into foreign debt. The model imposes intertemporal budget constraints on all households, firms, governments, and countries. Thus, a long-run stock equilibrium is obtained through the adjustment of asset prices, such as the interest rate for government fiscal positions or real exchange rates for the balance of payments. However, the adjustment toward the long-run equilibrium of each economy can be slow, occurring over decades.

Second, firms and households in the model use money issued by central banks for all

transactions. Thus, central banks set short-term nominal interest rates to target macroeconomic outcomes, such as inflation, unemployment, and exchange rates, based on the Henderson-McKibbin-Taylor monetary rules (Henderson and McKibbin 1993, Taylor 1993). These rules approximate actual monetary regimes in each country or region, tying down their long-run inflation rates and allowing for short-term policy adjustments to smooth out fluctuations in the real economy.

Third, nominal wages are sticky, adjusting over time based on country-specific labor

contracting assumptions. Firms in each sector hire labor up to the point that the marginal product of labor equals the real wage in that sector, where the real wage is defined in terms of the wage relative to the output price level of that sector. Any excess labor enters a pool of unemployed workers. Unemployment or, alternatively, labor shortages cause the nominal wage to adjust to clear the labor market in the long run. In the short run, unemployment can arise due to structural supply shocks or changes in aggregate demand in the economy.

Fourth, rigidities prevent the economy from moving quickly from one equilibrium to another. These rigidities include the nominal stickiness of wages mentioned above as well as the slow adjustment of sector-specific capital stocks due to convex adjustment costs in investment in each sector-specific capital stock. The transition path is also influenced by a lack of complete foresight in expectation formation among monetary and fiscal authorities, who adhere to specific monetary and fiscal rules. Short-run adjustments to economic shocks can differ significantly from long-run equilibrium outcomes. Modeling short-run rigidities is essential for capturing the impact, over the business cycle, of a significant shock.

Fifth, the model features heterogeneous households and firms. Firms are modelled

separately within each sector. There are two types of consumers in the economy, and two types of firms within each sector in each country or region. One group of consumers and firms bases its decisions on forward-looking expectations, using the model's solution in future periods to form those expectations. The other group follows simple rules of thumb, which are optimal in the long run but do not update their information on expected future shocks.

Model documentation and detailed equations can be found at the G-Cubed website.

APPENDIX B

Calculating the Tariff Shocks

To design the tariff shocks under each of the scenarios in this paper, the following steps were followed based on product-level US import flows.

Product Categories

Products are classified into broad categories: steel and aluminum, vehicles, auto parts, exemptions from reciprocal tariffs (Annex II exemptions) and exemptions for semiconductors, and finally, the remaining unclassified goods. As a simplifying assumption, the two categories related to exemptions are reflected as one group. These classifications are based on the relevant Proclamations and Executive Orders published in the Federal Register and published by the White House that list goods covered by trade measures by code under the Harmonized Tariff Schedule of the United States (HTSUS). Products classified under the HS classification for estimated imports of low valued transactions are excluded from the analysis. The different broad categories determine which tariff rate applies according to each one of the scenarios from table 1.

To simplify, goods are classified at the 6-digit tariff level. The HTSUS is based on the 2017 standard. The US import flows used to weight tariffs by product within the five sectors covering goods in the G-Cubed model are from 2024, so these codes are converted into the 2017 standard.

For steel and aluminum, five different lists are used to classify goods: those that have been announced since 2018 as a result of various Section 232 investigations regarding national security: the list announced in 2018 under "Adjusting Imports of Aluminum into the United States" (Federal Register 2018a) and "Adjusting Imports of Steel into the United States" (Federal Register 2018b), that from 2020 "Adjusting Imports of Derivative Aluminum Articles and Derivative Steel Articles Into the United States" (Federal Register 2020), that from 2025 for aluminum "Adjusting Imports of Aluminum into the United States" (Federal Register 2025a), and that for steel "Adjusting Imports of Steel into the United States" (Federal Register 2025b).

For vehicles and auto parts, the list under the "Adjusting Imports of Automobiles and Automobile Parts into the United States" Executive Order is used (Federal Register 2025c). Goods are separately classified as either vehicles or auto parts.

The fourth list, exemptions, includes goods listed in Annex II from the Executive Order "Regulating Imports with a Reciprocal Tariff to Rectify Trade Practices that Contribute to Large and Persistent Annual United States Goods Trade Deficits" (White House 2025a). The list also includes the list of semiconductors exempted under the Presidential Memorandum "Clarification of Exceptions Under Executive Order 14257 of April 2, 2025, as Amended" (White House 2025c).

To simplify, these lists are modified to be mutually exclusive, so a specific tariff level applicable to more than one of the product lists (steel and aluminum, vehicles, auto parts, and exemptions) under the listed scenarios is only applied to one product at a time. The only tariff that stacks on top of others is the 20 percentage point fentanyl tariff for US imports from China. Therefore,

some assumptions were made regarding the order in which the lists precede one another: the vehicles classification precedes the steel and aluminum classification. The auto parts classification also precedes the steel and aluminum classification. All classifications are preceded by exemptions (relevant only in scenarios with exemptions). For instance, if a product is classified both under the exemption list and under the vehicle list, then preference is given to the exemption classification, thus it will fall under the exemption category and be taken out of the vehicle product list.

The remaining goods that do not fall under any of the lists are the ones on which a 10 percentage point tariff is applied under the low scenario, and 10 percentage points in the case of imports from China, with 20 percentage points added due to the dispute over fentanyl. For the high scenario, this list is extended to include the Reciprocal tariffs exemptions and the semiconductors exemptions. The tariff levels from Annex I (White House 2025b) of the Liberation Day tariff list per trade partner are applied to these products, or 10 percentage points if the country is not listed, and 45 percentage points applied to Chinese imports belonging to this list.

For Mexico and Canada, the relevant lists are only those for vehicles, auto parts, and steel and aluminum, or more simply put, exemptions are not considered. Steel and aluminum products undergo the 25 percentage point shock. Auto parts in the scenarios in this document are not subject to any tariff shock under any of the scenarios, while vehicles are subject to USMCA compliance and noncompliance ratios.

The USMCA compliance share in the non-automotive sector is the complement of the ratio of Canada/Mexico dutiable import value in 2024 entering outside USMCA and NAFTA programs over the total import value from Canada/Mexico. For Canada the USMCA-compliance share in the nonauto sector is then assumed to be around 78 percent, and for Mexico, 90 percent.

For the auto sector, the USMCA compliance share is the complement of the ratio of import value in 2024 in the auto sector (both auto and auto parts as defined by the USITC) from Canada/Mexico that enters outside USMCA and NAFTA programs, over the total import value in the auto sector from Canada/Mexico. The resulting shares are 88 percent for Canada, and 80 percent for Mexico.

Levies are also imposed on the non-US content of motor vehicles that comply with USMCA. For Mexico the US content in motor vehicles exports to the United States is set to 38 percent (Contreras 2024). For Canada is set to 70 percent, assuming a higher US content compared to imports of vehicles from Mexico.

The rest of the products are subject to a 25 or 12 percentage point tariff shock (high and low scenario, correspondingly) if they are not USMCA compliant, thus USMCA compliance ratios apply.

After each product is classified as described and the corresponding tariff shock is applied (magnitudes and product class described in table 1, for example, steel and aluminum products subject to a 25 percentage point shock), each product's tariff shock is multiplied by its import G-Cubed sector and country group-specific weight (that is the sum of these weights add up to one if added within sector and country/group). These figures are added within G-Cubed sector and within US-country (group) partner, which are the tariff shocks used throughout this analysis.

Regions

The following countries/economies are listed under the country groups (regions) used in this analysis.

- Rest of Asia: Hong Kong, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam.
- Rest of the Eurozone: Belgium, Cyprus, Estonia, Finland, Greece, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.
- Other advanced economies: Denmark, Iceland, Liechtenstein, New Zealand, Norway, Sweden, and Switzerland.
- Other oil-exporting economies: Algeria, Angola, Bahrain, Congo, Ecuador, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Nigeria, Oman, Qatar, Gaza Strip, Syria, United Arab Emirates, Venezuela, Yemen, Democratic Republic of the Congo, and São Tomé and Príncipe.
- Rest of the world: Countries and economies that exported to the United States in 2024 and that are not included in this list or the list of individual countries.

In this paper retaliation from the European Union excludes retaliation from Austria, Denmark, and Ireland to simplify the analysis, as these countries are classified under Rest of the world or Other advanced economies.

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