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Title: Walking the Tightrope: Balancing the Impacts of Global Decoupling and Trade Agreements

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Abstract:

As dramatic shifts in the global economy occur, and the unipolar world appears at threat, it is vital for policymakers to have a quantitative understanding of the potential economic impacts of a fragmented trading system and the effectiveness of potential strategies to mitigate the negative economic impacts that may arise.

Using the GTAP-RD model, and the GTAP11P4 dataset with a 2017 reference year, this paper examines a set of hypothetical scenarios of a global economic decoupling, where the world economically diverges into opposing spheres of influence, and it becomes more difficult to trade between these respective allegiances. Secondly, we analyse the extent to which multilateral trade agreements could mitigate the potential damages. The results from these scenarios are then evaluated against two further sets of policies; 1. Prior to decoupling, some nations sign a cross-Pacific megaregional that cuts across opposing blocs and is assumed to remain intact despite decoupling and differing allegiances of members; 2. Following decoupling, members of each opposing bloc sign a large hypothetical megaregional agreement between themselves. A bespoke methodology is used that assigns countries to blocs drawing upon both the economic and political aspects of countries' relationships¹.

While highly speculative, and not aiming to predict the future, we model a set of illustrative global decoupling scenarios, aiming to provide valuable insights on the potential impacts of a fragmented trade system and what the role of multilateral agreements could be in a decoupled world. Various limitations are discussed, including a host of variables and economic mechanisms not captured in our modelling framework. We suggest potential improvements to expand upon the scope of this paper in future work.

¹ There is no perfect prediction of the future, thus these alliances are highly speculative, and judgements are needed in many cases to design the groupings

Introduction

Global trade conflicts and the potential of economic fragmentation have increasingly become the focus of policymakers as global tensions become more prevalent and geopolitical norms fluctuate. This paper aims to provide an understanding of just a handful of hypothetical scenarios in which increasing tensions lead to geoeconomic fragmentation. No one can predict the future, and this paper does not attempt to do so in its scenario design. Instead, the contribution of this paper is to quantitatively provide a sense of the scale, magnitude and directions of potential impacts, drawing out potential incentives and interests of different nations and to develop an understanding of who might be the ‘losers’ and ‘winners.’ Additionally, by adding mega-regional agreements to these scenarios, we showcase some potential trade policy strategies that could be taken as a form of mitigation, and how effective these may be.

While there are many definitions and channels through which a global decoupling may occur, this paper focuses on the impacts of a fragmentation of the trade system, with this being represented in the CGE model as increases in trade barriers between competing blocs of aligned nations. It is an implicit assumption that WTO rules would be broken, as tariff increases would almost always exceed MFN in these scenarios. As this is a highly speculative and illustrative modelling exercise, a relatively simple approach to the scenarios and shocks imposed in the model is taken. Shocks are broad brush, with tariffs and non-tariff barriers applied to 10 highly aggregated sectors of the economy equally. This approach is taken to ensure that results are not driven by input assumptions surrounding sectors, and that broad directions of impacts can be assessed. In the real world, it is likely that barriers on certain sectors could increase or decrease much more than others, but this paper does not make such judgements. The tariff increases are set around 25%, roughly in line with other literature in the area such as Nicita et al. (2018) who estimate that tariffs increases are, on average 32% in a non-cooperative scenario. Non-tariff barriers are assumed to increase by 5% under a trade decoupling. Where trade agreements have been modelled, non-tariff barriers are assumed to fall by 5% tariffs are completely liberalised. There are arguments to be made that barriers have much more room to increase than decrease, however this paper takes an agnostic approach to this question to maintain a simple and tractable approach. These shock assumptions could be deemed as relatively optimistic, and it is possible that barriers between nations could increase much more, and not reduce as much between allies. Further research is required to assess the realistic extent to which trade fragmentation and integrations could occur.

Scenario Outline:

Two-poled world:

This scenario depicts a fragmentation into two poles, one influenced by China and the other jointly by the US and EU. These nations are selected due to being the leading global superpowers (World Population Review, 2023) and the likely poles around which much of the world would align. While there has been turbulence in US-EU relations, most of these are deemed cyclical or short-term and it is more likely than not that the transatlantic relationship would remain strong in the long term (Wickett, 2018.) This paper does not examine the possibility of a third, EU-led pole for the sake of keeping the number of scenarios manageable. Tariffs and non-tariff barrier increases are imposed between each bloc in a uniform fashion, with all members of the US/EU-bloc and China-bloc raising tariffs by 25% and non-tariff barriers by 5% on members of the opposing bloc. These shocks are spread evenly of a period of 5 years.

Cross-Pacific agreement in a two-poled world:

Building upon the two-poled world scenario, the purpose of this scenario is to assess how the value of a free trade agreement might change when viewed as a hedge against a global trade conflict. The example used is a cross-Pacific FTA, in the style of, but not precisely modelling the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). This example is used as it represents a large and realistic FTA that cuts across multiple continents and has not been enacted in the 2017 base data. We do not include any FTAs in the baseline, so this agreement would combine all the collective FTAs that have been signed between these members, and thus does not represent the marginal impact of joining CPTPP in the real world, but rather the total value of a large collective FTA between the group. Again, we do not aim to model an accurate assessment of an FTA and thus focus on the scenario design rather than robustly estimating inputs. Our aim is to use an illustrative FTA to demonstrate potential impacts.

The scenario unfolds as follows: A cross-Pacific agreement containing full tariff liberalisation and a reduction in deadweight non-tariff barriers of 5% is signed in 2023 between the UK, Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. Following this, in 2025, the escalation of a US- and China-bloc trade war begins, with barriers evenly increasing over 5 years with 25% tariff increases and 5% non-tariff barrier increases spread across the 5 years. Crucially, in this scenario, compared to the core two-poled scenario, barriers do not increase between members of the cross Pacific FTA, and instead remain in their post-agreement level. This scenario aims to understand whether and how such an FTA might be valued as an economic security mechanism. It is possible that agreements might break up in a fragmented world with trade tensions, and product standards may force nations to pick one way or another. However, this scenario operates under the assumption that a multilateral FTA between nations on opposing poles would be able to remain intact despite new tensions between competing global superpowers and rising global trade barriers.

Allied mega-regionals in a two-poled world:

Instead of a cross-Pacific FTA being signed prior to a two-poled fragmentation, this scenario assesses whether mega-regional agreements within conflicting blocs can act to mitigate the impacts of economic fragmentation. In this scenario, following 5 years of increasing trade barriers between blocs, each respective bloc decides to sign a large multilateral agreement within themselves, leading to complete tariff liberalisation and a 5% reduction in NTBs between members of each respective bloc, while barriers continue to exist between opposing blocs. In this approach, some care had to be taken as to the extent of existing FTAs and common markets in the database, as modelling NTB reductions on top of existing single markets, such as the EU, would vastly overestimate the potential for trade enhancements to counterbalance trade fragmentation. While it was not possible to account for every level of existing FTA, consideration was taken regarding major FTAs and common markets such as NAFTA/USMCA, MERCOSUR, GCC and the EU, to prevent a double counting of the impacts of these agreements. Therefore, NTB reductions are not included for trade between members of these respective groups. It would require further work to fully account for all FTAs, however care has been taken in this paper to account for major ones that would have a significant impact on results.

Two-poled with unaligned bystanders (with and without in-bloc enhancements):

Recent events have proven that while many nations will take a strong stance with their perceived allies, other nations take a neutral approach, and sit in the middle of tensions without taking a strong stance. This scenario aims to reflect this, with various nations remaining unaligned in a fragmentation scenario. Their decision to remain unaligned has both benefits and drawbacks. On one hand, they avoid trade barrier increases, however they also miss out on the within bloc megaregional agreements that lower trade barriers. Two scenarios are run, one with just the trade barrier increases, and another including the addition of the allied megaregional trade barrier decreases within aligned blocs. The aim of these scenarios is to understand the importance of allied agreements and whether they alter incentives and would potentially act as a 'carrot' to push nations into an alignment. A tweak on the original methodology of deciding nation groupings is taken to pick which countries remain unaligned. As a rough metric for doing this, we look at our original alignment metric, and select countries that do not have a strong alignment and assign them to an unaligned group. While arbitrary, we find that this selection gives a possible set of countries that would not align with either country in a fragmentation scenario.

Ultimately, we find that trade fragmentation is highly damaging to many countries, with China-aligned nations typically being worse off, particularly highly export dependent nations such as Vietnam, the Philippines and Indonesia. These nations depend on exports to the West and thus losing this market is highly damaging to their economy. While the trade barrier increase is damaging to global GDP, some large nations and blocs including the US and EU are highly insulated from the negative impacts in the long run, largely by their ability to act as a substitute market that compensates for the loss of China. The US and EU in particular are large enough to expand manufacturing capacity and thus become manufacturing hubs for their respective bloc. Crucially, this conclusion only holds because many nations align with the US and EU and thus impose barriers on the opposing bloc. A cross-pacific FTA provides a significant economic security mechanism against fragmentation, with this FTA proving highly beneficial for all nations involved, and mitigating the negative effects of fragmentation to various extents. This is particularly the case for some of the hardest hit nations like Vietnam, who massively mitigate the negative impacts of fragmentation by retaining a trade agreement with the other nations involved. Should a scenario of trade fragmentation occur, we find that efforts by allied nations to lower tariffs and encourage reductions in trade barriers through regulatory alignment would be highly valuable, providing a significant mitigation to the negative impacts of fragmentation. These allied megaregional agreements also create strong incentives for nations to enter a sphere of influence, and many nations who remain unaligned see strong benefits from being bystanders in the absence of aligned blocs signing multilateral agreements.

Literature Review

There is a limited but rapidly growing wealth of literature on global trade conflicts and economic fragmentation in the CGE modelling space. While the international relations literature has discussed the topic extensively, there has been limited quantitative analyses to date. Recent events regarding the Russian invasion of Ukraine in 2022, as well as rising tensions with China, particularly in tech sectors, has made quantitative analyses of this topic ever more important.

Most past modelling literature in this space has focused on trade wars, largely in light of Trump-era US-China-EU trade wars. Ikatura (2020) models the US-China trade war in an ex-ante fashion using a CGE framework, modelling not only the tariff increases, but also shocks to inward foreign investment and shocks to productivity, finding a reduction in output of all sectors, and welfare losses of -1.41% for China, and -1.35% for the USA. This impact is comparatively symmetrical between the two nations, differing significantly from the conclusions of this paper, where we find China being impacted far more than the US. This is likely due to our paper focusing on a much wider range of countries imposing barriers, which improves the US's outlook through positive trade diversion, while worsening China's through increased isolation. Carvalho, Azevedo and Massuquetti (2019) also examine the US-China trade war, finding that the total welfare losses would weigh more heavily on China than the US. This differing conclusion from Ikatura (2019) could be through the omission of productivity and FDI effects, which Ikatura (2019) includes. This suggests these mechanisms are an important factor in analysing trade conflict scenarios, and thus could be a valuable future improvement of the modelling framework used in our paper.

Dixon, Giesecke, Nassios, and Rimmer, (2020) expand upon the traditional GTAP model, incorporating a module that incorporates bilateral financial flows, adding an important aspect to simulations which is missed in most models, including the model used in our paper. They examine a US-China decoupling, looking at trade and financial decoupling separately to discern the effects. When examining a tit-for-tat scenario where both the US and China limit financial asset holdings in the opposing country, they find that China would come out on top, challenging the conclusions of our paper. Indeed, in their scenario combining both trade and financial decoupling in a tit-for-tat fashion, China again has more favourable economic impacts than the US. This demonstrates the importance of the financial mechanism and suggests that our paper vastly underestimates the potential impacts, particularly on the US. A greater comparison would be if this mechanism were applied to a larger, global decoupling scenario, suggesting that capturing global financial interactions could be an important extension to our own work and could alter conclusions significantly.

While there are a variety of papers on the trade war topic, these can be difficult to compare directly to our paper, as our paper focuses on a much wider global decoupling scenario, while most focus just specifically on the US and China or EU. The literature on global fragmentation, described commonly as decoupling, fragmentation or multipolarism, is more limited, however there are some recent papers from which some comparison can be drawn. Bekkers (2019) models a variety of potential future trade policy scenarios, with the aim of examining potential future challenges to the trade system. His 'global trade war' and 'breakdown of international trade cooperation' are particularly relevant, with these scenarios quantifying the impact of global tariff increases and a breakdown of FTAs respectively. He finds significant reductions in real income across regions from these two scenarios, with these being particularly pertinent in the 'breakdown of international cooperation' scenario for the EU, as a breakup of the EU is modelled. Conversely, in our paper, we model a scenario in which a cross-pacific megaregional FTA is signed and remains intact despite other increased trade barriers. It is subject to speculation as to whether multilateral agreements could collapse in a global decoupling, and arguments can be made one way or the other. Additionally, Bekkers and The (2019) model a global trade war, incorporating tariff increases from Nicita et al. (2018) which average at 32%. This paper utilises a similar scale of tariff increases, but limits these to 25%, purely due to computational issues when increasing them any further in our scenarios. We do not aim to be precise as the scenarios are highly illustrative and subject to continuous shifts in global policy and trends.

Ongoing work by Goés and Bekkers (2022) presents perhaps the most comparative paper to our work that we could find. They model a decoupling of the global economy, in a similar fashion in which two opposing blocs emerged. Their approach goes beyond our paper as they introduce the idea of technology diffusion, and how this might affect the outlook from these decoupling scenarios. A potential future improvement of our methodology would be to incorporate this aspect into the dynamic GTAP model (GTAP-RD.) However, they do not model any trade agreements in the context of decoupling, which is the novel contribution of our paper. The way in which countries are allocated by Goés and Bekkers (2023) is somewhat similar. They draw on Häge (2011) who calculates foreign policy similarity indices based on UN votes. We were not aware of this index at the time of writing our paper, so conducted our own methodology, which also draws upon UN votes. Additionally, our paper combines both economic and political linkages, albeit in an arbitrary fashion which likely shifts the groupings of countries compared to Goés and Bekkers (2022) who focus solely on political linkage. If our paper were to be improved, a further development and review of this methodology would be valuable, to capture the latest thinking around potential alignments. However, as the scenarios are highly speculative, we were satisfied enough with the methodology that we produced for the purposes of an illustrative paper. Some other differences from Goés and Bekkers (2023) are that they look at both scenarios where all sectors are involved in decoupling, as well as scenarios in only tech sectors decouple, which have so far been the most impacted in the real world. Our scenarios do not make this distinction, but again this issue could be a valuable extension to our project. Finally, in terms of dataset, our paper makes use of the GTAP11 pre-release 4 (GTAP11P4) dataset, which has an index year of 2017, while their paper draws upon GTAP10A, indexed in 2014. This could also produce some differences in outcomes from the models, as some changes between those years could impact the structure of certain economies. Their paper also uses a dynamic CGE model, which has a similar capital accumulation mechanism as our paper, which utilises the standard GTAP-RD (recursive dynamic) model. As mentioned, their paper goes beyond this by incorporating dynamic technology diffusion. Interestingly, the results from our paper more closely align with the experiments from Goés and Bekkers (2022) that include technological diffusion dynamics, rather than their model without this feature. For example, we find very small, near-zero but slight positive effects in the long run for the US and EU27, largely driven by trade diversion from such a high increase in trade barriers, and find a similar negative impact on China. There could be several factors driving this such as a difference in the model specification, dataset or country groupings. Therefore, a deeper comparison of the methodology, scenarios and models could be fruitful to further refine our work.

Scenario Summary

1. Fragmentation into two poles:
Countries align with either a China led or an EU/US led bloc. Tariffs and non-tariff barriers are imposed between them. These are applied equally across sectors for the sake of simplicity. Regardless of pre-simulation FTAs, these shocks are still imposed in this scenario.
2. FTAs resist against fragmentation:
This scenario is set up in the same way as 1. However, the key difference is that we assume that some major FTAs such as CPTPP and the GCC (which feature countries that align with either side) remain intact, and are thus members do not impose the fragmentation shocks between each other. To measure the potential impact of these agreements in a fragmented world, we also assume an enlargement of CPTPP in the baseline, adding the UK to this agreement.

3. Regulatory alignment within each pole:

Following scenario 1, unlike scenario 2, a hypothetical agreement is modelled where there is complete tariff liberalisation and some regulatory alignment resulting in a reduction in non-tariff barriers (NTBs) within each pole. Barriers between each respective pole remain the same as described in scenario 1.

4. Unaligned bystanders:

In a tweak on scenario 3, some nations remain outside of the global trade conflict. While these nations do not raise barriers on the two conflicting blocs and vice versa, they do not gain access to the trade liberalisations and regulatory alignment that occur within each bloc.

Methodology

As a first step, to proxy for the potential alignments of the nations in the GTAP database, we calculate countries' total trade shares with China and with US+EU, as we assume that the US and EU align in a bloc. These calculations are based on the GTAP11P4 database, which has an index year of 2017. However, relying on these economic linkages alone likely misrepresents future alliances in a hypothetical fragmentation scenario. For example, based only on trade linkages, Australia would marginally side with China, which is unlikely given their membership of the G7 and historical political links with the UK, US and EU. To provide further nuance and account for political linkages, we proxy political alignment based on UN votes deemed 'important' by the US State Department from 2003-2017 to account for as recent as possible alignments. We also remove Israel-Palestine issues from the dataset as these dominate 25%+ of the votes. This data comes from a publicly available database on UN General Assembly votes from Voeten, Strezhnev and Bailey (2009) (later updated) which was helpfully compiled into an online tool by Fu (2021.) Using this data, we calculate the differential between votes aligned with the US and China for each country. For example, if a country votes 10% of the time with China, and 90% of the time with the US, this would equate to a 0.8 differential. We then add this to the US+EU trade share for each country. It follows that, where countries are in the middle in terms of UN votes e.g 0.51%-0.49%, the metric is not enough to sway their alliance. While imperfect, no prediction of future global alliances can be accurate, and this proxy provides a helpful nuance to abstract from purely economic linkages. For the unaligned scenarios, an arbitrary choice has to be made as to what is constituted a strong enough alliance for nations to align. Various combinations were attempted, but the paper will focus on a cutoff point of 0.4 on the metric of (%total trade with country + UN vote differential) as this metric gave plausible results while being a high enough cut-off point that the unaligned group becomes a sizeable enough force. A single manual adjustment was made, shifting India into the unaligned group from the China bloc. This was done firstly to include at least one major sizeable portion of the world in the unaligned group, and also based on precedent that India has historically tended to take an independent stance (Schuman, 2023.) While many of these decisions are arbitrary, this paper in no way aims to provide a perfect methodology, and there are infinite combinations of country groupings that could be examined.

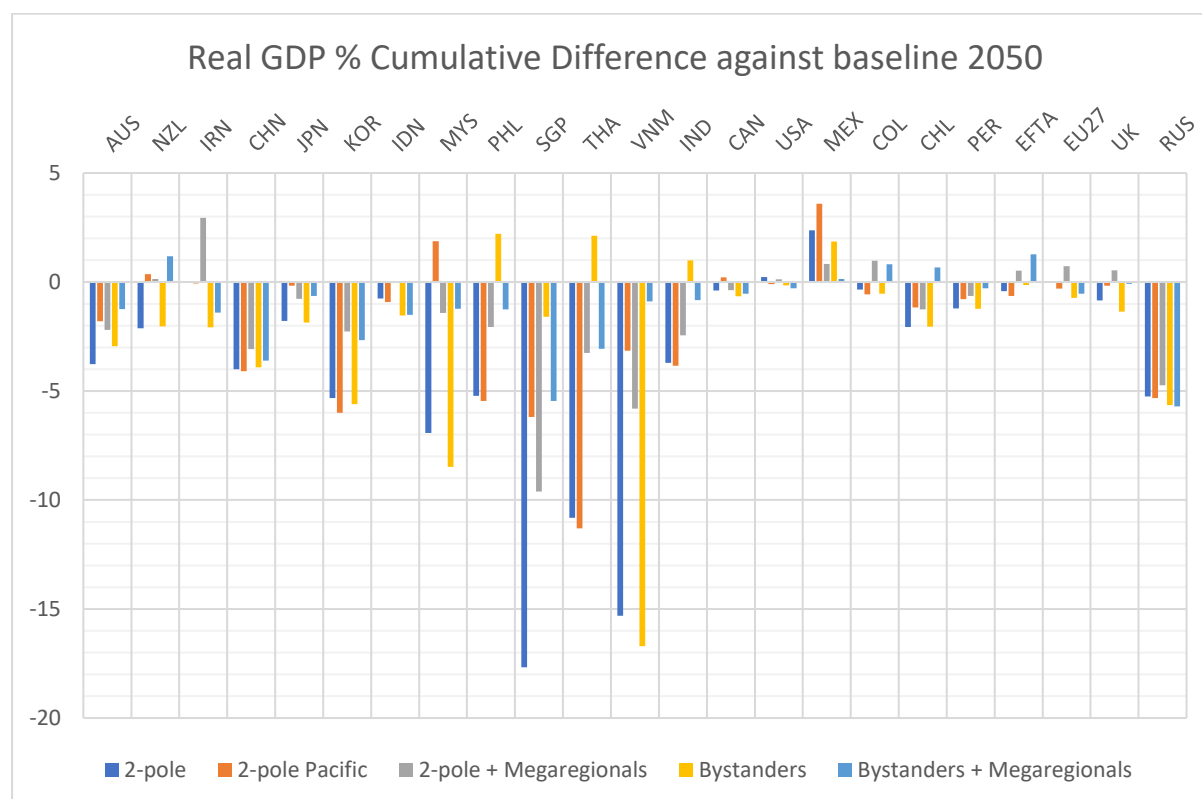
Under this assessment, in the two-poled scenarios, China's pole contains around 30% of pre-simulation global GDP, while the US/EU pole contains around 70%. In the unaligned scenarios, the China bloc contains 23% of pre-simulation global GDP while the US/EU bloc contains 65%, with the unaligned group constituting the remaining 12%.

The model used in this paper is the GTAP-RD model from Aguiar, Corong and van der Mensbrugghe (2020) which is a recursive-dynamic variant of the standard GTAP model. The key additions compared to the traditional static GTAP model are that capital now accumulates on a yearly basis, with a stock-flow relationship that lags against investment. In addition, the model now factors in growth and demographic changes in the baseline, with projections of GDP, population and labour

force being incorporated in the baseline. For more details on this process, please visit the official documentation of the model. The projections used for this exercise draw from the UK Department for International Trade's Global Trade Outlook (2021) which draws upon actual economic data up until 2021, before drawing on a variety of international sources for projections of economic variables going forward.

Results

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Two-poled decoupling (2-pole)

The two poled decoupling scenario indicates some of the biggest winners and losers of a potential fragmentation of the trade system. The USA and EU, being major economic forces with significant manufacturing capabilities are relatively well insulated from the impacts compared to other nations, facing some small real GDP contractions in the first few years following the increase in trade barriers, with the USA's real GDP being 0.4% below baseline, and the EU's 0.5% below baseline by 2029, the 5th year following the shocks. However, in the longer run, as economies adjust to the shock, the USA and EU both see significant recovery against the shock, with the negative impacts against the baseline dissipating gradually, and being near zero in real GDP terms, by 2050, the final year of the simulation. These results are quite unexpected and have troublesome implications. However, the rationale in the model is that these two major economies are some of the few within the US/EU bloc that have the capacity to expand manufacturing capabilities to plug the hole left by China. As a result, the negative impacts on their services sectors are somewhat balanced out by a significant expansion in manufacturing sectors, particularly in the high tech manufacturing sector. Crucially, in this simulation, all countries in the model choose one side or the other and raise barriers, which likely exaggerates the trade diversion effect toward the EU and US. Should some countries remain unaligned, it is far less likely that the US and EU would benefit from trade diversion

to this extent, and thus impacts would be far more negative in the long run. This is explored further in the bystanders scenarios. Ultimately, the implication of this result is that should a trade conflict arise, the US and EU would have a strong incentive for countries to pull countries into their alignment and actions, rather than leaving them to remain as bystanders, as dragging more countries into a trade conflict has side benefits of producing trade diversion which would support EU and US manufacturing industries.

China, as the opposing major player in the trade conflict experiences significantly higher real GDP contractions in the long run, demonstrating that China is ultimately more economically reliant on trade with the US/EU and allies than vice versa, at least when it comes to trade. These begin modestly, and only worsen over time, with China's real GDP being 4% below baseline by 2050, the final year of the simulation. The contraction in real GDP is driven by a large reduction in high tech manufacturing and services sectors, with China losing out on these markets with the West. As services often rely on other services as inputs, these impacts are logical as the loss of major services economies such as the US, EU and UK leave China less able to substitute its services imports, and thus sees these sectors suffering domestically, with the economy shifting back toward agricultural sectors. Similarly, with China losing out on its main manufacturing export markets, high income countries aligned with the EU and US, these sectors significantly contract. As discussed in the literature review, this outcome could shift significantly should financial linkages be better captured, such as in Dixon, Giesecke, Nassios, and Rimmer, (2020.)

Generally, countries in the US and EU led bloc fare better in real GDP terms, while nations aligning with China on average experience worse contractions. This is due to these nations typically being more developing, and, crucially, more reliant on exports to countries in the US bloc as part of this development. As those export possibilities diminish, many of these developing nations suffer significantly. Some of the worst impacted include Vietnam, Singapore, Malaysia and Thailand, with real GDP contractions of 15%, 18%, 7% and 11% below baseline by 2050 respectively. The common factor with these nations is that they have high trade to GDP ratios, both relying heavily on China while also trading substantially with the US, EU, and their allies. As for the US and EU bloc, the most negatively impacted countries are Australia and New Zealand, whose strong economic relationship with China in the base data leaves them vulnerable, with much more to lose in the economic fragmentation scenario. As with Vietnam, Singapore, Malaysia and Thailand, it is the nations that rely significantly on both sides of the conflict that face the most severe economic consequences.

The UK impact suggests that the UK is not as insulated from the consequences of the trade conflict compared to the EU. However, the impacts are still significantly smaller than many countries in the scenario. Like with the EU, the UK experiences a large contraction in services, which is only partially made up by expansions in manufacturing sectors.

Two-Poles Decoupling with a Cross-Pacific FTA (2-pole pacific)

Building upon the two-poled scenario, the next scenario aims to assess whether a hypothetical FTA could counterbalance some of the negative impacts discussed prior. As CPTPP is an agreement that cuts across different corners of the world, a quasi-CPTPP, where the UK also joins, is used to assess this question. There are infinite possibilities of potential FTAs, and this scenario does not aim to accurately represent the future or accurately model any real FTA, but provide some indication as to: a) Whether an FTA that cuts across conflicting blocs can counterbalance negative impacts and b) Whether the value of an FTA changes significantly under such a scenario. To assess b), an additional comparative scenario is also run where the same agreement is signed in the absence of any fragmentation.

The realism of this scenario is questionable, as it is unknown whether a pre-existing FTA would break up or remain under such a scenario. However, the results do suggest that a CPTPP-like FTA would provide significant benefits to the signees, and act as a highly important economic policy that would mitigate the impacts of the fragmentation scenario. Indeed, the negative real GDP impact on Vietnam is reduced from -15% to -3% against the baseline when the trade agreement is signed prior to fragmentation. Similarly, for Singapore, Australia, Japan and other signatories, impacts are significantly reduced (Singapore: -18% to -6%, Australia: -4% to -2%, Japan: -2% to -0.2%). For the UK, the overall impact of the combined scenario shifts from -1% against the baseline in 2050, to a contraction of just -0.2% against the 2050 baseline, suggesting that such an agreement like CPTPP has the potential to successfully counterbalance a large portion of the negatives of an economic fragmentation scenario, assuming that the FTA were able to remain intact despite global tensions. Should other nations such as India, Thailand, Philippines and Indonesia join such an agreement, it is likely that they too would see a significant reduction in the negative impacts of the two-poled decoupling scenario.

These results demonstrate the importance of evaluating trade agreements not only against the status quo, but as security mechanisms against potential future geopolitical changes that could have significant ramifications for the global economy.

Allied megaregionals in a two-poled decoupling (2 pole + megaregionals)

The next scenario adds a theoretical addition to the fragmentation scenario in which nations in each bloc sign a large multilateral agreement between each other, completely liberalising tariffs and lowering non-tariff barriers between each other. In this hypothetical world, while trade barriers between blocs rise significantly, they also reduce within each bloc, thus questioning whether trade integration between allied nations can provide a counterbalancing effect on an increase in barriers between misaligned nations.

There is difficulty in accurately predicting how such a scenario might unfold. The extent of non-tariff barrier changes highly unknown, and there are likely to be differing extents of barriers depending on country pairs, and pre-existing agreements. However, a rough proxy and simplified way of modelling is used in this scenario. As with other aspects of this paper, there is no attempt made to predict the future, and results should be taken as rough broad-brush estimates, with the patterns, conclusions and implications being the focus, rather than precise numbers, which are far more dependent on the model assumptions. As it is crucial to the results, some major FTAs such as NAFTA, MERCOSUR and the EU/EFTA are accounted for, and it is assumed that non-tariff barriers do not fall further between these nations. If this work were further developed, there would be a more precise, expansive and detailed accounting of base FTAs, as the presence of these could make results and over or underestimate. For example, if we ignored the presence of the EU in the baseline, then applying an NTM reduction between EU members would massively overestimate the likely effect of a potential integration within the bloc, as EU members arguably have already achieved near maximum economic integration. Additionally, as barriers between the UK and EU are introduced in the baseline, subsequently modelling an integration with the EU (by proxy of being in the same economic bloc) could confuse the impacts of the trade integration for the UK, as the impact would be dominated by the effect of quasi alignment with the EU. To abstract from this effect, a scenario in which no barriers are introduced in the baseline is modelled, to isolate the rest of the impact from the effect of lowering barriers which were introduced in the baseline.

Like the implications already discussed in the prior scenarios, the integration on top of fragmentation scenario produces results that suggest that the US/EU led bloc have more room to insulate their economies from the damages caused by an economic fragmentation, particularly in the long run. While in most cases the overall impacts of fragmentation would still be negative, applying trade enhancements within the blocs does significantly improve the outlook for many countries, with the negative real GDP impacts becoming less significant, and in some cases, balancing to an overall positive. It is important to note, however, that a positive result against the baseline does not mean that fragmentation is positive, it simply suggests that these trade enhancements could counterbalance the negatives, and, in the absence of fragmentation, these trade enhancement effects would likely be far more positive. Like the other scenarios, nations with a strong reliance on exports, such as Vietnam, Singapore and Thailand still face significant economic damage, despite the trade integrations providing some mitigating effect to the negative impacts. These nations benefit more from the CPTPP style FTA which cuts across the blocs and maintains their market access.

Two-poled with unaligned bystanders (with and without trade enhancements) (bystanders and bystanders + megaregionals)

While the two-poled fragmentation represents one possible way in which countries align, real world evidence, and country's differing incentives suggest that it is more probable that a large set of countries would refrain from taking sides and instead stand as bystanders with no particular political alignment. These nations, while not experiencing the same extent of trade barriers as those in each respective bloc, see a smaller increase in barriers against both blocs. In a further scenario, where we then apply the within-bloc trade enhancements, these unaligned nations miss out on those enhancements as expected. We do not model the CPTPP-style FTA scenario as the conclusions from that scenario are unlikely to change when considering unaligned nations.

The unaligned scenario presents a further set of interesting conclusions and incentives. For the US/EU as well as nations that remain within their alignment, such as the UK, the impacts of geoeconomic fragmentation worsen considerably (US: 0.2% GDP above 2050 baseline to 0.16% below baseline, EU: 0% to 0.7% below baseline, UK: 0.8% to 1.4% below baseline.) These impacts occur because of the loss of the trade diversion effect from the initial two-poled scenario. In that scenario, despite many negative effects, some positives occur, such as significant trade diversion in favour of nations with significant manufacturing capacity, notably the US and EU. When nations remain unaligned, this benefit diminishes. In many cases, nations have a strong incentive to remain unaligned, particularly when there are no within-bloc enhancements to be missed out on. For example, India, Thailand, Phillipines and Singapore, most of which are severely impacted by the two-poled fragmentation scenarios, see a significant improvement in their outlook under the unaligned scenarios. Even when missing out on the within-bloc trade liberalisations, the unaligned scenarios still present a smaller contraction in real GDP for these nations, suggesting that neutrality in a fragmentation scenario could be the best option.

[WORK IN PROGRESS, INCOMPLETE]

Policy Conclusions:

- Fragmentation is generally damaging to the entire world economy, avoiding it should be the first path of action
- If fragmentation is unavoidable, there are incentives for the US/EU to have as many countries side with them, or even choose a side, rather than remaining unaligned. When

nations remain unaligned, this damages US/EU outcomes as there is more opportunity for unaligned countries to take advantage of trade diversion opportunities, even if it becomes more difficult to trade with each respective bloc

- A cross-cutting FTA such as CPTPP, has significant benefits in this context, completely counterbalancing the negative impacts for some nations.
- The value of this FTA increases significantly when measured against a decoupling baseline
- China and Russia are more negatively impacted than the US, EU and UK, however the most severely impacted nations are those with a high trade to GDP ratio that also trade significantly with both fragmented poles.
- There are strong incentives for nations to remain unaligned, however, when there are megaregional agreements signed between allied countries, this effect diminishes.
- One of the only nations that appears to benefit from regional protectionism is Mexico, who benefits from a more protectionist US/Canada.
- Co-ordination between allied countries, and trade liberalisations between them are a powerful tool and would be extremely important in a fragmentation scenario. However, for nations dependent on trading with the US/EU bloc, that find themselves aligned with China, the effect of these is not as powerful, and these nations would still see significant, albeit reduced, negative impacts.
- The US, UK, EU would see large expansions in manufacturing sectors from the loss of China, while these would contract in China. China would suffer significantly in services industries, with these being less substitutable in the model and thus difficult to source within its own bloc. Agricultural sectors would grow in China.
- Results may suggest that the west may be less vulnerable through trade channels, but perhaps other channels are highly important

[WORK IN PROGRESS, INCOMPLETE]

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