

Defying gravity

How changes to trade modelling could supercharge a UK-India FTA



About this report

Oxford Analytica has been working with Tata Limited to produce a report that examines the use of trade models by the UK Government and their limitations.

Oxford Analytica has drawn on its extensive expert network to identify potential areas for refinement and has produced sample modelling to illustrate the benefits of incorporating information on services trade restrictiveness into a gravity model with the aim of improving overall performance and identifying potential for trade growth.

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Contents

Foreword
Executive summary
Glossary of abbreviations
LIK-India trade dynamics
Measuring the impact of trade policy
Opportunities for refinement
Gravity model+
Looking beyond modelling
Conclusions



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 4
 6
 9
 . 10
 . 19
 28
 31
 .38
 41

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.

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.....

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.

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Foreword



Tim Jones CBE, Executive Director, Tata Limited

As a group of businesses that is both 'big in India' and 'big in the UK', it won't be a surprise to anyone that we at Tata are enthusiastic and excited about the prospects for enhanced UK/India trade.

India is not only the world's biggest democracy – it also has a young, aspirational and dynamic population that is hungry for change and hungry for growth. The UK, arguably the world's oldest democracy, is, through its historic, cultural and social links with India, uniquely placed to help achieve its own and India's ambitions.

Both countries are adapting to an ever-changing world and the UK/India relationship will be materially aided by a Free Trade Agreement that recognises this change and enables the trade flows of the future, as well as reducing today's trading frictions.

I am delighted to introduce this report. Its purpose is to contribute to the debate on how best to optimise UK/India trade, looking in particular at how economic models can best reflect the dynamics of two economies that may be geographically distant but are so very close in many other ways.

Our intent is to stimulate thoughts and ideas to help our two great countries move ever closer as trading partners, as well as social, cultural and political partners.



Mark Elsner, Director of Advisory, Oxford Analytica

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Tata has partnered with Oxford Analytica to carry out this project, drawing on the insights of our unrivalled network of experts, which includes around 1,500 leading scholars, former policymakers and industry figures.

Oxford Analytica is a global analysis and advisory firm that has been providing its clients with trusted advice on geopolitics and macroeconomic issues for nearly 50 years. As such, we understand as well as anyone that trade modelling is constantly adapting and evolving. We are excited by this opportunity to collaborate with Tata, and by the work that the UK Government is doing to review its modelling processes based on the best available data and the latest approaches.

Our project puts into practice some of these emerging techniques, including those that the Department for International Trade has been exploring, and shows that they can be applied to UK-India trade to develop a more nuanced picture of the opportunities at a sectoral level. We hope that our contribution will stimulate and support the very current debate around modelling approaches.

We look forward to continuing our work with Tata to explore the future of international trade and the UK-India partnership.



Executive summary

With the unveiling of the '2030 Roadmap' this year, the United Kingdom and India signalled their commitment to a deeper partnership. In no field was this ambition more clearly indicated than trade. The two sides have pledged to finalise the scoping for a Free Trade Agreement (FTA) by the end of 2021 and aim to double the volume of bilateral trade within a decade.

UK-India trade is well positioned for growth

Judging by the magnitude of existing bilateral trade, there seems to be ample headroom for expanding the relationship. The countries account for around 1-2% of each other's imports across goods and services, and bilateral goods trade has centred on a relatively limited group of products. However, the rapidly changing face of India's industries and domestic market will offer greater opportunities for goods trade in both directions. Equally, the services outlook is strong, especially in areas such as computer and business services.

Of course, an FTA would accelerate gains in these areas. We have conducted modelling that points to major payoffs from a liberalisation and harmonisation of services regulatory regimes between the United Kingdom and India. For six services categories we examined (accounting for a little under 20% of all UK-India services trade), our results suggest a potential boost to bilateral trade worth USD1.6bn annually -- 77% of the actual value of trade in these sectors in 2019.

Enhancements to trade modelling offer a more complete picture of the opportunity

The UK Government will conduct its own modelling during FTA scoping to provide a full impact assessment. There are opportunities here to leverage new techniques, and the Department for International Trade has already shown its commitment to refining its approach with the creation of an expert panel in 2020 to ensure UK modelling best reflects the modern economy.

One area that shows promise is to incorporate recently developed Services Trade Restrictiveness Indices (STRIs) -- which rate regulatory regimes by business category -- into a gravity model. This can offer a more nuanced understanding of the impacts of non-tariff barriers than the traditional option (used by the UK Government in its modelling thus far) that is based on applying 'average' FTA effects. We note that the government has signalled its interest in this area through the recent release of a policy paper on services trade modelling. We have conducted our own experimental exercise using this approach on a practical, country-specific basis, which indicates that applying STRI data enhances model performance and offers clear user benefits.

Computer services emerge as a potential prize for both sides from a future deal

Our sample modelling enables us to simulate the effects of an ambitious trade liberalisation scenario between the United Kingdom and India, and form a more nuanced picture of opportunities that may otherwise have been overlooked across the services categories analysed:

- Computer services -- including programming, consultancy and information management -- stand out as a huge potential prize for both sides in a trade deal, with our model suggesting a possible 238% increase in UK exports to India and a 129% increase in the other direction.
- Both countries' architectural, engineering, scientific and other technical services exports could increase by nearly two-thirds; major boosts are also possible in finance and insurance.

Similar opportunities for UK-India trade may well exist in other sectors not yet analysed on the same basis, and more granular data would be extremely beneficial in this area. Moreover, while our results are specific to UK-India services trade, this enhancement to the gravity model applies to trade relations more broadly. In other words, more nuanced modelling helps us better understand opportunities and promote trade generally.

Closer connections between populations can yield economic benefits

Gravity modelling sets out from the assumption that trade volumes between countries are determined by their size, in gross domestic product (GDP) terms, and the distance between them -- often in terms of degree of 'connectivity' rather than physical miles in modern models. Added to that are other sets of data shown to have a bearing on trade volumes.

Our modelling indicates that diaspora populations are one of these correlated variables, and that a large expatriate population in a trading partner can boost exports, particularly for advanced economies. As a proxy for broader social connections, this finding may also imply benefits from enhanced cultural interchange and more liberal rules on the movement of people.



FTAs may accrue benefits beyond what modelling can typically project

FTAs are not devised with immediate gains in mind, but to deliver long-term payoffs. Yet even with care and attention -- and despite opportunities for improvement -trade modelling typically struggles to grapple with developments that might be years in the future. In fact, large-scale macroeconomic models tend to predict only very gradual and small changes to the status quo.

However, attention must be paid to the potential for small initial changes to become far more substantial over time if the countries and sectors involved are set to experience high long-term growth, which will amplify gains from trade policy adjustments. This has major implications when assessing future trade with rapidly growing and transforming economies, such as India:

- The rollout of digital infrastructure changes the landscape in terms of connectivity -- more important as a correlate of trade than physical distance in many areas of modern business.
- Major economic operators moving quickly into sectors where they have historically been weak or entirely absent could confound modelling outcomes.
- The prevailing political mood in many developed economies is for reducing reliance on China for technology-intensive imports, creating openings for new entrants in this market.
- Early movers gain big advantages when it comes to foreign investment in fast-rising markets.

Such considerations point to the need -- alongside formal modelling -- for close engagement with India's government and business community to understand their aspirations when forming a picture of where the country's economy is heading and the potential benefits of a trade deal.

Glossary of abbreviations

CGE	Computable General Equilibrium
ETP	Enhanced Trade Partnership
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GBP	Pounds Sterling
GDP	Gross Domestic Product
IMF	International Monetary Fund
INR	Indian Rupees
NTM	Non-Tariff Measure
OECD	Organisation for Economic Cooperation and D
ONS	UK Office for National Statistics
RCEP	Regional Comprehensive Economic Partnershi
STRI	Services Trade Restrictiveness Index
USD	US Dollars
USITC	US International Trade Commission
USMCA	United States-Mexico-Canada Agreement
WTO	World Trade Organization



evelopment

UK-India trade dynamics

2030 Roadmap

Trade relations between India and United Kingdom are poised for a relaunch, with expectations of this leading to not only a significant rise in bilateral trade and investment but also a broad-based closer partnership. Indeed, India has been identified as a key partner in the United Kingdom's effort to pivot towards the Indo-Pacific Area in the post-Brexit restructuring of its external economic and strategic relations.

A flurry of recent official engagements culminated in a bilateral summit on May 4, when Boris Johnson and Narendra Modi announced the launch of an Enhanced Trade Partnership (ETP). Within this framework, both sides emphasised their commitment to finalise the scoping for a Free Trade Agreement (FTA) by the end of the year, and to meet the ambition to double the volume of UK-India trade in goods and services by 2030.

A roadmap document published in the wake of the summit lays out five pillars that will underpin the development of a 'Comprehensive Strategic Partnership' over the coming decade:

- connectivity and mobility, with the aim of bringing the countries closer in the political and social arenas, as well as enhancing collaboration between educational and research institutions and also cultural production centres;
- trade and prosperity, which will see barriers to market access removed and progress on regulatory reforms, accompanied by deepened financial cooperation and investment initiatives;

- defence and security, including in the cyber domain and space, in addition to ensuring free and open navigation in the Indo-Pacific Area;
- climate action, emphasising financing programmes and technical exchanges to support green growth, clean energy and infrastructure, building on the two sides' commitments under the Paris Agreement; and
 healthcare, through knowledge-sharing between research institutions and government, as well as the promotion of a 'Digital Health Partnership' that would improve delivery of tele-medicine services and innovation in the use of machine learning and Al in healthcare.

In the field of trade specifically, the ETP -- as the first step towards an FTA -- may help overcome India's historical reticence when it comes to removing most barriers to bilateral trade.

Indeed, prospects for a deal with the United Kingdom are likely higher than in simultaneous discussions with the EU and regarding the Asian Regional Comprehensive Economic Partnership (RCEP). That is partly a function of the relative simplicity of bilateral negotiations, as opposed to those involving multiple national governments. Yet UK-India negotiations are also likely to be facilitated by the fact that opening up the Indian market for dairy and other agri-produce (a source of great sensitivity in India) is not a central component of the UK negotiations, whereas this is a potential dealbreaker for some other prospective partners.

Opportunities for growth

Judging simply by the magnitude of existing trade between the two countries, the scope for expansion would seem to be substantial. Excluding the EU as a bloc, the United Kingdom is ranked sixth among India's goods trading partners, after the United States, China, Japan, Switzerland and Norway, but this ranking does not convey how limited UK-India trade has been thus far in terms of diversification and fulfilment of potential.

Certainly, the rapidly changing face of India's industries and the Indian market should offer considerable future opportunities that are not necessarily reflected in current trade figures.

India will also see a significant opportunity in UK proposals for an enhanced partnership, especially given its own renewed push to rapidly revitalise exports and plug into evolving global value chains, not least given the desire for a robust post-COVID-19 rebound.

Reviving momentum for goods trade, which has lagged services development

Data for trade between the UK and India in 2019, just before the COVID-19 shock, reveal a relatively balanced but far from impressive position. India's goods imports from the United Kingdom stood at USD6.9bn, around 1.4% of its total imports for 2019, while goods exports from India to the United Kingdom stood at USD8.8bn, equivalent to 1.3% of all UK imports. Oxford Analytica

These modest figures suggest scope for growth on both sides. Indeed, better performance seen in bilateral services over the same time frame (which is discussed below) suggests that progress should be possible, and a new trade agreement could be the catalyst for this. Currently, services account for around a quarter of UK exports to India and 35% of UK imports from India. The key service export category in both directions is 'other business services', which comprises a range of research and development, professional and management consulting services, technical services and trade-related services.

> India's economy is transforming at a time when many countries are looking to diversify supply chains

If goods trade is to reflect the 2030 Roadmap's goal of doubling the total volume of all trade over the next ten years, both partners will need to regain the momentum witnessed in the first decade of the millennium. That period saw double-digit annual growth in goods trade in both directions. They certainly will not want to repeat the experience of the last decade: after a smart recovery immediately following the 2008-09 financial crisis, trade in goods between the United Kingdom and India has stagnated and even suffered periods of decline. However, it should be recognised that the slowdown in UK-India goods trade growth over the last decade largely reflected global trends following the financial crisis.



Before 2008-09, a long-lived surge in emerging markets' growth coupled with debt-financed consumption and investment in the advanced economies delivered a boom in globalisation and trade. The crash disrupted this boom and, after a brief period of post-crisis stimulus in 2009-10, fiscal policy tightened and the world economy stagnated. Most countries' recovery plans then refocused on unconventional monetary policies involving massive liquidity injections and near-zero interest rates. The result has been slower growth in world GDP, an exceptionally poor increase in world trade in goods (exacerbated in 2019 by the outbreak of trade wars) and yet considerable buoyancy in asset markets. Wealth has notably benefitted more than productivity growth, which has usually been associated with periods of increasing global trade.

While world trade as a whole has clearly suffered from a poor decade for export growth, country-specific and sectoral trends also played a part in the weak development of UK-India goods trade to 2019. For example, global goods trade grew relatively slowly in sectors such as textiles, apparel and office machinery, but more strongly in communication equipment and primary products (foods, chemicals, mining and basic metals/ore): these trends were probably unhelpful for overall UK-India trade. In contrast, services trade grew more strongly, especially in business services, IT and telecommunications, but also in travel and tourism (an exception is transport services, which would have been weighed down by weak growth in goods trade). In summary, global trends helped boost UK-India trade in services but probably dampened traditional areas of goods trade.



Source: International Trade Centre

COVID-19 pandemic and recovery outlook

The long period of mediocre global growth was dramatically part of international commercial activity to a halt in the spring of 2020. The massive dislocation effect has disrupted supply chains, normal' is only just beginning. This may well entail more than simply a renewal of demand and relationships existing pre-2020.

Diversification challenges

For the United Kingdom and India, it is worth noting the limited historical diversification in goods trade between the two countries, especially from India to the United Kingdom. Indeed, the top ten product groups among India's exports to the United Kingdom accounted for 60% of the total in 2019, a similar proportion to 20 years ago. In the other direction, UK goods exports to India have diversified somewhat, with the share of the 'old' top ten goods categories sinking from 68.7% in 2001 to 47.5% in 2019, yet there remains scope for new areas of growth.

Indian products shipped to the United Kingdom have been dominated by traditional export lines -- apparel and textiles, gems and jewellery, footwear, and leather goods. The situation with respect to imports from the United Kingdom is similar. Precious metals, non-industrial diamonds and scrap metal have long been among the main imported product groups. (Services present a generally more positive picture when it comes to more 'modern' sector growth, and this is discussed in further detail below).

Beyond global factors, yet another reason for the stagnation in bilateral goods trade is that investment in India's technology-intensive, high value-added manufacturing segments has historically not kept pace with others, and these are the areas that have driven international goods trade in recent years.

Yet there are already signs of change. In fact, previously non-traditional export categories for India -- including machinery, parts and pharmaceutical products -- have risen up the hierarchy in recent years. In the opposite direction, consumer growth and industrial development in India should support an increase in demand for imports of diverse and higher value-added UK export products.

Going forward, India is likely to push for more space for its engineering and foundry products, alongside pharmaceuticals, while the United Kingdom will seek opportunities for the higher value-added items in its principal export basket, in addition to pressing for reduced Indian duties on its whiskies and spirits (currently at 150%) and on cars (125%).

The now-emerging recovery in the world economy following the massive shock will almost certainly generate faster GDP and trade growth over 2022-23, as long as COVID-19 risks are curbed worldwide. This period will offer an opportunity for forging a new GDP growth rates cool off after 2023, a strong re-establishment of trade relations and development should help maintain momentum beyond the COVID-19 recovery phase. This could be particularly important in supporting India's potential to return to and sustaining of high economic growth rates in the 6-8% range.





Figure 2. India: Top 10 goods exports to the UK, 2001 vs 2019 (USDbn)

Source: International Trade Centre



Indian exporters in the traditional categories of clothing and textiles are also urging their government to enter a formal trade deal with the United Kingdom, as they fear that in the absence of such an agreement India would be completely displaced from the UK market by fierce competition from the likes of Bangladesh and Vietnam.

Services high on the agenda

From the outset, both India and the United Kingdom will be looking for space in each other's markets for services exports: India for software and information technology-enabled services, and the United Kingdom for its wide range of financial and consulting services. Indeed, figures issued by the UK Office for National Statistics (ONS) indicate that trade in services saw considerable growth up to 2019 (until the onset of the pandemic), especially from India to the United Kingdom, bucking the generally weak trend noted in goods trade. Opportunities are also confirmed by the relatively positive long-term global trends in the key areas of services trade, as discussed above, although the next couple of years will inevitably be dominated by the form of the COVID-19 recovery.

Again, there seems here to be further room for expansion: India remains neither a major importer of services from the United Kingdom (representing just 1.0% of its total services exports over 2016-18) nor a key destination for services exports for the United Kingdom (averaging a share of 2.4% in the United Kingdom's aggregate services imports and 1.0% of its total services exports over 2016-18).

Among UK services imports from India, IT and business services dominate, accounting for over half of the total. These services have generally also accounted for the largest share of overall exports from the United Kingdom to India in recent years. While this category includes financial services, a traditional strength for the United Kingdom, much of the recent growth has been driven by computer programming, consultancy and related activities.

Nonetheless, the high proportion of travel services in the overall services mix -- especially from the United Kingdom to India – continues to have a significant impact on the total volume of services trade. The travel sector's huge COVID-19-related slump severely damaged the total for services trade in 2020 and a substantial rebound could create a commensurate recovery surge over the next couple of years. This implies that travel and tourism services may grow faster than other services trade in this period even if the long-run trend is shifting towards business services. For this reason, care will be needed in interpreting the evolution of the shares in services trade over this turbulent period, although overall services trade should perform well.

Given these trends, both sides in the trade negotiations will emphasise services, probably leading to significant liberalisation of rules as part of any FTA.

In fact, India's experience with regard to software and IT-enabled services exports to the United Kingdom (as compared with exports to the world) is telling. Between 2012-13 and 2019-20, the share of India's exports of such services to the United States actually fell from 64% to 58%. Europe as a whole (inclusive of the United Kingdom) gained from this decline, with its share rising from 20% to 28%. The There are already signs that India is moving to higher value-added segments

Travel will rebound strongly, but business services have better longterm prospects

Figure 4. Travel as share of total services trade (%) UK-India India-UK







United Kingdom, which has by far the largest share among European counties, saw its share of the total rise from 11.5% to 13.4%. There are clearly opportunities for India here, which it will certainly pursue in negotiations.

India's priorities react to domestic concerns

At home, the Modi government has been leaning towards a more mercantilist trading position, creating more favourable conditions at home for domestic producers, while seeking greater access to markets abroad.

This is a clear shift from a previous agenda of across-the-board liberalisation of foreign trade and investment rules in the hope of using imported capital and technology as vehicles for driving faster export growth. It reflects a combination of the growth outlook in the domestic market, a disappointing recent trade performance and fears that Indian producers are being displaced by 'unfair' foreign competition, especially subsidised goods.

Symptomatic of the new policy stance was Delhi's decision to withdraw from the RCEP between 15 countries in the Asia-Pacific. India wanted more safeguards against imports, which it feared could displace domestic producers in areas ranging from steel to dairy products. The Indian Government has since adopted the slogan of 'Aatmanirbhar Bharat' -- self-reliant India.

A preferred partnership the likely route forward?

In many ways, India's position mirrors a wider international shift away from unfettered globalisation, which has seen many governments turn instead towards bilateral trade arrangements with trusted partners. In this sense, the United Kingdom may

stand to reap significant rewards from first-mover advantage if it is able to secure swiftly an FTA that would grant it access to a growing market that others are struggling to penetrate.

One factor favouring such a preferred partnership between India and the United Kingdom is their mutual importance as a destination for foreign investment. More than 800 Indian companies operate in the United Kingdom, with India being the second most important foreign player in terms of the number of projects in the country. Indian firms are also increasingly issuing shares on the London Stock Exchange, having raised more than GBP13bn since June 2016. On the other hand, the United Kingdom is the second-largest source of foreign investment to India, with an outward stock valued at over GBP15bn in 2019.

Moreover, Delhi has demonstrated its desire to iron out any creases in its relationship with UK investors, having recently resolved a long-running tax dispute with Cairn Energy and Vodafone, among others, by withdrawing controversial retroactive taxation measures and offering refunds to the companies involved. Such moves send positive signals regarding India's receptiveness to foreign investment going forward.

Indeed, the headroom for enhancing trade flows may be substantial, and changed circumstances -- for the United Kingdom after Brexit and for India with revitalised ambitions to become a leading global manufacturing and services hub -- make this a propitious time for advancing UK-India trade.

Existing investment relationships position the UK and India well for a deeper partnership

Defying gravity

How bringing regulations and people closer togethercould boost UK-India trade

Trade ambitions 1

The UK and India are seeking to double the volume of bilateral trade by 2030

Trade volume, 2019 (USDmn)



3 Opportunities for expansion

Incorporating these elements allows us to picture more clearly the opportunities for UK-India trade from an ambitious harmonisation of services regulation

Modelled potential increase in bilateral trade in select sectors (USDmn)





and pensions



\$904mr

services



The gravity model is a tool for estimating trade potential. It assumes trade depends on countries' size and distance apart, but other factors also matter.

Greater connectivity Physical distance can be mitigated by technology and better transport

More sophistication Common languages, history and legal systems should be included

Early gravity models

Reflecting that travel of goods and people was complex and expensive

\$165mr

services

includes new datasets.. .adding layers of complexity to reflect the connections

Our model

between economies..

Diaspora connections ▲ 3.6%

Services restrictions **▲**4.8%



Sea **Scientific** and technical transport



Measuring the impact of trade policy

Measuring the impact of trade policy

Improvements in trading arrangements and policies, whether linked to administrative barriers that cause friction and extra costs (such as tariffs, quotas and standards) or to infrastructure (new transport links, port/airport access rights, etc) are pursued because they are expected to bring potential benefits of some kind. For all parties in any agreement, there will always be anticipated gains. Even if the likely direct impacts on some key variables (say, exports of goods) are negligible or even negative, gains will be expected in other areas of interest (such as services trade), or in areas such as defence pacts or privileged access to trade routes. However, for the most part, trade negotiations focus on advantages with an overall aim of raising the total amount of trade undertaken between the parties to any deal.

The first steps in discussion of a trade proposal will encompass details of how any propositions would work and whether there might be downside risks or upside potential. Key questions then need to be answered:

- Where would the effects of a deal be felt?
- Would some parts of the population and/or business sectors require compensation because they would be placed at a relative disadvantage?
- Would gains be sufficient enough to compensate losers?

To answer these questions, various forms of assessment have evolved over time, moving from first-stage estimates that might crudely indicate what a deal might be worth for exports and imports to more complex issues and calculations.

The modelling toolkit

When conducting the scoping for an FTA, governments usually begin with a broad idea or goal, creating an outline plan which is then subjected to more detailed and rigorous analysis to establish both its feasibility and the potential cost-benefit trade-offs. These processes



typically include the use of two mainstays of numerical analysis -- gravity models and computable general equilibrium (CGE) models:

For the gravity models, countries' initial positions for trade (eg, their size, locations, existing trade) are mapped, from which potential for trade gains are then assessed.

CGE models are used to estimate not only potential trade gains but also the economy-wide impacts of changes in trade relationships.

Gravity modelling

The so-called gravity model is the workhorse for the sort of exercises undertaken in the early stages of formulating and discussing a potential FTA. It is among the best empirical applications of economic theory. The name derives from the principle of Newtonian physics that the pull between two objects (in this case, countries) is proportionate to their size and the distance between them. Trade potential (or put another way, the imputed 'loss' due to barriers or frictions) can thus be approximated from the discrepancy between an actual amount of trade undertaken and the potential amount the gravity model predicts based on trade-correlated variables and global averages.

Formal analysis from the early 2000s -- now somewhat dated -- of FTAs around the world, suggested that an FTA is already more likely to exist under the following parameters:

the closer in distance are two trading partners;

the more remote a natural pair is from the rest of the world;

the larger and more similar economically (ie, in real GDP terms) are two trading partners;

the greater the difference in capital-labour endowment ratios; and the smaller the difference between the capital-labour endowment ratio of a member and that of the rest of the world, averaged over members.

A slightly different approach involves examining the bilateral trade between the two partners and directly asking whether it suggests scope for major gains. At a relatively aggregate level, an analyst can fit a model of bilateral trade flows (globally or regionally) and use it to identify areas where there is untapped potential for trade – and this is where the gravity model comes in. Despite what seems a simplistic approach, the traditional gravity model has been very successful in explaining the scale of trade between countries and it has continued in use.

Additional inputs

Aside from size (in GDP terms) and physical distance, other relevant variables are commonly incorporated into these models, including those that reflect the composition of countries' economies (for instance, the relative share of manufacturing or services), as well as the presence of a shared language, legal system or historical relationships. Adding these 'non-gravitational' layers improves model fit, helping to explain variance in trade volumes more accurately than would be possible based solely on proximity and size. Of course, it is not possible to capture and quantify all the possible factors that may impact on a specific bilateral trading relationship in a given sector -- there will always be an unexplained element(s) in the system that cannot be captured in the model.

For UK-India trade, there are many such possible correlates not usually included in, or available to, gravity modelling that could nonetheless have a significant bearing on the trade relationship. For instance, the degree of cultural and historical interconnectedness can only be loosely approximated. Models may use binary variables such as the presence of a shared language or legal system as a proxy for this dynamic. In our sample modelling, presented further below, we demonstrate that factoring in the size of diaspora populations also helps improve the overall performance of gravity modelling.

Can trade become 'gravity-less'?

Trade has evolved since gravity models were first developed to include an increasing number of products where the ratio of transportation cost to product value is extremely low (and in the case of services and digital products, there may not be a transportation cost at all). Indeed, reliance on distance as a correlate of trade is liable to underrate the potential for goods of high value but small in weight and size.

Digital trade

A little-understood area of international commerce, which is of increasing importance, is digital trade. As typically defined, this includes not only the cross-border digital transfer of digital products and services to businesses and consumers, but also digitally undertaken and settled transactions involving goods that

where the claim is made for big advances in digital trade, there would be changed by the agreement in question. We have indices of digital trade -- the OECD's Digital Services Trade Restrictiveness Index (Digital STRI) -- but very little handle on how it responds to understanding of how much digital trade actually takes place. However, one study by the McKinsey Global Institute and the goods and services exports enabled by the digital economy at largest export sector. The study suggests this could reach INR 12.8tn (USD197bn) by 2030.

Besides exports, the Indian market for digitally enabled trade is also large and rapidly expanding. According to estimates quoted by the India Brand Equity Foundation, the Indian e-commerce sector will grow in value from USD30bn in 2019 to USD99bn in 2034. While US giants Amazon and Walmart have been making major inroads in the Indian e-commerce market, certain access direct consumer sales and inventory-based retail) may weigh on the growth potential for two-way digital trade between India and



be as significant as proximity in areas of modern trade

This has led to speculation that aspects of trade could break free of the laws of gravity entirely. In response, modellers have re-examined the representations of distance used within gravity models. Overall, findings suggest that the methodology remains useful, with modifications that reflect factors such as delivery time/reliability as opposed to distance in terms of miles travelled.

Nevertheless, in the case of products and services delivered online, such delivery obstacles are very limited and reliability has tended to improve. Thus, distance may now also be measured not just by miles and delivery times but by population access to the Internet and online services, speed and reliability of access etc -- and such connectivity can and does vary substantially even across developed continents such as Europe and North America.

Notably, the other key elements of gravity models are less challenged. So the answer to the question of whether trade can become gravity-less is that gravity models, albeit adapted to accept the reduced importance of traditionally measured 'distance', look set to keep working for many years to come.

Computable general equilibrium (CGE) modelling

Once a possible FTA partner has been identified, either on the basis of an assessment of untapped potential or as a result of strategic political calculations, governments undertake an analysis of an FTA's likely wider consequences. This is used to stimulate debate and inform policymakers' choices about the content of any agreement when going into negotiations.

This detailed analysis is mostly built around one tool: the CGE model (more casually referred to as a large-scale macroeconomic model). Its essence is largely unchanged since such models began to be widely developed around 50 years ago. Ever improving computing capacity has led to an increase in the typical scale

and complexity of such models. However, scale and complexity has not necessarily led to commensurate improvements in accuracy in what inevitably remains an approximation of reality.

The flaws of such models are well understood, at least among the cognoscenti who actually use them and are responsible for the studies based on such models. Nonetheless, experts have not yet developed an alternative that commands widespread acceptance and, more positively, estimated outcomes using CGE models have proved valuable as 'best guesses' despite their flaws.

Notably, the UK Government has used CGE models in its assessment of different scenarios for Brexit and the potential benefits of FTAs with the United States and with Japan:

- HM Government, EU Exit: Long-Term Economic Analysis Technical Reference Paper, November 2018 (referred to below as HMG A);
- HM Government, UK-US Free Trade Agreement, Department for International Trade March 2020 (HMG B); and
- HM Government, UK-Japan free trade agreement: the UK's strategic approach, Updated January 2021 (HMG C).

In the former two instances, the same model was used, while with HMG C a different model was employed, albeit in the same tradition as the others. In all cases, studies were undertaken by very reputable academic modellers.

HMG A, which provides the most comprehensive account of government modelling, summarises the CGE approach in the following terms:

"These models represent various economic activities including production, consumption, investment and public provision by economic agents including firms, consumers and governments in a set of equations. They can allow for a large number of countries, and for a large number of sectors in each country, to give a stylised yet detailed representation of the economy.

They provide a coherent macroeconomic framework to estimate the economic impact of a trade policy change, taking into account the many interactions within the economy, including through supply chains. Hence, output effects capture not only economic activity gained or lost by firms directly engaged in importing or exporting, but also those affected along the supply chain. They estimate a longterm equilibrium where supply and demand in all markets is in balance, and there is full employment of capital and labour."

The essence of the approach is that trade policy directly changes the prices and quantity of traded goods; these changes affect the goods people and firms buy, the costs of production, productivity and the demand for labour and capital, and these in turn change the incomes and purchases of consumers until a stable (new) equilibrium is reached. Everything affects everything else, and we can use the model equations to estimate the new outcomes for the economy after all these changes have worked through and demand and supply in every market has returned to equilibrium.

Oxford Analytica

CGE models offer valuable 'best guesses' of wholeeconomy effects





These modelled outcomes then play a role firstly in determining which elements of an FTA to pursue, or avoid, during negotiations, and secondly, in providing the public with information on likely gains from trade.

In terms of the quantitative results, the two most important inputs into any practical modelling exercise are the size of the trade flow affected by the putative policy change and the extent of the change to trading costs that the policy change implies -- estimates for such alterations to the status quo must be fed into the modelling exercise to drive change and a new equilibrium.

There is also no avoiding the fact that a policy that directly affects, say, 10% of a country's exports (probably some 2-4% of GDP) will almost inevitably have a much larger effect on the economy than one which impinges directly on only 0.1% of exports.

However, attention must also be paid to the potential for small initial changes to become far more substantial over time if the countries and sectors involved in a trade deal look likely to experience very high growth rates over the following 10-20 years: the latter will serve to amplify gains (or losses) from any change in trade policy.

Modelling limitations and measurement challenges

Capturing and accounting for long-term developments of the kind represented by trade agreements is one of the biggest challenges for modellers. Indeed, all forms of econometric modelling have drawbacks and limitations, some of which are inherent and some of which can be addressed through refinement. The following discussion aims to identify some of those limitations. This is not intended to be negative -- although a good deal of care is warranted in interpreting modelled results -- but rather to illustrate places where modelling might be supplemented by additional information or alternative approaches.

Changes to market share may be underestimated

CGE models are not identical, but they generally seem to predict only very gradual and small changes to the initial status quo -- indeed, they appear to build in limits to change. In most cases, CGE modelling of changes in trade patterns assumes two key features:

- If prices do not change, any increase in the demand for imports of a product is mainly shared among suppliers proportionately to their existing shares of that market (although factors such as existing trends might shift shares slightly, if included in the model).
- If one supply source experiences a price decline (eg, because it no longer faces a tariff), it increases its sales and the burden falls on other suppliers proportionately to their existing shares, unless they themselves start to cut prices (a reaction incorporated in some models).

Consequently, CGE model outcomes can be quite tightly tied to existing market shares, and if a supplier has a small share initially it is very difficult to generate predictions for a major increase in its sales. This has implications exactly opposite to those of the gravity model exercise. In the gravity model, small current trade flows tend to indicate scope for future increases and hence potential gains from an FTA, whereas in a CGE world a small current share often leads to the prediction of only a small increase following an FTA.

In contrast, some studies have shown that the most sensitive component of trade following liberalisations may actually be a set of products that were traded before the change but only in small quantities. Such potential would be missed by a CGE model.

It is likely that the CGE modelling exercise will capture the outcomes for the main sectors and big companies that would be affected by a UK-India FTA, which are typically examined very carefully. However, industries made up of large numbers of small operators may warrant additional care and examination in particular. The same may be true in cases where the main operators are looking to move quickly into new areas of business.

Path dependency challenges

A CGE exercise entails comparing one equilibrium -- the so-called base case -- with another (which gradually emerges after the policy change). Yet assuming there will be a smooth transition from one equilibrium to another, even if done gradually over several years (typically the case in large economic models), ignores the risk of real-world disruptions in the evolution of the economy. A modern economy is a complex, web-like structure and major shocks can have essentially irreversible effects, so that while the CGE predicted new equilibrium may be feasible if the world could get there, the path of adjustment means that the global economy could end up somewhere quite different.

This is something that is, after all, well understood -- it is essentially the logic of the huge industrial support developed countries have offered during the COVID-19 pandemic: if firms are driven under by the pandemic even the 'good' ones may never be recreated. While a bilateral trade deal is not likely to cause disruption on

Productivity gains from liberalisation

Discussion of changes to market share as a result of an FTA raises the question of whether the benefits for one party simply come at someone else's expense. However, the advantage for the countries involved in the FTA is that, broadly speaking, the effect of trade liberalisation is to increase the size of the overall 'pie' rather than the ratios of the 'slices'. Indeed, one of the most regular findings in empirical research is that trade liberalisations increase productivity in the liberalised sectors. There are several possible mechanisms behind this:

First, selectivity -- import competition is likely to drive inefficient firms out of a market leaving only stronger ones

surviving: average productivity increases. Similarly, opening up export markets will allow more competitive (productive) firms to expand.

- Second, among surviving firms, extra import competition
 may incentivise investment or effort to improve productivity.
- Third, firms may learn by exporting or use the incentive of potentially larger export markets to invest in learning how to be more productive.
- Fourth, and very important empirically, opening up trade may allow firms to use a broader set of inputs in their own production. This too seems to drive productivity.

Model projections of future market share can be very tightly tied to the status quo the scale of COVID-19, there may be some industries that see sizeable changes as a result of such an agreement, therefore additional studies are needed to avoid these being missed in the use of CGE-type models.

Difficulties capturing policy variables

The critical input into any assessment of a policy change is the size of that change. But even estimating this is no easy task. Consider simple tariffs -- that a product pays x% on entry to a country. A typical developed-country tariff schedule has about 10,000 headings, which have to be distilled down to around 50 products. That is not to mention accounting for formal or informal exemptions from tariffs, the complexity of payment arrangements, etc.

Moreover, many trade barriers do not come in the form of simple percentage tariffs on the value of the product. For instance, there are also tariffs on physical quantities of goods, as well as quotas. In practice, economists represent these other barriers as simple percentage taxes (known as ad valorem equivalents), although this injects further uncertainty into the measurement process.

Non-tariff measures

It is important to note that most non-tariff measures (NTMs) -- ie, other tradecorrelate variables that can be directly adjusted through government policy changes -- are not simple quotas. Rather, they are frictions that have complex effects on business decisions.

For example, proving that a product meets the importing country's standards might require a one-off, fixed-cost exercise (chemicals) or an ongoing process (food safety). But does this need to be renewed periodically or only if there are small changes in specification? What are the costs of preparing different labelling or of meeting different standards of legal liability in different markets? Firms have to work all this out (or discover it the hard way), but it is beyond the capability of the type of models used by governments.

Services trade is arguably even more complex. First, there are four different modes of services trade, which will face different requirements and may interact in quite complex ways. There are often ongoing relationships with regulators (eg, in the banking sector), who impose multidimensional requirements: the location of the firm's headquarters, the residence of the directors, the qualifications of practitioners, differences in the sets of products than can be bundled in a single provider, reserve requirements etc.

In both cases the regulations may be beneficial, so that while they disturb trade they do so in a 'good cause'. Moreover, they often reflect deeply held social or cultural values and have significant histories. For a firm wanting to export, this may not always matter, but to influence policy one needs to have an idea of why the regulations are there and how deep-set they are. On the other hand, offering a clear and well-founded argument that there are genuine opportunities that have been missed in existing modelling exercises may change the outcome when it comes to cost-benefit calculations.



It is widely accepted that uncertainty about trade policy reduces trade in both goods and services: as a rule of thumb a potential barrier has around one-third to one-half of the effect of an actual barrier of the same size. UK modellers write quite extensively about the uncertainties involved in modelling and how they allow for these issues in thinking about and presenting their results. However, they do not engage in this way on the issue of whether the very trade agreements they analyse affect uncertainty about future trade policy variables.

The US International Trade Commission (USITC) did try to incorporate uncertainty into its estimates of the likely effects of the 'new NAFTA', the United States-Mexico-Canada Agreement (USMCA). The effort has been welcomed by economists but the precise way of a trade agreement on policy uncertainty. The USITC missed the fact that Canadian and the main uncertainty over US policy was the US president himself (which the USITC could not say). It is worth noting that a significant part of the uncertainty effect was said to pertain to uncertainty about digital rules, but precise details of how these were modelled were

Sustainability standards and reporting

worldwide on sustainability criteria. As national governments, and consumers, look to several recent trade agreements, the EU has already sought to introduce environmental measures, even if these are mostly unenforceable, and the bloc is also considering the

However, governments and markets vary significantly in terms of expectations and their understanding of how 'sustainability' should be measured or defined. If individual countries begin to introduce their own sustainability standards as part of their import requirements for certain products, this could entail additional costs for the companies involved in different markets and present a new barrier for cross-border trade, similar to

Opportunities for refinement

Improvements in the techniques used to assess the implications of trade frictions and the potential benefits of reducing them are always emerging, often instigated by the availability of new data sources. Some possibilities are presented here that illustrate the potential for progress.

Measuring NTMs is an area of recognised weakness in modelling policy and probably the cause of the greatest differences in results across modellers. There is a clear dichotomy: analysts can describe policies accurately but not derive their effects, or they can try to measure policy effects in real data, but in that case, they may be unable to identify which policy instruments are responsible for the observed effects

For the former approach, there is reasonable documentation of non-tariff measures on goods disaggregated into several policy types. These are presented as frequency ratios (what proportion of tariff headings face an NTM) or coverage ratios (what proportion of trade is covered by NTMs). Note that neither ratio has information about the 'fierceness' of the reported trade barriers.

We also have indices of trade restrictiveness for services -- most notably from the OECD, and separately from the World Bank and WTO (Services Trade Restrictiveness Indices -- STRIs). These code policies -- either on a 'most-favoured nation' or preferential basis -- to come up with a single (ranked) measure. The STRIs attempt to represent a number of key NTMs for services:

- restrictions on foreign entry;
- restrictions on movement of people;
- barriers to competition;
- regulatory transparency; and
- other discriminatory measures.



The indices are a giant leap forward in understanding trade measures, even if the sectors for which such STRIs are calculated are quite aggregated and the indices imply trade-offs between measures that are not well understood (eg, whether restrictiveness should be based on the average or the most restrictive measure in place).

STRIs and the gravity model

As noted previously, the gravity model seeks to explain bilateral trade between countries with reference to the 'weight' (GDPs and populations) of importing and exporting countries, the 'distance' between them (perhaps better described as 'connectivity' in a modern context) and other determinants of trade costs and FTA variables -- the first application of gravity models in trade economics was to analyse FTAs.

The gravity equation regresses actual trade data on these variables to derive a single explanatory model for the whole sample of countries -- an 'average' explanation. The unexplained 'residuals' from this sort of model (actual values minus the predicted values) have traditionally been used to identify potential increases in trade that countries can try to capture via trade negotiations.

However, in the current setting the model is employed differently, supporting the analysis produced by the CGE model by offering an estimate of the impacts of trade barriers.

- 1. One approach is to use the coefficient on the FTA variable to argue that signing an FTA is associated with x% more trade and then ask, in the context of the CGE model, what change in the price of partner services would produce the same increase in trade. The analyst then declares this to be the tariff equivalent of the FTA. The critical assumption behind this is that 'your' FTA would have the same effect as the average FTA in the sample.
- 2. A more recently developed and sophisticated version is to include the STRI pertaining to each bilateral flow into the gravity model and use the estimated coefficients to infer what would be the effect of an FTA that changed the bilateral STRI by a certain amount. If you have a measure of how much the FTA in question would change the bilateral STRI you can find an FTA effect for 'your' FTA and convert this to a tariff equivalent as above.

The policy papers referenced above indicate that the UK Government has pursued the former approach in recent modelling exercises, with some sophisticated adjustments. Yet there is clearly more that could be done here. Indeed, the latter methodology is the more encouraging of the two and there is scope for exercises

Incorporating STRIs into the gravity model shows more promise than existing approaches

in future to explore this and develop refinements. It represents among the most promising ways of refining estimates of the effects of signing an FTA, and it is noteworthy that the Department for International Trade has already signalled its interest in this approach as part of its modelling review, having published its own policy paper in August this year exploring ways to incorporate STRIs into the gravity equation.



Here we provide our own practical example of the kind of modelling described above, which supports the case for incorporating STRI data into UK Government gravity models for the purposes of pre-FTA scoping. Our findings suggest that doing so makes for a better 'fit' of model, and that conventional gravity models may be underestimating the scale of opportunity in some cases. This exercise, applied to a pair of countries and on a sectoral level, is experimental but appears to indicate significant potential.

Valuable additions

Our modelling uses two novel datasets that are specific to country pairs, alongside the 'standard' variables used as part of a typical gravity-modelling exercise.

Diaspora populations

As a first step, we have incorporated data from the UN Department of Economic and Social Affairs that captures the stock of foreign migrant populations on a countryby-country basis. This enables us to capture the effects of exporter-nationals living in the importing country and importer-nationals living in the exporter country.

Services restrictiveness

Our model then incorporates the STRI data. We have done this for six services categories for which sufficient high-quality data on services restrictiveness and recent bilateral trade volumes are readily available:

- computer services;
- insurance and pension services; •
- financial services; •
- telecommunications services; •
- architectural, engineering, scientific and other technical services; and .
- sea transport.





Incorporating both diaspora data and STRI figures improves average model fit by 8.4%

The UK-India trade across six services sectors could increase in value by more than 75%

Demonstrated improvements

The benefits of these adjustments to the model 'fit' can be observed through the r-squared coefficient -- a metric that shows the degree of variance across the dataset (ie, all bilateral trading relationships) that can be explained based on the variables included in the model.

Firstly, the addition of the variables accounting for each country's diaspora and its resident population of foreign migrants increases the model fit by an average of 3.6%. By adding a variable for the destination economy's services-trade restrictiveness and a variable for bilateral homogeneity in services regulation, model fit improves a further 4.7% on average. The 'most improved' model is for computer services, with a 13.8% overall boost to the r-squared value following the inclusion of both new variables.

Effectively, inclusion of these variables allows us to quantify the benefits the UK derives from its larger-than-average population of non-resident Indian nationals (see 'Diaspora dividend' below).

Key findings

Table 1 and Table 2 report the pre-pandemic (2019) value of services exports in selected categories in both directions. For the United Kingdom, the biggest category is financial services; for India, computer services. These tables also lay out the results of our gravity modelling exercise. Here the inclusion of the STRI data also allows for scenario analysis, as explained in the section below: this can be used to calculate a possible increase in trade volumes in the event of liberalisation under an FTA.

We report the estimates of bilateral trade that the model suggests could emerge under these circumstances in the tables, which illustrate that the total trade volume could increase in value by around USD1.6bn for our six sectors -- a rise of 76.6%. The UK's gain would be substantial at nearly USD600mn, although India's could be double this, at almost USD1bn.

Of course, these scenario exercises are presented on an experimental basis and are intended to stimulate discussion by indicating the type of additions that might be made to 'upgrade' gravity models, and how these could impact results for potential gains from new trade deals.

Figure 6. Comparing approaches for model fit (r-squared*)



*This figure reports the 'explanatory power' of the model

Table 1. UK exports to India -- modelling results for selected service categories (2019 USDmn)

Category	Actual*	Model projected gains	Potential outcome
Computer services	104	247	352
Insurance and pension services	148	49	197
Financial services	324	94	418
Telecommunications services	77	38	115
Architectural, engineering, scientific and other technical services	192	115	307
Sea transport	212	48	260
Total for seven sectors	1,057	591	1,649

Table 2. India exports to UK -- modelling results for selected service categories (2019 USDmn)

Category	Actual*	Model projected gains	Potential outcome
Computer services	509	657	1,166
Insurance and pension services	52	62	114
Financial services	143	213	356
Telecommunications services	152	1	153
Architectural, engineering, scientific and other technical services	80	50	131
Sea transport	72	5	77
Total for seven sectors	1,008	988	1,997



Source: Oxford Analytica

*2019 or imputed to 2019 from 2018 or 2017 actual values. Source: OECD (2021a), Oxford Analytica

*2019 or imputed to 2019 from 2018 or 2017 actual values. Source: OECD (2021a), Oxford Analytica

Figure 7. UK-India trade potential in select sectors under liberalisation scenario

Percentage increase on current trade: UK to India India to UK



Source: Oxford Analytica

Source: OECD (2021b)

Table 3. Services Trade Restrictiveness Index (STRI)

STRI code	Sector	Min country	Min value	India 2019	UK 2019
CS	Computer	South Korea	0.121	0.287	0.166
FSBNK	Commercial banking	Czech Rep	0.127	0.505	0.172
FSINS	Insurance	France	0.104	0.104	0.104
PSARC	Architecture	Denmark	0.113	0.317	0.317
PSENG	Engineering	Japan	0.107	0.317	0.317
ТС	Telecom	UK	0.101	0.394	0.106
TRMAR	Maritime transport	Netherlands	0.147	0.379	0.189

Table 4. Effect of exchange of nationals (USD1 per change in nationals)*

Service export category **Developing economies** Code Advanced economies host nationals in partner nationals host nationals in partner nationals in host in host partner partner 0.447 SI2 0.040 0.447 Computer services -6.361 SF Insurance and pension services 1.885 0 -0.216 0 SG 1.332 0 Financial services 0 0 SI1 Telecommunications services 0.769 0 0.105 0 Architectural, engineering, scientific; other S I31 0.519 -0.002 0 0.765 technical services SC1 Sea transport N/A N/A N/A N/A

> * For example, every million increase in the UK expatriate population in India is associated with a USD1.89mn increase in 'Insurance and pension services' exports from the United Kingdom to India. Source: OECD, United Nations, Oxford Analytica

Scenario: Minimising trade frictions

As the test model derived for this report includes measures of destination-market services-trade restrictiveness and bilateral heterogeneity in such regulations, we can report on what impact the model indicates might be obtained by an ambitious liberalisation and harmonisation of services regulatory regimes.

In this scenario, the potential gains of which are presented in the tables above, we set destination-market restrictiveness to the lowest level observed globally since 2014 (Table 3). We also set pair-regulatory-heterogeneity to the global observed minimum.

For both the United Kingdom and India, the modelling shows that the big prize from liberalisation is computer services. The potential size of exports in this category would amount to a 238% increase for UK exports to India and a 129% increase for Indian exports to the United Kingdom.

The next-biggest gain for the United Kingdom is 'Architectural, engineering, scientific and other technical services' exports, which stand to rise 60% from current levels. The current leading UK export explored here, financial services, would also see a significant boost of nearly USD100mn. For India, financial services also represents a big prize, with the model suggesting exports could rise by nearly 150%.

'Diaspora dividend'

Our model includes variables on the number of non-resident nationals living in each other's countries. We allowed these effects to differ for advanced and developing economies. These turn out to be important factors in the services-trade relationships analysed here (with the exception of sea transport). In this regard, by far the more important factor is a country's expatriate population in its trade partner, particularly for advanced-economy exporters.

We may posit that, as a proxy, these findings suggest that there can be economic payoffs from broader social and cultural ties between countries. The ambition laid out in the 2030 Roadmap to strengthen institutional connections between the United Kingdom and India is a positive step in this regard, and further efforts to promote cultural interchange or liberalisation regarding the movement of people may offer additional benefits here.







Computer services

The sector that stands out as showing enormous potential for an increase trade in both directions is computer services -- a product category that includes computer programming, consultancy and information services.

Our modelling indicates that, under a 'minimum frictions' scenario, UK exports to India could more than triple, to reach USD352mn annually. India would also see a huge boost, with exports to the United Kingdom more than doubling.

As noted previously, opportunities in this sector are likely to be among the priorities that the Indian Government will want to pursue under any trade deal. One ask from the Indian side will be greater access for its professionals and short-term workers in the IT and IT-enabled services area. In 2018-19, USD18.3bn of India's global software and ITenabled services exports (or 15.5%) was delivered on-site. Mode-wise, 12.4% of India's exports in the area were based on the 'commercial presence' (Mode 3) of Indian firms in export destinations and another 13.6% were delivered through the presence of natural persons. India's requirement here is likely to go beyond tariff reduction and access to modes of cross-border supply.

Looking to the future

In the longer term, trade modelling may not be able to capture the potential of rapidly growing and transforming markets

1 Growth trajectory

India is projected to see some of the fastest economic growth rates in the coming years

GDP growth (% change)



Average projecte annual GDP grow for India, 2021-26

2 A changing society and economy

This population expansion will be driven by the country's urban centres

Projection of India's rural vs urban populations



Foreign direct investment in India saw record growth in the second half of 2020, despite the pandemic, fuelled by the software and hardware industries.





1.64bn

India will become the world's largest country by population before the end of the decade

3 Future industries

The strength of India's IT sector is helping it move into the data management and analytics industries that are expected to see exponential growth.

Data centers and cloud servers, 2021



India already has far more cloud servers and data centres than any other emerging market, and around double the number in China.

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Looking beyond modelling

The findings of our improved gravity model approach indicate potentially overlooked opportunities in just a handful of services sectors. Clearly more can be done in this field that would shed light on missing potential for other key sectors not yet included in this analysis (often owing to data inconsistencies/ 822 availability), such as management consultancy, accounting and legal services.

However, it is equally evident from the preceding discussion that there are factors that should be taken into account during the FTA scoping process that modelling based on current data will not be able to capture.

Over the horizon

The standard modelling approaches presented previously, including those typically conducted by the UK Government, can be very static and struggle to reflect the relative difference in the pace of change between countries and the growing importance of new sectors. However, FTAs are not drawn up with a view to the short-to-medium term gains but aim to deliver long-term payoffs for both parties. In this sense, it is critical to consider the growth potential of a trading partner and of key sectors.

In the case of India, most forecasting indicates that the market is set to become much larger (and relatively quickly, at that), despite the immediate challenges of the COVID-19 pandemic. In fact, IMF projections suggest that India's future GDP growth rate is likely to surpass that of China, at least until the second half of this decade, having generally lagged behind for the last 40 years. More obviously, Indian GDP -- in US dollar terms -- is going to pull away from that of the United Kingdom itself.

Coefficients derived from gravity modelling indicate that national GDP is typically the single largest determinant of trade volumes between countries. Clearly the rapid expansion of the Indian market is something that UK policymakers will be taking into account when scoping for global opportunities. Moreover, the potential role of digital connectivity rather than physical proximity as a measure of 'distance' in a gravity context means that the rollout of infrastructure and more widely available high-speed Internet access in a country like India could also change the equation in the longer term.



Figure 9. India: Employment by sector (% of total)



BANK OF INDIA

India's economic growth is projected to outstrip China's in the coming years

Source: IMF, World Economic Outlook, April 2021

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2010	2012	2014	2016	2018

Source: ILOSTAT

Future indust

A forward-looking view allows us to consider sectors and products that could be greatly affected by an FTA in the long run but perhaps not in the short run. In the opening section of this report, we mentioned the increasing share of higher valued-added products within India's basket of exports to the United Kingdom. This reflects a wider change taking place in the Indian economy, where the traditional dominance of agriculture has been steadily giving way both to manufacturing and services.

Clearly, those pursuing an FTA will be keen to understand which sectors offer the greatest potential for growth -- and this is not the same as looking at the size of a sector as it stands now. The dynamics of a rapidly transforming economy like India's should also be borne in mind, given the CGE model's inherent conservatism when it comes to projecting changes to market share when modelling the effects of an FTA.

In this sense, the UK Government should benefit from the deeper engagement laid out in the 2030 Roadmap, which will help give a better sense of where India's economy is heading, and the plans and aspirations of the country's business community. For instance, both the Indian Government and major corporations are seeking to tap into a global turn away from reliance on China to move into higher value-added areas of manufacturing, such as microchips and semiconductors -- areas where India has historically trailed. Indeed, Delhi last year announced INR480bn (USD6.5bn) in incentives for electronics manufacturing, with the aim of creating 200,000 jobs in the sector by 2025.

First-mover advantages

FDI in Indian hightech manufacturing is accelerating Substantial benefits can accrue from an early foot in the door of fast-rising markets via an FTA, and first movers often enjoy very large advantages compared with latecomers. Although not facilitated by an FTA per se, early US investments in China and Taiwan following liberalisations in those countries serve as an example and have yielded obvious payoffs in recent decades.

In this regard, it is worth noting the significant increases in FDI inflows that India has been seeing over the last year, despite the COVID-19 pandemic. Indeed, according to Indian Government figures, FDI equity inflows -- in US dollar terms -- increased by 40% in April-December 2020 compared with the same period the previous year. More than half of this was directed towards computer software and hardware; services, which dominated in FDI terms in recent years, accounted for the next largest share. This dynamic is likely reflective both of the incentive schemes implemented by the Indian Government to boost high-tech manufacturing, and also a desire among Western -- especially US -- companies to diversify strategic supply chains.

These dynamics will figure prominently in UK thinking about ties with India, not least as it eyes benefits beyond the immediate financial rewards of an enhanced economic partnership, such as the wider opportunities from collaboration in research, innovation and security.

Conclusions

Despite the uncertainty caused by the COVID-19 pandemic, our analysis suggests that the announcement of the 2030 Roadmap is a timely one and that there are strong grounds to believe that the prospects for expanding the UK-India trade relationship are promising. On the geopolitical front, an increasingly fragmented and polarised world makes the case for protecting and developing commercial ties with trusted partners, while economic data indicates that the scope for boosting the volume of trade is substantial. However, policymakers will need to tailor the contents of any FTA to maximise those opportunities.

The fact that the Department for International Trade has already initiated a review of its modelling approach is therefore pertinent, as improvements to existing methodologies will assist in the scoping process as negotiations unfold. In this regard, we believe that our practical modelling exercise highlights the advances that are possible in trade modelling as the government moves forward in constructing a world-leading framework that is adapted to the future direction of global trade.

Moreover, our findings indicate that bringing countries closer together -- both in terms of regulatory alignment and interactions between people and institutions -- yields economic rewards. Indeed, just as connectivity has in many cases replaced physical proximity when understanding distance in trading relationships, 'gravitational' effects may be further offset through the harmonisation of regulatory regimes.



Equally clear is that the gains accrued through a trade deal will not be distributed evenly across all sectors. Our modelling offers some insight into the business areas that may stand to gain most under an ambitious UK-India trade deal, but further assessments will be required to build a comprehensive view that would further support policymakers in setting their priorities during the scoping phase.

However, as we have noted, trade modelling is rooted in real-world data. While it is possible to take account of projections of likely future developments based on current trends and observations, it is much harder to incorporate transformational changes in industry and society. Moreover, there is a tendency in the most widely employed models to forecast a relatively slow pace of change, which may risk an inbuilt slant in favour of already-developed economies. This could warrant greater care when considering rapidly growing and transforming markets to ensure that long-term opportunities are not being overlooked.

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Policymakers would therefore benefit from engagement with foreign counterparts and the business community to identify which markets look set to drive the industries that will transform the global economy in the coming decades. Indeed, beyond existing and emerging services and technologies, there will be whole categories of product that do not even exist yet. Of course, what these will be -and more importantly where they will be produced -- cannot always be predicted with confidence. Yet those setting the trade agenda will wish to consider which countries are seen as likely to be leading future innovation trends and make early moves to tap into this potential.





About Tata

Founded by Jamsetji Tata in 1868, the Tata group is a global enterprise that employs 800,000 people and operates in more than 100 countries across six continents with a mission 'To improve the quality of life of the communities we serve globally, through long-term stakeholder value creation based on Leadership with Trust'.

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About Oxford Analytica

Founded in 1975, Oxford Analytica is an independent geopolitical analysis and advisory firm. Our mission is to help our clients navigate complex markets where understanding the intersection of politics and economics, business and society is critical to success. We combine our global network of 1500 experts with high-calibre in-house analysts who deploy robust methodologies and build collaborative relationships to deliver trusted, impartial, actionable insights. Today, we work with many of the world's most influential businesses, governments and international organisations.

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