

# The impact on developing economies of WTO dissolution

**A country-level analysis**

July 2025





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# Executive summary

*Oxford Economics was commissioned by the International Chamber of Commerce (ICC) in April 2024 to provide an independent assessment of the potential impact of WTO dissolution on developing economies<sup>1</sup>. This report revisits the analysis presented in that paper, drilling down to quantify national-level impacts for a sample of ten countries. The modelling approach and assumptions we employ align with our previous report, ensuring that results are comparable across the two papers.*

## Scenario assumptions around WTO dissolution

The headwinds buffeting the WTO have only grown in intensity since the publication of our earlier report in April 2024. Specifically, recent trade policy announcements from the new US administration are undermining the WTO's core principles of reciprocal tariff commitments, non-discrimination and transparency. The impact on the WTO could be profound, as this undermines its role in mediating disputes and enforcing equitable rules, raising the risk of a complete breakdown of international cooperation.

A number of scenarios could be envisaged that would result in the abandonment of the rules-based multilateral trading system and WTO dissolution. We explore a scenario (aligning with the assumptions in our previous report), where gradual trust erosion eventually results in the rules-based system fracturing and losing relevance. This entails greater uncertainty and higher information costs for all countries, as well as increased levels of protectionism between country pairs without pre-existing free trade agreements (FTAs) in place. We take this approach to demonstrate that even a 'best case' scenario for WTO dissolution would be damaging for the world economy. It also underscores how increased uncertainty linked to the US administration's shifting trade policies may have long-lasting consequences through the erosion of trust in international trade rules.

The direct trade impacts of WTO dissolution in this scenario are limited to non-fuel goods. We assume most countries that are reliant on fuel imports would not wish to raise trade barriers affecting these inflows<sup>2</sup>; meanwhile, policy commitments under the WTO to reduce barriers to trade in services are very limited, despite recent strong growth in services trade, which has mainly been driven by technological advancements and increased demand.

## Results are presented for a sample of ten developing nations

This report presents the potential long-term structural effects of WTO dissolution, comparing projected outcomes for 2030 against a baseline scenario where the WTO remains in place. Our previous report focussed on presenting aggregated results for developing countries by region and income level. This report drills down to quantify impacts for a sample of ten individual countries: Brazil, Cameroon, China, Egypt, Guatemala, Indonesia, India, South Africa, Türkiye and Vietnam. These countries provide a rich, varied sample that captures the complexity of trade policy in the developing world. Their diversity in geography, economic size, policy orientation and development stage allows for a nuanced analysis of how WTO dissolution could potentially influence pathways to higher incomes, poverty reduction and economic resilience.

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<sup>1</sup> Oxford Economics and ICC (2024)

<sup>2</sup> Some governments have imposed export or import restrictions on these products, often for geoeconomic reasons, but we assume this outcome is less likely under the "conservative" assumptions of our scenario.

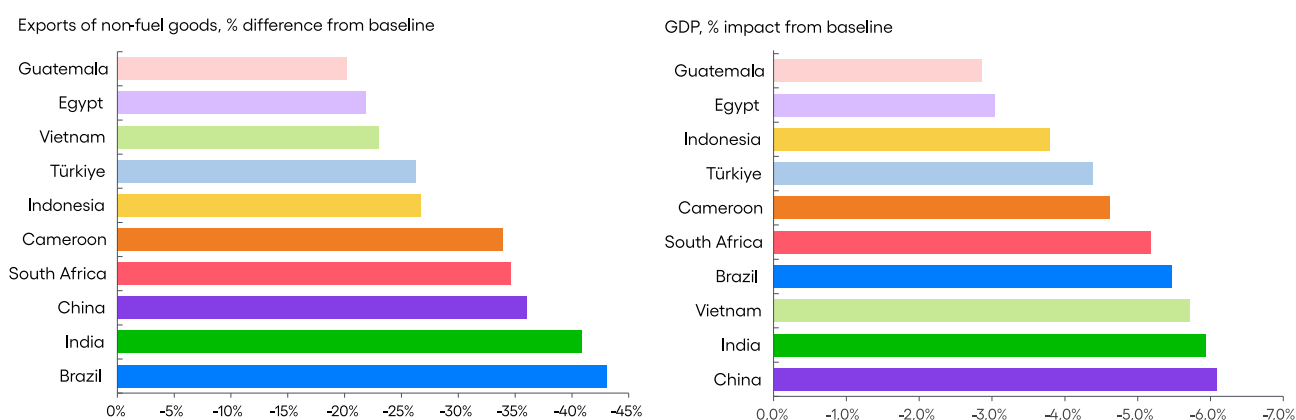
## The methodological approach aligns with our previous report

We drew on both theoretical and empirical research to calibrate a comprehensive range of inputs that were then applied in the Oxford Economics Global Economic Model to estimate the potential impact of WTO dissolution around the world. Scenario assumptions were applied across the global modelling framework to capture how those changes ripple through the entire international trading system. The main channels of impact from WTO dissolution (trade and FDI) influence both demand (affecting short-term GDP changes) and supply (shaping the long-term level of GDP reported in our findings). We present the potential long-term structural effects of WTO dissolution, comparing projected outcomes for 2030 against a baseline scenario where the WTO remains in place.

## Estimated impacts are reflective of each economy's unique characteristics

Modelling results presented in the 2024 report indicated that WTO dissolution would reduce developing countries' non-fuel exports by around a third, comparing to a baseline where the 'status quo' of the rules-based multilateral trading system remains intact. While this impact is considerably larger than recent estimates of a trade war sparked by US tariff imposition and retaliation, it is important to recognise that the rise in trade costs facing developing countries from WTO dissolution would be far greater and widespread across all trade partners. Our latest results confirm a substantial negative impact on export volumes across all the countries in our sample, but the scale of contraction reflects variations in income levels, export structures, trade policies and integration into global markets.

### Long-term trade and GDP impacts of WTO dissolution



## FTAs can provide shelter, but do not fully substitute for the WTO system

We estimate **Brazil's** exports would be the most heavily impacted in our sample, with an especially sharp long-term contraction in non-fuel goods exports close to 45%. This is reflective of vulnerabilities including a heavy concentration in agricultural commodities – a sector already highly politicised and disproportionately exposed to renewed protectionist measures – limited integration into global value chains (GVCs) and few free trade agreements (FTAs) outside Latin America, offering little insulation from rising trade barriers.

The estimated hit to exports in both **India** and **China** is similarly profound in scale at around 40%. India's shallow integration into GVCs and few FTAs leave much of its trade reliant on WTO rules; meanwhile China relies on open global markets for its growth, with WTO accession in 2001 having been a major driving force behind the country's rapid structural transformation.

Amongst the ten countries in our sample, **Guatemala** and **Egypt** are the least impacted, albeit the estimated c.20% long-term decline in non-fuel goods exports would still represent serious disruptions for both economies. Compared to other countries in the sample, these two countries are relatively more sheltered from WTO dissolution due to their key trading relationships being anchored by trade agreements.

However, it should be noted that FTAs are not a perfect substitute for MFN rules. Even where FTAs exist, not all eligible businesses currently use them due to administrative burdens, lack of awareness or the complexity of compliance requirements. And while our scenario assumes that existing FTAs can continue to provide legal and institutional certainty for trade between signatory parties, many FTAs reference or build upon WTO rules for areas like dispute settlement, standards and customs procedures – without the WTO, these foundational rules would disappear, which may require some FTAs to be renegotiated or replaced.

## **WTO dissolution would stifle growth across the developing world**

Long-term impacts on national GDP levels depend upon how the economy's underlying supply capacity is affected (specifically, the stock of capital and trend productivity). We estimate the negative impacts to be sizeable across our whole sample, ranging from 3% of GDP in Guatemala and Egypt to 6% of GDP in China, India and Vietnam. The fact that **Vietnam** suffers such a severe loss to output reflects the economy's heavy reliance on its export-driven manufacturing sector (non-fuel goods exports represent over 85% of GDP) and complementary foreign investment inflows.

## **Saving the WTO benefits both developing and developed countries**

Preserving and reforming the WTO is in the shared interest of both developing and developed countries. For developing countries, our modelling emphasises that exports would be severely undermined, with long-term structural economic consequences including increased poverty levels. The knock-on impact for developed countries could also be substantial, however, as it could reduce access to global suppliers, weakening supply chain resilience; it may also increase irregular migration by weakening economic opportunities in developing countries.

Our analysis should reinforce the importance of ensuring that the WTO can adapt to new trade realities and continue to function as an effective global trade body.

# 1. Introduction

## **The WTO has contributed to global trade expansion for 30 years**

For three decades the World Trade Organization (WTO) has worked to maintain a rules-based global trading system that ensures stability in trading relations and minimises protectionist measures. Its broad membership and consensus-driven approach have made it a cornerstone of the global trading system, with over 75% of global non-fuel goods trade<sup>3</sup> occurring on the WTO's most-favoured-nation (MFN) terms.

But the WTO is facing existential threats from increasing protectionism, geopolitical rivalry and institutional paralysis. Without urgent reforms to modernise its dispute system and reinforce multilateral cooperation, the organisation risks becoming sidelined in a fragmented global economy. As detailed in our earlier research<sup>4</sup>, the potential consequences of abandoning the rules-based multilateral trading system would be severe, particularly for developing nations that rely on the WTO to mitigate their inherent disadvantages in global trade<sup>5</sup>.

## **US protectionism threatens the future of global trade rules**

Unfortunately, the headwinds buffeting the WTO have only grown in intensity since the publication of our earlier report in April 2024. Specifically, recent trade policy announcements from the new US administration are undermining the WTO's core principles of reciprocal tariff commitments, non-discrimination and transparency. By selectively imposing higher tariffs on specific countries, the US is undermining the WTO's MFN framework, creating ambiguity and inviting retaliatory measures.

The US administration's trade doctrine mirrors the pre-WTO protectionist policies of the 1930s, fostering bilateralism over multilateral cooperation and eroding trust in rules-based trade governance. The impact on the WTO could be profound, as this undermines its role in mediating disputes and enforcing equitable rules, raising the risk of a complete breakdown of international cooperation. If the multilateral trading system unravels, this could result in escalating trade disputes as the world regresses to power-based trade relations.

## **This study quantifies country-level impacts of WTO dissolution**

Yet it is still possible for the WTO to emerge stronger from this crisis if members committed to multilateralism agree a process to reform the institution. In order to focus minds on what is at stake for the world's poorest nations, Oxford Economics have been commissioned by the International Chamber of Commerce (ICC) to extend our earlier research into the potential impacts of abandoning the WTO by examining country-level impacts for a group of ten developing nations. By providing more granular insights into what is at risk for individual countries, it is hoped that the study will act to focus minds on the need to support reform and modernisation efforts at the WTO, ensure the organisation's ongoing effectiveness and safeguard the multilateral trading system.

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<sup>3</sup> As noted by Director General Okonjo-Iweala: [https://www.wto.org/english/news\\_e/spno\\_e/spno10\\_e.htm](https://www.wto.org/english/news_e/spno_e/spno10_e.htm)

<sup>4</sup> ICC and Oxford Economics (2024), "The impact on developing economies of WTO dissolution": <https://iccwbo.org/wp-content/uploads/sites/3/2024/04/2024-ICC-The-impact-on-developing-economies-of-WTO-dissolution.pdf>

<sup>5</sup> For example, developing countries have less influence and fewer resources to advocate for their interests in trade negotiations; they lack the financial and technical resources to take advantage of global trade opportunities; and they often face high trade barriers in advanced economies in key sectors such as agriculture.

The report is structured as follows:

- **Section 2** presents an overview of the key modelling assumptions, including scenario design and modelling approach.
- **Section 3** discusses the results of our analysis, including key transmission channels.
- **Appendix I** provides a detailed methodology, with **Appendix II** providing a bibliography.



## 2. Modelling approach

The modelling approach employed in this paper aligns with the methodology outlined in the ICC & Oxford Economics (2024) report, ensuring that results are consistent across the two papers. For ease of reference, the full methodology is reproduced in Appendix I of this report.

### Scenario assumptions around WTO dissolution

A number of previous studies have explored the implications of an outright global trade war<sup>6</sup> and there is also a growing strand of literature providing ex-ante assessments of the US administration's recent tariff proposals and potential retaliatory measures<sup>7</sup>. Rather than add to this literature, we explore a scenario of gradual trust erosion (aligning with the assumptions in our previous report), eventually resulting in the rules-based system fracturing and losing relevance. We take this approach to demonstrate that even a 'best case' scenario for WTO dissolution would be damaging for the world economy. It also underscores how increased uncertainty linked to the US administration's shifting trade policies may have long-lasting consequences through the erosion of trust in international trade rules.

As explained in our earlier report, WTO dissolution does not imply that all the benefits of the rules-based trading system are necessarily destroyed, as the proliferation of global value chains has created mutual dependence and increased the economic costs of adopting isolationist policies. The key assumptions applied in the modelling take this into account:



**Increased trade costs:** All country pairs face higher trade costs due to greater uncertainty and information barriers.



**Selective trade restrictions:** Tariffs and non-tariff barriers are imposed between countries without trade agreements<sup>8</sup>, balancing protection of domestic industries with the need to keep export sectors competitive, especially where supply chains are involved.



**Focus on non-fuel goods:** We assume trade policy governing fuels and services is largely unaffected. This reflects that fuel tariffs are likely to remain low to prevent increases in energy costs for domestic industries, while WTO policy commitments on services are minimal, so little change would be expected.



**Gradual impact:** The full economic effects of WTO dissolution unfold over several years as governments and companies adjust. This reflects how the consequences of changes to trade policy generally take 3-10 years to fully materialise and then persist. For this analysis we assume the impact peaks after around five years in 2030.

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<sup>6</sup> For a summary, see IMF (2003)

<sup>7</sup> For example, see Bouet et. Al. (2025)

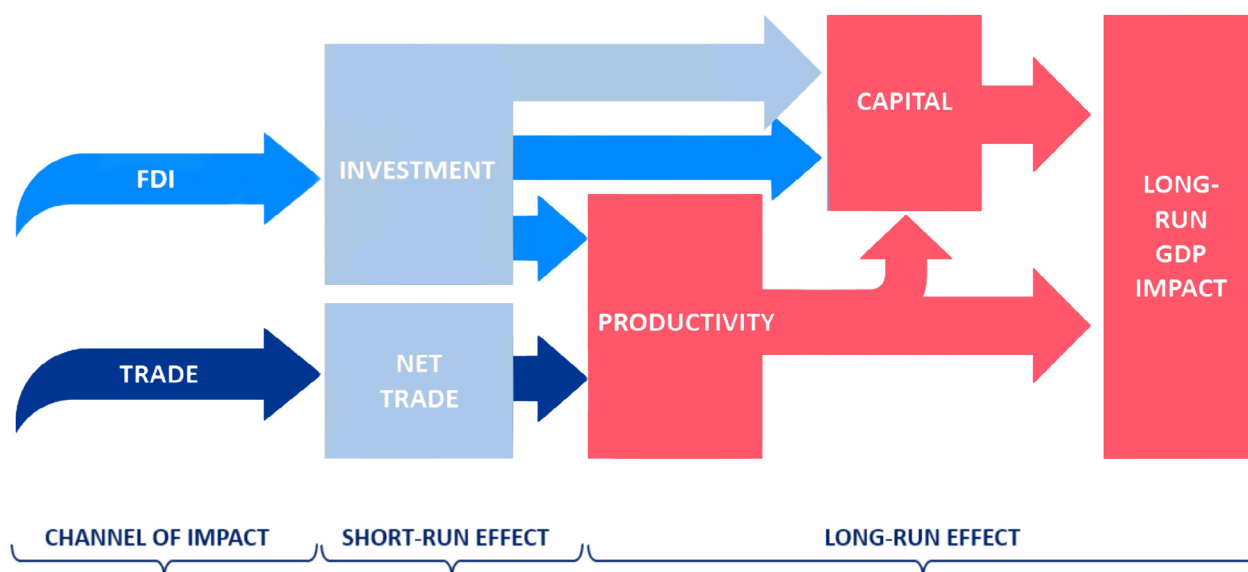
<sup>8</sup> We implicitly assume that the current FTA landscape remains unchanged. However, some FTAs have structural and legal dependencies that could be destabilised following WTO dissolution. Conversely, it could also be argued that WTO dissolution could motivate countries to seek new trade deals.



## Long-run impacts depend on how supply-side capacity is affected

We drew on both theoretical and empirical research to calibrate a comprehensive range of inputs that were then applied in the Oxford Economics Global Economic Model to estimate the potential impact of WTO dissolution around the world. The simplified diagram below illustrates how the main channels of impact (trade and FDI) influence both demand (affecting short-term GDP changes) and supply (shaping the long-term level of GDP reported in our findings). Importantly, the long-run effect on each country's economy depends on how our modelled scenario alters supply-side capacity – determined by labour supply<sup>9</sup>, capital stock and productivity.

**Fig. 1. How impact channels affect GDP in the short and long run**



## Results are presented for a sample of ten developing nations

This report presents the potential long-term structural effects of WTO dissolution, comparing projected outcomes for 2030 against a baseline scenario where the WTO remains in place. Scenario assumptions were applied across a sample of close to 200 individual economies, allowing our modelling framework to capture how those changes ripple through the entire global system.

Our previous report focussed on presenting aggregated results for developing countries by region and income level. This report drills down to quantify impacts for a sample of ten individual countries: Brazil, Cameroon, China, Egypt, Guatemala, Indonesia, India, South Africa, Türkiye and Vietnam. These countries were chosen for their diversity:

- **They span multiple continents and regions:** South America (Brazil), Central America (Guatemala), North Africa (Egypt), Central Africa (Cameroon), Southern Africa (South Africa), East Asia (China), South Asia (India), Southeast Asia (Indonesia, Vietnam) and Europe (Türkiye).
- **They differ in economic size:** For example, Brazil, China and India are amongst the largest emerging markets, providing contrast with smaller economies such as Cameroon and Guatemala.

<sup>9</sup> In common with most studies into the welfare effects of international trade, we assume full employment in the long run, with reallocation of a fixed domestic labour force to sectors with comparative advantage.

- **They differ in their approaches to trade policy:** The sample includes countries with historically protectionist approaches (e.g. Brazil) as well as those that have pursued export-led growth models (e.g. China, Vietnam). Egypt and India provide cases of gradual trade policy reform and ongoing challenges in balancing openness with domestic priorities.
- **The sample includes commodity exporters:** Brazil and South Africa provide case studies of major commodity exporters.

We believe these ten countries therefore provide a rich, varied sample that captures the complexity of trade policy in the developing world. Their diversity in geography, economic size, policy orientation and development stage allows for a nuanced analysis of how WTO dissolution could potentially influence pathways to higher incomes, poverty reduction and economic resilience.

# 3. Country-level impact results

Modelling results presented in the ICC & Oxford Economics (2024) report indicated that WTO dissolution would reduce developing countries' non-fuel exports by around a third, comparing to a baseline where the 'status quo' of the rules-based multilateral trading system remains intact. While this impact is considerably larger than recent estimates of a trade war sparked by US tariff imposition and retaliation, it is important to recognise that the rise in trade costs facing developing countries from WTO dissolution would be far greater and widespread across all trade partners. The knock-on impacts to investment and productive efficiency would in turn result in a permanent, long-run GDP loss in excess of 5% for these countries overall.

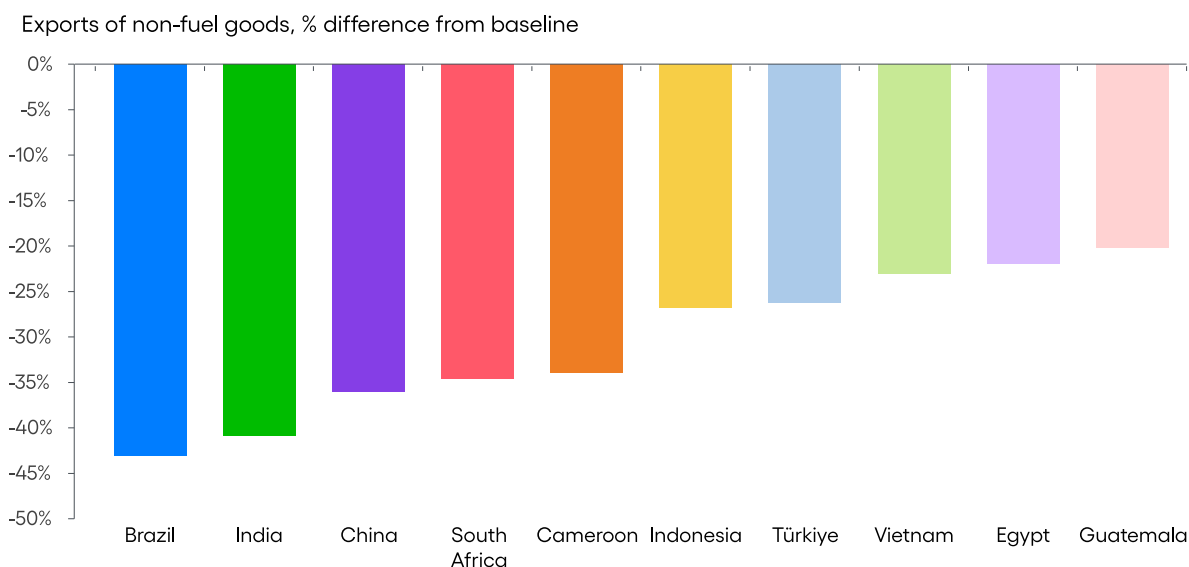
But aggregated regional results can obscure a considerable degree of diversity at the country level, reflecting variations in income levels, export structures and integration into global markets. Results presented here for our sample of ten individual developing economies are therefore instructive for understanding the potential range of national-level impacts.

## 3.1 Impact on trade flows

### Brazil's export profile leaves it more exposed than peers

As may be expected, our results confirm a substantial negative impact on non-fuel goods export volumes across all the countries in our sample (Figure 2), but the scale of contraction is reflective of each economy's unique characteristics (Figure 3).

**Fig. 2. Long-term trade impacts of WTO dissolution on developing countries**



We estimate **Brazil's** exports would be the most heavily impacted in our sample due to a combination of underlying vulnerabilities. First, Brazil's export profile is heavily concentrated in agricultural commodities (such as soy, beef and sugar), the sector estimated to have benefitted the most from WTO membership<sup>10</sup> at a global level and therefore disproportionately exposed to a return to protectionist policies, especially given it is already highly politicised;

<sup>10</sup> Department for International Trade (2022)

second, the country has only limited participation in GVCs compared to international peers, meaning it has fewer economic disincentives against protectionism; third, Brazil's network of FTAs outside of Latin America is much smaller than other major developing economies, so less of its trade is shielded by these agreements (reflecting how Mercosur has historically found it difficult to finalise and ratify major trade deals beyond its own region). Taken together, this means that Brazil is more likely than peers to face increased barriers to trade in the wake of WTO dissolution, resulting in an especially sharp contraction in non-fuel goods exports of close to 45% over the long term.

**Fig. 3. Structural characteristics of trade in our country sample**

Country	Exports (non-fuel goods) % of GDP	% of non-fuel goods exports			GVC integration GVC-related trade, % of gross trade	FDI inflows % of fixed investment
		Agriculture	Mining	Manufacturing		
Brazil	14%	49%	12%	39%	35%	17%
Cameroon	5%	44%	1%	55%	36%	9%
China	18%	3%	0%	97%	37%	1%
Egypt	7%	22%	3%	75%	32%	22%
Guatemala	16%	50%	1%	49%	27%	9%
Indonesia	18%	28%	5%	67%	32%	5%
India	10%	15%	1%	84%	34%	3%
South Africa	21%	13%	16%	71%	41%	6%
Türkiye	27%	13%	3%	85%	40%	3%
Vietnam	89%	9%	0%	91%	58%	14%

### India and China – Different policy approaches despite similar dependencies

The estimated hit to **India's** non-fuel goods exports is similarly profound in scale, with a 40% long-term contraction. India exports a significant amount of agricultural products (it is the eight largest agricultural exporter in the world), but it also has a more complex and diversified export structure than Brazil. Nevertheless, India's integration in GVCs remains shallow in most sectors and the country's trade policy has traditionally been shaped by a protectionist mindset, meaning India has signed less FTAs than regional peers and these agreements have been relatively limited in scope. Indeed, India's exports are already suffering from trade diversion due to its exclusion from mega-regional agreements such as the Regional Comprehensive Economic Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

India's protectionist instincts contrast with **China**, which presents itself as a champion of multilateralism and the rules-based trading system. WTO accession in 2001 was a major driving force behind the country's rapid economic growth and structural transformation and China's continued advocacy for the WTO reflects its heavy reliance on open global markets for sustained growth – our estimates indicate that over a third of China's exports would be threatened by WTO dissolution.

## FTAs can provide shelter, but do not fully substitute for the WTO system

The scale of impact on trade for other countries reflects their own unique structural and policy-related characteristics. Amongst the ten countries in our sample, Guatemala and Egypt are the least impacted, albeit the estimated c.20% long-term decline in non-fuel goods exports would still represent serious disruptions for both economies. Compared to other countries in the sample, these two countries are relatively more sheltered from WTO dissolution due to their key trading relationships being anchored by trade agreements:

- **Guatemala** is part of a customs union with partners in Central America, it has FTAs with other important markets in Latin America such as Mexico and Colombia as well as its largest export market, the United States. Further afield, Guatemala also has FTAs with countries ranging from the EU and UK to Israel and Korea.
- Similarly, **Egypt** is a member of numerous regional and bilateral trade agreements, which govern a large share of its trade. These include the African Continental Free Trade Area (AfCFTA), the Common Market for Eastern and Southern Africa (COMESA), the Greater Arab Free Trade Area (GAFTA), the EU-Egypt Association Agreement and the Qualified Industrial Zones (QIZ) agreement with the US.

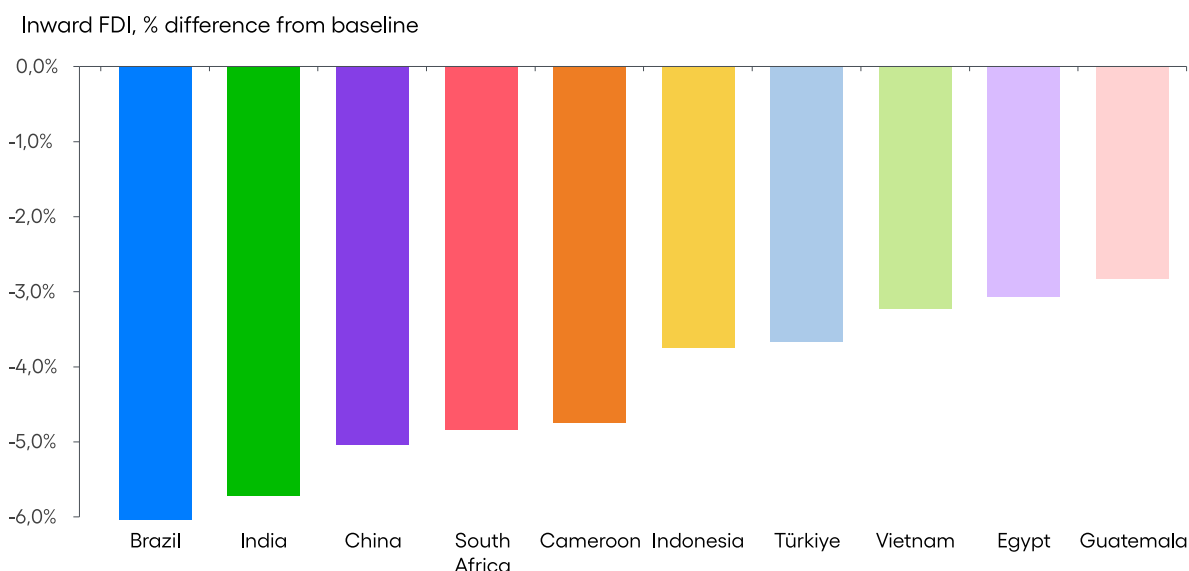
However, it should be noted that FTAs are not a perfect substitute for MFN rules. Even where FTAs exist, not all eligible businesses currently use them due to administrative burdens, lack of awareness, or the complexity of compliance requirements. And while our scenario assumes that existing FTAs can continue to provide legal and institutional certainty for trade between signatory parties, many FTAs reference or build upon WTO rules for areas like dispute settlement, standards and customs procedures – without the WTO, these foundational rules would disappear, which may require some FTAs to be renegotiated or replaced.

## 3.2 Impact on FDI

### Trade openness and FDI are complementary

Our estimates suggest that the absence of a WTO would result in a permanent reduction of FDI flows to the developing countries in our sample (compared to the ‘status quo’ of the rules-based multilateral trading system) by between 3% and 6% (Figure 4).

**Fig. 4. Long-term FDI impacts of WTO dissolution on developing countries**



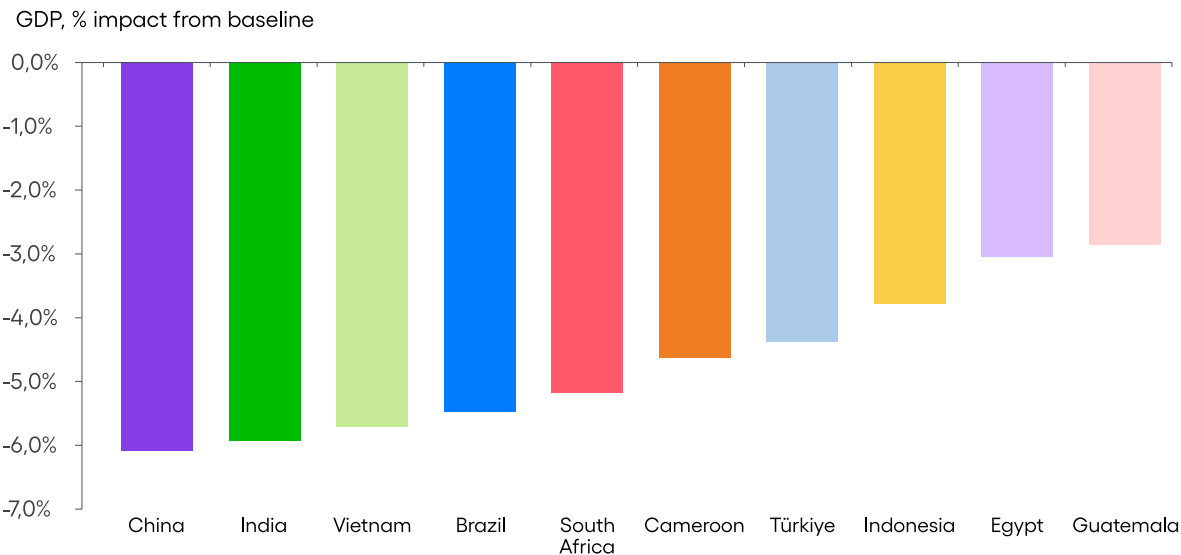
This reflects how trade openness and FDI inflows can be mutually reinforcing, and policies that facilitate trade often also encourage cross-border investment. A predictable, transparent and non-discriminatory trading environment helps reduce the risks and uncertainties that typically concern foreign investors. Trading with new markets also often acts as a gateway for foreign companies to build confidence before committing to long-term investments. The abandonment of a rules-based multilateral trading system and the resulting contraction in trade flows would therefore be likely to have a knock-on impact to FDI flows. Reflecting these interactions, the distribution of the estimated impacts to FDI closely follows the distribution of trade impacts from Figure 2.

### 3.3 Impact on GDP

#### WTO dissolution would stifle growth across the developing world

While disruptions to trade and FDI would be the key channels of impact of WTO dissolution, the long-term impact on national GDP levels depends upon how the economy's underlying supply capacity is affected (specifically, the stock of capital and trend productivity). Figure 5 presents our estimates of the ultimate impacts on long-run potential output, based on simulations using the Oxford Global Economic Model.

**Fig. 5. Long-term GDP impacts of WTO dissolution**



The negative impacts are sizeable across our whole sample, ranging from 3% of GDP in Guatemala and Egypt to 6% of GDP in China, India and Vietnam. It is notable that our modelling implies that the output loss to the **Vietnamese economy** ranks amongst the most severe within our sample, despite ranking below average in terms of the estimated share of trade and FDI that would be lost. This reflects the economy's heavy reliance on its export-driven manufacturing sector (non-fuel goods exports represent around 85% of GDP), which in turn depends upon FDI inflows for its growth.

#### Saving the WTO benefits both developing and developed countries

Our modelling confirms that the WTO remains a crucial platform for developing countries to participate in the global trading system and ensure non-discriminatory treatment for their exports. Without the rules-based multilateral trading system, these nations risk isolation in a fragmented trade landscape where power asymmetries favour advanced economies. Development prospects for the poorest nations would be severely undermined, with long-term structural consequences including increased poverty levels.

Yet the reforms needed to ensure the WTO's survival and relevance have at times been blocked by the developing countries who benefit most from the rules-based framework. This weakens the WTO's ability to adapt to new trade realities and risks a breakdown of the very system that protects their interests. For example, some developing countries frequently block consensus on new trade disciplines due to developmental concerns and a desire to preserve domestic policy autonomy. The substantive legitimacy of their objections is unclear, especially when most WTO members support moving forward on new rules and agreements. Our analysis should reinforce the importance of ensuring the WTO can adapt to new trade realities and continue to function as an effective global trade body.

As noted in our 2024 report, this also has implications for developed countries, as a world without the WTO would reduce access to global suppliers, weakening supply chain resilience. It may also increase irregular migration due to lack of economic opportunities in developing countries – for example, Guatemalans currently make up the largest share of Northern Triangle migrants intercepted by US authorities and our results show that WTO dissolution would only exacerbate economic hardship in the country, driving more people to seek better prospects abroad. Similarly, Egypt is a major source of irregular migration to the EU (both directly and as a transit country), with economic instability a key driver.



# Appendix I: Methodology

This section provides a methodological overview of the approach and assumptions used to quantify the impact of WTO dissolution. The methodology aligns with that used in ICC and Oxford Economics (2024), with the estimates refreshed and country-level results tested against latest baseline assumptions in our Global Economic Model.

As discussed in the main report, a set of modelling assumptions were calibrated to align with the key transmission channels through which WTO membership impacts the global economy. This includes direct trade effects (with implications for domestic investment), as well as associated impacts on FDI and productivity. We describe the quantification of each of these transmission channels in turn below, before then discussing how they were brought together to quantify the overall long-run effects on GDP.

## **Modelling framework and transmission channels**

We modelled the impact of WTO dissolution across a sample of close to 200 individual countries. Theoretical and empirical evidence from academic literature was gathered to calibrate a full range of ‘input’ assumptions associated with WTO dissolution that could be used to determine the ultimate impact on long-run potential output for each economy. The modelling comprised the following key stages:

1. Estimated impact on trade flows associated with increased trade costs resulting from WTO dissolution.
2. Direct impact on GDP from reduced trade flows, leveraging a CGE model approach. This takes into account the reallocation of domestic resources, but not international capital flows or dynamic productivity effects.
3. Calibration of additional effects on FDI and productivity.
4. Bringing together the various impact channels above, we leveraged the Oxford Global Economic Model to quantify the total long-run GDP impacts.

In the following sub-sections we begin by introducing the gravity model approach to estimating WTO trade impacts before describing each element of the modelling process in turn.

## **Gravity model estimates of WTO trade gains**

Gravity modelling has been a key tool of the empirical trade literature for the last two decades, stemming from the ground-breaking work of Anderson and Van Wincoop (2003). This strand of research is firmly grounded in latest trade theories such as New Trade theories pioneered by Dixit-Stiglitz-Krugman in the late 1970s and the ‘new’ New Trade theories first developed by Melitz (2003). Empowered by the availability of granular and panel trade data, this class of model has shown a remarkable ability to explain the dynamics of bilateral flows of trade in goods, services and investments. In recent years, the model has become the most popular tool for ex post evaluation of trade policy (UNCTAD/WTO, 2016).

We were therefore able to draw upon an established body of academic literature that has rigorously evaluated the impact of the WTO on global trade flows. Within this literature,

Yotov et al. (2019) draw from a large dataset of bilateral trade flows across all countries in the world and apply the ‘gold-standard’ in the empirical structural gravity literature (Anderson and Yotov, 2012). Their modelling approach comprehensively captures the multitude of factors that may affect the cost of trade between a given pair of countries (such as distance, common language, colonial heritage, etc.). A dummy for regional trade agreements also helps capture the impact of other agreements in place between two countries which would be more preferential and comprehensive than what is agreed at the WTO. This is important to ensure the pure ‘WTO effect’ is isolated from other influences on trade flows.

The researchers also account for intra-national trade flows in their econometric model. This allows for the identification of unilateral and country-specific determinants of international trade, such as the unilateral effects of WTO/GATT membership. Without these intra-national trade flows (which are not directly affected by changing of WTO/GATT membership status), the change in WTO/GATT membership would be captured by the importer-time and exporter-time fixed effects. Furthermore, this inclusion would account for possible trade diversion effects of GATT/WTO membership from domestic sales. Dai et al. (2014) demonstrate that the estimates of free trade agreements are biased downward in regressions that only rely on international trade flows. Again, this helps to reinforce the reliability of the authors’ WTO-specific impact estimates.

Last but not least, the paper employs a longer time series (covering the 1986 to 2016 period) than most other comparable studies. Because the benefits of trade agreements take years to materialize (Hannan, 2016), earlier ex post evaluations studies that use a short time spell covering the WTO ‘treatment’ period would underestimate the impacts. Incorporating an extended period allows them to identify the effect in switching membership status by over 40 countries with varying conditions such as population size, geography, economic conditions and institutions.

Although it could be argued that the authors’ estimates should be updated using more recent data, in practice the addition of a few years’ of data would not significantly change their results. It should also be borne in mind that data for the post-2019 period is distorted by the effects of the pandemic and the war in Ukraine, so this data would usually be disregarded as representing an exceptional (non-representative) period.

Results from this gravity model provided a starting point for our analysis of WTO dissolution. In particular, we made use of parameters estimated in Table 2, column (7) of the paper, where the impact is broken down by income level and WTO status of the country pairs. This helps us better account for the heterogeneity of impacts across countries.

### **Trade impacts of WTO dissolution**

Whereas Yotov et al (2019) examine the trade benefits of WTO membership, we wish to understand the potential losses from WTO dissolution. As discussed in the main report, we cannot assume that the impact of WTO dissolution would simply be the mirror-image of the positive benefits of WTO membership. In particular, the world is now so closely integrated through global value chains (GVCs) that incentives to adopt protectionist policies have been permanently reduced.

We begin with estimates derived from Yotov et al. (2019), which provide the full trade cost reduction associated with WTO membership (additional to any existing RTA). Drawing from evidence in Koopman (2020) and Rubínová and Sebtí (2021) on the breakdown of trade

costs faced by exporters to developed and developing economies, we decompose Yotov's total cost estimates into three channels of impact influenced by the WTO, namely:

- **Trade policy restrictiveness:** Tariffs and non-tariff barriers (such as regulatory measures, quotas, local-content requirements, border formalities, etc.)
- **Uncertainty:** The predictability of trade policy, which is currently underpinned by the rules-based multilateral trading system.
- **Information costs:** Information-gathering costs, which are currently reduced by the WTO as it publishes trade policy review reports and online databases for all its members.

We then divide country pairs into two groups. For country pairs with an RTA in place, we apply an increase in trade costs only associated with increased uncertainty and information frictions. For country pairs without an RTA in place, we also include an additional cost associated with increased policy restrictiveness. To inform the level of policy restrictiveness to apply, we draw from Beshkar and Lashkaripour (2020), who use a game theory approach to calculate optimal trade barriers when trade agreements are dissolved. They find that countries with higher import dependency should be less willing to increase protectionism. We infer from their estimates the degree to which policy restrictiveness is tightened when countries factor in GVC ties. To create a global sample, we extrapolate beyond the initial 40 countries in their WIOD sample based on their estimated elasticity between trade barrier escalation and import intensity.

### **Long-run GDP impacts from direct trade effects**

Having estimated the extent of trade destruction that may be associated with WTO dissolution across our sample of countries, we then proceeded to estimate the associated knock-on effects to economic output for each nation. We began by considering the effects on GDP associated directly with reduced trade flows. The UK Department of International Trade (2022) attempt this analysis using the World Input-Output Database (WIOD) within a CGE framework, although their sample is constrained to only around 40 (mainly developed) economies. In contrast, we perform this analysis using an expanded framework based on trade/GDP elasticities that are benchmarked from the same CGE framework, with variations included to take account of differences in country trade intensities. This approach allows us to generate consistent economic impact results across our whole country sample.

While the outputs from a CGE model are useful for estimating the direct impacts of trade on an economy through domestic investment patterns, this framework does not account for international flows of capital, nor does it consider dynamic effects on productivity. We therefore calibrated these additional impacts separately.

### **Inward foreign direct investment**

We performed a review of the empirical literature examining the relationship between trade openness and FDI to calibrate these effects. Elasticity estimates vary across studies, although this may be explained by differences in the choice of countries studied. In general, we found that results indicated a higher FDI-trade elasticity for low-income countries compared to industrialised nations. Our final estimate was an elasticity on trade openness of 0.06 for industrialised economies and 0.1 for developing – this generally falls within the median range of estimates from our literature review, as summarised in the table below.

## Summary of literature review on FDI-trade elasticity

Study	Country sample	Period	Elasticity of inward FDI on trade openness
Bayraktar (2015)	30 developing countries	2004-2013	0.031 to 0.143
Aizenman and Noy (2006)	81 countries	1982-1998	0.06 for developing, 0.04 for industrialised
Asiedu (2002)	71 countries	1988-1997	0.030 to 0.035
Gastanaga et al (1998)	49 countries	1970-1995	0.063 to 0.078

## Total factor productivity

Among studies that use cross country panel data, the relationship between total factor productivity (TFP), FDI, trade openness and other key drivers is somewhat mixed. Results are sensitive to both the selection of the sample of countries as well as the choice of econometric methodology including model specification.

We employed an elasticity on FDI of 0.07 for this study, drawing upon earlier econometric estimates by Oxford Economics (2016) based on a sample of 25 countries. This elasticity estimate for FDI is similar in magnitude to those found in Baltabaev (2014), based on a sample of 49 developed and developing countries. In addition, we applied an elasticity of 0.08 on trade openness, which is also of the same order of magnitude as Balatabaev's findings.

## Overall GDP impacts

Drawing together the various calibrated transmission channels – direct trade impacts, FDI and productivity – we employed the Oxford Global Economic Model to estimate the resulting cross-country economic impacts. The GEM is the most widely used commercial macroeconomic model in the world. 85 of the largest economies are covered in depth by individual country models, with the remainder accounted for by proxy models and regional blocs. In the long run, each of the economies behaves like the classic one sector economy under Cobb-Douglas technology. Countries have a natural growth rate, which is determined by its capital stock, labour supply adjusted for human capital, and TFP. Output cycles around a deterministic trend, so the level of potential output at any point in time can be defined.

# Appendix II: Bibliography

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