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Macroeconomic Impact of Tariffs on the US and the Euro Area
A Structured Modelling Approaches Review*

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Abstract

We examine how renewed United States (US) protectionism under the second Trump administration affects the euro area (EA) economy. Using evidence from structural and empirical studies, we synthesise the main transmission channels through which tariffs influence output and inflation. We show that tariffs operate simultaneously as supply and demand shocks, with the balance depending on trade structure, exchange-rate adjustments, and policy responses. A 10% US universal import tariff is estimated to lower euro area GDP by around 0.1–0.5% in the scenario without global retaliation to US actions. There is minimal inflationary impact on Europe across all types of models. The results suggest that euro area policymakers should treat such shocks primarily as external demand disturbances rather than inflationary threats.

Keywords: Tariffs, trade policy, macroeconomic spillovers
JEL Classification: F13, F41, E52

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1 Introduction

Following the 2024 United States (US) presidential election, the new administration introduced a broad-based tariff policy. After the US Supreme Court ruled parts of the tariff framework unlawful, the administration imposed a new uniform tariff of 10% on a wide range of imports. The measure represents a significant shift in US trade policy and has raised concerns about spillovers to the global economy. Frequent policy changes and legal challenges have also contributed to heightened uncertainty surrounding the future path of US trade policy, which may itself weigh on trade and investment decisions.

These tariffs are potentially disruptive because the transatlantic relationship remains the world's largest bilateral trade and investment link. In 2024, European Union (EU) goods exports to the US amounted to €532.3 billion and imports to €335.0 billion (a €197.3 billion surplus), while services trade partially offset this position (€318.7 billion exports versus €427.3 billion imports, a €108.6 billion deficit). According to World Trade Organization (WTO) data, the US accounted for 20.9% of EU exports and 13.2% of EU imports.

This occasional paper takes a broad-based view of how tariffs affect economic activity and prices under a range of plausible assumptions. We synthesise more than twenty published simulations from leading institutions, including the International Monetary Fund (IMF), the Peterson Institute for International Economics (PIIE), European Central Bank (ECB) affiliates, and Oxford Economics, together with insights from the theoretical literature, to map how the same tariff scenario affects inflation and GDP in both the US and the euro area. By examining how these effects evolve over time, we capture both the magnitude and the timing of the transmission channels, including price increases, weaker demand, exchange rate adjustments and supply-chain disruptions.

Across the studies we review, the macroeconomic spillovers to the euro area are generally moderate but consistently negative. Most simulations suggest that a broad-based tariff increase of this magnitude reduces euro area GDP by roughly 0.1–0.5% over the medium term, depending on assumptions about retaliation, exchange rate adjustment and financial conditions. Inflation effects are considerably smaller and more ambiguous. While tariffs raise import prices in the US, the euro area is primarily affected through weaker external demand and slower global trade. As a result, the dominant transmission channel for Europe resembles a negative demand shock rather than a source of persistent inflationary pressure.

The key question from a central bank perspective is whether monetary policy should *look through* a largely transitory price shock or respond to a more persistent drag on demand. The balance of evidence reviewed in this paper points to a transmission mechanism dominated by weaker external demand rather than persistent inflationary pressures in the euro area.

2 Determinants of Tariff Pass-Through

A tariff operates through both supply and demand channels, and its overall macroeconomic impact depends on how these forces interact in the real economy. By raising the cost of imported goods, it generates a cost-push effect that can lift consumer prices and curb import demand in the tariff-imposing country (Bergin and Corsetti 2023). At the same time, it reduces export demand abroad, acting as a negative demand shock for trading partners.

Beyond these direct effects, tariffs tend to slow global trade and investment, depress commodity prices, and increase uncertainty – all of which can dampen global demand. Whether the net outcome is inflationary or dis-inflationary for a third-party economy such as the euro area depends on several structural mechanisms: firms' pricing behaviour, the extent of global value-chain linkages, exchange-rate movements, and monetary-policy responses (Auray, Devereux and Eyquem 2024; Jeanne and Son 2024).

These mechanisms – summarised in Table 1 - shape how tariff shocks propagate through the global economy and determine the balance between cost inflation and demand contraction.

Table 1: Key Determinants of Tariff Impact in Macroeconomic Models

Model Feature	**Implications for the Tariff-Imposing Country (US) and the euro area**
Pricing-to-Market (PTM)	Exporters may absorb part of the tariff by reducing profit margins in the destination market. Under *local-currency pricing*, import prices in the tariff-imposing country rise less, limiting inflation in the US. Under *producer-currency pricing*, tariffs are passed through more fully, raising US import prices and reducing export demand for euro area producers.
Global Value Chains (GVCs)	When trade involves intermediate goods, tariffs affect production costs across borders. This amplifies output losses in both economies: US firms face higher input costs, while euro area exporters experience weaker demand from disrupted supply chains.

Table 1 (continued)

Model Feature	Implications for the Tariff-Imposing Country (US) and Trading Partners (Euro Area)
Exchange Rate Adjustment	Exchange rate movements can offset part of the tariff shock. For example, a stronger US dollar may dampen import-price inflation in the US, while an appreciating euro can weaken euro area export demand. In practice, exchange rate responses depend on broader macroeconomic conditions and may vary over time, as illustrated by recent fluctuations in the euro–dollar exchange rate.
Monetary Policy Response	Central bank reactions shape macroeconomic outcomes. If monetary policy responds actively to inflation, price effects of tariffs may be limited but output losses may increase. If policy remains passive, tariff shocks translate more strongly into inflation.
Trade Substitution and Diversion	Tariffs may redirect trade flows. If substitution across suppliers is easy, exporters can redirect goods to alternative markets (e.g. from the US to the euro area), increasing supply and lowering prices in third countries. If substitution is limited, global trade volumes decline and output losses are larger.
Symmetric vs. Asymmetric Tariffs	If trading partners retaliate with similar tariffs, global trade declines more strongly and output losses increase in both the US and the euro area. If tariffs remain unilateral, inflation pressures are concentrated in the US while the euro area mainly experiences weaker external demand.

2.1 Model-Based Approaches to Tariff Analysis

Trade policy shocks such as tariffs generate complex macroeconomic effects that depend critically on the modelling framework employed. Three dominant classes of models are commonly used to assess such impacts: Computable General Equilibrium (CGE) models, Dynamic Stochastic General Equilibrium (DSGE) models, and Global Vector Autoregressive (GVAR) models. Each offers a distinct lens, rooted in different assumptions about behaviour, structure, and policy response.

2.1.1 Computable General Equilibrium (CGE) Models: The Lens of Resource Reallocation

CGE models provide detailed, multi-sector representations of the global economy. They are commonly used in institutions such as the Organisation for Economic Co-operation and Development (OECD), where models leverage detailed input-output tables to trace production and trade linkages across countries.

Tariffs are modelled as distortions in relative prices. A 10% import tariff raises the domestic price of foreign goods, inducing substitution toward domestic production. This leads to a reallocation of labour and capital, typically away from export-oriented sectors toward protected import-competing ones (Jacquinot, Lozej and Pisani 2022). The resulting efficiency loss, arising from movement from high to low productivity sectors, constitutes the welfare cost.

A critical parameter in CGE analysis is the Armington elasticity, which measures how easily consumers and firms can substitute between domestic and foreign goods. A high elasticity means imports and domestic products are close substitutes, so tariffs cause a stronger shift toward local goods and a larger economic distortion. A low elasticity implies weaker substitution, leading to a smaller overall effect. Empirical estimates of the Armington elasticity vary widely across studies – from values below one for differentiated manufacturing goods to well above five for homogeneous commodities. This dispersion makes results extremely sensitive to assumptions: with a low elasticity, tariffs mainly raise prices and reduce welfare modestly, whereas with a high elasticity, they trigger large shifts in trade patterns and significantly magnify output losses.

While CGE models excel in sectoral and regional disaggregation, they are typically static or comparative-static, lacking intertemporal features or endogenous monetary policy responses. These limitations make them less suitable for analysing adjustment paths, expectations, or policy feedbacks.

2.1.2 Dynamic Stochastic General Equilibrium (DSGE) Models: The Lens of Intertemporal Dynamics and Policy Response

Unlike CGE models, which typically capture static reallocation of resources, DSGE models emphasise intertemporal optimisation and forward-looking behaviour. They are used extensively in central banks to study macroeconomic fluctuations and policy responses over time. Grounded in microfoundations and rational expectations, DSGE frameworks trace how households, firms, and policymakers adjust consumption, investment, and prices dynamically in response to shocks.

Tariffs in DSGE models act as cost-push disturbances that interact with nominal rigidities and monetary policy rules. Because agents form expectations about future income, prices, and policy, the models capture not only the immediate impact of tariffs but also their propagation through expectations, investment decisions, and intertemporal trade-offs.

Tariffs in DSGE models act as exogenous shocks. Due to nominal rigidities, such as Calvo pricing, firms cannot adjust prices instantly. The central bank's behaviour is endogenous, meaning its policy reaction emerges from within the model rather than being imposed externally. Monetary policy typically follows a rule that responds to deviations in inflation and output, creating a trade-off between stabilising prices and supporting activity. This mechanism captures the key question faced by real-world central banks: whether to "look through" a temporary cost shock or to lean against a potentially persistent demand slowdown. Such feedback dynamics are absent in more static CGE frameworks (Auray, Devereux and Eyquem 2024; Auray, Devereux and Eyquem 2025).

Tariffs raise the cost of imported capital goods, which can discourage investment and slow capital accumulation. When tariff policy is uncertain or subject to escalation risks, this uncertainty further depresses investment, leading to more persistent output losses than those implied by the static reallocation effects emphasised in CGEs.

Modern DSGE models incorporate Global Value Chains (GVCs), recognising that tariffs on intermediate goods affect production costs even for non-trading firms. This embedded cost propagation exacerbates the contractionary effects of tariffs.

2.1.3 Global Vector Autoregressive (GVAR) Models: A Data-Driven Perspective

GVAR models, pioneered by Pesaran, Schuermann and Weiner (2004), offer an empirical, less theory-constrained approach. The GVAR methodology proceeds in two steps: (i) country-specific VAR models are estimated, linking macro variables like GDP and inflation to trade-weighted foreign aggregates; (ii) these models are combined into a global system.

The appeal of GVARs lies in their ability to trace international spillovers empirically, capturing cross-country dependencies without structural assumptions. They produce impulse response functions that reveal how a shock in one economy propagates globally.

However, the GVAR's strength is also its limitation. As an atheoretical model, it lacks a clear structural narrative. Identifying a "tariff shock" requires proxying through correlated variables like US GDP or uncertainty shocks. This makes GVARs best suited for forecasting and cross-checking structural model predictions, rather than causal inference.

2.1.4 Key Insights and Causal Chains: Why Model Results Diverge

- **CGE models** capture detailed sectoral reallocation and welfare effects, typically showing an adjustment in output reflecting resource shifts across equilibria. Their results depend on assumptions about sectoral structure and substitution elasticities.

They are particularly well-suited to assess long-run effects and welfare implications.

- **DSGE models** emphasise intertemporal dynamics and policy feedbacks. Output and inflation adjust gradually as investment and expectations respond to tariff shocks and monetary policy reactions. They are helpful for capturing the short- to medium-term macroeconomic dynamics.

- **GVAR models** provide an empirical perspective, tracing cross-country spillovers based on observed historical linkages, though with less structural interpretation.

While these modelling frameworks differ in structure, their core assumptions mirror observable economic behaviour. In DSGE models, price stickiness represents firms' gradual price adjustment, and the Taylor-rule mechanism captures how central banks typically respond to inflation and output changes. In CGE frameworks, substitution elasticities describe how consumers and producers shift between domestic and foreign goods as relative prices move. These connections link model design to real-world dynamics.

Differences in how models represent price rigidities, financial frictions, or global value chains shape their results. DSGE frameworks with nominal and financial frictions tend to produce more persistent real effects, whereas CGE models with flexible prices emphasise short-run reallocation and pass-through. Models that incorporate complex value-chain linkages generally find larger global impacts due to the cumulative propagation of input costs.

Table 2 compares the main macroeconomic modelling approaches used to assess tariff impacts, highlighting their respective strengths, limitations, and transmission mechanisms.

3 Empirical Studies and Modelled Scenarios

Empirical estimates of the macroeconomic effects of tariffs vary widely across studies, depending on model class, time horizon, and assumed adjustment mechanisms. Depending on which estimate is taken as a reference, the implied policy interpretation may differ – for instance, whether a central bank reacts to the tariff shock or remains on hold, whether governments retaliate or not, or whether firms proceed with investment.

Most studies rely on a single model and explore several scenarios to assess the macroeconomic implications of tariff shocks. This meta-study takes the opposite approach. We fix one common tariff scenario and examine its effects across a wide range of published papers. This allows us to isolate how differences in model structure – rather than differences in the assumed tariff shock – shape the estimated macroeconomic outcomes.

Our goal is to help readers understand how specific modelling choices shape the reported results, so that when they encounter a particular estimate, they can better inter-

Table 2: Comparative Overview of Macroeconomic Modelling Frameworks for Tariff Analysis

Feature	**CGE**	**DSGE**	**GVAR**
Core Strength	High sectoral and regional detail; captures resource reallocation and welfare effects.	Microfoundations and forward-looking dynamics; endogenous policy behaviour allows for time-path analysis.	Data-driven; traces empirical spillovers across countries without strong structural assumptions.
Key Weakness	Static framework; results sensitive to elasticity assumptions; lacks explicit monetary policy feedback.	Aggregated sectors and parameter sensitivity; model complexity limits sectoral detail.	Atheoretical; identification of shocks can be ambiguous.
Primary Transmission Channel	Price distortions lead to inefficient factor allocation and resource shifts.	Cost-push and demand effects with nominal rigidities and policy response.	Estimated propagation of shocks through trade-weighted linkages.
Key Parameters	Armington elasticity of substitution.	Price and wage stickiness; intertemporal substitution; investment frictions.	VAR coefficients; trade-weight matrices.

pret what drives it and how much weight to assign to it in the policy debate. Moreover, where broadly consistent effects and impacts can be distilled from the literature, we aim to characterise the emerging consensus.

3.1 Framework for model comparison

The main empirical contribution of this paper is to group models into clearly defined classes that share similar transmission channels. We argue that this approach is more informative than treating all models as equivalent and comparing them without distinction, while also avoiding the opposite extreme of focusing so heavily on model-specific features that no broader conclusions can be drawn from the literature.

In addition, each class of models is better suited to addressing different types of questions. By grouping models into these classes and collecting results from a broad set of studies within each group, we are able to draw clearer and more robust conclusions from the literature.

In CGE models, tariffs are harmful because they cause a permanent misallocation of resources across sectors and countries. In structural macro models, tariffs are harmful because they distort relative prices and disrupt macroeconomic adjustment dynamics. In GVAR models, tariffs are harmful because historically similar shocks have been followed by weaker growth.

Each modelling framework sees some transmission channels very sharply, while others appear blurred or only partly captured. CGE models provide a sharp view of how tariffs change relative prices and trigger resource reallocation across sectors and countries. DSGE models offer a sharper lens on dynamic adjustment, showing how output, inflation, expectations, and policy responses evolve over time. GVAR models focus most clearly on historical regularities, revealing how economies have typically responded to tariff-like shocks based on past cross-country experience.

3.1.1 Selection of models and studies

There is a wide range of models and studies that could, in principle, be included in the comparison. However, to ensure transparency and integrity, we restrict our attention to a subset of models and estimates selected based on two main criteria.

Institutional relevance. Given the scale and global implications of potential US tariff measures, particular weight should be placed on estimates produced by institutions with formal or informal authority in this area. This includes international organisations such as the IMF and the ECB, which play an active role in shaping macroeconomic policy and regularly assess global trade developments and their macroeconomic and financial spillovers. In the US context, the Congressional Budget Office plays a central role in informing congressional decisions on trade policy, and its estimates therefore carry particular weight. In addition, we include contributions from academic and policy institutions widely regarded as authoritative in international trade and macroeconomic analysis, such as the Peterson Institute for International Economics in the US and leading research centres and universities in Europe.

Impact and citation footprint. We complement institutional assessments with studies and models that have gained broad visibility in the relevant literature. In particular, we include estimates that are frequently cited by the institutions mentioned above, reflecting their influence on policy discussions and subsequent research. This group includes contributions by specialised institutions and well-established authors in the field, such as McKibbin, Hogan and Noland (2024) and York (2024).

3.1.2 Selection of scenarios

We do not attempt to calibrate current tariff levels or replicate any specific policy announcement. Instead, we use a single, stylised tariff scenario as a common benchmark, which allows us to compare the widest possible range of models on a consistent basis.

This approach also makes the analysis inherently timely: rather than tying our results to a particular episode, we assess how different modelling frameworks respond to a fixed, hypothetical shock.

The key methodological insight is to compare models under similar universal tariff assumptions. Mixing universal tariff scenarios (for example, US imposing tariffs on all trading partners worldwide) with country-specific tariff measures (for example, US tariffs applied only to imports from the euro area) would generate fundamentally different trade reallocation effects, which are difficult to track consistently across models and would undermine comparability.

The benchmark scenario considered in the comparison is a 10% universal tariff imposed by the US on all its trading partners, often complemented in the literature by a higher tariff on imports from China (most commonly around 60%). We consider versions of this scenario both with and without retaliation, while clearly distinguishing between them.

The representation of Europe differs across studies. Some focus on the euro area, others on the European Union, and some model a few European countries together with the rest of Europe. We refer to all these estimates simply as "Europe" and, where multiple countries are reported separately, we combine them into a single weighted estimate.

3.1.3 Comparing estimates across model types and time horizons

Many institutions and authors design their models for specific questions and settings, which means that many do not fit neatly into one of our three categories. Rather than avoiding this issue and treating every model as a unique case, we take the difficult step of assigning each model to the category that best reflects its core structure. In doing so, we focus on two simple criteria: how the model determines equilibrium and which transmission channels play the central role.

Comparative-static CGE models estimate a permanent shift in equilibrium. **Dynamic CGE models** allow this equilibrium shift to unfold gradually over time, often through capital accumulation or slower reallocation of resources. However, in both cases, the effects on GDP mainly reflect changes in relative prices and the allocation of resources across sectors. In CGE models, inflation is typically introduced as an extension rather than a core outcome. As a result, inflation effects are usually interpreted as one-off price level changes rather than dynamic inflation paths over time.

DSGE models generate richer dynamic responses because policy is endogenous and agents form forward-looking expectations. To make DSGE results comparable with CGE outcomes, we adopt a central bank perspective. Since comparative-static CGE models represent a permanent level shift without an explicit time dimension, the policy-relevant comparison for DSGE models could be the amount of economic activity lost within the observable forecast horizon relevant for monetary policy. If papers report cumulative level shifts by year, we average the first three years. If they report annual growth deviations, we sum them to obtain the policy-relevant metric that is broadly, albeit imperfectly, comparable to the concept of the equilibrium loss reported in CGE models.

3.2 Trade-reallocation general equilibrium models (CGE-like models)

Almost all studies in this group analyse tariffs through reallocation in multi-country, multi-sector frameworks. In practice, however, very few rely on a pure, stand-alone CGE model. Instead, many institutions first estimate trade reallocation using a CGE-style module and then feed these results into a broader macroeconomic or forecasting framework. As a result, this class spans **comparative-static CGE-like approaches** (e.g. KITE, Baqaee–Farhi), **two-step hybrid approaches** (e.g. CBO, SUERF), and **dynamic CGE models** (e.g. CEPII).

Dynamic CGE models allow adjustment to unfold over time – typically through capital accumulation, labour supply, and evolving trade shares – while comparative-static models capture only the final reallocation outcome without an explicit time dimension. However, dynamic CGE models are not intertemporal in the DSGE sense: they do not feature forward-looking optimisation, expectation-driven dynamics, or an explicit monetary transmission mechanism.

A standard textbook CGE model is a multi-country, multi-sector general equilibrium framework. It is usually calibrated to global input-output data, most commonly drawing on GTAP input-output tables, often complemented by OECD ICIO or WIOD data for supply-chain linkages. Bilateral trade flows are typically taken from BACI or UN Comtrade, while tariff schedules are sourced from MacMap or WITS/TRAINS. Tariff shocks affect relative prices through sectoral and bilateral trade elasticities, inducing reallocation across sectors, suppliers, and countries. The resulting GDP effects capture the efficiency costs of this reallocation in a general equilibrium setting.

Across the studies in this category, differences mainly concern how adjustment over time is handled. Many rely on static or comparative-static CGE frameworks, where GDP effects represent an equilibrium level shift with no explicit transition path. Others introduce recursive dynamics, allowing capital stocks, labour supply, and trade shares to evolve over time, as in GDyn or MIRAGE-type models, but without forward-looking optimisation or endogenous monetary policy.

In Table 3, we summarise the key studies analysing tariff impacts using CGE-type models, highlighting their data foundations and noting any **departures or additional assumptions relative to a textbook CGE framework**.

The impact of the baseline tariff scenario on European GDP is remarkably concen-

Table 3: Scope of CGE-type Studies

Study or Institution	Model Type & Coverage	Departures From CGE or Notable Features
Comparative-static CGE models		
(LSE) Saussay (2024)	Based on Baqaee and Farhi (2024).	Shocks spread through detailed production networks and input-output linkages rather than economy-wide behavioural adjustment. Does not allow agents to plan for future, does not track how investment builds up capital over time, and does not solve the economy as a single, fully linked system.
(CBO) Congressional Budget Office (2025)	Based on the GTAP database to estimate bilateral trade and production reallocation effects. Results fed into CBO forecasting model to obtain aggregate macro paths.	Investment does not build up the capital stock over time. Overall macroeconomic effects are calculated outside the model.
(CBO critique) Francois and Baughman (2025)	Based on the GTAP database to estimate bilateral trade and production reallocation effects.	In their critique of CBO approach, they instead use the short-run trade effects to impose an external change in the capital stock and approximate longer-run outcomes.
(Kiel) Kiel Institute for the World Economy (2025)	Large-scale New Quantitative Trade Model (KITE, Caliendo and Parro (2015)); calibrated to global input-output tables (GTAP 11), bilateral trade flows (BACI) tariff data (MacMap), and sectoral trade elasticities.	The model does not track how the economy adjusts over time or how investment builds up capital. Instead, differences between short- and long-run effects are approximated through alternative calibrations of Armington trade elasticities: lower elasticity in the short run ("Kiel SR" in the chart) and higher in the long run ("Kiel LR" in the chart).
(SUERF) Schumacher and Dezeure (2024)	Partial-equilibrium trade and input-output framework calibrated with sectoral trade elasticities.	No internally closed general equilibrium; macro adjustment not jointly solved; no monetary policy. Dynamic effects added ex post using econometric local projections.
(York) Tax Foundation: York (2024)	US-centric CGE model with external trade blocks.	Domestic economy is solved in general equilibrium, foreign economies are treated in reduced-form / partial-equilibrium.
Dynamic CGE models		
(CEPII) Bouët, Maty Sall and Zheng (2025)	MIRAGE-Power dynamic CGE, global input-output data (GTAP), tariff data (MacMap).	The model tracks the economy step by step over time, allowing investment to gradually increase the capital stock. Economic decisions respond to past developments, not to anticipated future policies.

trated in the range 0.1%-0.3% (Figure 1, left panel). This is consistent with the dominance of the trade reallocation channel. Given Europe's high degree of openness, the effect of a US blanket tariff applied globally is partly mitigated by trade diversion away from more heavily affected economies (e.g. China) toward Europe. The impact becomes larger and more volatile when considering a bilateral tariff confrontation between the US and

Europe; however, this lies beyond the scope of this paper.

The impact on US growth is substantially larger, typically ranging between 0.6% and 0.8% across most studies. Some estimates reach up to 1.3%, but these cases incorporate retaliation in their scenarios.

Retaliatory measures generally amplify the effect on the US (red markers in Figure 1, for more discussion see section 4.1), often almost doubling the output loss, while the additional effect on Europe remains limited.

Because CGE models primarily capture trade reallocation effects, inflation dynamics are often not explicitly modelled in this class of studies. Where inflation estimates are reported, they suggest increases of around 1–1.25% in the US and negligible effects in Europe. Those estimates are not reported in the figure due to the very limited sample size.

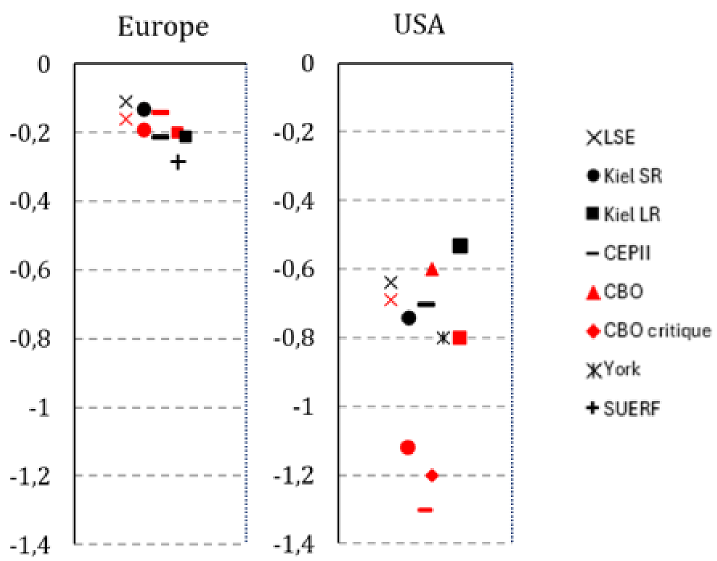

Figure 1: Impact of baseline tariff scenario on GDP (red = with retaliation).

3.3 Structural macroeconomic models (DSGE-like models)

While DSGE frameworks typically feature less detailed input-output structures, this is not the main distinction relative to CGE models. The key difference lies in how adjustment to a tariff shock unfolds. In structural macroeconomic models, prices, demand, expectations, and policy responses interact dynamically over time.

DSGE models typically deliver temporary GDP effects from tariffs, as the economy adjusts back to an unchanged long-run equilibrium through price adjustment, capital accumulation, and policy reactions. In contrast, CGE models treat tariffs as permanent wedges that distort relative prices and resource allocation, leading to a permanently lower equilibrium level of output.

One implication is that DSGE simulations generate a well-defined time path in response to a tariff shock. While there is no perfect way to make these results fully comparable with CGE estimates, central banks typically base their policy decisions on the outlook over the next three years. We therefore assess DSGE models by evaluating the impact of a tariff shock over this three-year horizon. This puts the results on a broadly comparable scale from the perspective of a central bank assessing the impact of the shock and the appropriate policy response. The comparison remains imperfect, as the two model classes treat long-run equilibrium effects differently.

Not all studies report the full time profile of impacts. When results are available for the first three years – or for a longer horizon – we cumulate the estimates over the first three years. If only a peak impact is reported, we use that estimate for the corresponding year.

Because structural macro models cover a broader class of frameworks, the simulated scenarios and transmission channels are more diverse than in CGE models. At the same time, their results tend to be less sensitive to whether tariffs are universal or bilateral, as the dominant mechanisms do not hinge on trade reallocation. Bilateral tariffs directed at Europe generally lead to larger negative effects, as Europe cannot benefit from trade diversion away from other parts of the world that are also hit by tariffs.

Some papers use the Global Economic Model by Oxford Economics. Although not fully micro-founded and semi-structural, we include it in the class of DSGE models due to its similar features when it comes to tariff shock propagation. It does have a behavioural core, forward-looking expectations and endogenous monetary policy.

In Table 4, we summarise the key studies analysing tariff impacts using structural macroeconomic models, highlighting their data foundations and explaining notable assumptions and modelled scenarios.

Table 4: Scope of DSGE-type Studies

Study or Institution	**Model Type & Coverage**	**Notable assumptions and specific scenarios**
(PIIE) McKibbin, Hogan and Noland (2024)	G-Cubed DSGE/CGE hybrid model.	Despite detailed trade block similar to CGE models, it resembles DSGE more in terms of how the adjustment happens. Forward-looking optimisation, expectation-driven overshooting, monetary transmission. G-Cubed has expectations → treat it as DSGE-like.
(BoFi) Anttonen et al. (2025)	6-region version of the GIMF model	Bilateral tariffs (EA 25%, China 20%) with retaliation and explicit uncertainty shock. Fiscal closure via debt reduction; standard Taylor-type monetary policy. Results rescaled to 10% tariffs for comparability.
(IMF) International Monetary Fund (2024)	GIMF	Endogenous monetary and fiscal policy. Revenue transferred to households. Scenario: US, EA, China impose 10% on each other + US 10% on rest of the world (RoW) + global uncertainty (US invest 4% down)
(iW Institute) Obst, Matthes and Sultan (2024)	Global Economic Model of Oxford Economics	Scenario 1: 10% universal + 60% on China. Scenario 2: China retaliates with 40% on US. Impact only on Germany (export-oriented), no euro zone.
(Oxford Economics) Talavera, Angel (2025)	Global Economic Model of Oxford Economics	Scenario: 10% on EU, EU retaliates. Cross-country heterogeneity shown. No sectoral impact thus may underestimate second-round effects through sectors like the auto industry.
(Danish Industry) Kastrup (2024)	Global Economic Model of Oxford Economics	Scenario: 10% on EU + 60% on China with both retaliating. This will make impact on EU larger since no blanket tariffs for RoW. Cross-country variation analysis.
(ECB) Jouvanceau et al. (2025)	ECB-Global 3.0 model, a semi-structural framework that captures key economic relationships, including trade linkages, financial spillovers, and monetary policy reactions .	A baseline assumes +10 percentage points (p.p.) on US import tariffs for most partners (+20 p.p. on China). US GDP declines by 0.45%, and year-on-year Consumer Price Index (CPI) inflation rises by 0.7 p.p. The euro area, less directly exposed, records a 0.1% GDP decline and a 0.2 percentage point rise in CPI inflation, driven by euro depreciation and higher import prices, and sees its policy rate tightened by 30 basis points.
(ECB projection) European Central Bank (2025)	ECB-Base (Dieppe et al. 2024)	US tariffs on goods imports rise by 10 percentage points from near zero for all countries, except China, where they increase by about 20 percentage points to an effective rate of roughly 40% (including goods and services). The EU is assumed not to retaliate, while China responds symmetrically.
(Goldman Sachs) Hatzius (2024)	Goldman Sachs (GS) semi-structural model	Baseline: 10% universal tariff on all goods + symmetric retaliation + uncertainty increases.

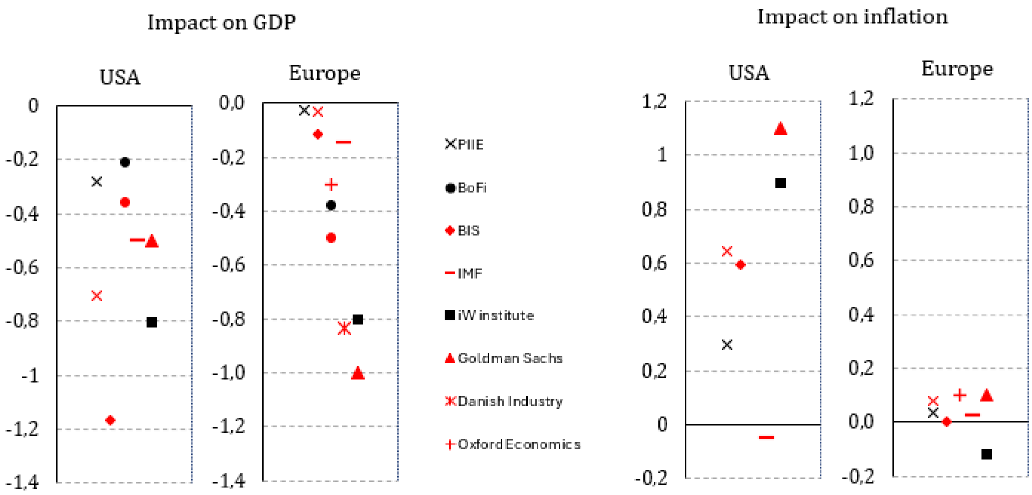

Figure 2: Impact of baseline tariff scenario on GDP and inflation (red = with retaliation).

The estimates in Figure 2 confirm that most studies expect a negligible impact on European prices. At first glance, this could suggest that monetary policy need not react. However, the impact on European GDP is somewhat more pronounced, with estimates generally reaching up to 0.5% and a few outliers approaching 1%. The three studies reporting larger effects are Goldman Sachs (attributing most of the impact to uncertainty), Danish Industry (reporting sizeable cumulative long-term effects that we scaled down for comparability), and iW (focusing on Germany, which is more adversely affected than the EA average; see Section 4.3). If persistent, these output losses could warrant a monetary policy response, as sustained GDP weakness may weigh on inflation.

The impact on the US is stronger than on Europe. Most estimates place the inflation effect between 0.3% and 1.1%, while the output decline is somewhat larger than in Europe – especially when accounting for European outliers discussed above. The narrower US-Europe gap compared with CGE results likely reflects the role of endogenous monetary policy in DSGE models. As policy responds to the shock, part of the adverse impact is mitigated – an adjustment absent in models where central banks are passive.

4 Three stories beyond the average effects

4.1 The retaliation premium – Eye for an eye?

Why do countries retaliate? First thing that comes to mind is to punish the initiator – in this case the US. However, whether countries are better off retaliating also depends on their size in the global market and how global trade flows reroute after the tariff shock.

For example, most models we review in this paper suggest relatively muted impact of tariffs on Europe. Moreover, studies show that if the World retaliates, Europe is not significantly worse off, while the US experiences a stronger negative impact.

At first glance, a simple solution presents itself: Europe should not be overly concerned about retaliating. On the one hand, political economy arguments suggest that adopting a "tough" stance may help deter further tariff increases by shaping expectations about future policy. On the other hand, retaliation can amplify uncertainty and increase the risk of escalation into a full-blown trade war – effects that are typically not internalised in standard model results.

We define the **retaliation premium** as the change in macroeconomic impacts in case the World retaliates against the initial US tariff shock. Figure 3 looks at the change in GDP of Europe and the US if global retaliation is introduced on top of the baseline scenario. It shows that retaliation hurts the US GDP consistently across reviewed papers. Retaliation against the US leads to a significant decline in US exports to the rest of the world. Another consistent finding is that the impact on European GDP is close to zero. This is because Europe benefits from global trade rerouting, while its direct exposure to higher trade barriers with the US is limited. In addition, for most European countries, the internal EU market is much more important than the US market, which further reduces the overall macroeconomic effect.

4.2 The uncertainty premium – how much does uncertainty contribute to overall effects?

One factor that affects the results, but is treated differently across studies, is the uncertainty linked to the tariff war. Some models, especially CGE models, do not assign any role to uncertainty. Others, mainly DSGE models, estimate higher uncertainty as a consequence of tariffs. In some cases, studies even impose an increase in uncertainty directly as part of the scenario design. The extent to which this modelling choice influences the results can be substantial.

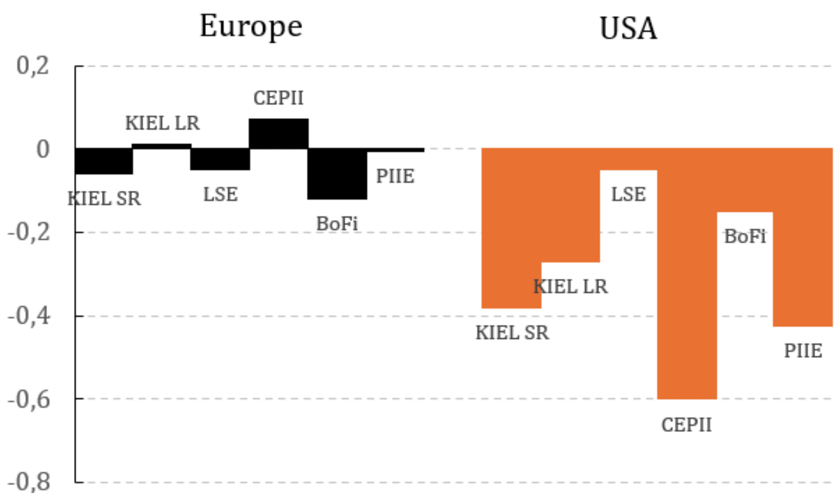

Figure 3: Additional impact on GDP after the World retaliates against the US.

Notes: Estimated impact on GDP is calculated as the difference between the impact in the scenario without retaliation to the impact in the scenario with retaliation.

In these models, uncertainty operates through two main channels: it reduces investment and increases risk premia. Some models measure uncertainty directly using Trade Policy Uncertainty (TPU) indicators. Others introduce it indirectly, for example through weaker investment activity or higher financing needs of firms.

To reduce the influence of other sources of variation across estimates, we normalise the contribution of uncertainty by the total estimated effect reported in each paper. In other words, if a study finds a 0.8% impact on GDP, of which 0.4 percentage points are attributed to uncertainty, we report that uncertainty accounts for 50% of the total impact.

Figure 4 shows that, among studies reporting a decomposition of effects, uncertainty accounts for a substantial share of the total impact. Interestingly, the effect of trade uncertainty is similar in size for Europe and the US. This is mainly because it operates through the same investment channel in both regions, with only some differences in the elasticities assumed in the models.

It is important to note that more recent analyses, such as Schröder (2026), suggest that the standard TPU indices developed by Baker, Bloom and Davis (2016) may overstate the effective level of trade policy uncertainty. In particular, large spikes in the index may reflect increased media coverage rather than a proportional rise in actual economic uncertainty. If this is the case, the role of uncertainty in the models shown in Figure 4 would likely be smaller.

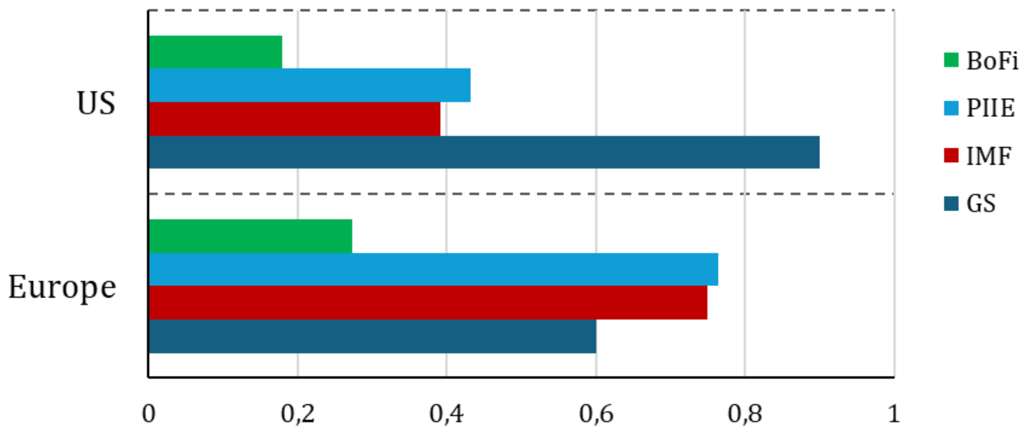

Figure 4: Contribution of trade policy uncertainty to the overall economic impact.

4.3 Country heterogeneity

Estimates of average tariff impact on Europe mask a substantial level of heterogeneity across countries. Intuitively, open economies tend to be hit harder by tariff shocks. Not only openness, but also direct exposure to the US economy plays a role. Moreover, part of the heterogeneity can be explained by sectoral composition of exports. Areas such as automotive, machinery, and chemicals tend to be particularly affected by US tariffs. Exposure to Chinese exports also matters, as China is being hit hardest by US tariffs. Countries may therefore be more or less exposed to the rerouting of Chinese exports.

The stakes are highest for countries like Canada and Mexico which rely heavily on trade with US. The latter exports almost 80% of its goods to the US. Generally, Europe may be relatively well protected against US tariff shocks due to its strong intra-EU trade and supply chains.

Almost every paper has different geographical division of the World. Comparing country estimates directly would introduce at least two main sources of ambiguity into the comparison. First, not all models study all countries. Second, a 0.2% difference between two European countries is much more significant if the overall impact on Europe in the paper is 0.3% compared to 2%.

We solve this by defining a **baseline anchor** as our best gauge of the average effect on Europe. Effects on particular countries are then compared to this average. Ideally, papers report the overall impact on Europe. If not available, any other measure of "the rest of Europe" is used. In papers where only individual countries are analysed, our anchor will be the weighted average of all available European countries. We limit the comparison to the "Big Four" eurozone countries due to simplicity and estimate availability.

Figure 5 displays deviations from the average anchor for the largest European countries. Within the block, Germany tends to be hit hardest due to a combination of its trade openness, exposure to the US economy (its primary trade partner) and also sector specialisation (automotive, electrical equipment, machinery). On the other hand, Spain is particularly resilient to US tariff shocks due to its limited exposure to the US economy and its more service-oriented economic structure. In terms of magnitude, with almost all papers reporting the impact on Europe GDP not larger than 0.5%, the difference between Germany and Spain looks substantial.

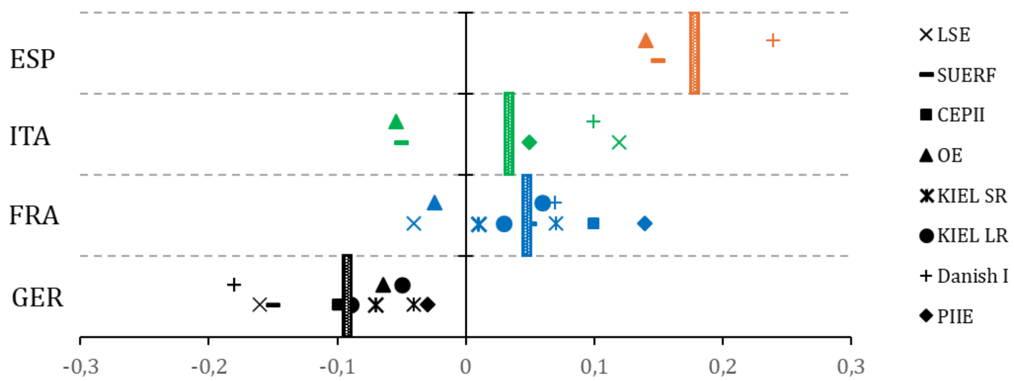

Figure 5: Heterogeneous impact of baseline tariff scenario on European countries GDP.

Notes: Point estimates refer to relative deviations from the European anchor in the particular paper. The anchor is defined as the average impact of baseline scenario on one of the following (with the former picked before latter if available): the rest of EU or EA, the average of entire EU or EA, the average of all European countries for which estimates are available. Vertical bars represent average impact for the country across studies.

5 Conclusion

This paper has sought to bring structure and clarity to a fragmented debate on the macroeconomic consequences of renewed US protectionism. Rather than contributing a new simulation, we reviewed and systematically organised more than twenty influential studies, grouping them into coherent modelling classes. This structured comparison allows us to extract consensus from the literature and, equally importantly, to understand why estimates differ.

Several robust findings emerge. First, a uniform 10% US import tariff represents a non-negligible but manageable shock for the euro area. Across model types, the impact on European GDP typically ranges between 0.1% and 0.5%, with only minimal effects on inflation. The dominant transmission channel is weaker external demand, complemented by trade diversion and, in some structural models, higher uncertainty weighing on investment. In contrast, the macroeconomic effects on the US are consistently larger. Output losses are roughly two to three times greater than in Europe, and inflation increases are more pronounced, especially in DSGE-type frameworks. Retaliation tends to amplify US losses further, while Europe's additional exposure remains limited due to trade rerouting and the depth of the intra-EU market.

Our main contribution is methodological. By sorting models into trade-reallocation general equilibrium models (CGE-like) and structural macroeconomic models (DSGE-like), we demonstrate that divergence in results reflects differences in transmission mechanisms rather than random disagreement. However, cross-model comparability is inherently imperfect, and results depend on elasticities, policy rules, and assumptions about uncertainty.

From a policy perspective, the evidence suggests that US tariffs primarily constitute an external demand shock for the euro area, potentially exerting a mild disinflationary bias. The key risk lies in misinterpreting this shock as persistently inflationary. In unilateral scenarios, the euro area faces a headwind rather than a systemic threat; in symmetric trade wars, prolonged demand weakness may warrant policy accommodation to preserve medium-term price stability. For the US, by contrast, tariffs combine stronger inflationary pressure with larger output losses, highlighting the asymmetric domestic costs of protectionism.

While point estimates vary, the literature converges on a clear message: renewed US protectionism weighs more heavily on US activity than on Europe, generates limited inflationary pressure in the euro area, and operates primarily through demand, uncertainty, and potential escalation channels.

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