PIIE PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

PIIE BRIEFING 25-2

The US Revenue Implications of President Trump's 2025 Tariffs

Warwick McKibbin and Geoffrey Shuetrim

April 2025

1750 Massachusetts Avenue, NW | Washington, DC 20036-1903 USA | +1.202.328.9000 | www.piie.com

Contents

Summary of Findings 3

Introduction 4

The G-Cubed Model 4

Tariffs in the G-Cubed Model 4

Approach to Estimating Revenue from Tariffs 6

US Revenue Results for a 15 Percentage Point Tariff Increase 7

US Macroeconomic Outcomes of a 15 Percentage Point Tariff Increase 8

Sensitivity Analysis: Comparing Effects of 10, 15, and 20 Percentage Point Tariff Increases 12

Conclusion 18

Appendix Details of the G-Cubed Model 19

References 21

This PIIE Briefing was made possible by a grant from the Peter G. Peterson Foundation, a separate and distinct entity from the Peterson Institute for International Economics. The statements made and views expressed are solely the responsibility of the authors.

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.

Cover photo: DPA/Christian Charisius

The US Revenue Implications of President Trump's 2025 Tariffs

Warwick McKibbin and Geoffrey Shuetrim

SUMMARY OF FINDINGS

President Donald J. Trump's new tariffs could generate trillions of dollars in new federal government revenue over a decade, but the net gain would be reduced by the measures' damaging effects on the US economy and the other economies' likely retaliation.

This PIIE Briefing uses a global economic model to assess the effects of US tariff increases of 10, 15 or 20 percentage points on all imported goods. We evaluated how the effects would differ depending on whether other economies do or do not retaliate by imposing the same tariffs on imported US goods.

Among the top findings:

- **A 15 percentage point increase in universal US tariffs** would generate **$3.9 trillion** in federal government revenue over a decade before accounting for its impact on the US economy and assuming no foreign retaliation. That total would be partially offset by lower tax revenue than otherwise from households and companies due to the tariffs' economic impacts—including slower US growth and lower production, employment, and real wages. After accounting for those offsets, the net revenue gain would be **$3.2 trillion** over a decade. That net revenue gain would shrink further to **$1.5 trillion** if other economies retaliate.
- **A lower 10 percentage point tariff increase**, combined with the economic effects and foreign retaliation, would generate a net revenue gain of **$1.6 trillion**.
- Higher tariffs do not necessarily yield more revenue. Of these scenarios, the net gain would be lowest, **$791 billion, under a 20 percentage point tariff increase**, combined with the economic effects and foreign retaliation.
- Under each of these three tariff rate scenarios, the United States would see lower GDP, investment, employment, and real wages over the following decade than otherwise—i.e., than without the tariff increases—and higher inflation over the initial two years.
- The US sectors hit hardest would be agriculture, mining, and manufacturing because of their relatively high reliance on foreign demand for their exports. The harm would be amplified by retaliation from trading partners.

Warwick J. McKibbin, nonresident senior fellow at the Peterson Institute for International Economics, is Distinguished Professor of Economics and Public Policy and director of the Centre for Applied Macroeconomic Analysis (CAMA) in the Crawford School of Public Policy at the Australian National University (ANU).

Geoffrey Shuetrim is chief technology officer at McKibbin Software Group Pty Ltd.

INTRODUCTION

President Trump has announced, increased, implemented, and paused a dizzying variety of tariffs on US imports since taking office in January. At this writing in April 2025, it is unclear which tariffs may or may not take effect, for how long, or at which rates. To get a sense of the potential impacts, we consider three alternative tariff changes: a 10 percentage point, a 15 percentage point, and a 20 percentage point increase in tariffs on all imports of goods into the US economy. We assume that service imports do not attract a tariff, but they will be affected through economic linkages.

For each of the three tariff increases, we consider two alternative scenarios. In the first, the United States imposes tariffs without a response from its trading partners. In the second, all economies retaliate to the US tariff increase by imposing the same tariffs on all goods imported from the United States. The Results section below details the effects of the 15 percentage point tariff increase on government revenue and the US economy, particularly real GDP, trade, the dollar, and inflation over the next 10 years. The Sensitivity Analysis section compares these results with those for a 10 and 20 percentage point tariff increase.

THE G-CUBED MODEL

This PIIE Briefing employs the G-Cubed model to assess the impact on the US economy of uniform US tariffs on all its trading partners, with a particular focus on the federal government revenue implications of these tariffs. The G-Cubed model is a hybrid of dynamic stochastic general equilibrium (DSGE) models and computable general equilibrium (CGE) models originally developed by McKibbin and Wilcoxen (McKibbin and Wilcoxen 1999, 2013).

Consumers in each country 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 economy for the coming decade if the tariffs are *not* adopted. We then use the model to project the effects of the tariffs, measured as deviations from that baseline. We apply those percentage deviations to the Congressional Budget Office (CBO) baseline, which assumes that some of the 2017 tax cuts enacted in Trump's first term expire at the end of 2025.

The appendix highlights key features of the standard G-Cubed model.

TARIFFS IN THE G-CUBED MODEL

Tariffs are applied to the landed value of goods. They are country- and sector-specific. Revenue from the tariff is paid to the government by the importer. Individual tariffs are imposed on all goods and therefore enter into the price of goods for final consumption by households as well as intermediate goods in production networks within the economy.

Tariffs directly cause a gap between the price paid by an importer and the price received by the producer in the exporting country.

If export producers do not adjust their prices, the price paid in the United States will rise due to the tariff (or tax) on imports. Imports are purchased by consumers for final consumption and by firms to use as inputs into production. Higher input costs will feed through the production networks into the prices of domestic output.

Tariffs on imports also alter the prices of products relative to one another. This is because the local-price impact of a tariff depends, for each product, on its share of imports versus domestic goods in the economy.

Tariffs also generate tax revenue, altering the government's fiscal position in ways that depend upon how the tax revenue is used. Lawmakers can use the revenue to reduce the US budget deficit and, therefore, lower government debt over time. They also can choose to use the revenue to offset, or "pay for," reductions in federal taxes on household income, corporate income, and other indirect taxes. The impacts of tariffs depend on the specific assumptions made about how tax revenue is used. In this briefing, we assume the revenue is used to reduce the fiscal deficit. This assumption applies to all countries and regions.

Tariffs have substitution effects for consumers and producers, and they have income and wealth effects for consumers. Outcomes will depend on how companies and households respond to changes in prices and income (elasticities vary by sector).

Substitution Effects: When the relative prices of products change, consumers and producers tend to buy more of the cheaper product and less of the more expensive one.

Income Effects: With higher prices, the purchasing power of consumers at a given income level will fall. This is particularly important for consumers who rely on current income for consumption. Additionally, rising unemployment in certain sectors will disproportionately affect those sectors, thereby reducing the incomes of workers who are exposed.

Wealth Effects: Tariffs alter the profitability of different sectors because these sectors have varying exposure to import competition and differing reliance on exports for income. US exports are affected because the US dollar will typically appreciate as US demand for imports, and thus foreign currency, falls. A stronger US dollar reduces the competitiveness of exporting firms. If future profits of negatively affected firms are expected to fall, the share price of these companies will fall. Our estimates using the G-Cubed model suggest these effects are likely to be more significant for the agriculture, mining, and manufacturing sectors because of their relatively high reliance on international markets for demand.

Impact of the Federal Reserve's Response: We also implement the response functions of each central bank. In the United States, we assume that the Federal Reserve adjusts the policy interest rate to balance changes in consumer price index (CPI) inflation with changes in the rate of growth of gross output relative to its twin goals of stable prices and maximum employment. The weight the Fed places on these goals is assumed to be equal. The Fed's response also

changes the impact of tariffs on inflation and output growth. In turn, this has implications for the dynamic effects of the tariffs on other government revenues and expenditures.

We do not attempt to follow the conventional tax scoring methods typically used for tax or tariff changes, which hold certain variables constant. In particular, we don't have prices constant since a key feature of the model is the endogeneity of many variables at the macroeconomic levels (such as exchange rates, inflation, and interest rates) and the sectoral level (employment, prices, investment, and exports). Indeed, the point of tariffs is to influence economic behavior by raising the prices of imports.

Exchange Rate Considerations: In response to tariff increases, the US dollar is expected to appreciate because Americans will need less foreign exchange to buy imports. This will make US exports more expensive in world markets, and foreign demand for them will fall.

This dollar appreciation is only evident if the rest of the world does not reciprocate (and there is no increase in the perceived risk of investing in US assets). In scenarios where other countries do retaliate, the exchange rate adjustment is considerably more muted and exports decline less. But exports still decline because of falling foreign demand due to the global economic downturn induced by a trade war.

Impacts of Tariffs on Inflation: Overall US prices will rise, but the prices of different sectors will change by different amounts; thus, relative prices will change. To the extent that inflation accelerates, the Fed can raise interest rates to slow the economy and reduce inflation, but this implies a less pronounced price rise and an increase in unemployment. A common argument that inflation only results from tariffs if the Fed allows it is equivalent to saying that if there is no inflation resulting from a tariff, there has to be lower production and employment somewhere in the economy. For example, if the price of sector 1 goods rises by more than that of sector 2, then for inflation to be limited, the less-traded goods in the economy would have to see their prices fall, so the average price (the inflation rate) does not change. Downward price rigidities cause output losses. Even if inflation can eventually be returned to the Fed's target, the US price level will be permanently higher, and relative price changes across sectors will persist.

Revenue Outcomes: Direct US government revenue from a tariff depends on the change in the value of imports. It will also depend on the macroeconomic and sectoral impacts of the tariffs on other federal revenue sources, such as corporate and household income taxes, as well as expenditures, including subsidies to affected sectors.

APPROACH TO ESTIMATING REVENUE FROM TARIFFS

The projected impact (both direct and indirect) of tariff increases on US tax revenue depends on the state and structure of the global economy. We first project the path of the global economy without the tariffs from 2018 to 2100 (details can be found in Liu and McKibbin 2025) to serve as our baseline for comparison. These growth projections assume eventual convergence

of productivity growth rates across countries to the frontier productivity of the United States, which is assumed to be 1.4 percent per year. We also use the UN projection of potential labor supply growth by country. Economic growth in the baseline depends on these exogenous driving forces and the endogenous response of capital and change in production networks within and across countries.

Given this baseline, we then implement the tariff changes in 2025, assuming they are expected to be permanent. The comparison of the projections, after imposing tariff increases, to the baseline, yields percentage changes in imports and changes in both company tax payments and household tax payments expressed as percentage points of baseline GDP. These deviations from the baseline are then applied to the baseline projections of imports and nominal GDP data sourced from the CBO's January 2025 economic projections. Note that the CBO baseline for imports includes services. To convert this baseline to one for imports excluding services, the growth rates in total imports from the CBO data were applied to the imports of goods data sourced from the US International Trade Commission (USITC) and used by the Tax Foundation (York and Durante 2025). This then yields the imports that the tariff rates are applied to, which determines the tariff revenue associated with the increase in tariffs.

Note that the tariff rates are inclusive (so for a rate of x, the inclusive rate is $x/(1+x)$), matching the Tax Foundation's assumption that the measured value of goods imports is inclusive of the tariff revenue. The inclusive tariff rates are also discounted by 8 percent to account for noncompliance, aligning our methodology with that of the Tax Foundation.

US REVENUE RESULTS FOR A 15 PERCENTAGE POINT TARIFF INCREASE

Table 1 summarizes the baseline projections of the dollar value of US goods imports and real GDP in current prices before tariffs are imposed from 2025 to 2034. These values are used to calculate the projected revenue and other economic effects of applying tariffs.

Although we have analyzed the impact of three different tariff rate changes—a 10 percentage point, a 15 percentage point, and a 20 percentage point increase on all imports of goods (but not services) into the US economy—only the analysis of the 15 percentage point increase is presented in this section. Results for the 10 and 20 percentage point scenarios are provided in the Sensitivity Analysis section. The results presented in this PIIE Briefing are also limited to the United States. Analysis of the impact of the tariff changes on other economies is available online at the G-Cubed website.

Table 2 shows that for the 15 percentage point tariff increase, almost all the increase in federal tax revenue is due to the direct effect of the tariffs themselves, which directly generate an additional $3.9 trillion in tax revenue over the years from 2025 to 2034 if other countries do not retaliate. Offsetting that total, the cumulative indirect effects via lower company and household tax payments are minus $211 billion and minus $492 billion, respectively, compared with the baseline. That yields a net revenue gain of $3.2 trillion from the three tax sources.

Suppose the rest of the world retaliates by raising tariffs on its imports of goods from the United States. In that case, as table 2 shows, the US tariffs

Table 1

Current price baseline projections of dollar value before tariffs, 2025–34 (trillions of US dollars)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
US goods imports	$3.4	$3.5	$3.6	$3.7	$3.9	$4.0	$4.1	$4.3	$4.5	$4.6
US GDP	$30.4	$31.6	$32.8	$34.1	$35.4	$36.7	$38.2	$39.6	$41.2	$42.7

Table 2

Projected changes from baseline in US tax revenue from 15 percentage point increase in US tariffs, with and without retaliation by all trading partners, 2025–34 (billions of US dollars)

Tax revenue source	Without retaliation	With retaliation
Tariffs on imports	$3,891	$2,943
Companies	–$211	–$526
Households	–$492	–$908
Combined total	**$3,189**	**$1,508**

Source: Authors' calculations.

generate $2.9 trillion in direct tax over the coming decade. That is about $900 billion less than without retaliation, primarily reflecting the overall decline in exports associated with the reduction in economic growth resulting from the trade war. The impact of reduced economic growth is also evident in the total effect on company tax revenue and household tax revenue. In combination, trade war retaliation results in a net tax revenue gain of $1.5 trillion compared to the baseline—or almost $1.7 trillion less than gained without retaliation.

US MACROECONOMIC OUTCOMES OF A 15 PERCENTAGE POINT TARIFF INCREASE

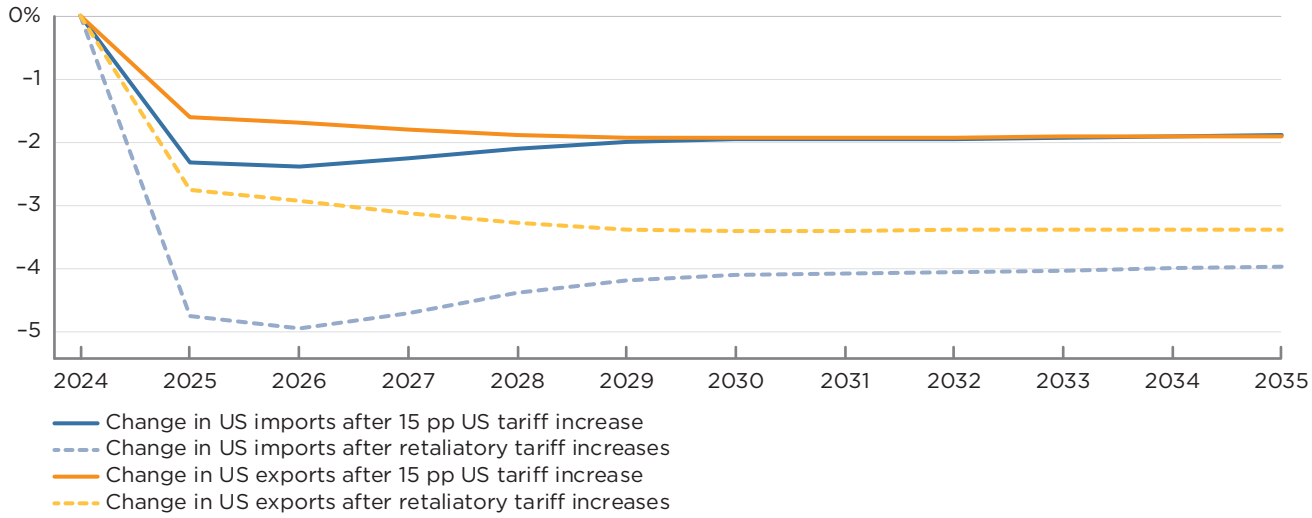
As discussed above, the imposition of the tariff increases causes wide-ranging changes to the US economy—raising inflation, slowing GDP growth, and causing the US dollar to appreciate relative to the currencies of its trading partners. Without retaliation by the rest of the world, total US imports decline by about 2 percent of GDP, compared with the baseline forecast. Imports fall as they become more expensive. With less demand for imports, the demand for foreign currency falls, which strengthens the US dollar. With retaliation, US imports drop by a more severe 5 percent of GDP. These trade responses are shown in figure 1.

The US dollar appreciation in the no-retaliation scenario occurs within the first year and is slightly more than a third of the size of the tariff increase (see figure 2). The stronger dollar makes US exports more expensive in foreign markets, which

Figure 1

A 15 percentage point increase in US tariffs on all imported goods would cause lower US imports and exports than otherwise

Projected percent change from baseline GDP in US imports and exports, with and without retaliation by all trading partners, 2025–35

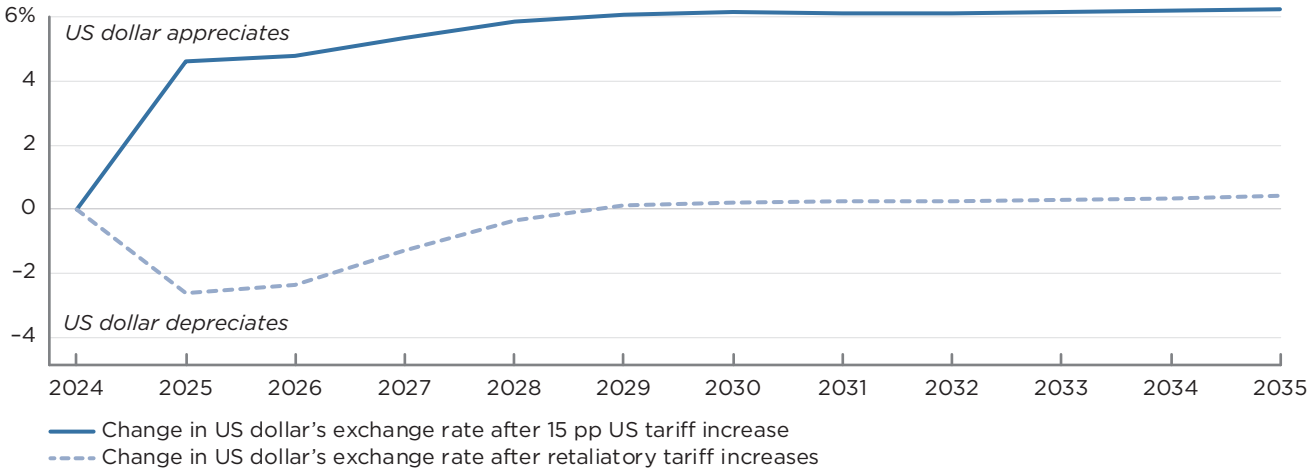


Source: Authors' calculations.

Figure 2

The effect of a 15 percentage point US tariff increase on the dollar's exchange rate varies depending on whether other economies retaliate

Projected percent change from baseline US effective exchange rate, with and without retaliation by all trading partners, 2025–35



Source: Authors' calculations.

reduces the demand for US exports. It also reduces foreign incomes, which adds to the decline in demand for US goods.

This reflects the standard lesson from the international trade literature: a tax on imports is a tax on exports. With retaliatory tariffs, the US effective exchange rate behavior is significantly different, with the dollar initially depreciating before stabilizing around its initial value. This is because, without retaliation, the exchange rate appreciation is not sufficient to offset the direct price increases induced by the tariffs, and so the economywide inflation rate ticks up by just over three-quarters of a percentage point in 2025 (see figure 3). While the Fed's response brings the inflation rate back to target within a few years, the overall price levels remain higher than in the baseline forecast.

With retaliation, the jump in US inflation due to the trade war more than doubles to 1.6 percentage points in the first year. This increased US price response is due to the difference in the real exchange rate response, and it triggers a stronger response by the Fed to restore inflation to the target.

As shown in figure 4, within two years, without retaliation from the rest of the world, US real GDP falls below the baseline by just over 0.6 percent. The relatively large initial slowdown is due to the investment costs associated with shifting production toward sectors protected by the higher tariffs. While GDP recovers from 2027 onward, it remains lower than otherwise because the tariffs have transferred resources away from sectors where the United States has a comparative advantage.

With retaliatory tariff increases by the rest of the world, the US real GDP decline approximately doubles. The path of the real GDP decline reflects the role of rigidities in the model. The surprise announcement of higher tariffs means that the return on capital, particularly in sectors that utilize imported inputs in production, will decline, which in turn reduces investment across all sectors, leading to a cyclical economic slowdown.

The US durable goods manufacturing sector is particularly adversely affected, as the output of durable goods is the dominant input into building the physical capital stock (see figure 5). Agricultural output also drops sharply because the dollar's appreciation plus the increase in imported input costs make agricultural exports less competitive in foreign markets.

The overall US economic slowdown also reduces employment, measured as hours worked, which in turn lowers demand in the economy through lower real incomes for households. As capital stocks decline and new capital is invested in sectors that don't experience the most significant decline in the return on capital, the economy recovers. Real wages also fall given the smaller capital stock and a fall in the marginal product of labor. Eventually, the workers who lose their jobs are rehired at a lower real wage, assuming full employment will eventually be reached.

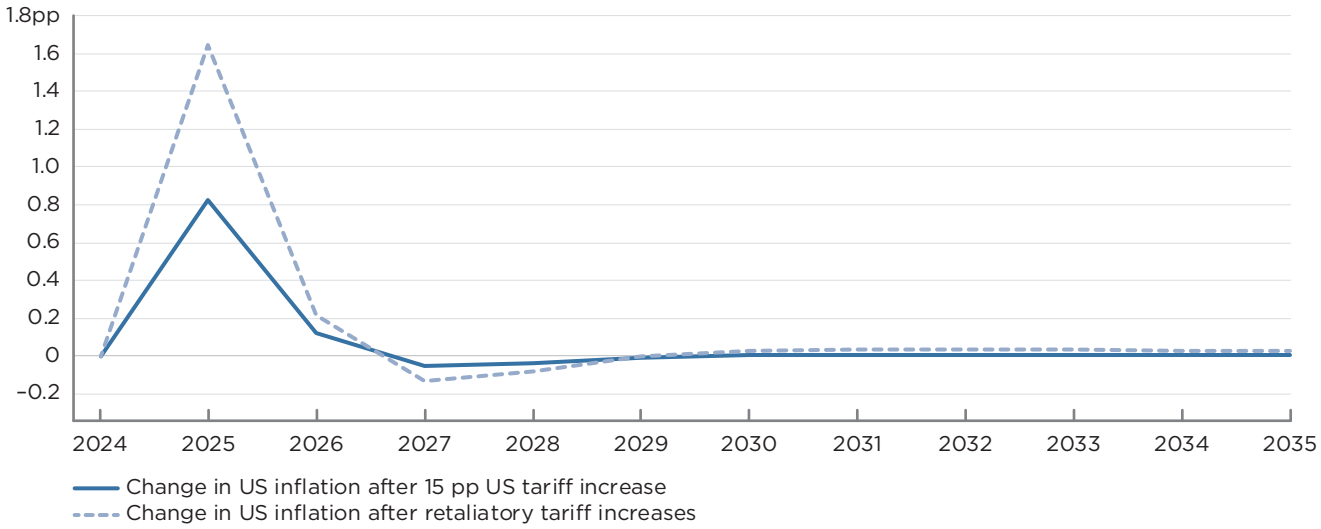
Allowing for business cycle adjustments during the transition is important for changes in the government balance sheet.

There are two main differences between the results when US tariffs are imposed alone and when countries retaliate with tariff increases. The first is that the US dollar appreciates less when countries retaliate. This drives US inflation higher as the rise in imported goods prices is no longer offset by the dollar's appreciation. The second is that real US GDP falls more with retaliation because

Figure 3

A 15 percentage point increase in US tariffs on all imported goods would initially cause higher US inflation

Projected percentage point change from baseline US consumer price inflation, with and without retaliation by all trading partners, 2025–35

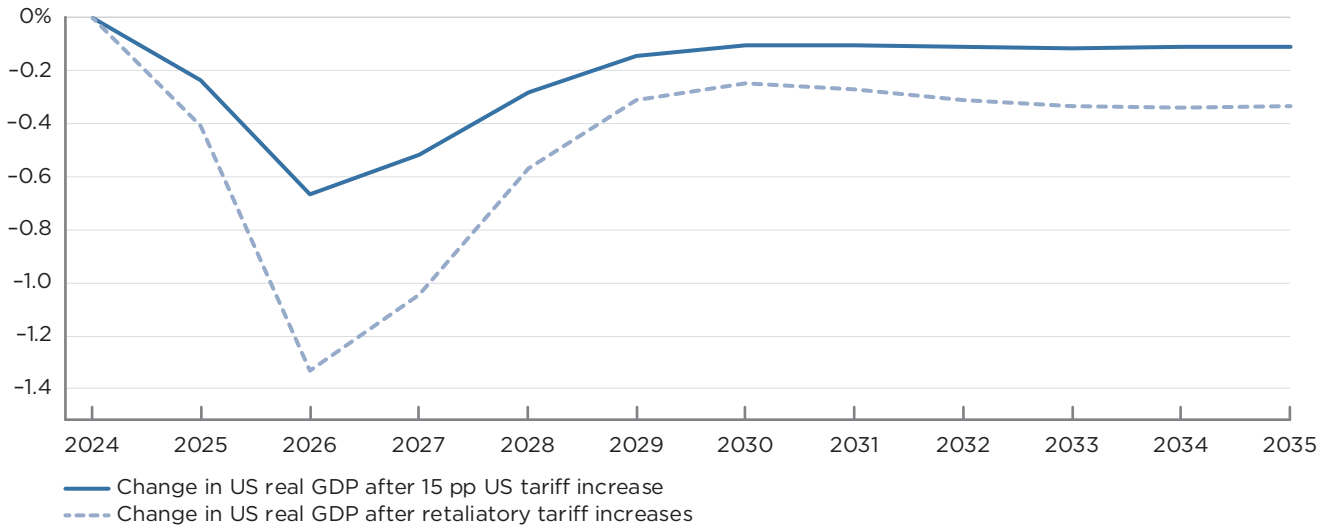


Source: Authors' calculations.

Figure 4

A 15 percentage point US tariff increase on all imported goods would cause lower US real GDP than otherwise

Projected percent change from baseline US real GDP, with and without retaliation by all trading partners, 2025–35

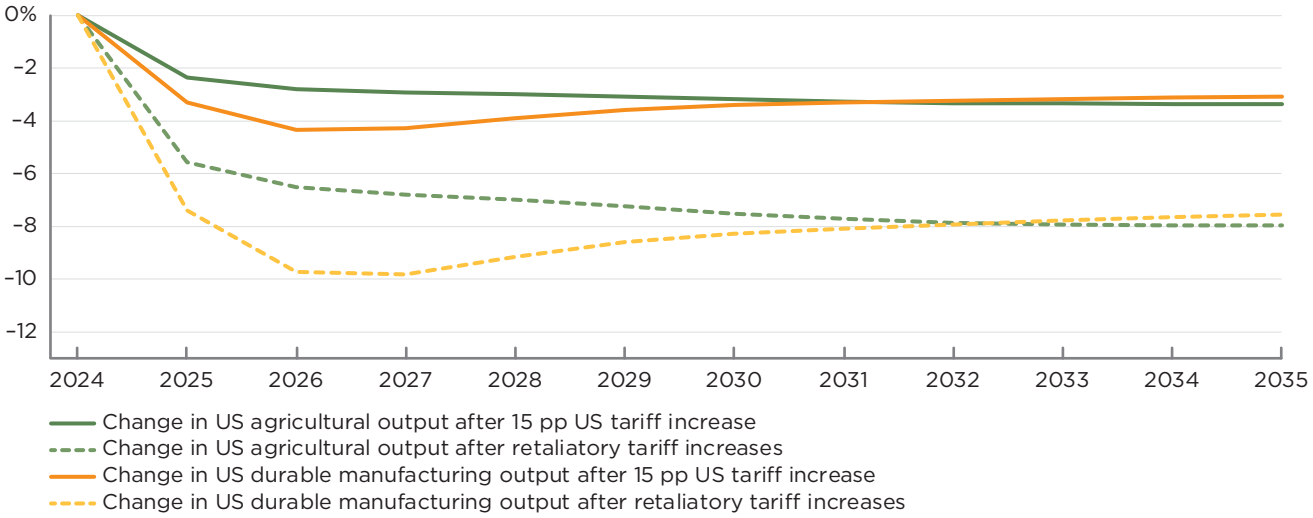


Source: Authors' calculations.

Figure 5

A 15 percentage point US tariff increase on all imported goods would hit US agriculture and durable manufacturing particularly hard

Projected percent change from baseline real output in sector, with and without retaliation by all trading partners, 2025–35



Source: Authors' calculations.

foreigners buy even fewer US exports due to their tariffs on US goods and the global economic slowdown that results from the tariff war.

SENSITIVITY ANALYSIS: COMPARING EFFECTS OF 10, 15, AND 20 PERCENTAGE POINT TARIFF INCREASES

The results of the smaller and larger tariff increases analyzed here are generally similar to those of the 15 percentage point increase but vary in magnitude.

Table 3 compares the revenue consequences of the 15 percentage point tariff increase to those of the 10 and 20 percentage point increases, with and without retaliation by other economies.

The tariff increases impact tax revenue via several channels, directly by raising the tax rate on imports to the United States and reducing US demand for imports, and indirectly via the broader macroeconomic response, which in turn lowers other tax revenue from both companies and households. The interaction of these channels makes the revenue consequences of the tariff increases less predictable, with the company and household tax revenue reductions and the shrinkage of the tariff tax base further reducing the tariff revenue when other economies retaliate.

While the direct US tax revenue from tariffs increases with each jump in the tariff rate, the indirect effects cause larger reductions in revenue from other tax payments by companies and households, as well as more shrinking of the tariff tax base.

This tendency is more pronounced in the scenario that involves retaliatory tariff increases by the rest of the world.

Table 3

Projected changes from baseline in US tax revenue from 10, 15, and 20 percentage point increases in US tariffs, with and without retaliation by all trading partners, 2025-34 (billions of US dollars)

	10 percentage point US tariff increase		15 percentage point US tariff increase		20 percentage point US tariff increase	
Tax revenue source	*Without retaliation*	*With retaliation*	*Without retaliation*	*With retaliation*	*Without retaliation*	*With retaliation*
Tariffs on imports	$2,924	$2,532	$3,891	$2,943	$4,554	$2,703
Companies	–$141	–$351	–$211	–$526	–$281	–$702
Households	–$328	–$605	–$492	–$908	–$655	–$1,211
Combined total	**$2,456**	**$1,575**	**$3,189**	**$1,508**	**$3,618**	**$791**

Source: Authors' calculations.

With retaliation by the rest of the world, the indirect tax revenue impacts on companies and households again partially offset the direct tax revenue increases from US tariffs, and the dollar amount of the offset rises with the tariff rate. Thus, the dollar amount of tax collections from companies and households declines more with a 15 percentage point tariff increase than a 10 percentage point increase. By increasing the tariff rate by 20 percentage points, the reductions in imports are sufficient to yield a smaller gain in tariff tax revenue, reinforcing the reductions in company and household tax revenue and leading to the US tariff policy producing a net gain from all three sources of $791 billion in aggregate tax revenue over a decade.

Figures 6 through 9 show the impacts of the three tariff rates on the US economy over the coming decade through trade, real GDP, inflation, and the exchange rate—with and without retaliation by other economies. We see that the larger the tariff increase, the bigger the effects. This reflects both the size of the US tariff increase and also the corresponding size of the retaliatory tariffs.

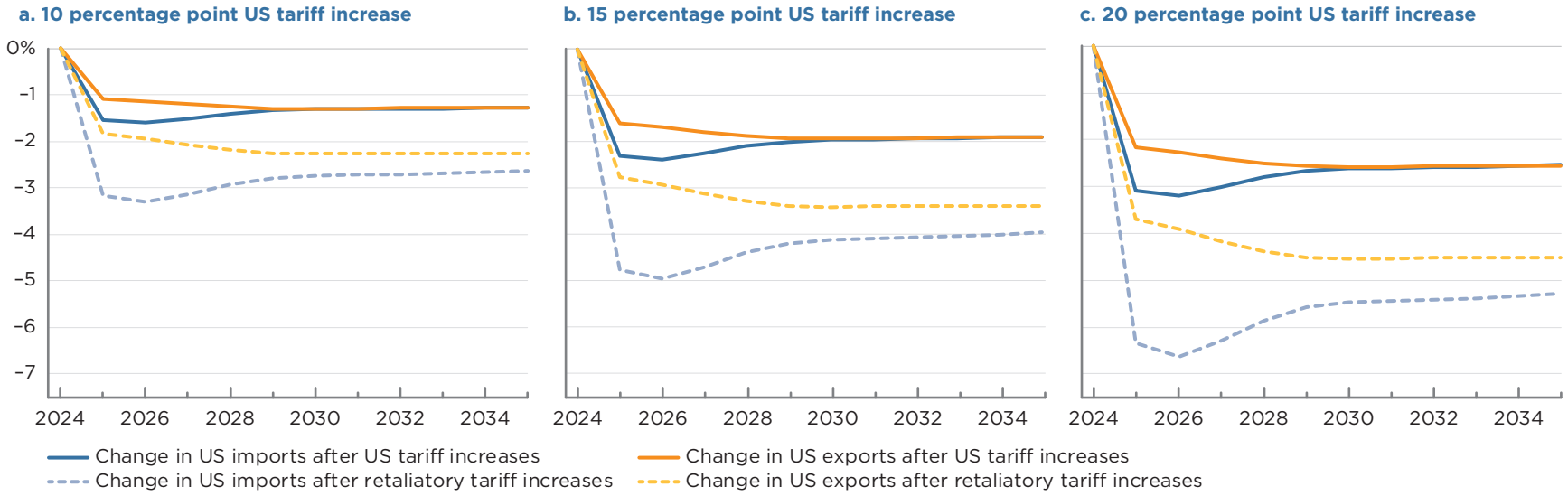
US imports, exports, and real GDP all drop below the baseline projections in the first year, more so with retaliation, before stabilizing over time at a lower level than if the tariffs had not been imposed (figures 6 and 7).

Inflation also rises more with increasingly large tariff increases (figure 8). The effects on the dollar exchange rate grow with the tariff rates: Without retaliation, the dollar initially appreciates; with retaliation, it initially depreciates (figure 9). Note that without retaliation, the higher US tariffs do temporarily improve the trade balance over the initial years, but not after several years.

Figure 6

US tariff increases on all imported goods would cause lower US imports and exports than otherwise

Projected percent change from baseline GDP in US imports and exports, with and without retaliation by all trading partners, 2025–35

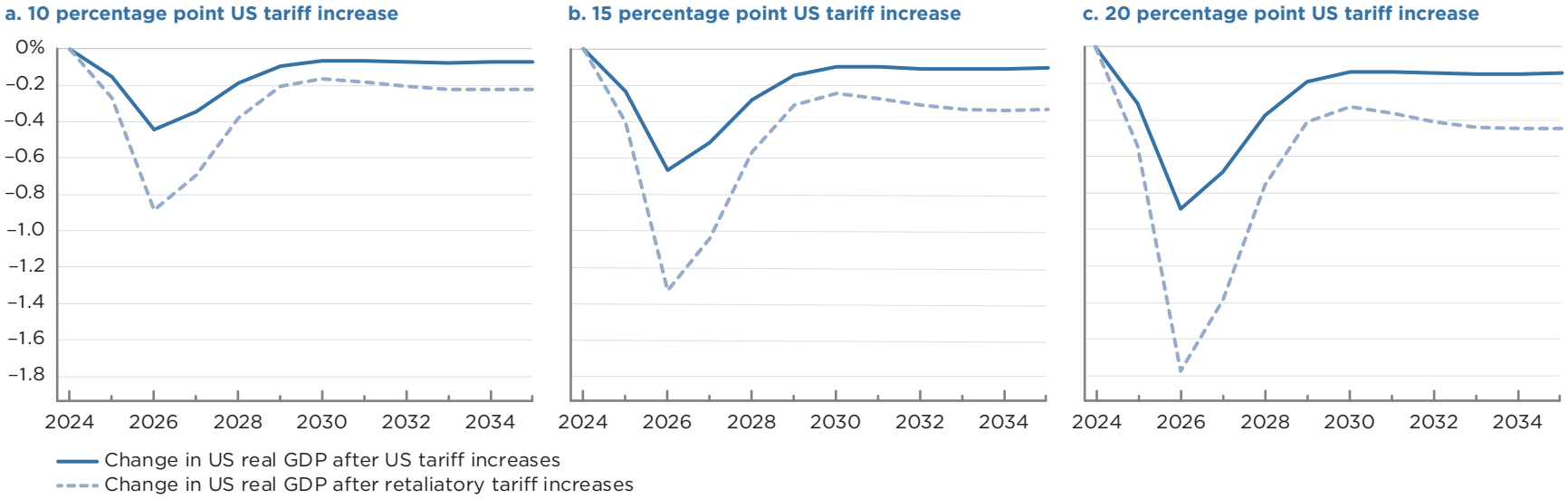


Source: Authors' calculations.

Figure 7

US tariff increases on all imported goods would cause lower US real GDP than otherwise

Projected percent change from baseline US real GDP, with and without retaliation by all trading partners, 2025–35

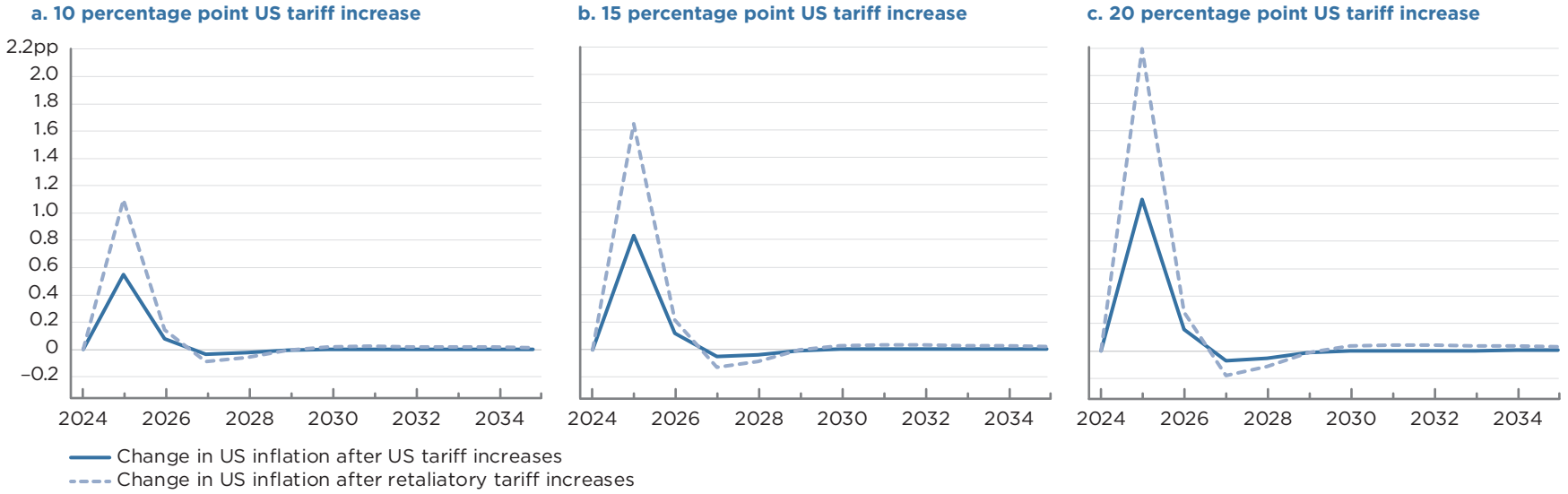


Source: Authors' calculations.

Figure 8

US tariff increases on all imported goods would initially cause higher US inflation

Projected percentage point change from baseline US consumer price inflation, with and without retaliation by all trading partners, 2025–35

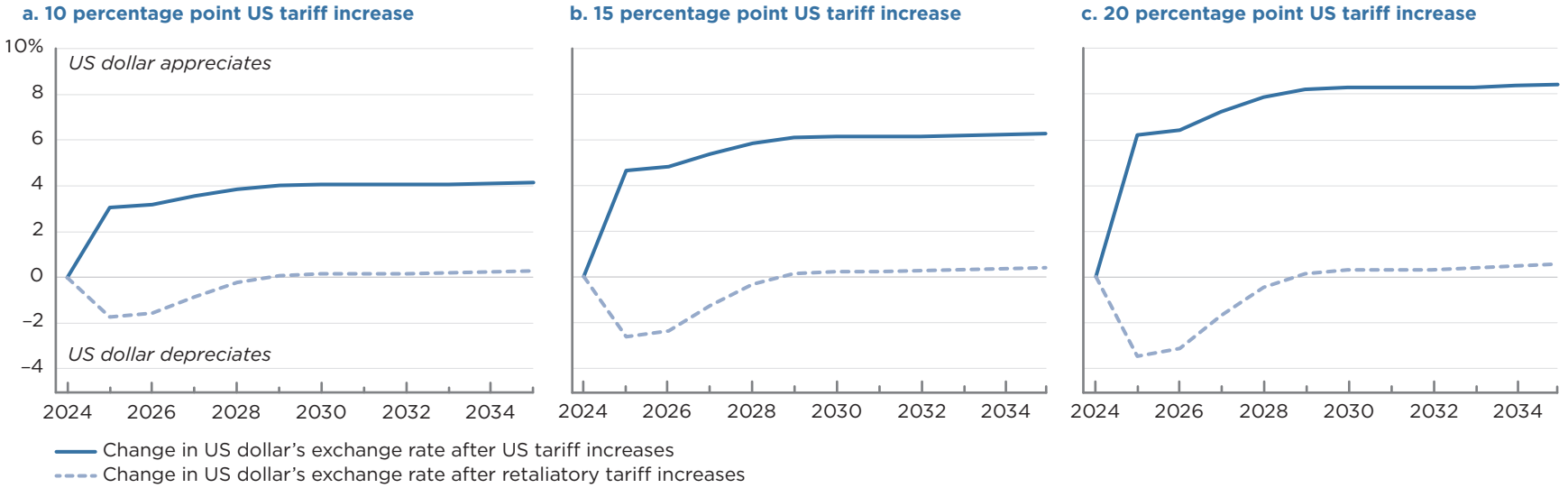


Source: Authors' calculations.

Figure 9

The effect of US tariff increases on the dollar's exchange rate varies depending on whether other economies retaliate

Projected percent change from baseline US effective exchange rate, with and without retaliation by all trading partners, 2025–35



Source: Authors' calculations.

CONCLUSION

This PIIE Briefing has explored three alternative tariff scenarios in which the United States increases tariffs by 10, 15, and 20 percentage points on all imports of goods from its trading partners. It also explores the impact of global retaliation. While the tariffs generate more US government revenue than otherwise, they also cause adjustments to the real exchange rate and a decline in exports, resulting in an ambiguous impact on the overall trade balance. Simple tariff revenue calculations that assume all other variables are given (such as exports, employment, or economic growth) overestimate the potential revenue from tariffs. They also overestimate the improvement in the US trade balance, as exports and incomes also respond to changes in tariffs. In the G-Cubed model, the overall effect is a short-term narrowing of the US trade deficit in goods, which eventually dissipates in the absence of retaliation. When other countries retaliate, the US trade deficit shrinks due to a decline in US investment, resulting in excess US savings that flow overseas, and depreciates the US dollar. An increase in tariffs also causes lower federal revenue than otherwise from corporate and income taxes, which further reduces the government's net revenue gain. The net effect is substantially less revenue for the government than would be estimated for a given level of tariff on a fixed level of imports.

The results in this study illustrate why it is crucial to model the interdependencies within and across economies when evaluating the expected macroeconomic and sectoral adjustment to policy changes. Simple calculations that hold key variables fixed can lead to misleading estimates of the economic adjustment and revenue-raising capacity of various tax rate changes, including taxes on imports (i.e., tariffs).

APPENDIX

DETAILS OF THE G-CUBED MODEL

The version of the G-Cubed model used in this PIIE Briefing 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

Structure of the G-Cubed (G20) model

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

OECD = Organization for Economic Cooperation and Development

Key Features

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 in the model 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 within the model, tying down the long-run inflation rates in each country 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 the information on expected future shocks.

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

REFERENCES

Congressional Budget Office. 2025. *Economic projections: January 2025 baseline*. Washington https://www.cbo.gov/data/budget-economic-data#4.

Henderson, Dale W., and Warwick J. McKibbin. 1993. A Comparison of Some Basic Monetary Policy Regimes for Open Economies: Implications of Different Degrees of Instrument Adjustment and Wage Persistence. *Carnegie-Rochester Conference Series on Public Policy* 39: 221–317.

Liu, W., and W. McKibbin. 2025. A Survey and Review of Long-Term Projections of the World Economy. Paper presented at the NBER/CAMA East Asian Economic Seminar, Sydney, March. https://www.sensiblepolicy.com/download/2025/2025WorkingPapers/Long_term_projections_of_the_world_economy.pdf.

McKibbin, W. and A. Triggs. 2018. *Modeling the G20.* CAMA working paper 17/2018. Australian National University. https://www.sensiblepolicy.com/download/2018/2018WorkingPapers/2018Modeling_G20_mckibbin_triggs_CAMA_30.pdf.

McKibbin, W., and P. Wilcoxen. 2013. A Global Approach to Energy and the Environment: The G-cubed Model. *Handbook of CGE Modeling*, Chapter 15. North-Holland, pp. 995–1068.

McKibbin, W., and P. Wilcoxen. 1999. The Theoretical and Empirical Structure of the G-Cubed Model. *Economic Modelling* 16, no. 1: 123–48.

Taylor, J. B. 1993. Discretion versus Policy Rules in Practice. *Carnegie-Rochester Series on Public Policy* 39: 195–214.

York, Erica, and Alex Durante. 2025. *How Much Revenue Can Tariffs Really Raise for the Federal Government?* Washington: Tax Foundation. https://taxfoundation.org/research/all/federal/universal-tariff-revenue-estimates/.

PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

1750 Massachusetts Avenue, NW
Washington, DC 20036-1903 USA
1.202.328.9000
www.piie.com

ISBN 978-0-88132-758-8
90000
9 780881 327588