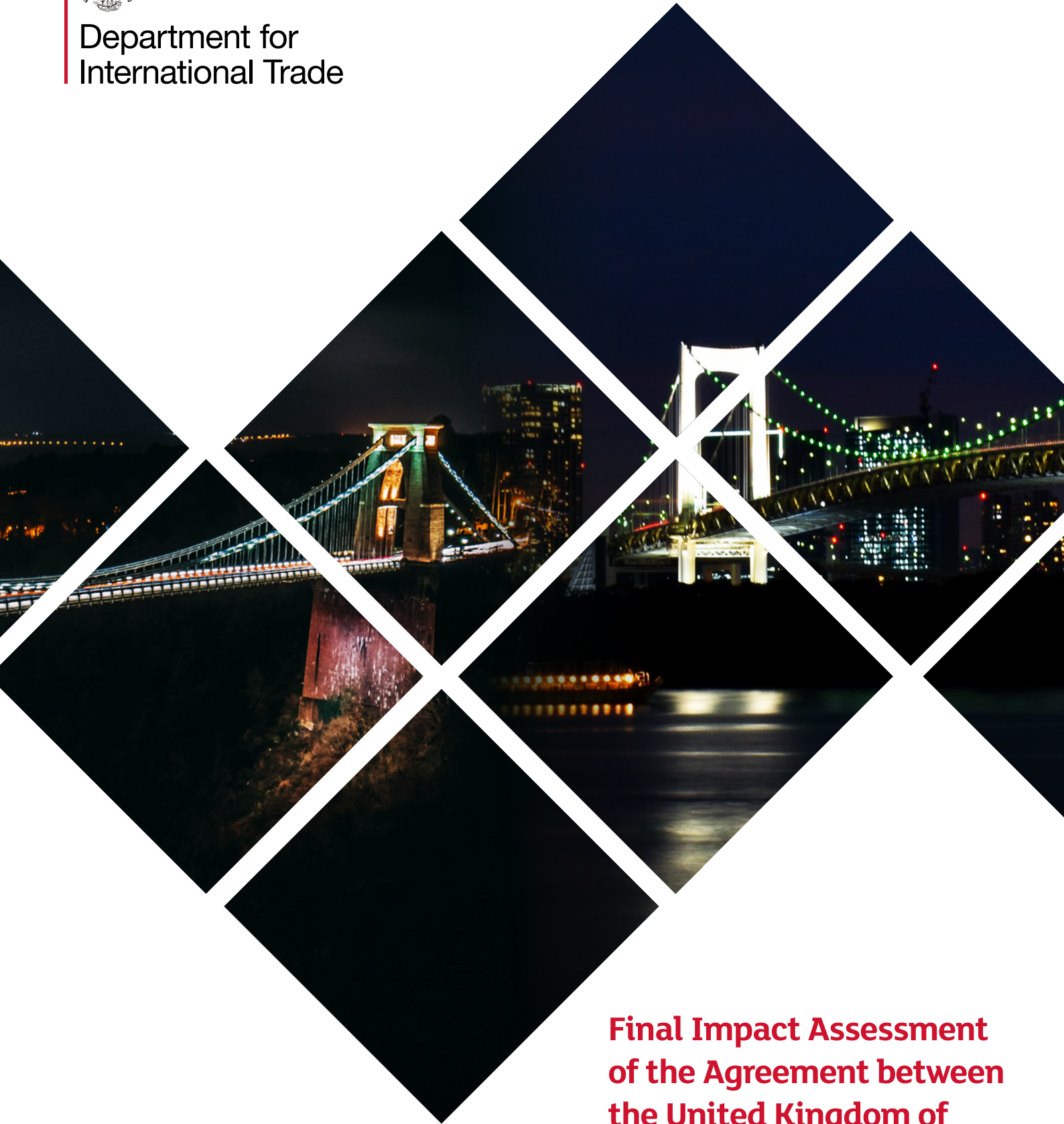




Department for
International Trade



**Final Impact Assessment
of the Agreement between
the United Kingdom of
Great Britain and Northern
Ireland and Japan for a
Comprehensive Economic
Partnership**

Contents

Executive Summary	6
1. Background	13
2. Objectives of the UK-Japan Comprehensive Economic Partnership (CEPA)	14
3. Overview of economies and current trade and investment relationship	15
3.1 Overview of Japan's Economy	15
3.2 Overview of UK-Japan trade	18
3.3 UK jobs supported by exports to Japan	20
3.4 Overview of UK-Japan investment relationship	22
4. Key provisions and rationale	24
4.1 Enhancing trade in services, investment and e-commerce	25
4.2 Promoting trade in goods	27
4.3 Cross cutting objectives	33
5. Overall impact of a UK-Japan CEPA	37
5.1 Economic gains derived from trade agreements	38
5.2 Approach to assessing macroeconomic impacts	38
5.3 UK macroeconomic impacts	42
5.4 Macroeconomic impacts on Japan	44
5.5 Impact on UK sectors	44
5.6 Impacts by nations and regions of the UK	45
5.7 Impacts on developing countries	47
6. Detailed impacts by main groups	49
6.1 Impacts on UK businesses	49
6.2 Impacts on UK consumers	55
6.3 Impacts on the labour market and UK workers	60
7. Food safety and animal welfare	65
7.1 Sanitary and Phytosanitary Measures (SPS)	65
8. Impacts on the environment	66
8.1 Environmental impacts from UK production	66
8.2 Bilateral transport emissions	67
8.3 Low carbon economy Impacts	69
8.4 Wider environmental impacts	69
9. Uncertainty and analytical limitations	75
9.1 Uncertainties	75
9.2 Analytical limitations	76
10. Plans to monitor and evaluate the agreement	77
Technical Annexes	78
11. Annex A: Description of Computable General Equilibrium model	78
11.1 Underlying dataset	78
11.2 Definition of 'long run'	78
11.3 Model features	79
11.4 Sectors aggregation	80

12.	Annex B: Derivation of modelling inputs	82
12.1	Tariffs	82
12.2	Non-tariff measures (NTMs) and regulatory restrictions to services	82
13.	Annex C: Methodology and results for assessment of impacts on production in the regions and nations of the UK	83
13.1	Methodology	83
13.2	Results	84
13.3	Limitations	84
14.	Annex D: Methodology for tariff analysis	85
14.1	Methodology for estimating tariff reductions	85
14.2	Apportioning tariff reductions by UK nations and regions: data and methodology	86
14.3	Preference utilisation rates (PURs)	86
14.4	Limitations	87
15.	Annex E: Methodology for assessment of the potential impacts on businesses including businesses administration costs	88
15.1	Methodology	88
15.2	Results	89
15.3	Limitations	89
16.	Annex F: Methodology for assessment of potential impacts on small and medium-sized enterprises (SMEs)	90
16.1	Methodology	90
16.2	Limitations	92
17.	Annex G: Methodology and results for assessment of potential impacts of various groups in the labour market	93
17.1	Methodology	93
17.2	Descriptive statistics	94
17.3	Limitations	97
18.	Annex H: Methodology and results for assessment of environmental impacts	98
18.1	Greenhouse gas emissions and energy use from UK production	98
18.2	Transport emissions	100
18.3	Wider environmental impact: supporting information	102
19.	Annex I: Impact on developing countries	105
19.1	Methodology	105
19.2	Results	105
20.	Annex J: Note on corrections	107

Executive Summary

The UK and Japan are the world's 5th and 3rd largest economies respectively, together accounting for 9.2% of Global Gross Domestic (GDP) in 2018.¹ Total trade between the UK and Japan was worth an estimated £31.6 billion in 2019, accounting for 2.2% of total UK trade.² Japan was the 6th largest investor in the UK, with £89.2 billion invested in the UK in 2018.³ The UK was the 4th largest investor in Japan in the same year, with US\$23.3 billion (£17.5 billion) invested in Japan.⁴

Since February 2019, the UK and Japan have traded under the terms of the EU-Japan Economic Partnership Agreement (EPA). The EU-Japan EPA will cease to apply in the UK following the end of the UK's transition period in January 2021.

The UK and Japan have negotiated the Agreement between the United Kingdom of Great Britain and Northern Ireland and Japan for a Comprehensive Economic Partnership (referred to as UK-Japan CEPA in this document) which, if ratified, will enter into force in January 2021. The agreement aims to ensure the continuity of the existing UK-Japan trading relationship following the end of the UK's transition period and to enhance the UK and Japan's trade and investment relationship further.

This impact assessment aims to provide parliament and the public with a comprehensive assessment of the implementation of the UK-Japan CEPA in the long run prior to ratification of the agreement.⁵ The assessment draws upon a wide range of data and evidence, including a modelling exercise undertaken by Professor Joe Francois to generate quantitative predictions of the scale and distribution of trade and macroeconomic impacts. The impacts of the agreement are assessed against a baseline where the UK and Japan do not have a free trade agreement, as this represents the default situation (that is, what would happen without ratification).

¹ World Bank Development Indicators, GDP (current US\$). Last Updated: 07/01/2020.

² ONS, UK trade, quarterly trade in goods and services tables: October to December 2019.

³ ONS, Foreign direct investment (FDI) totals for inward and outward flows, positions and earnings: 2017 to 2018.

⁴ Japan External Trade Organisation (JETRO), Japan's Inward FDI 2018.

⁵ This impact assessment provides an update to the analysis undertaken in the scoping assessment published in May 2020. The long run is generally assumed to represent around 15 years from implementation of the agreement.

The impacts of the agreement

The negotiated UK-Japan CEPA is a deep and comprehensive trade agreement, covering 24 chapters. The agreement builds upon the existing trading and investment relationship set out in the EU-Japan EPA in several areas of mutual interest. The UK-Japan CEPA goes further than the EU agreement in a number of key areas such as digital trade, financial services and rules of origin. The Parliamentary Report highlights areas where there are material changes and enhancements to the existing EU-Japan EPA.⁶

The provisions of the UK-Japan CEPA offer substantial reductions in tariffs and the removal or reduction in non-tariff measures affecting trade in goods and regulatory restrictions applying to services trade.⁷ The agreement also includes provisions which enhance economic cooperation between the UK and Japan, provide greater certainty to exporters and investors and encourage utilisation of the agreement by small and medium-sized businesses (SMEs).

1. Enhanced trade and investment

Reduced trade costs and increased trade

Trade costs are the costs associated with trading internationally across borders and can be significant. The UK-Japan CEPA is expected to reduce tariff and non-tariff trade costs between the UK and Japan. In line with the negotiated tariff schedules and the trade cost reductions associated with similar deep trade agreements in the past, the modelling exercise assumes that the agreement reduces trade costs by an average of around 2.8 percentage points for UK exporters to Japan and 2.3 percentage points for Japanese exporters to the UK in the long run.⁸ The modelled trade cost reductions vary markedly across goods and services sectors reflecting the historical evidence of the sectoral impacts of FTAs as well as the provisions of the UK-Japan CEPA.

In the long run, the trade costs reduced by the UK-Japan CEPA are estimated to drive an increase in UK exports to Japan by 17.2% or £2.6 billion and UK imports from Japan by 79.9% or £13 billion when compared to 2019 levels. Therefore, in the long run overall bilateral trade between the UK and Japan is estimated to increase by 50% or £15.7 billion when compared to 2019 levels.⁹

Although UK-Japan bilateral trade is estimated to increase significantly in the long run, total UK trade with all countries (including Japan) is expected to result in a more modest increase in trade given the share of UK-Japan trade (2.2% of total UK trade) with UK exports to and UK imports from all countries (including Japan) estimated to increase by 0.58% and 0.51% respectively in the long run. **Overall, in the long run total UK exports and imports to the world are expected to result in a 0.5% or £7.8 billion increase when compared to 2019 levels.¹⁰**

Trade is an important source of jobs for UK workers. Latest available estimates suggest that around 167,000 jobs in the UK were supported by exports to Japan in 2015.¹¹ Increases in export opportunities are an important source of growth and economies of scale for UK businesses. UK trade with Japan is important to the UK economy as:

1. Just over three quarters of UK imports from Japan are estimated to be intermediate or capital goods used in UK production.¹²
2. Increases in imports of intermediate goods help to drive increased business competitiveness, increase their integration in global supply chains and reduce prices.
3. Increases in imports of final products could offer better quality and choice for consumers.

6 DIT (2020), 'The United Kingdom's Future Trading Relationship with Japan'.

7 Note that tariff reductions apply to goods that meet Rules of Origin requirements.

8 Simple average of total average tariff and non-tariff cost reductions, external CGE modelling.

9 Analysis based on external CGE modelling. The long run is generally assumed to represent around 15 years from implementation of the agreement.

10 The long run is generally assumed to represent around 15 years from implementation of the agreement.

11 Source: OECD Trade in Employment (TiEM) database. Last updated: March 2019.

12 United Nations, Classification by Broad Economic Categories (BEC) Rev.5, 2018 (passenger motor vehicles have been included within the consumer goods category). BEC has limitations as a source for identifying goods for intermediate use.

Reduced regulatory restrictions and increase trade in services and digital

Trade in services is important to both the UK and Japan. Services accounted for 80% of UK GDP in 2019 and 39% of the value of UK trade with the world in 2019.¹³ Services exports to Japan were worth £8.0 billion in 2019, which accounts for 52% of all UK exports to Japan.¹⁴

The UK-Japan CEPA contains several chapters which aim to reduce unnecessary barriers to services trade arising from domestic regulations, including the 'Trade in Services, Investment, and Electronic Commerce' and 'Intellectual Property'.

From an economic perspective, the provisions reduce trade and investment costs for services through **removing barriers and ensuring fair competition**. For example, the agreement reaffirms commitments to non-discriminatory treatment of domestic and foreign businesses and removes several restrictions on businesses seeking to expand existing trade in Japan or enter the market for the first time. These include, for example, prohibiting restrictions on the number of UK service suppliers seeking to trade in Japan and removing the need for businesses to complete economic needs tests prior to establishing presence in Japan.

Several provisions reduce trade costs by **providing greater certainty to service suppliers**, such as through increased commitments on clarity and transparency of application and licensing procedures for service suppliers seeking to operate in each other's countries. The agreement contains provisions on the movement of natural persons for business purposes, referred to as mode IV services trade. These provisions will help ensure that UK professionals have certainty of entering Japan through a number of routes to provide services or establish, with clearer and streamlined processing for temporary business visas.

Digital and data provisions in the UK-Japan CEPA go beyond the existing arrangements under the EU-Japan EPA to reduce costs by providing **greater policy certainty for UK and Japanese service suppliers**. For example, the agreement contains commitments to uphold the free flow of data. These commitments provide business the assurances they need that they can collect, process, and transfer data between the two countries, without facing unnecessary red tape while maintaining commitment to the UK's Data Protection Act 2018. The free flow of data is essential in many industries and sectors to run operations smoothly.

In line with the scale of trade cost reductions associated with similar deep trade agreements in the past, the modelling exercise assumes that in the long run non-tariff costs facing services sectors are reduced by an average of 0.6 percentage points for Japanese exporters and 1.6 percentage points for UK exports, although the trade cost reductions vary markedly across services sectors.

As a result, **trade in services between the UK and Japan is estimated to increase by 46%** in the long run. The largest increases in exports are expected to be in Financial services, Insurance and Business services.

Increased certainty for investors

The UK and Japan have close investment ties, most notably in the UK's automotive industry. Japan accounted for 5.9% of the total UK inward Foreign Direct Investment (FDI) stock in 2018. Japanese data shows the UK was the 2nd largest destination for outward Japanese FDI.¹⁵

The agreement contains provisions aimed at securing the liberalisation of FDI between the UK and Japan. The agreement enables the establishment and operation of enterprises in each other's country by committing to open market access as well as non-discriminatory treatment. The agreement ensures that UK and Japanese entrepreneurs and enterprises seeking to invest in each economy are able to do so on an equal footing via specific provisions on national treatment and most-favoured-nation treatment.¹⁶ This means that the treatment of businesses is equal to domestic and third country businesses, which in turn underpins certainty for businesses seeking to invest. Furthermore, enterprises seeking to invest are not required to appoint individuals of any particular nationality as executives, managers or members of boards of directors.¹⁷ Importantly, the agreement prohibits conditions on performance requirements before enterprises can invest. This includes requirements on the minimum export threshold, minimum domestic content and transfer of technology to domestic industry.¹⁸

The modelling exercise does not explicitly model the impact of the agreement on FDI. Reflecting changes in relative rates of return and the wider impacts of the agreement, domestic business investment is estimated to increase by 0.02% in the long run.¹⁹

¹³ ONS, GDP output approach – low-level aggregates, ONS, UK trade, quarterly trade in goods and services tables: January to March 2020.

¹⁴ ONS, UK trade, quarterly trade in goods and services tables: January to March 2020.

¹⁵ Japan External Trade Organisation (JETRO), Japan's Outward FDI 2018.

¹⁶ Article 8.8 National Treatment and Article 8.9 most-favoured-nation treatment.

¹⁷ Article 8.10 Senior Management Board of Directors.

¹⁸ Article 8.11 Prohibition of performance requirements.

¹⁹ External CGE modelling.

Increased trade in goods

Trade in goods represented 61% of all UK trade and 53% of UK exports in 2019.²⁰ Of all UK exports to Japan in 2019, 48% were goods and around 9,500 UK businesses exported goods to Japan in 2018. All nations and regions of the UK traded goods with Japan in 2019.

Several chapters of the UK-Japan CEPA contain provisions aiming to remove or reduce barriers to trade in goods. These include chapters on tariffs and rules of origin, as well as non-tariff measures, such as customs facilitation and technical barriers to trade.

The agreement substantially reduces tariffs on UK exports to Japan which can generate opportunities for UK businesses through maintaining or increasing competitiveness, particularly when compared to businesses exporting to Japan from countries without an FTA. 39% of Japan's tariff lines are duty free. The UK-Japan CEPA liberalises a further 45% of tariff lines at entry into force, with a further 11% being liberalised in the long run. This equates to 98% of UK goods exports being liberalised at entry into force, rising to 99% in the long run. This compares to 88% of UK goods exports entering duty free in a situation where the UK and Japan do not have an agreement.

Based upon 2019 trade flows, **the estimates suggest that annual duties on UK exports to Japan could reduce by £30.4 million in the short term, with a £34.9 million reduction in the long term.**²¹ The largest reductions in export duties occur in the textiles, animal and animal products and chemical products. The export opportunities are estimated to benefit all nations and regions of UK, with particular benefits for London and Scotland which account for 9% and 8% of UK goods exports to Japan respectively but, based upon the pattern of Japanese tariffs and regional exports, are estimated to benefit from 17% and 16% of overall tariff reductions on UK exports.

Annual reductions in tariffs on UK imports from Japan are estimated to be £137.1 million, with £44.7 million on imported intermediate goods and £92.5 million on consumer goods in the long term.²²

Consumers are expected to benefit most from tariff reductions on recreational goods and transport goods (such as cars), which accounted for 15% and 16% of household consumption baskets in 2018. If passed on, consumers could benefit from lower prices and increased choice.

The agreement contains substantive provisions, aimed at reducing non-tariff costs to trade, including measures which support the protection of the UK's geographical indicators for agricultural goods such as Scottish Farmed Salmon and West Country Farmhouse Cheddar cheese and measures which support UK industry such as the commitments to apply relevant industrial standards which reduce the administrative costs associated with trading.

In line with the tariff schedules and the scale of trade cost reductions associated with similar deep trade agreements in the past, the modelling assumes tariff cost reductions in goods sectors of an average of around 2.9 percentage points for Japanese exporters and 3.3 percentage points for UK exporters. For non-tariff costs the modelling assumes an average reduction of 2.4 percentage points for Japanese exporters and 2.9 percentage points for UK goods exporters. The assumed trade cost reductions do however vary markedly across goods sectors. Under the UK-Japan CEPA, both parties have largely eliminated duties on most goods, particularly on agriculture, forestry and fishery products, and on industrial products, the former being more relevant for the UK, and the latter for Japan.

Taking these factors into account, trade in goods between the UK and Japan is estimated to increase by 53% as a result of the agreement. The largest increases in exports are expected in 'Textiles and leather', 'Agriculture' and 'Processed foods'.

²⁰ ONS, UK trade, quarterly trade in goods and services tables: January to March 2020.

²¹ DIT internal analysis. Japan trade statistics portal 2019. Short term is defined as tariff savings in 2021 and long term is tariff savings from 2038 onward.

²² DIT internal analysis. Eurostat, 2019. Short term is defined as tariff savings in 2021 and long term is tariff savings from 2038 onward.

2. Wider macroeconomic impacts

Trade liberalisation and increases in international trade drive improvements in growth, productivity and wages. Trade agreements are expected to drive gains through several channels, including:

- **Gains through increased specialisation across sectors**, whereby enhanced access to international markets and imports reshapes the economy to specialise in producing goods and services in sectors which they are relatively better at producing.
- **Gains resulting from a more efficient allocation of resources within sectors**. Enhanced openness to trade can spur innovation and the expansion of the most efficient firms within sectors, driving up the average productivity and wages within the sector, while at the same time, generating increased choice and lower prices for consumers.
- **Dynamic gains through trade-induced increases in productivity**. These result from businesses benefitting from greater economies of scale or scope, increases in investment and research and development stimulated by access to larger markets, reductions in inefficiencies due to increased competition, or from positive spill overs between firms.

Increases in GDP and wages

The UK-Japan CEPA is estimated to increase the UK's long run GDP by 0.07%.²³ Compared to UK GDP in 2019 (£2.2 trillion),²⁴ this represents a £1.5 billion increase in GDP. The long run is generally assumed to represent around 15 years from implementation of the agreement. The increases in GDP derive from a more efficient reallocation of resources across the economy. Higher returns to capital can increase investment and productivity, which also contribute to higher long run GDP.

The reshaping of the economy, changes in prices and **long run increases in productivity drive long run increases in real wages for UK workers of around 0.09%,²⁵ worth £0.8 billion when compared to 2019 levels.**²⁶ From labourers to managers, all occupation types are estimated to benefit from higher wages as a result of the UK-Japan CEPA.

Distributional impacts

The impacts of the UK-Japan CEPA are estimated to vary across sectors and nations and regions of the UK.

Sectors

Most sectors are expected to increase output as a result of the UK-Japan CEPA. **Output in the textiles and leather sector is expected to increase the most.** This is due to assumed reductions in trade barriers combined with the UK being relatively competitive in this sector. Some sectors, such as the motor vehicles and chemicals, rubber, plastics sectors, are estimated to reduce output relative to the baseline. These are sectors where Japan is relatively competitive. It is likely that the reductions in output partly reflect a reallocation of resources (capital and labour) away from these sectors towards other sectors of the economy that expand output in response to the CEPA.

Nations and regions of the UK

All nations and regions of the UK are estimated to increase output as a result of the UK-Japan CEPA. London, the East Midlands and Scotland are expected to expand the most; the UK-Japan CEPA is estimated to increase Gross Value Added (GVA) in these regions and nations by 0.09%, 0.08% and 0.07% respectively. For context, these estimated increases equate to approximately £398 million for London, £82 million for the East Midlands and £101 million for Scotland when compared to the latest available GVA levels in 2017. The £ values should not be interpreted as estimates of the long run impact on each nation and region as the levels of GVA are likely to change substantially over the next 15 years (the 'long run').

Labour markets and adjustment costs

As is common practice, the modelling exercise assumes that overall employment or unemployment is unchanged by the agreement in the long run. The estimates show small changes in the distribution of workers across sectors of the economy as some sectors increase employment relative to the baseline, while employment reduces in others. The scale of adjustment is very small relative to usual levels of change observed in the labour market and is not heavily concentrated in particular sectors. **The representation of protected groups (in relation to age, sex, ethnicity and disability), in sectors where employment falls relative to the baseline as a result of the UK-Japan CEPA, is estimated to be largely in line with the general population of the workforce.**

²³ External CGE analysis.

²⁴ ONS, Gross Domestic Product at market prices: Current price: Seasonally adjusted £ million.

²⁵ External CGE analysis.

²⁶ ONS, UK sector (S.1): Wages and salaries (D.11): Resources: Current price: £ million: Not seasonally adjusted.

3. Summary of impacts and next steps

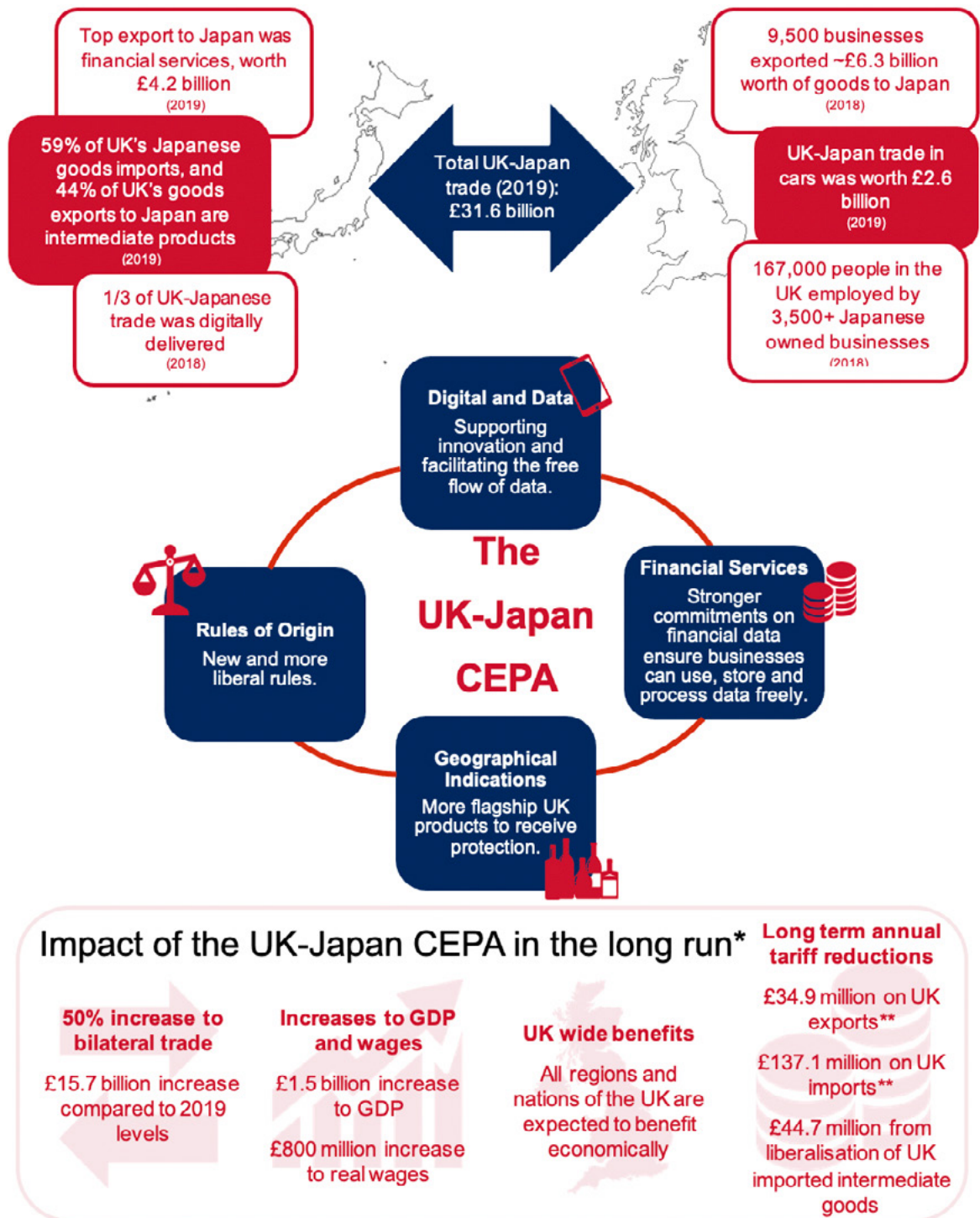
The overall quantitative impacts derived from the modelling exercise are summarised below.

	Change on baseline
Change in GDP	0.07%
	£1.5 billion
Change in UK exports to Japan	17.20%
Change in UK imports from Japan	79.94%
Change in total UK exports	0.58%
Change in total UK imports	0.51%
Change in real wages	0.09%
	£0.8 billion

Monitoring and evaluation (M&E) of the implementation and impacts of the UK-Japan CEPA is an important part of ensuring the benefits are maximised for businesses, workers, and consumers and that the new trade opportunities FTAs create are fully realised.

As part of a transparent approach to M&E of the implementation and impact of the UK-Japan CEPA, DIT will conduct a comprehensive ex-post evaluation for the UK-Japan CEPA.

The UK and Japan are the world's 5th and 3rd largest economies respectively. In 2018, Japan was the 6th largest investor in the UK, and the UK was 4th largest investor in Japan. Together they accounted for 9.2% of global GDP in the same year. The negotiated UK-Japan CEPA is a deep and comprehensive trade agreement, covering 24 chapters.



Sources: ONS, UK trade, quarterly trade in goods and services tables: October to December 2019; ONS, UK Economic Accounts; ONS, Business Structural Database; HMRC, Trade in Goods by Business Characteristics (2018); ONS, Modes of Supply data (experimental); ONS, UK trade in services: service type by partner country, non-seasonally adjusted; ONS, monthly UK trade; HMRC, Trade in goods by business characteristics and RTS; DIT analysis, UN Comtrade data; Parliamentary Report; Internal DIT Modelling. *In this context, the long run estimates refer to a period of around 15 years following the entry into force of the agreement. ** Please see Annex J: Note on Corrections.

1. Background

The UK and Japan have negotiated a Comprehensive Economic Partnership Agreement (CEPA) which aims to enhance the UK and Japan's trade and investment relationship.

In February 2019, the EU-Japan Economic Partnership Agreement (EPA) entered into force. The EU-Japan EPA applied to the UK as a member of the EU, and it continues to apply to the UK during the Transition Period. The EU-Japan EPA is a Free Trade Agreement (FTA) which aims to increase trade and investment between EU members and Japan by removing or reducing tariffs, non-tariff measures and regulatory restrictions to services prohibiting trade and investment between partner countries.

If a UK-Japan agreement was not in place by January 2021, the UK and Japan would return to Most Favoured Nation (MFN) treatment as the EU-Japan EPA would cease to apply in the UK. The Government is looking to ensure that a new agreement will be in place by the end of the Transition Period to maintain current preferential treatment.

In September 2019, the Government launched a call for input seeking stakeholder views and evidence to inform the negotiation of an enhanced free trade agreement between the UK and Japan.²⁷

In May 2020, the Government published negotiation objectives, a response to the call-for-input and a scoping assessment.²⁸ The scoping assessment set out a preliminary assessment of the broad scale of the potential long run impacts of a renegotiated agreement between the UK and Japan prior to the launch of negotiations.

The Government launched a period of negotiations with Japan, running between June 2020 and September 2020. The negotiations resulted in the UK-Japan CEPA which builds on the EU-Japan EPA and will, subject to ratification, apply at the end of the transition period.

This impact assessment provides an update to the analysis undertaken in the scoping assessment. The aim of this final impact assessment is to provide parliament and the public with a comprehensive assessment of the potential long run impacts of the UK-Japan CEPA based upon the provisions of the agreement.

The analysis in the impact assessment updates the analysis in the scoping assessment:

- The scoping assessment was undertaken prior to the negotiation of the agreement. In section 4, the impact assessment provides an assessment based upon the provisions of the negotiated agreement.
- The modelling approach and assumptions are broadly consistent with those applied in the scoping assessment. However, the approach has been updated in a number of important dimensions, these include:
- Updating the modelling to account for the announcement of the UK Global Tariff (UKGT) that will apply at the end of the transition period²⁹ and
- Including additional sensitivity analysis that assesses the sensitivity of the results to changes in the projections for global growth applied in the modelling, as global projections are uncertain.
- In a number of sections, the impact assessment provides greater detail relating to the potential impacts of the tariff reductions and agreement more widely on different nations and regions of the UK.
- In section 5, the impact assessment provides additional analysis of the impacts on businesses, including the quantification of business administration costs.
- In section 8, the impact assessment uses an improved methodology to assess the environmental impacts of the agreement.
- In section 10, the impact assessment outlines the Government's plans to monitor and evaluate the implementation of the agreement in future.

²⁷ DIT (2019), 'Information note for the call for input on a prospective free trade agreement between the United Kingdom and Japan' <https://www.gov.uk/government/consultations/trade-with-japan>

²⁸ DIT (2020), 'UK's approach to negotiating a free trade agreement with Japan' <https://www.gov.uk/government/publications/uks-approach-to-negotiating-a-free-trade-agreement-with-japan>

²⁹ DIT (2020), UK Global Tariff Guidance <https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021>

2. Objectives of the UK-Japan Comprehensive Economic Partnership (CEPA)

The UK-Japan CEPA recognises the importance of strengthening the UK and Japan's economic, trade and investment relations, in accordance with the objective of sustainable development in the economic, social and environmental dimensions.

In the current context of a dynamic and rapidly changing global environment brought about by globalisation and, more recently, the global coronavirus pandemic, the UK-Japan CEPA recognises the importance of closer integration among economies in the world, addressing the many new economic challenges and opportunities to the parties.

Building upon the longstanding and strong partnership between the UK and Japan – based upon common principles and values - the overarching objectives of the UK-Japan CEPA are to liberalise and facilitate trade and investment, as well as to promote a closer economic relationship between the UK and Japan.

The objectives are mindful of the needs of the business communities in each country, in particular small and medium-sized enterprises, and of high levels of environmental and labour protection through relevant internationally recognised standards and international agreements to which both the UK and Japan are party.

The overall negotiating objectives for a free trade agreement with Japan are:³⁰

- To agree an ambitious and comprehensive free trade agreement with Japan that builds on the EU-Japan Economic Partnership Agreement and secures additional benefits for UK businesses.
- To increase UK GDP and provide new opportunities for UK businesses, including small and medium-sized enterprises (SMEs) and investors, and facilitating greater choice and lower prices for UK producers and consumers.
- The Government has been clear that when the UK negotiates trade agreements, the National Health Service (NHS) will not be on the table. The price the NHS pays for drugs will not be on the table. The services the NHS provides will not be on the table. The NHS is not, and never will be, for sale to the private sector, whether overseas or domestic.
- Throughout the agreement, to ensure high standards and protections for UK consumers and workers and build on our existing international obligations. This will include not compromising on our high environmental protection, animal welfare and food standards, and ensuring both parties meet their commitments on climate change.
- Secure an agreement which works for the whole of the UK and takes appropriate consideration of the UK's constitutional arrangements and obligations.

³⁰ DIT (2020), 'UK's approach to negotiating a free trade agreement with Japan'. <https://www.gov.uk/government/publications/uks-approach-to-negotiating-a-free-trade-agreement-with-japan>

3. Overview of economies and current trade and investment relationship

3.1 Overview of Japan's Economy

Japan was the 3rd largest economy and 11th most populated country in the world in 2019.³¹

In 2019, Japan had the world's 24th highest GDP per capita, at \$40,247 (£31,527).³² This compares to the UK's GDP per capita of \$42,300 (£33,135), which ranks 20th highest in the world. The average Japanese consumer spent \$27,050 (£20,262) per year on goods and services in 2018.³³

Japan's GDP is around twice as large as the UK's. Value added is the net output of a sector after adding up all outputs and subtracting intermediate input, this shows the relative size of agriculture, industry and services in Japan and the UK. As shown below, both Japan and the United Kingdom share similar services and agricultural value added as percentage of GDP. However, Japan has a higher percentage value added in industry than the UK.³⁴

Total trade (imports plus exports) is equivalent to a higher proportion of UK GDP at 63% compared to 37% for Japan. This could be explained in part by the fact that in general, larger economies depend less on external markets to satisfy domestic demand.³⁵

Key Facts

- The UK and Japan are major investors in each other's economies, in 2018 Japan was the 6th largest investor in the UK, and the UK was the 4th largest investor in Japan in terms of inward investment.
- Total UK-Japan trade was worth £31.6 billion in 2019 with just over half of this being goods trade. This has grown continuously over the last 5 years, with total trade increasing by an average of 9.4% per year.
- Total UK exports to Japan were worth £15.2 billion in 2019. The UK exported £7.3 billion (48%) worth of goods and £8.0 billion (52%) worth of services to Japan in 2019.
- Total UK imports from Japan were worth £16.3 billion in 2019. The UK imported £9.7 billion (59%) worth of goods and £6.6 billion (41%) worth of services from Japan in 2019.
- The UK top goods exports to Japan in 2019 were mechanical power generators (£1.2 billion), cars (£1.1 billion) and Medicinal & pharmaceutical products (£0.8 billion). The top goods imports from Japan in 2019 were cars (£1.5 billion), Mechanical power generators (£1.1 billion) and electrical goods (£0.8 billion).
- The top UK services exports to Japan in 2019 were financial services (£4.2 billion) and 'other Business services' (£1.6 billion). 'Other business services' captures professional services, including auditing, accounting and legal services. The top services imports were Intellectual property (£2.5 billion), and Financial services (£2.4 billion).
- In 2018, around 8,000 UK SMEs exported goods to Japan. These SMEs produce 23% of the UK's goods export value to Japan and represent 84% of total UK goods exporters to Japan.
- In 2018, around 9,500 VAT registered businesses, employing 2.4 million people, exported around £6.3 billion worth of goods to Japan. Around 6,700 VAT registered business, employing 2.5 million people, imported around £9.9 billion worth of goods from Japan.
- All regions/nations of the UK export to Japan; those with the highest proportion of their goods exports destined for Japan were the South East, the South West and the East of England.

Sources: ONS FDI, UKEA and Total Trade; JETRO; UN Comtrade by BEC; HMRC Trade in goods by business characteristics and RTS

³¹ World Bank, World Development Indicators, GDP (current US\$). Last Updated: 07/01/2020. World Bank, World Development Indicators, Population, total. Last Updated: 07/01/2020.

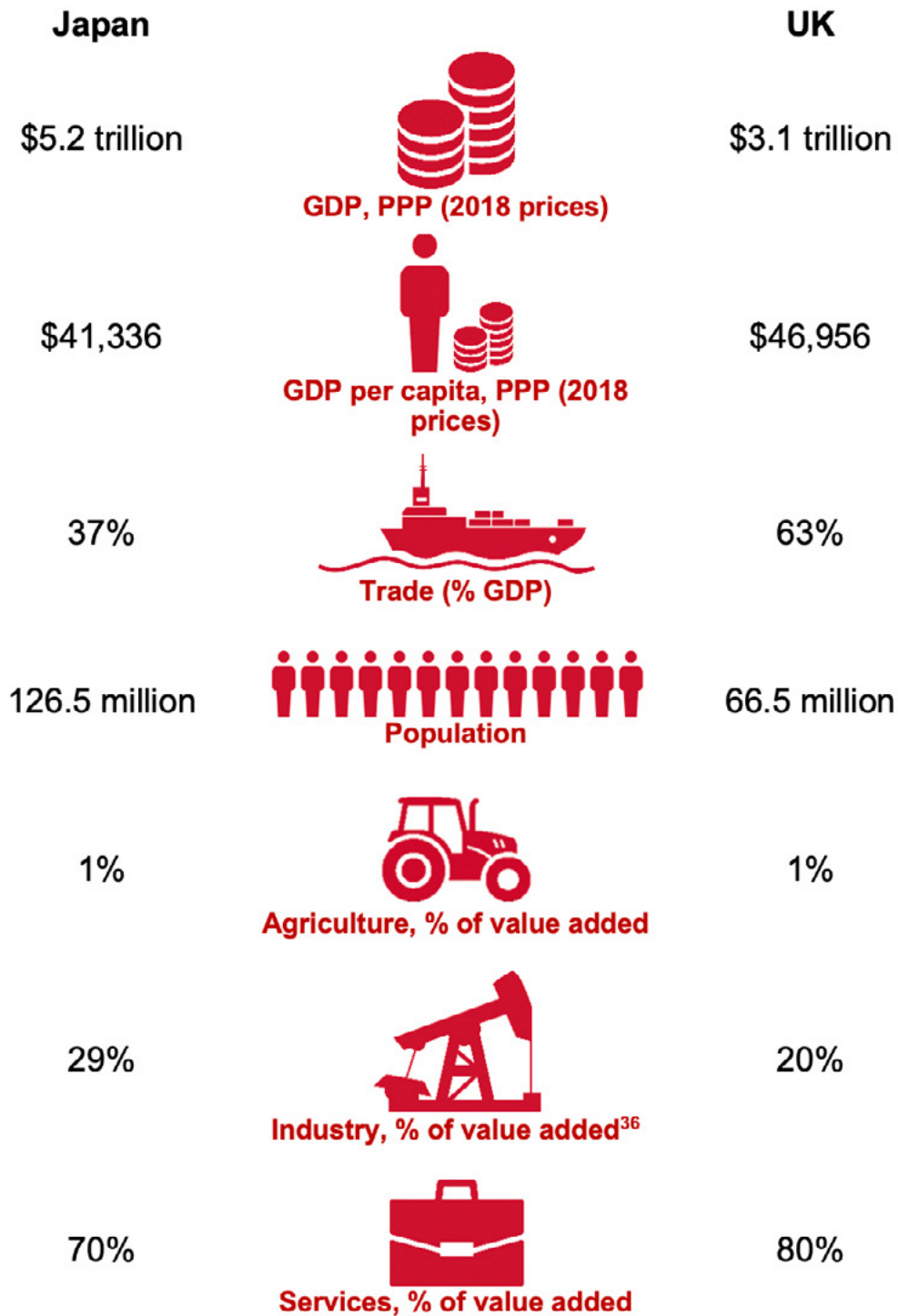
³² World Bank, World Development Indicators, GDP per capita (current US dollars), 2019. Rankings excludes Macao and Hong Kong. GDP per capita converted using Bank of England annual average spot exchange rates for 2019.

³³ World Bank Development Indicators, Households and NPISHs Final consumption expenditure per capita (constant 2010 US\$). Last Updated: 07/01/2020.

³⁴ Value added as a percentage of GDP can be used as a measure of the relative contribution of a sector towards overall economic output in an economy.

³⁵ OECD (2010), "Trade as a percentage of GDP", in Measuring Globalisation: OECD Economic Globalisation Indicators 2010, OECD Publishing, Paris.

Chart 1 – Headline economic indicators for Japan and the UK, 2018



Source: World Bank, World Development Indicators for GDP, Trade and Population. OECD, Value added by activity for % of value added by sector. Figures may not sum due to rounding.

³⁶ Note that industry includes construction

Despite both the UK and Japan being advanced economies, there are differences in economic structure. Table 1 below shows the areas of revealed comparative advantage (RCA), or relative export specialisation, for the UK and Japan.

Each country is relatively specialised in exports within sectors where the RCA index is greater than zero (shaded blue). This can be considered as a proxy for the specialisations of the UK and Japan economies. The differences in specialisations point to a degree economic complementarity between two economies overall. Table 1 shows that Japan is relatively specialised in several industry sectors such as chemicals rubber and plastics, motor vehicles and parts, manufacturers of materials, machinery and equipment and transport equipment. The UK is relatively specialised in several services sectors such as business services, financial services and insurance.

Table 1 – Relative export specialisations by sector³⁷

		UK RCA	JPN RCA
Agri-foods	Agriculture	-0.67	-1.01
	Beverages and tobacco products	0.28	-0.24
	Semi-processed foods	-0.41	-0.82
	Processed foods	-0.23	-0.68
Industry	Chemical, rubber, plastic products	0.31	1.12
	Electronic equipment	-1.52	-2.98
	Energy	-3.07	-5.76
	Manufactures of materials	-1.29	0.85
	Motor vehicles and parts	0.03	5.30
	Other machinery and equipment	-0.93	8.16
	Other manufacturing	-0.03	-0.21
	Other transport equipment	0.39	0.20
	Paper and printing products	-0.01	-0.31
	Textiles, apparel, and leather	-0.94	-1.28
Services	Business services	3.74	-1.03
	Communications	0.33	-0.20
	Construction	-0.06	0.37
	Financial services	2.49	-0.30
	Insurance	0.55	-0.15
	Other services (transport, water, dwellings)	0.46	-0.75
	Personal services	0.29	-0.26
	Public services	0.18	-0.30
	Wholesale and retail trade	0.10	0.28

Source: GTAP9 and DIT Calculations (2020).

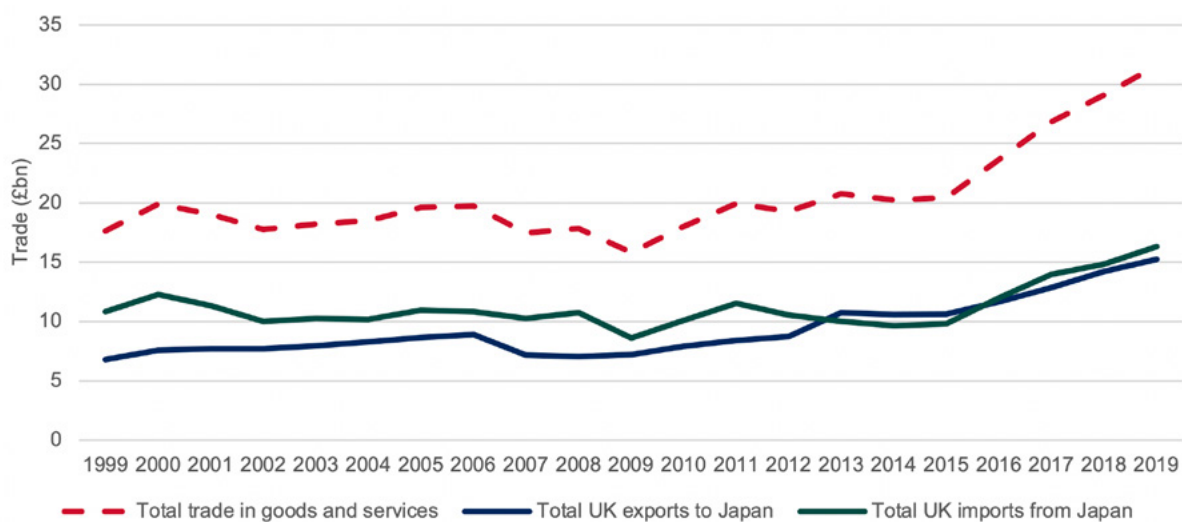
³⁷ 23 Sectors are an aggregation of the 57 GTAP Sectors. The normalized revealed comparative advantage uses a different sectoral aggregation from the Impact Assessment of the EU-Japan EPA on the UK. Normalised Revealed Comparative Advantage formula retrieved from: Yu R., Cai J., and Leung P. (2009). 'The Normalized Revealed Comparative Advantage Index, The Annals of Regional Science', 43(1): 267-282.

3.2 Overview of UK-Japan trade

Total UK-Japan trade has been stable over the past 20 years, with the exception of the most recent 5 years where total trade has grown continuously, increasing by an average of 9.4% per year (chart 2). Total trade in 2019 was £31.6 billion with just over half of this being goods trade (54% of total trade in 2019 was in goods).³⁸

Total UK exports to Japan were worth £15.2 billion in 2019. The split between goods and services in UK exports is relatively even, the UK exported £7.3 billion (48%) worth of goods and £8.0 billion (52%) worth of services to Japan in 2019. Total UK imports from Japan were worth £16.3 billion in 2019. The UK imported a higher share of goods than services from Japan, with £9.7 billion (59%) worth of goods and £6.6 billion (41%) worth of services.³⁹

Chart 2 – UK total trade in goods and services with Japan 1999–2019



Source: ONS, UK Economic Accounts.

Supply chains are an important feature of UK-Japan trade and could provide extra gains from liberalisation.

Supply chains – where imported goods and services are used in the production of goods and services which are either consumed domestically or re-exported – are an increasingly important feature of international trade. Reductions in UK-Japan trade barriers (tariff, non-tariff measures and regulatory restrictions to services) can facilitate and reduce the cost of trade in these intermediate goods, with the gains passed on to other businesses and final consumers.

According to UN Comtrade data, 59% of all Japanese goods imported into the UK and 44% of all UK goods exported to Japan were in intermediate goods (Table 2).⁴⁰

Table 2 - Value of UK-Japan trade in goods according to end-use, 2017-2019 average

	Intermediate goods	Capital goods	Consumer goods
UK imports from Japan	£5.2 billion (59%)	£1.5 billion (17%)	£2.0 billion (23%)
UK exports to Japan	£2.2 billion (44%)	£0.7 billion (14%)	£2.1 billion (41%)

Source: DIT analysis, UN Comtrade data. Note percentages may not sum to 100% due to unspecified goods.

³⁸ ONS, UK Economic Accounts, 2019 (annual figures, non-seasonally adjusted).

³⁹ ONS, UK Economic Accounts, 2019 (annual figures, non-seasonally adjusted).

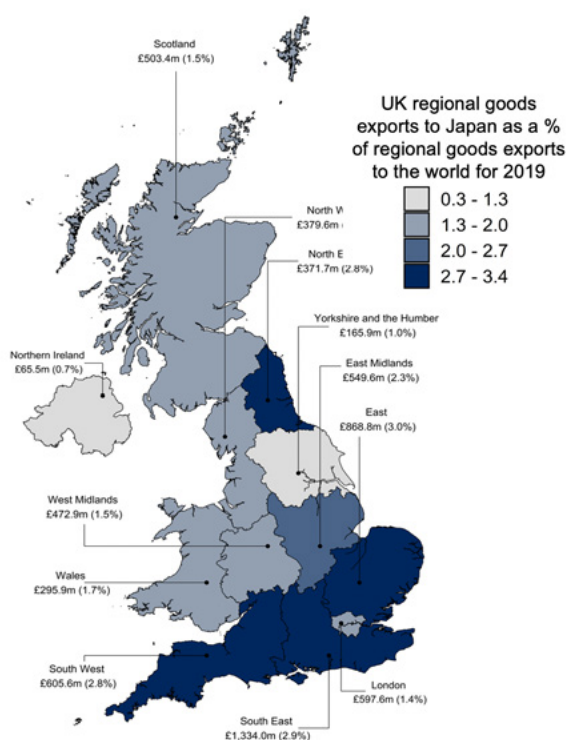
⁴⁰ United Nations, Classification by Broad Economic Categories (BEC) Rev.5, 2018 (passenger motor vehicles have been included within the consumer goods category). BEC has limitations as a source for identifying goods for intermediate use.

Supply chains can be measured using “trade in value-added” data which measures the proportion of UK exports containing goods or services that were initially imported from Japan, and vice versa. The UK sectors with the highest amount of Japanese value-added in exports are motor vehicles, other transport equipment and electrical equipment (less than 1% of the value for each of these UK exports originates from Japan).⁴¹

Japanese sectors with the highest amount of UK value-added in exports are other transport equipment, chemicals and pharmaceutical products and rubber and plastic products (less than 1% of the value for each of these Japanese exports originates from the UK).

All UK nations and regions trade with Japan.

Chart 3 – UK goods exports to Japan by nation and region



Source: HMRC Regional Trade Statistics, 2019 data.

In 2019, the regions with the highest proportion of their goods exports destined for Japan were the South East, the South West and the East of England, with around 3% of each region’s exports to the world going to Japan.⁴² Chart 3 displays the percentage of each region’s goods exports that were destined for Japan.⁴³

UK nations export a variety of goods to Japan. Table 3 shows the top 3 goods exported to Japan from each UK nation. This highlights the diversity between exports in different UK nations to Japan. For example, some of the top goods exports to Japan in 2019 were, Road vehicles from England, Medicinal & Pharmaceutical products from Northern Ireland, Beverages from Scotland; and Power generating machinery & equipment from Wales.

⁴¹ OECD, Trade in Value Added. The TIVA database only provides data up to 2015, with preliminary projections to 2016 for select indicators.

⁴² HMRC, Regional trade statistics, 2019. Data on services not available.

⁴³ Note that when a business has branches in more than one region, its trade is allocated by HMRC to each region based on the proportion of its employees in that region. For example, if 50% of a firm’s employees are employed in Northern Ireland, then 50% of that firm’s trade will be assigned to Northern Ireland, regardless of where the goods were manufactured and exported from.

Table 3 - Top three UK goods exports to Japan by nation in 2019

Nation	Top 3 SITC2 goods by export value for 2019	Values, £ million
England	Road vehicles (including air cushion vehicles)	1,126.4
	Power generating machinery & equipment	941.0
	Medicinal & pharmaceutical products	596.9
Northern Ireland	Professional, scientific & controlling instruments & apparatus	19.6
	Medicinal & pharmaceutical products	12.6
	Machinery specialized for particular industries	7.5
Scotland	Power generating machinery & equipment	133.7
	Beverages	124.8
	Professional, scientific & controlling instruments & apparatus	30.5
Wales	Power generating machinery & equipment	121.5
	Non-ferrous metals	37.3
	Electrical machinery, app & appliances & electrical parts	25.6

Source: HMRC Regional Trade Statistics, 2019 data.

3.3 UK jobs supported by exports to Japan

Table 4 shows the estimated number of jobs in the UK supported by exports to Japan. Around 167,000 jobs in the UK were supported by exports to Japan in 2015. This is around 3% of all UK employment supported by UK exporting activity (which totalled around 6.6 million persons).⁴⁴

Overall, 21% of employment in the UK was supported by exports and the related domestic supply chain in 2015. 1% of total UK employment was supported by UK exports to Japan.

Table 4 - UK employment supported by UK gross exports to Japan (persons)

Industry (SIC 2008)	2013	2014	2015
Agriculture, Forestry and Fishing	600	500	1,200
Mining and Quarrying	100	100	100
Manufacturing	34,300	35,400	38,300
Electricity, Gas, Water Supply, Sewerage, and Waste Services	200	200	200
Construction	100	100	100
Wholesale and Retail Trade	19,300	19,300	21,600
Transportation and Storage	14,100	12,200	10,700
Accommodation and Food Services	1,400	1,200	1,100
Information and Communication	4,900	6,800	7,800
Financial and Insurance Activities	27,300	29,900	33,100
Real Estate Activities	200	200	200
Other Business Sector Services	39,100	45,300	47,400
Public Administration and Defence	200	300	200
Education	1,900	2,100	1,900
Human Health and Social Work	100	200	300
Arts, Entertainment and Recreation	2,500	2,200	2,700
Total	146,400	156,000	166,800

Source: OECD Trade in Employment (TiE) database. Last updated: March 2019.

Notes:

1. Estimates are calculated using the 2018 edition of OECD's Inter-country Input-Output (ICIO) tables together with recent estimates of employment by industrial activity from official sources.
2. The estimates capture: a) employment in the UK exporting industry ('direct employment'), b) employment in other UK industries (different from the exporting industry) that supply inputs to the UK exporting industry ('indirect employment') and c) employment in any UK industry used to produce exports of intermediate goods or services subsequently embodied in imports used in the production of exports by the UK industries above ('re-imported employment'). The estimates are headcounts rather than full-time equivalents.
3. It should be noted that due to the assumptions underpinning the Trade in Employment database, the estimated employment numbers are likely upward-biased – see OECD article 'Measuring Employment in GVCs' for more detail.
4. The estimates should be interpreted as employment supported by exports, rather than employment created by exports as the employment may have previously existed to serve domestic (UK) consumers
5. Updated estimates are expected to be published by the OECD in autumn 2020.

3.4 Overview of UK-Japan investment relationship

The UK and Japan are major investors in each other's economies.

In 2018, there was £1.5 trillion of investment in the UK from abroad.⁴⁵ Japan was the 6th largest investor in the UK in 2018, with £89.2 billion invested in the UK.⁴⁶ This was 5.9% of all foreign investment in the UK. The UK was the 4th largest investor in Japan with US\$23.3 billion (£17.5 billion) invested in Japan.⁴⁷

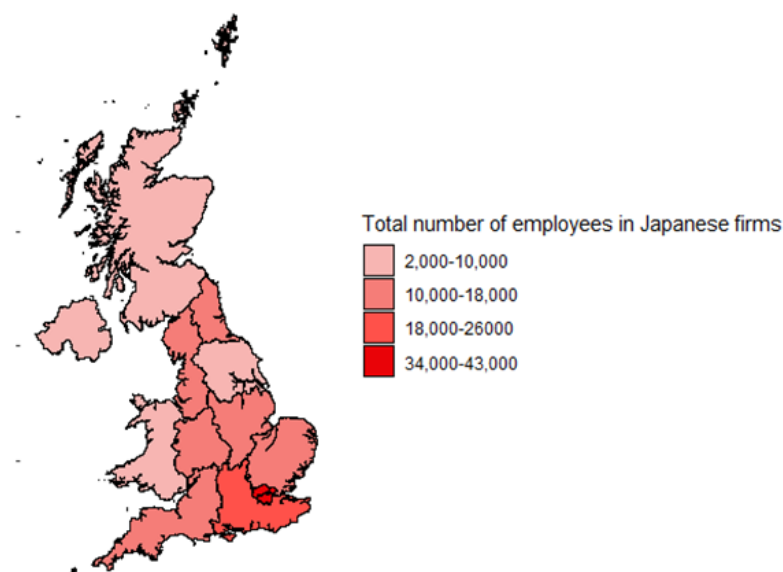
A quarter of Japan's investment position in the UK in 2018 was in three sectors: financial services (12.3%); retail and wholesale trade, repair of motor vehicles and motorcycles (10.8%); and information and communication (3.8%).⁴⁸

This is comparable with the top five sectors for total investment in the UK from abroad in 2018: financial services (28.8%); professional, scientific and technical services (10.0%); other⁴⁹ services (9.9%); information and communication (9.3%); and retail and wholesale trade, repair of motor vehicles and motor cycles (8.2%).

In 2018, there were over 3,500 Japanese owned businesses in the UK, employing over 167,000 people and generating a turnover of over £179 billion in total.⁵⁰ Japanese investment contributes the most as a share of local business employment in the North East, where Japanese firms employed almost 17,000 people in the region, or 1.6% of local business employment. This is twice as much as London, where despite Japanese firms employing nearly 43,000 employees, these only accounted for 0.8% of local business employment.

The number of those employed by Japanese firms in London in 2018 makes up a quarter of those employed by Japanese firms in the UK as a whole. This is followed by the South East and the North East, which account for 15% and 10% of total employment by Japanese firms in the UK.

Chart 4 - Distribution of employees in Japanese owned firms across NUTS 1 regions



Source: ONS, Business Structural Database, accessed using the Secure Research Service.

The sectors with the largest share of employment by Japanese owned firms in 2018 were Manufacturing; Financial Services, Information & communication (I&C) & real estate; and Wholesale and Retail Trade.⁵¹ Around 3,000 Japanese owned firms employing around 129,000 people operated in these sectors in 2018.

45 ONS, Foreign direct investment (FDI) totals for inward and outward flows, positions and earnings: 2017 to 2018.

46 ONS, Foreign direct investment (FDI) totals for inward and outward flows, positions and earnings: 2017 to 2018.

47 Japan External Trade Organisation (JETRO), Japan's Inward FDI 2018.

48 ONS, Foreign direct investment (FDI) involving UK companies, 2018.

49 Other than electricity, gas, water and waste; construction; retail and wholesale trade, repair of motor vehicles and motorcycles; transportation and storage; information and communication; financial services; professional, scientific and technical services; and administrative and support service activities.

50 This work was produced using statistical data from ONS's Business Structural Database, accessed using the Secure Research Service. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates.

51 Wholesale & retail trade includes repair of motor vehicles and motorcycles.

Table 5 below shows the number of employees, number of businesses and total turnover of Japanese firms in the UK by sector.

Table 5 - Business counts, employees and turnover of Japanese firms in each sector, 2018

	Employees (Number)	Turnover (£ billion)	Business counts
Manufacturing	58,000	22	375
Wholesale and Retail Trade	40,158	40	1,790
Other Services	36,610	15	768
Financial Services, Information and Communication, and Real estate	31,019	101	550
Construction	1,325	-	34
Production	-	<1	-
Agriculture	-	-	-

Source: ONS's Business Structural Database, accessed using the Secure Research Service

Notes:

1. Employee proportion shows the number of employees in Japanese firms in that sector as a % of total employment in that sector in the UK. Similarly, for turnover and count proportions.
2. The "-" indicates data has been suppressed to mitigate disclosure.

4. Key provisions and rationale

 <p>Services</p>	<p>Bilateral services trade has increased by 26.5% since 2017. In 2019, the services sectors with the highest levels of restrictiveness in Japan were legal services and air transport services. In the UK, the sectors with the highest levels of restrictiveness were air transport services and accounting services. Improvements include provisions on movement of natural persons for business purposes and in financial services, additional safeguards for financial data across borders; further transparency of regulation; and greater confidence of transparent and reasonable treatment by Japanese regulatory authorities.</p>
<p>In 2018, digitally delivered trade with Japan was worth £9.9 billion. While the UK and Japan are relatively open to foreign trade, both the UK and Japan remain relatively restrictive in 'infrastructure and connectivity'. Improvements include commitments to uphold world-leading standards of protection for individuals' personal data and the free flow of data, assuring businesses that they can collect, process, and transfer data between the two countries, without facing unnecessary red tape.</p>	<p>Digital</p> 
 <p>Investment</p>	<p>The total stock of FDI from Japan in the UK was £89.2 billion in 2018. On average the UK and Japan are relatively open to international investment compared to OECD countries. However, Japan is relatively more restrictive to FDI compared to the United Kingdom in areas of equity restrictions (the proportion of a business that can be owned by individuals who are not Japanese citizens). Improvements include provisions that create more certainty for investors. For example, UK and Japanese entrepreneurs and enterprises seeking to invest bilaterally are now able to do so on an equal footing.</p>
<p>UK goods trade with Japan accounts for a significant share of total UK-Japan trade. In 2019, 48% of total UK exports to Japan and 59% of total UK imports from Japan were goods. In the absence of a trade agreement, UK-Japan trade would be subject to MFN tariffs. The UK-Japan CEPA has also secured the phased elimination of tariffs on motor cars/vehicles, tyres, monitors and mechanical bearings on UK imports and maintained tariff free access on £630.1 million worth of UK exports.</p>	<p>Tariffs</p> 
 <p>NTMs</p>	<p>Over 600 Technical Barriers to Trade (TBTs) and over 200 Sanitary and Phytosanitary measures (SPS) measures are applied by the Japanese on UK imports and over 250 TBT and nearly 100 SPS measures are applied by the UK on Japanese imports. Most NTMs faced by UK and Japanese exporters fall under the category of TBTs and SPS. Improvements include commitments on transparency will ensure that the UK and Japan notify each other about new technical regulations and conformity assessment procedures. Improving the transparency on SPS provisions and the published information on laws and regulations related to SPS.</p>
<p>In 2019, £2.5 billion of Intellectual Property (IP) services were imported from Japan. This represented 37% of all UK services from Japan. The UK-Japan CEPA secures protection of Geographical Indication (GIs) as an intellectual property right. Subject to Japan's domestic processes, provisions in the agreement provide for recognition and continued protection of GIs, including Scotch Whisky, Blue and White Stilton cheese, Irish Whiskey, and Irish Cream.</p>	<p>IP</p> 
 <p>Procurement</p>	<p>The WTO's Government Procurement Agreement (GPA) covers £26 billion of Japan's procurement, compared to £78 billion of the UK's procurement market. The UK-Japan CEPA guarantees UK businesses non-discriminatory access to bid for public procurement contracts in Japan's Local Independent Administrative Agencies and Core Cities. The UK-Japan CEPA also sees the removal of the Operational Safety Clause (OSC) which ensures non-discriminatory access to a substantial proportion of the Japanese rail market.</p>
<p>In 2018, SMEs represented 99% of all UK businesses exporting goods and services globally and 84% of all UK businesses exporting goods to Japan. SMEs have reported issues relating to limited information about foreign markets, difficulties in accessing export-distribution channels and in contacting overseas customers. The UK-Japan CEPA includes a commitment to simplify customs procedures and establish central point of contact to facilitate cooperation with Japan on issues specifically relating to SME trade.</p>	<p>SMEs</p> 
 <p>Sustainability</p>	<p>The UK-Japan CEPA upholds commitments of international environmental standards derived from Multilateral Environmental Agreements (MEAs). This sets out that the UK and Japan will strive to facilitate and promote trade and investment, while also supporting climate change mitigation.</p>
<p>This new, additional chapter agrees the importance of enhancing opportunities for women to participate equitably in the global economy. Limited access to markets, technology and finance, underrepresentation in leadership positions and limited use of business networks can act as barriers to trade for women. The UK-Japan CEPA establishes a Working Group responsible, amongst other things, for implementing cooperation activities. Cooperation activities include the provision of advice or training, exchange of information and experience, the development of women's leadership and business networks and best practices related to workplace flexibility.</p>	<p>Women in Trade</p> 

The UK-Japan CEPA includes provisions set out across 24 chapters and annexes of the agreement. The text of the agreement is available on GOV.UK. The Parliamentary Report highlights areas where there are material changes and enhancements to the existing EU-Japan EPA.⁵²

The provisions of the agreement aim to increase trade in goods, services, investment and enhance productivity, for the benefit of businesses, workers and consumers.

This section sets out the key provisions included in the negotiated agreement and summarises the rationale for government intervention.

4.1 Enhancing trade in services, investment and e-commerce

The UK and Japan share a close trading in services relationship, with Japan being the UK's 9th largest services export market,⁵³ and the UK being Japan's 4th largest service export market.⁵⁴ Bilateral services trade has increased by 26.5% since 2017. As set out in section 3, UK services exports to Japan were worth £8.0 billion (52% of total UK exports to Japan) and UK services imports from Japan were worth £6.6 billion (41% of total UK imports from Japan) in 2019.⁵⁵

4.1.1 Services trade

The OECD's Services Trade Restrictiveness Index (STRI) provides information on regulations that affect trade in services across 22 sectors and 46 countries as well as several emerging-market economies. In 2019, the services sectors with the highest levels of restrictiveness in Japan were legal services and air transport services, whilst in the UK the sectors with the highest levels of restrictiveness were air transport services and accounting services.

The agreement contains a dedicated provision that aims to provide a more certain trading environment for businesses and investors. The agreement applies a negative listing approach, which means that only sectors not in the scope of liberalisation are explicitly stated. Sectors out of scope include audio-visual and air services, which maps to the relatively high level of restrictions evidenced by the STRI.

The agreement removes several restrictions on businesses seeking to expand existing trade in Japan or enter the market for the first time (as highlighted in the STRI). For example:

- The agreement prohibits restrictions on the number of UK businesses seeking to trade in Japan as well as restrictions to the value of trade. In addition, the agreement removes the need for businesses and service suppliers to complete an economic needs test (Articles 8.7 and 8.15).
- The agreement contains provisions on the movement of natural persons for business purposes, referred to as mode IV services trade. This includes commitments from Japan for UK intra-corporate transferees, business visitors for investment purposes, contractual service suppliers, independent professionals, short term business visitors and investors (Article 8.25 and 8.26). This means UK professionals have certainty through a number of routes to enter and stay in Japan on a temporary basis to provide services or establish, with clearer and streamlined processing for temporary business visas.
- The agreement contains provisions which ensure that licencing requirements and qualification procedures are as simple as possible, made publicly available and easily understandable so they do not act as an unfair barrier to trade. Authorisation fees are required to be reasonable (Article 8.31).

Financial services trade is the UK's biggest export to Japan and was worth £4.2 billion in 2019.⁵⁶ Given the economic importance of the UK's financial service industry, the agreement contains several provisions tailored to the UK economy. Further enhancements include:

- Additional safeguards on the ability to use, store and process financial data on a cross-border basis (Article 8.63). This means that UK businesses supplying financial services in Japan are not obliged to store financial data in Japan. This avoids the associated costs of maintaining multiple data servers across jurisdictions. Appropriate regulatory safeguards remain, to ensure that appropriate access to financial data by financial regulators, and on the protection of personal data.
- Commitments on effective and transparent regulation in financial services have been bolstered to clarify the ability of an applicant for authorisation to trade in financial services (Article 8.64). This means that UK businesses operating in Japan or seeking authorisation to provide a financial service can have greater confidence that they will receive transparent and reasonable treatment by Japanese regulatory authorities.

⁵² DIT (2020), 'The United Kingdom's Future Trading Relationship with Japan'.

⁵³ ONS, UK total trade: all countries, non-seasonally adjusted.

⁵⁴ ITC Trade Map.

⁵⁵ ONS, UK Economic Accounts, 2019 (annual figures, non-seasonally adjusted).

⁵⁶ ONS, UK trade in services: service type by partner country, non-seasonally adjusted.

4.1.2 Digital trade provisions

In 2018, roughly one fifth of UK trade with the world in goods and services was digitally delivered. Digitally delivered trade accounts for around one third of trade between the UK and Japan. In 2018, digitally delivered trade with Japan was worth £9.9 billion.⁵⁷

Digital provisions are cross cutting, thereby supporting the whole of UK trade with Japan, which was worth £29.1 billion in 2018.⁵⁸ The free flow of data is essential in many industries and relevant to any business that uses the internet to produce, deliver and receive payments for their work, or to pay their salaries and taxes.

The free flow of data across borders facilitates international market access for digitally-enabled companies.⁵⁹ Digitalisation helps to reduce the costs of engaging in international trade, facilitates the co-ordination of Global Value Chains, helps to diffuse ideas and technologies across borders, and connects large numbers of businesses and consumers globally.⁶⁰ Cross-border data flows are an important facilitator of both digitally enabled and digitally delivered trade in goods and services.

The OECD's Digital Services Trade Restrictiveness Index (Digital STRI) shows that Japan and the UK are relatively more open to foreign trade in digitally traded services than other OECD countries on average. However, both the UK and Japan remain relatively restrictive in 'infrastructure and connectivity' - that is, restrictions related to communication infrastructures essential to engaging in digital trade, e.g. cross-border data flows and electronic transactions.

The UK-Japan CEPA includes provisions that directly impact digital trade, but also those that boost total UK trade and the wider economy. This creates an environment of trust and confidence in the use of electronic commerce. These include:

- Commitments to uphold world-leading standards of protection for individuals' personal data, in line with the UK's Data Protection Act 2018, when data is being transferred across borders. This ensures that both consumer and business data can flow across borders in a safe and secure manner.
- Commitments to facilitate the free flow of data. These commitments provide business the assurances they need that they can collect, process, and transfer data between the two countries, without facing unnecessary red tape. The free flow of data is essential in many industries and sectors to run operations smoothly.
- The prohibition of customs duties or other charges on electronic transmissions, such as e-books, music downloads and films. This provides certainty that businesses will not face tariffs on the export or import of content between the UK and Japan and improves the efficiency of business transactions.
- Prevention of unjustified data localisation. This means that British businesses operating in Japan can plan their business growth without worrying about the extra cost associated with local storage of data.

4.1.3 Investment

The UK and Japan have close investment ties, most notably in the UK's automotive industry. The total stock of FDI from Japan in the UK was £89.2 billion in 2018.⁶¹ Japan accounted for 5.9% of the total UK inward FDI stock.⁶² Japan's data shows the UK was the 2nd largest destination for outward Japanese FDI.⁶³

The OECD's FDI Regulatory Restrictiveness Index assesses the restrictiveness of a country's FDI regulation. The data shows that both the UK and Japan are relatively open to international investment compared to OECD countries on average. However, Japan is relatively more restrictive to FDI compared to the United Kingdom in areas of equity restrictions – that is, restrictions on the proportion of a business that can be owned by individuals who are not Japanese citizens.⁶⁴

⁵⁷ ONS, Modes of Supply data is experimental, and methodology used to compile the data are subject to future improvements. The data excludes supply Mode 3 (commercial presence), which is understood to make up the largest proportion of UK trade in services. The WTO estimate that Mode 3 makes up around 63% of UK services trade. Caution is therefore advised when using the ONS Modes of supply data as the exclusion of Mode 3 is likely overestimating the value of services delivered by the other Modes of supply by well over double their true value.

⁵⁸ ONS, UK Economic Accounts: balance of payments – current account: Total Trade.

⁵⁹ The empirical evidence on the economic impact of restrictive data policies is currently limited, but two recent papers shed light on the potential negative impacts on cross-border trade. Ferracane M and van der Marel E. 'Do Data Policy Restrictions Inhibit Trade in Services?' 2018, show that strict data policies negatively and significantly impact imports of data-intensive services. Further Ferracane M and others. 'Do Data Policy Restrictions Impact the Productivity Performance of Firms and Industries?' 2018, show that stricter data policies have a negative and significant impact on the performance of downstream firms in sectors reliant on electronic data.

⁶⁰ OECD, 'The Impact of digitisation on trade', available at <https://www.oecd.org/trade/topics/digital-trade/>.

⁶¹ ONS, Foreign direct investment (FDI) totals for inward and outward flows, positions and earnings: 2017 to 2018.

⁶² ONS, Foreign direct investment (FDI) totals for inward and outward flows, positions and earnings: 2017 to 2018.

⁶³ Japan External Trade Organisation (JETRO), Japan's Outward FDI 2018.

⁶⁴ OECD, FDI Regulatory Restrictiveness Index.

The agreement contains provisions that aim to create more certainty for investors. The agreement enables the establishment and operation of enterprises in each other's country by committing to open market access and as well as non-discriminatory treatment, for example:

- UK and Japanese entrepreneurs and enterprises seeking to invest bilaterally can do so on an equal footing due to provisions on national treatment and most-favoured-nation treatment of businesses (Article 8.8). This means the treatment of businesses is equal to domestic and third country businesses, which in turn creates further certainty for businesses seeking to invest.
- Enterprises seeking to make an investment are not required to appoint individuals of any particular nationality as executives, managers or members of boards of directors (Article 8.10).
- Conditions on performance requirements before enterprises can invest are prohibited (Article 8.11). This includes requirements on the minimum export threshold, minimum domestic content and transfer of technology to domestic industry.

4.2 Promoting trade in goods

International trade in goods is subject to a wide range of tariff and non-tariff measures. Higher costs reduce the profitability of international trade, raise prices, and reduce consumer choice globally. UK goods trade with Japan accounts for a significant share of total UK-Japan trade where the UK exported £7.3 billion (48% of total UK exports to Japan) worth of goods to Japan and imported £9.7 billion (59% of total UK imports from Japan) worth of goods from Japan in 2019.⁶⁵ The main goods exported to Japan in 2019 were include vehicles and pharmaceutical products.

Several chapters within the agreement contain provisions aiming to remove or reduce barriers to trade in goods. These include chapters on tariffs and rules of origin, as well as non-tariff measures, such as customs and facilitation.

4.2.1 Tariffs

Based upon the call for input held between September and November 2019, the Government recognised that tariffs and the staging of tariffs were a key priority for stakeholders.

In the absence of a trade agreement, UK-Japan trade would be subject to Most Favoured Nation (MFN) tariffs.⁶⁶ This would raise the cost of trading on 39% of UK goods imports from Japan and 11% of UK goods exports to Japan.

UK Imports

Most of the goods trade is tariff free under the UK-Japan CEPA. As shown in table 6, 61% of UK imports from Japan can enter tariff free under the UK Global Tariff regime.

The UK-Japan CEPA establishes that a further 20% of UK imports from Japan will enter tariff free immediately, which would have otherwise faced tariffs without the agreement.⁶⁷ This includes certain types of gear boxes for tractors (3% tariff rate without the agreement), certain engines and parts (2.5% tariff rate without the agreement), air conditioning machines (2% tariff rate without the agreement) and certain chemical products (5.9% tariff rate without the agreement).

The agreement also establishes the phased elimination of tariffs on 19% of UK imports from Japan, reducing cost on intermediate goods for businesses and final consumer goods. This includes motor cars/vehicles, tyres, monitors and mechanical bearings.

⁶⁵ ONS, UK total trade: all countries, non-seasonally adjusted.

⁶⁶ Tariffs are normally applied on a Most Favoured Nation (MFN) basis. This means that there can be no discrimination in duties applied to goods from any World Trade Organization member, unless there is a preferential trade agreement.

⁶⁷ Note that tariff reductions apply to goods that meet Rules of Origin requirements.

Table 6 - Tariff schedule breakdown for UK imports from Japan, UKGT 2019

Tariff schedule category	By number of tariff lines		By value of imported goods, 2019	
	#	%	£ million	%
UKGT MFN 0%	4,521	47	6,276.9	61
Tariffs eliminated - Entry Into Force (EIF)	4,659	49	2,063.7	20
Staged to zero	263	3	1,903.6	19
Goods not fully liberalised	46	0.5	0.6	0.01
Excluded	44	0.5	1.6	0.02
Total trade	9,533	100	10,246.3	100

Source: DIT's calculations using goods trade data from HMRC (2019). Tariff data retrieved from UK-Japan CEPA schedule; UK Global Tariff (UK MFN) and WTO TAO (Japan MFN). Figures may not sum due to rounding. Note that some excluded products are UKGT MFN 0%.

Under the UK-Japan CEPA, 30.4% of UK automotive imports from Japan will enter tariff free entry into force of the agreement. Staged tariffs reductions will be in force impacting around 69.6% worth of UK automotive imports from Japan. Tariffs are staged between 3 and 12 years with the biggest round of tariff liberalisation occurring after 7 years affecting primarily passenger vehicles. In total, UK firms and consumers will save approximately £91.4 million per year from tariff liberalisation once tariffs are at 0%.⁶⁸ The top 5 automotive products by HS4 which see the largest duty savings are presented in table 7.

Table 7 - Top UK automotive imports from Japan by duty savings

HS4 Code	HS4 Code Description	Duty Savings, 2019, £ million	Tariff rate under UKGT, %	Tariff at end of liberalisation, %
8703	Passenger Cars	76.2	4.0 - 10.0	0
8708	Motor vehicle accessories and parts	9.5	2.0 - 4.0	0
8407	Engines for motor vehicles (not including diesel and/or semi diesel engines)	2.6	2.0 - 4.0	0
8409	Parts for engines for motor vehicles	1.6	2.0	0
8408	Diesel and/or semi diesel engines	1.3	2.0 - 4.0	0

Source: DIT internal analysis. Eurostat, 2019 and UKGT.

Note: figures calculated using 2019 trade flows and relative to a baseline of MFN tariffs under the UKGT

UK Exports

Whilst it is estimated that around 88% of UK exports to Japan can already enter tariff free without an agreement, the negotiated UK-Japan CEPA secures tariff reductions for UK exporters in key sectors.

The UK-Japan CEPA has maintained tariff free access on £630.1 million worth of UK exports (this equates to around 10% of UK goods exports to Japan). This means UK exports in industrial alcohols (4.1% tariff rate without the agreement), shawls/scarves (6.9% tariff rate without the agreement), coffee (12% tariff rate without the agreement), certain pesticides (3.8% tariff rate without the agreement) do not face tariffs that would have otherwise been imposed.

The agreement has also secured the phased elimination of tariffs on UK exports to Japan worth £59.8 million benefiting exports of products such as travel bags and livestock of horses.

⁶⁸ DIT internal analysis. Eurostat, 2019 and UKGT. Note: figures calculated using 2019 trade flows and relative to a baseline of MFN tariffs under the UK Global Tariff.

Table 8 - Tariff schedule breakdown for UK exports to Japan, 2019

Tariff schedule category	By number of tariff lines		By value of exported goods, 2019	
	#	%	£ million	%
Japan MFN 0%	3,690	39	5,521.4	88
Tariffs eliminated - Entry Into Force (EIF)	4,231	45	630.1	10
Staged to zero	992	11	59.8	1
Goods not fully liberalised	161	2	11.1	0.2
Excluded	371	4	53.2	1
Total trade	9,445	100	6,275.5	100

Source: DIT's calculations using goods trade data from Trade Map (2019). Tariff data retrieved from UK-Japan CEPA schedule; MAcMap and WTO TAO (EU and Japan MFN). Figures may not sum due to rounding. Note that some excluded products are MFN 0%.

As a result of the agreement on tariffs, UK businesses importing intermediate products could benefit from cheaper inputs due to tariff liberalisation on intermediate goods imports. Consumers could also benefit from lower prices of final goods due to tariff liberalisation on imports into the UK (see section 6.1 and 6.2 for impacts on UK business and consumers). In addition, the agreement on tariffs will ensure that UK businesses are not disadvantaged relative to EU businesses who already benefit from the liberalisation of tariffs under the existing EU-Japan agreement.

Liberalisation under the UK-Japan CEPA results in an overall positive impact for UK businesses and consumers. However, sectors which are sensitive to change often have their tariffs staged for them to adjust to liberalisation and soften adjustment costs.

4.2.2 Tariff Rate Quotas and Safeguards

Further detail on these provisions is outlined in the Parliamentary Report which highlights areas where there are material changes and enhancements to the existing EU-Japan EPA.⁶⁹

Tariff Rate Quotas

Tariff-rate quotas (TRQs) allow a certain volume of a product to enter the market at a zero or reduced tariff rate. Japan has provided a Ministerial side letter committing to work closely with the UK to ensure that the UK has sufficient market access for goods covered by 10 EU-Japan TRQs.⁷⁰

Agricultural Safeguards

Agricultural safeguards are intended to respond to unforeseen volatility in certain agricultural industries in order to protect domestic markets. The agricultural safeguards each expire after a certain number of years. Under the UK-Japan CEPA, the agricultural safeguards will continue to cover imports from the UK into Japan and cover beef, pork, processed pork, whey, oranges, and racehorses.

For Japan's safeguards on beef, pork, processed pork, whey and oranges, Japan will aggregate imports of relevant products from the UK with imports from the EU for the purposes of applying the relevant safeguard to the UK. In practice, this means continuity in the functioning of the safeguards.

⁶⁹ DIT (2020), 'The United Kingdom's Future Trading Relationship with Japan'.

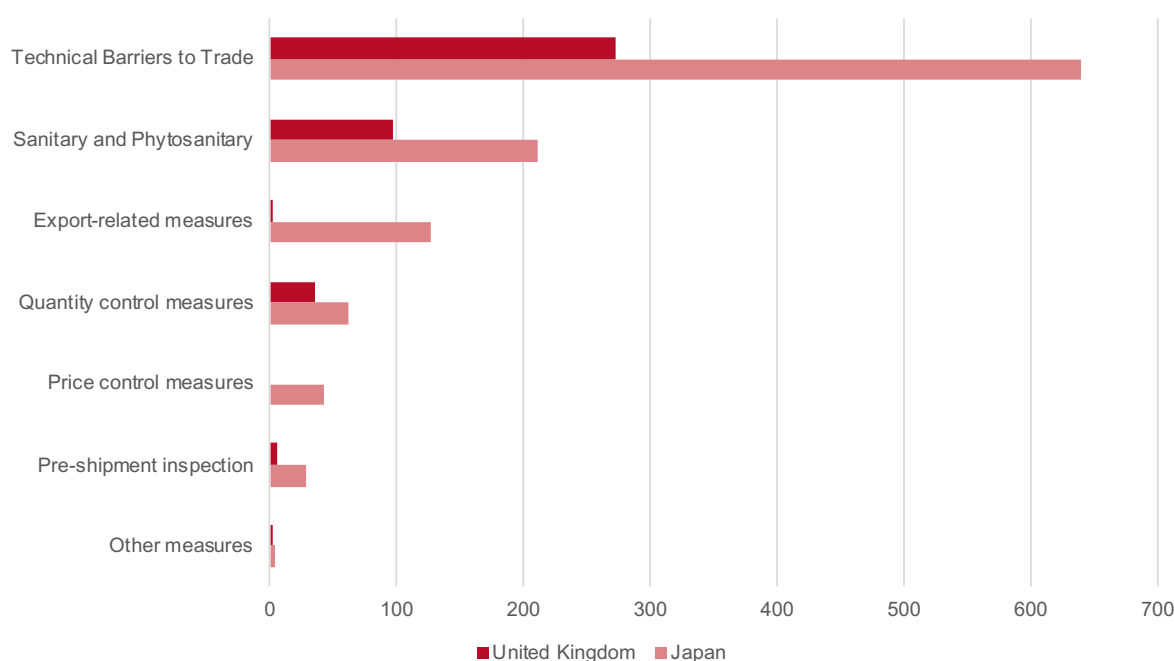
⁷⁰ A full list of the products covered by TRQs under the UK-Japan CEPA can be found in Annex 2-A, Part 3 Section B of the UK-Japan CEPA. To summarise the UK has maintained access to products covered by the following TRQs of the EU-Japan Agreement, though note the more restrictive TRQ treatment is often only for a narrow subset of the products covered by the description: TRQ 1 – Wheat products; TRQ 2 – Mixes and doughs and cake mixes; TRQ 3 – Food preparations made primarily of wheat; TRQ 8 – food preparations of barley; TRQ 11 – Coffee, tea mixes, food preparations and doughs; TRQ 12 – Food preparations; TRQ 15 – Food preparations containing more than 50 per cent of sucrose, and cocoa powder; TRQ 19 – Food Preparations containing cocoa; TRQ 20 – Food Preparations containing cocoa (for the preparation of chocolate); TRQ 25 – Cheeses.

4.2.3 Non-tariff measures (NTMs) in goods trade

Non-tariff measures (NTMs) are defined as policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded or prices or both.⁷¹ This includes customs controls and differences in national regulatory regimes.

Evidence from UNCTAD's Trade Analysis Information System (TRAINS) suggests that most NTMs faced by UK and Japanese exporters fall under the categories of Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary measures (SPS), see chart 5.⁷² TBT result from differences in mandatory technical regulations and conformity assessment procedures that define specific characteristics that a product should have, such as its functions and performance. SPS is a category which covers any standards a country applies to ensure food safety, animal health or plant health standards.

Chart 5 - Non-tariff measures (NTMs) on goods in the UK and Japan, by frequency



Source: UNCTAD, TRAINS

According to some OECD estimates, different standards, and technical regulations across markets, combined with the need for multiple testing and certification procedures, constitute between 2-10% of the overall costs of production.⁷³

4.2.4 Technical Barriers to Trade (TBT)

Technical Barriers to Trade are mandatory technical regulations, voluntary standards, and related conformity assessment procedures (certification, testing and inspection) that apply to goods.

According to UNCTAD's Trade Analysis Information System (TRAINS), Technical Barriers to Trade (TBT) are the most common type of Non-Tariff Measure which applies to goods trade between the UK and Japan. Over 600 TBT measures are applied by the Japanese on UK imports and over 250 TBT measures are applied by the UK on Japanese imports.⁷⁴

⁷¹ MAST (Multi-Agency Support Team), composed of the Food and Agriculture Organization of the United Nations, International Trade Centre, Organization for Economic Cooperation and Development (OECD), UNCTAD, United Nations Industrial Development Organization, World Bank and WTO). See UNCTAD (2019) https://unctad.org/en/PublicationsLibrary/ditctab2019d5_en.pdf

⁷² UNCTAD, TRAINS, The global database on Non-Tariff Measures [downloaded 17/08/2020] <https://trains.unctad.org/Forms/TableView.aspx?mode=search> Note, European Union NTMs were used as a proxy for United Kingdom NTMs.

⁷³ Amurgo-Pacheco (2006) 'Mutual Recognition Agreements and Trade Diversion: Consequences for Developing Nations'

⁷⁴ UNCTAD, TRAINS - The global database on Non-Tariff Measures [downloaded 17/08/2020]

<https://trains.unctad.org/Forms/TableView.aspx?mode=search>

Note, European Union NTMs were used as a proxy for United Kingdom NTMs.

Disparate technical regulations across markets can increase the costs to trade due to the need to demonstrate compliance with two sets of technical requirements and/or conformity assessment procedures. These costs can take a variety of forms, including additional financial costs of third-party assessment, additional administrative burdens, additional transportation costs and delays in time-to-market access.

The aim of TBT provisions in a trade agreement is to build upon the WTO TBT Agreement, which balances the right to regulate domestically against potential adverse impacts on trade.⁷⁵ Key provisions in this agreement include the following:

- Commitments on transparency will ensure that the UK and Japan notify each other about new technical regulations and conformity assessment procedures.
- Businesses in the UK and Japan will continue to manufacture vehicle products and parts that fully align to international standards developed at the United Nations.
- Commitments to produce pharmaceuticals products that align to the International Council on Harmonisation of Technical Requirements for Pharmaceutical for Human Use (ICH).
- A Mutual Recognition Agreement (MRA) between the UK and Japan is incorporated as a Protocol. The Protocol on Mutual Recognition will maintain trading arrangements between both countries by reducing technical barriers to trade and facilitating market access. It covers electrical products, good laboratory practice (GLP) for chemicals, good manufacturing practice (GMP) for medicinal products (human), telecommunications and radio equipment. The Protocol on Mutual Recognition provides continuity of effect of the EU-Japan MRA. It covers approximately £2 billion of trade, including around £1 billion of UK exports, representing up to 20% of total UK goods exports to Japan. ⁷⁶. Footnote: HMRC Trade in Goods, 2019 data..
- The Protocol on Mutual Recognition makes compliance (conformity assessment) easier and less costly for businesses, particularly smaller businesses. It promotes trade by enabling exporters to obtain conformity assessment certification from conformity assessment bodies in their home market, which is recognised in the export market.
- The Protocol on Mutual Recognition also includes mutual recognition of Good Manufacturing Practices (GMP) for pharmaceuticals and Good Laboratory Practices (GLP) chemicals. This allows the Parties to recognise each other's inspection and audit systems and waive batch testing of products on import into their territories.
- The UK and Japan have already signed an exchange of letters on mutual recognition of conformity assessment, which maintains the operational aspects of the EU-Japan mutual recognition agreement (MRA) on conformity assessment after the UK completes the transition period.⁷⁶ The UK and Japan will apply the Protocol on Mutual Recognition at a future date, and this will supersede the Exchange of Letters. Working together, the Exchange of Letters and the Protocol on Mutual Recognition maintain trading arrangement between both countries.
- Replication of key provisions in the EU-Japan EPA annex on motor vehicles and parts will support the automotive sector by reaffirming joint commitments to United Nations Economic Commission for Europe (UNECE) international standards and promoting regulatory cooperation to avoid technical barriers to trade. This makes it easier for UK automotive exports to enter the Japanese market as UK and Japanese automotive products will be subject to the same requirements in both countries for areas covered by UNECE, without additional testing and certification requirements in one another's country.

4.2.5 Customs and trade facilitation

There is a range of international evidence that businesses face a range of 'at-the-border' costs associated with exporting and importing goods across international borders. At the border, firms are required to present the necessary documentation, comply with customs and other border agencies' procedures, and be subject to clearance and inspection processes. This range of procedures can increase the costs in terms of time and uncertainty of delivery.⁷⁷

Evidence from the OECD's Trade Facilitation Indicators shows that that the UK and Japan customs and procedure process is relatively efficient for businesses. However, the data suggests that there is scope for the UK to improve areas such as the appeals procedure and information availability. For Japan, the data suggests that there is scope to improve E-Fees and charges, and Information availability.⁷⁸

⁷⁵ WTO, Agreement on Technical Barriers to Trade: https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm

⁷⁶ UK-Japan exchange of letters on mutual recognition <https://www.gov.uk/government/publications/uk-japan-exchange-of-letters-on-mutual-recognition>

⁷⁷ OECD (2019), 'Helping SMEs internationalise through trade facilitation' [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/TC/WP\(2018\)24/FINAL&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/TC/WP(2018)24/FINAL&docLanguage=En)

⁷⁸ OECD Trade Facilitation Indicators <https://www1.compareyourcountry.org/trade-facilitation/en/0/745/datatable//GBR+JPN+OECD> [accessed 18/08/2020]

The provisions aim to enhance trade facilitation in areas where the OECD's trade facilitation indicators suggest there may be scope for this. For example, specific articles contained in the UK-Japan CEPA specify that goods should be held in customs for a period no longer than necessary, that information on customs procedures should be publicly available (including on the internet) and the chapter also establishes a committee to ensure the cooperation between UK and Japanese authorities in customs (and rules of origin) matters (Articles 4.5, 4.3 and 4.14). These provisions would be expected to reduce the fixed costs of trading internationally and therefore benefit businesses (including SMEs) seeking to continue to or begin trading with Japan.

4.2.6 Intellectual property

In 2019, £375 million of Intellectual Property (IP) services were exported to Japan, representing 5% of all UK services exports to Japan.⁷⁹ Over the same period, £2.5 billion of IP services were imported from Japan, representing 37% of all UK services imports from Japan.

The agreement builds on the Trade-Related Aspects of Intellectual Property Rights (TRIPS) legal framework, developed by the WTO. The provisions on IP aim to promote innovation and creativity, facilitate the diffusion of information, knowledge, technology, and cultures in an environment of open and efficient market competition. UK businesses will benefit from transparency in the administration of Japan's IP system.

The agreement also includes a comprehensive section on copyright and related rights, upholding the balanced and effective copyright regime in the UK, protecting both rights holders and consumers of copyrighted material. The agreement ensures that UK businesses that are owners of registered trademarks have the exclusive right to manage their use and application (Article 14.20). The agreement also includes provisions to protect independently created industrial designs by UK businesses that are new and original for at least 25 years (Article 14.35). This means UK businesses with Japanese industrial designs have the right to prevent the making, selling or further export of their designs. The agreement also includes a provision on multiple design applications which locks in recent revisions to Japan's design law. This means that UK designers can file numerous designs in one application, saving time and administrative costs when previously they would have had to file multiple applications to achieve the same outcome.

The agreement offers an extension on the period of protection conferred by patents on pharmaceutical products and agriculture chemical products (Article 14.40). Under the agreement the minimum term of regulatory test data exclusivity is set at 6 years for pharmaceutical products which utilise new active pharmaceutical ingredients, and 10 years for agricultural chemical products.

A Geographical Indication (GI) is an intellectual property right that protects products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. The agreement secures protection of Geographical Indication (GIs) as an intellectual property right. Subject to Japan's domestic processes, provisions in the agreement provide for recognition and continued protection of GIs for:⁸⁰

- Scotch Whisky. Scotland's exports of beverages to Japan were worth £124.8 million in 2019.
- Scottish Farmed Salmon. Scotland's exports of fish (incl. crustaceans, molluscs etc) to Japan was worth £10.8 million in 2019.
- West Country farmhouse Cheddar cheese. South West exports of dairy and eggs to Japan were £0.7 million in 2019.
- Blue Stilton cheese and White Stilton cheese, where UK exports to Japan of 'blue-veined cheese' were approximately £0.1 million in 2019.
- Irish Whiskey and Irish Cream. Northern Ireland's exports of beverages to Japan were worth £2.8 million in 2019.

Japanese exports in, for example, Kobe Beef, Hongyokuro (tea leaves) and Kisyu Kinzanji Miso (Miso paste) also have GI status in the UK through the CEPA. An administrative process is in place to verify the originating status of products traded.

The agreement includes a commitment to substantially increase the number of geographical indications protected by both parties under the agreement. This means that iconic UK goods including English sparkling wine, Yorkshire Wensleydale and Welsh lamb could benefit from protection in Japan from next year.

The agreement ensures UK businesses have confidence in the enforcement of their IP in Japan, including in the online environment. The UK and Japan recognise the importance of access to justice and the affordability of dispute resolution mechanisms.

⁷⁹ UK trade in services: service type by partner country, non-seasonally adjusted

⁸⁰ Art 14.26 and Annex 14-B

HMRC Overseas Trade Statistics. Sectors classified according to Harmonised System Sections. 2019 data.

4.2.7 Rules of origin

Rules of origin (RoOs) are a key component of any trade agreement, as they define the processes that must take place in order for goods to be eligible for the market access liberalisation achieved in the agreement. They also prevent circumvention of tariffs and tariff quotas by goods from countries which are not parties to the agreement. RoOs were raised by seventeen respondents in our call for input. The main views and recommendations relating to rules of origin for trade between the UK and Japan were:

- To recognise existing supply chains and ensure continuity for UK industries that currently qualify for preferential treatment through the EU-Japan EPA.
- To ensure simple and predictable administration requirements for complying with rules of origin, and remove unjustifiable administrative barriers that companies currently face when exporting to Japan.

To address views from stakeholders and secure efficient trade between the UK and Japan, the agreement contains the following key provisions in Chapter 3 (Rules of Origin):

- Agreement for bilateral cumulation, which means that materials and processing originating in either the UK or Japan can be used to count towards meeting the origin requirements for preferential treatment when exported to the other (Article 3.5.1 and 3.5.3).
- Agreement on extended cumulation arrangement for a majority of products, which will allow EU inputs to continue to count as 'originating' in the UK for the purposes of meeting the rules of origin contained in our agreement (Article 3.5.2 and 3.5.4). This ensures continuity for UK businesses that currently trade with Japan under preferences.
- Continuity has been ensured for fishery products caught beyond the UK's territorial waters where the vessels have part ownership by EU entities (Article 3.3.2).

Rules of origin which are used to determine whether a good is originating. Even if materials from third countries (non-originating materials) are used in production, goods are considered as originating when the goods satisfy the requirement set out in the product-specific rules (PSR).

- The UK has negotiated changes to PSRs for certain agriculture and industrial goods, such as textile products, sugar confectionary and biscuits. These new rules will provide increased market access to Japan, compared to the current EU-Japan EPA, opening up new opportunities for traders.
- These changes are summarised below in table 9, which shows the majority of product groups and £688.9 million worth of UK exports (88% of all exports which attract MFN tariffs) will be eligible for extended cumulation. A further £88.2 million (11%) will see a change in their PSRs.

Table 9 - Summary of Rules of Origin outcomes⁸¹

	Number of lines	UK exports to Japan, excluding MFN 0 trade (£ m)
PSR change	74*	88.2
Extended Cumulation	1,099	688.9

Source: Japan Trade Statistics Portal 2019

4.3 Cross cutting objectives

4.3.1 Government procurement

The UK and Japan are members of the WTO Government Procurement Agreement (GPA) which provides enforceable rules and standards for a transparent and non-discriminatory framework on government procurement. According to statistics reported to the WTO, the GPA covers £26 billion of Japan's procurement, compared to £78 billion of the UK's procurement market.⁸²

To facilitate trade, the UK-Japan CEPA builds on the commitments in the GPA. It includes a commitment to publish procurement notices on a single electronic portal on the internet, which enhances the accessibility of information for businesses. The agreement grants UK businesses guaranteed non-discriminatory access to bid for public procurement contracts in Japan's Local Independent Administrative Agencies and Core Cities. It also ensures the codification of technical standards used under the 'Keishin' evaluation procedure, which will allow for non-discriminatory assessments of UK businesses' technical abilities and experience when bidding for public contracts in Japan.⁸³ In addition, the agreement sees the removal of the Operational Safety Clause (OSC) which ensures non-discriminatory access to a substantial proportion of the Japanese rail market. The largest

⁸¹ By HS4 groupings (or HS6 where the RoO is defined at HS6 level)

⁸² GPA returns for the UK (2016) and Japan in (2018).

⁸³ Annex 10. Government Procurement.

*Please see Annex J: Note on Corrections

railway operators in Japan had an estimated revenue of approximately £86 billion in 2016.⁸⁴

The UK-Japan CEPA also retains the increased opportunities that were made available to UK and Japanese businesses within the services sector in the EU-Japan EPA. Legally guaranteed access includes:

- Telecommunications related services
- Photographic services
- Packaging services
- Beverage serving services
- Financial management consulting services (except business tax)
- Insurance (including reinsurance) and pension fund services, except compulsory social security services
- Placement services of office support personnel and other workers
- Portrait photography services
- Advertising and related photography services

4.3.2 Small and Medium Enterprises (SMEs)

SMEs account for a large majority of businesses in terms of both domestic markets and exports to foreign markets. In 2018 there were 5.9 million SMEs in the UK (99.9% of all businesses) which employed 16.6 million (60% of UK employment) and generate £2.2 trillion in turnover (52% of UK private sector turnover).⁸⁵

In 2018, SMEs represented 99% of all UK businesses exporting goods and services globally⁸⁶ and over 8,000 SMEs exported goods to Japan, representing 84% of all UK businesses exporting goods to Japan.⁸⁷

SMEs generally operate at a small scale and therefore tend to face higher trading costs relative to output. This means that they can be disproportionately affected by trade barriers. This would help explain why SMEs tend to display a lower propensity to export relative to larger firms.⁸⁸ Provisions aimed at improving trade facilitation for SMEs could help reduce the costs that these businesses face and thereby positively impact their propensity to export.

SMEs have reported issues relating to limited information about how foreign markets work, difficulties in accessing export-distribution channels and in contacting overseas customers. In addition, SMEs reported costly product standards and certification procedures, and a lack of information about requirements in the foreign country as barriers to trade.

To address the issues summarised above, the SME chapter (Chapter 20) of the UK-Japan CEPA commits the UK and Japan to transparency on market access through the sharing of user-friendly information suitable for SMEs. In addition, the agreement states that a central point of contact will be established to facilitate cooperation with Japan on issues specifically relating to SME trade. The objective of the chapter is to reduce trade barriers and information gaps which can be particular obstacles to trade for SMEs.

Other commitments across the agreement which are likely to particularly benefit SMEs are:

- Under the Customs and trade facilitation chapter (Chapter 4), the agreement includes a commitment to simplify customs procedures in order to reduce the time and cost for traders (Article 4.6).
- The UK and Japan have agreed to maintain cooperation on challenges for SMEs in the use of e-commerce (Article 8.83) and intellectual property issues (Article 14.60).
- The agreement includes provisions to further encourage a transparent regulatory environment to give greater certainty to businesses, especially SMEs (Article 17.2).

⁸⁴ Based on the largest 22 railway operators in Japan, as published by the EU-Japan Centre for Industrial Cooperation in their report on the Railway Market in Japan, 2016.

⁸⁵ BEIS, Business Population Estimates (2019).

⁸⁶ ONS, Annual Business Survey (2019). Figures do not cover NI businesses and businesses in the insurance sector.

⁸⁷ HMRC, Trade in Goods by Business Characteristics (2018).

⁸⁸ WTO (2016), 'World Trade Report 2016, Levelling the trading field for SMEs

https://www.wto.org/english/res_e/booksp_e/world_trade_report16_e.pdf

OECD (2019), 'Helping SMEs internationalise through trade facilitation' [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/TC/WP\(2018\)24/FINAL&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/TC/WP(2018)24/FINAL&docLanguage=En)

WTO (2016), 'World Trade Report 2016, Levelling the trading field for SMEs' https://www.wto.org/english/res_e/booksp_e/world_trade_report16_e.pdf

4.3.3 Trade and sustainable development (including Labour Standards)

The aim of these provisions is to strengthen trade relations and cooperation between the UK and Japan in ways that promote sustainable development, including economic development, social development, and environmental protection. It should be noted that the provisions do not attempt to harmonise environment or labour standards.

With respect to international labour standards, the agreement states that both the UK and Japan recognise the importance of promoting the development of international trade in a way that is conducive to full and productive employment and decent work for all, including reaffirmation of obligations deriving from the International Labour Organisation (ILO) (Article 16.3). This means that the UK and Japan reaffirm their commitment to implement the internationally recognised principles concerning the fundamental rights at work in their respective laws, including measures on eliminating compulsory labour and discrimination. Growth in trade between the UK and Japan cannot be achieved at the expense of the employment conditions under the ILO conventions. The labour provisions in the UK-Japan CEPA are tied to international commitments. These commitments do not prescribe how policy should be designed in order to comply. Therefore, we do not expect any effect on domestic legislation. The Scoping Assessment provides an overview of the labour protections in place in the UK and Japan, and an assessment of the potential impact of the agreement on labour standards.⁸⁹

The provisions in this chapter also recognise the importance of upholding commitments of international environmental standards derived from Multilateral Environmental Agreements (MEAs), including the Paris Agreement and UNFCCC. This means that the UK and Japan are committed to implement in its laws and regulations and practices the MEAs to which they are party. The provisions set out that the UK and Japan will strive to facilitate and promote trade and investment while also supporting climate change mitigation, such as those related to sustainable renewable energy and energy efficient goods and services (Article 16.5).

The provisions promote the importance and the role of trade and investment in ensuring the conservation and sustainable use of biological diversity in accordance with relevant international agreements. In addition, the provisions encourage the use of products which were obtained through sustainable use of natural resources and which contribute to the conservation and sustainable use of biodiversity, including through labelling schemes (Article 16.6).

The trade and sustainable development chapter provisions recognise the importance and the role of trade and investment in ensuring the conservation and sustainable use and management of fisheries resources, safeguarding marine ecosystems, and promoting responsible and sustainable aquaculture (Article 16.8).

The Government is clear that more trade does not have to come at the expense of workers or the environment. In line with our international obligations, the Government will continue to ensure a high level of protection of the environment and labour standards in new trade agreements. As a result, environment standards have not been reduced under the UK-Japan CEPA.

4.3.4 Trade and Women's Economic Empowerment

A new, additional chapter on Trade and Women's Economic Empowerment has been agreed in the UK-Japan CEPA.

The UK and Japan recognise the importance of enhancing opportunities for women to participate equitably in the global economy and the benefit of sharing respective experiences of doing so. The Agreement also establishes a Working Group responsible, amongst other things, for implementing cooperation activities referred to in the chapter on Trade and Women's Economic Empowerment, aimed at enhancing the ability of women to fully access and benefit from the opportunities created by the Agreement.

Limited access to markets, technology and finance can act as barriers to trade for women.⁹⁰ Women can also be underrepresented in leadership positions and have limited use of business networks.⁹¹ These barriers may also be compounded by other factors such as childcare commitments.⁹² The cooperation activities may include provision of advice or training, and exchange of information and experience on programmes aimed at improving the access of women to markets, technology and financing, the development of women's leadership and business networks and best practices related to workplace flexibility. As such, through the cooperation activities of the Working Group, the UK and Japan may address these barriers to trade and progress women's economic empowerment.

⁸⁹ UK-Japan Free Trade Agreement: The UK's Strategic Approach

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/885176/UK_Japan_trade_agreement_negotiations_approach.pdf

⁹⁰ WTO/World Bank (2020) 'Women and Trade: The Role of Trade in Promoting Gender Equality' https://www.wto.org/english/res_e/publications_e/women_trade_pub2807_e.htm

⁹¹ International Trade Centre (2019), 'From Europe to the World: Understanding Challenges for European Businesswomen' https://www.intracore.org/uploadedFiles/intracore.org/Content/Publications/From%20Europe%20to%20World%20Women%20EU_final_web.pdf

⁹² World Bank, 'Gender at work: A Companion to the World Development,' (2013) available at: http://www.worldbank.org/content/dam/Worldbank/document/Gender/GenderAtWork_web.pdf cited in: International Trade Centre (2015), 'Unlocking Markets for Women to Trade' available at https://www.intracore.org/uploadedFiles/intracore.org/Content/Publications/women_in_trade_web.pdf

The cooperation activities also include activities that relate to the Joint Declaration on Trade and Women's Economic Empowerment agreed at the 11th Ministerial Conference of the WTO (MC11). In undertaking these activities, the UK and Japan may also share experiences and best practice and provide opportunities for increasing the evidence base of trade and gender equality.

5. Overall impact of a UK-Japan CEPA

This section presents estimates of the long run impacts of a UK-Japan CEPA on GDP, trade, and sectoral output in the UK.

This trade agreement with Japan could increase UK GDP by around 0.07% in the long run compared to the UK not having a trade agreement in place. This is equivalent to £1.5 billion compared to its 2019 level.⁹³

UK goods and services could become relatively more competitive in Japan with exports to Japan estimated to increase by 17.2%. UK firms could expand production to meet increased demand from Japan, experiencing productivity gains from increasing returns to scale.

A reduction in trade costs for imported goods and services from Japan could drive efficiency gains for UK businesses. This could occur either because firms already rely on or switch to inputs from Japan. UK consumers may also benefit if cheaper consumer goods become available. Although in the long run prices may also adjust upwards to reflect higher demand, imports from Japan are estimated to increase by 79.9%.

Imports from Japan increase significantly relative to UK exports to Japan due to the assumed tariff and NTMs and regulatory restrictions to services reductions, especially in areas where Japan is relatively more competitive such as 'chemical, rubber and plastic products', 'Manufactures of materials', 'Motor vehicles and parts', 'Other machinery and equipment' and 'Other transport equipment'. Although imports from Japan increase significantly, total UK imports from all countries (including Japan) are expected to increase by a more modest 0.5%. For context, in 2019 UK imports from Japan were £16.3 billion (2.3% of UK total imports).⁹⁴

Welfare gains of around £1.2 billion are driven by better paid jobs and changes to the prices and variety of goods and services available to households and firms. The modelling estimates an increase in the long run level of the average real wage in the UK of around 0.09% (£0.8 billion).

Based on the changes to output by sector, the UK-Japan trade deal has the potential to increase long run output across all nations and regions of the UK. Output is estimated to increase the most in London, the East Midlands and Scotland relative to the baseline.

Finally, the impacts on GDP in Japan and countries outside the agreement are also presented. GDP in Japan is expected to increase by 0.03%, demonstrating that the UK-Japan CEPA can bring substantial economic gains to both parties.

⁹³ Values (in 2019 terms) provide context for the percentage increases in long run GDP. They do not represent the scale of the impact as they do not account for changes in the level of GDP likely to occur over the next 15 years.

⁹⁴ ONS, Gross Domestic Product at market prices, Seasonally Adjusted, 2019 data.

5.1 Economic gains derived from trade agreements

International evidence suggests that by reducing the costs of trade and investment, trade agreements can have a wide range of macroeconomic and social impacts while also having important distributional consequences across economic sectors, groups, and individuals.

Free Trade Agreements generate economic gains through a variety of channels.⁹⁵

- **Gains through increased specialisation across sectors**, whereby enhanced access to international markets and imports reshapes the economy to specialise in producing goods, services, and sectors which they are relatively better at producing. Over the long run, greater specialisation increases the overall value of national output and income via the reallocation of resources towards expanding sectors of the economy.
- **Gains through driving a more efficient allocation of resources within sectors.** Enhanced openness to trade can spur innovation and the expansion of the most efficient firms within sectors, driving up the average productivity and wages within the sector, while at the same time, generating increased choice and lower prices for consumers.
- **Dynamic gains through trade-induced increases in productivity.** These result from businesses benefitting from greater economies of scale or scope, increases in investment and research and development stimulated by access to larger markets, reductions in inefficiencies due to increased competition, or from positive spill overs between firms.

The distributional impacts of Free Trade Agreements – that is, who is affected and by how much, depends upon the interaction of a range of complex factors. This includes the structure of each of the economies involved and what each country is relatively better at producing, sectoral patterns of trade in each country as well as the physical and institutional infrastructures in each country. In addition, the distributional impacts are impacted by the ability of individuals and firms to adjust to increased trade and short- and long-term domestic policies.

5.2 Approach to assessing macroeconomic impacts

The scale of the macroeconomic and sectoral impacts is estimated using external Computable General Equilibrium (CGE) modelling undertaken on behalf of the Department for International Trade by CEPR (Professor Joseph Francois).⁹⁶ Annex A provides further detail on the model structure and methodology.

CGE modelling is a standard method for assessing the impact of Free Trade Agreements used by trade economists and international organisations. However, economic modelling is an inherently uncertain exercise, and the analysis does not capture the full range of dynamic impacts of the trade agreement. For example, the analysis does not account for future trends such as the rise of global value chains, technological advancements, and demographic change nor does it account for policy choices which affect the impact of the FTA. It also does not explicitly model changes in Foreign Direct Investment flows resulting from the agreement. In addition, the estimates of the macroeconomic impacts depend crucially upon a wide range of modelling assumptions. These include the assumptions used to generate the baseline (an estimate of the economy in the absence of the agreement) and the inputs (which represent the expected trade cost reductions resulting from the agreement).

⁹⁵ These channels, in the context of trade liberalisation more generally, are outlined in greater detail in the UKTPO Briefing Paper (July 2019): “Winners and Losers from International Trade: What do we know and what are the implications for policy”
<https://blogs.sussex.ac.uk/uktpo/publications/winners-and-losers-from-international-trade-what-do-we-know-and-what-are-the-implications-for-policy/>

⁹⁶ Joseph Francois: Professor of International Economics, University of Bern. Managing Director, World Trade Institute, Director, European Trade and Study Group. Director FP7 Pronto. Research Fellow, Centre for Economic Policy Research. The CGE model used for this assessment is consistent with the modelling used in the Scoping Assessment for Japan (May, 2020).

5.2.1 Baseline

The baseline is the state of the world against which the impacts of the agreement are compared. At the end of the transition period, the EU-Japan EPA would cease to apply in the UK. The impacts of the UK-Japan CEPA are therefore compared against a baseline in which the UK does not have a trade agreement with Japan.

One of the most important baseline assumptions relates to the UK's future trading relationship with the EU over the 15-year time horizon for modelling. For the purposes of this analysis, stylised assumptions are made to represent the future trading relationship between the UK and EU based on a free trade agreement, with zero tariffs and average NTB costs.⁹⁷ These assumptions about the long run relationship are required to establish a baseline for modelling new trade agreements, but do not represent government policy. The modelling does not take account of any impacts arising from the Protocol on Ireland/Northern Ireland (to the Withdrawal Agreement).

The modelling uses the GTAP10 database which is based on 2014 data. To account for recent trade agreements that could materially change the pattern of UK trade, several additional adjustments are made to the baseline, including:

- the entry into force of the CPTPP, without UK membership, which occurred on the 30th of December 2018.
- the entry into force of recent EU Agreements, that are assumed to be implemented prior to a UK-Japan CEPA entering into force. These are: the EU-Canada Comprehensive Economic and Trade Agreement (CETA), the EU-Andean Agreement, the trade agreement between the EU and Colombia, Ecuador and Peru, the EU-Singapore FTA, the EU-Vietnam FTA and the EU27-Japan EPA (i.e. without the UK); and
- the US-Japan FTA signed in October 2019 which eliminated or reduced tariffs on certain agricultural and industrial products.⁹⁸

To reflect uncertainty regarding the baseline, the impacts are also assessed against an alternative baseline in which the UK trades with the EU under WTO MFN rules. Section 9 provides further detail on the key uncertainties and analytical limitations underpinning the modelling.

5.2.2 Inputs

The modelled scenario assumes substantial tariff liberalisation and deep reductions in the level of NTMs and regulatory restrictions to services between the UK and Japan, compared to not having a trade agreement.

The evidence presented in section 4 demonstrates that the UK-Japan CEPA is based on the EU-Japan EPA, but with several areas of enhancement including: enabling the free flow of data, improving transparency on licensing procedures in financial services and ensuring more liberal rules of origin. The agreement is therefore a 'deep' trade agreement, likely to generate reductions in trade costs in across goods, services, and investment as seen the modelled scenario.

This scenario is used to generate the potential magnitudes of impacts of the finalised agreement. In line with the literature, the provisions within the free trade agreement are modelled as reducing the costs associated with trading between the UK and Japan. The impacts of alternative baseline assumptions are outlined in the sensitivity section.

The inputs represent the expected trade cost reductions achieved in each sector of the model, which in part reflect the provisions (see box 1). The baseline tariff levels reflect the UK Global Tariff (UKGT)⁹⁹ and Japan's MFN schedule.¹⁰⁰ Table 10 shows the scale of tariff and non-tariff cost reductions used in the modelling. These are based on historical reductions in trade cost achieved in previous deep free trade agreements, derived from gravity modelling. These are in line with those agreed between the EU and Japan in the Economic Partnership Agreement as these are broadly similar to those agreed in the UK-Japan CEPA. Annex B provides further detail on the derivation of these modelling inputs.

⁹⁷ The detail of the modelled average FTA scenario is described in the Government's publication on the long-term economic analysis of EU Exit. This represents a hypothetical FTA between the UK and EU in the long run. HMG (2018), "EU Exit Long-term economic analysis".

⁹⁸ US-Japan Trade Agreement <https://ustr.gov/countries-regions/japan-korea-apec/japan/us-japan-trade-agreement-negotiations/us-japan-trade-agreement-text>

⁹⁹ UK Global Tariff (UKGT) <https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021>

¹⁰⁰ EU-Japan tariff schedules: Annex 2-A Tariff elimination and reduction <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684>

Table 10 shows the modelled tariff and NTMs and regulatory restrictions to services trade faced by UK and Japanese exporters.

Table 10 – Tariff, NTMs and regulatory restrictions to services (AVEs) trade cost reductions

Percentage point reductions	UK (barriers faced by Japanese exporters to the UK)	Japan (barriers faced by UK exporters to Japan)
Overall average trade cost reductions	-2.3	-2.8
Tariffs	-2.9	-3.3
NTM and regulatory restrictions to services (AVEs)	-1.7	-2.4
Tariff trade cost reductions by sector		
Agri-food	-5.8	-8.0
Industrial Goods	-1.8	-1.4
Overall NTM (AVEs) trade cost reductions for goods	-2.4	-2.9
Agri-food	-6.2	-7.3
Industrial Goods	-0.9	-1.2
Overall regulatory restrictions to services (AVEs) trade cost reductions for services	-0.6	-1.6

Source: External CGE modelling

The modelled overall average trade cost reductions on UK exports to Japan are marginally greater than those on Japanese exports to the UK. For both the UK and Japan, the agri-food sector has the most significant modelled reductions in both tariffs and NTMs and regulatory restrictions to services relative to industry and services.

- **Agri-foods:** the reduction in average tariffs and non-tariff measures on agri-foods is marginally greater for UK exports to Japan, than Japanese exports to the UK.
- **Industry:** The reduction in average tariffs on industrial products is marginally greater for Japanese exports to the UK, than UK exports to Japan, whilst the reduction in non-tariff measures is marginally greater for UK exports to Japan.
- **Services:** The reduction in non-tariff measures on services trades is greater on UK exports to Japan, than on Japanese exports to the UK.

Box 1: Provisions within the UK-Japan CEPA assumed to reduce the costs of trading internationally

Trade cost reductions in the UK-Japan CEPA

The impacts of trade policy are captured through trade cost reductions in the form of changes to tariffs, non-tariff measures and regulatory restrictions to services. Table 10 describes the assumed scale of trade cost reductions resulting from the UK-Japan trade agreement. This box describes examples of the types of provisions within the agreement which can reduce the costs of trading goods and services.

Reductions in costs associated with trading agricultural and industrial goods

Goods trade is subject to both tariffs and non-tariff measures. The trade cost reductions in table 10 reflect the reduction or removal of these regulatory restrictions.

In the UK-Japan CEPA, the following are examples of chapters that reduce unnecessary goods trade barriers arising from domestic regulations: 'Trade in Goods', 'Technical Barriers to Trade' (TBT), 'Sanitary and Phytosanitary Measures' (SPS), 'Customs and Trade facilitation', 'Rules of Origin', 'Cooperation in the Field of Agriculture', 'Intellectual Property', and 'Good Regulatory Practice and Regulatory Cooperation'. In general, the provisions in the UK-Japan CEPA could reduce the cost of agricultural and industrial goods trade by:

- 1. Providing greater certainty to goods traders:** for example, removing or reducing the gap between maximum tariffs countries have committed to in their WTO schedules and the tariffs they apply in practice. Under the UK-Japan CEPA, both parties have largely eliminated duties on most goods, particularly on agriculture, forestry and fishery products, and on industrial products, the former being more relevant for the UK, and the latter for Japan.
- 2. Providing greater ease for goods traders:** for example, streamlining customs procedures, reducing administrative costs and reducing delays at the border. The UK-Japan CEPA includes measures which support UK industry such as the commitments to apply relevant industrial standards which could reduce the administrative costs associated with trading. The agreement also recognises the special status of several UK agricultural products from a specific geographical origin. These are known as Geographical Indications (GIs), examples of UK GIs that will benefit from protection are: Scottish Farmed Salmon and West Country farmhouse Cheddar cheese.
- 3. Addressing 'behind-the-border' barriers to goods trade:** for example, improving bilateral or international cooperation on non-tariff measures. The UK-Japan CEPA includes a chapter which specifically enables further cooperation in the field of agriculture, including on sustainable agricultural practices.

Reductions in costs associated with trading services

The reductions in non-tariff measures and regulatory restrictions to services reflect generalised assumptions of ambition and do not attempt to model any specific provisions.

Services trade is not subject to tariffs. However, services trade can be subject to a range of regulatory restrictions which raise the costs associated with trading services. The trade cost reductions in table 10 reflect the reduction or removal of these regulatory restrictions.

In the UK-Japan CEPA, the following are examples of chapters that reduce unnecessary services trade barriers arising from domestic regulations: 'Trade in Services, investment liberalisation and electronic commerce' and 'Intellectual Property'. From an economic perspective, it is assumed FTAs can reduce the costs associated with trading services by introducing provisions which:

- 1. Lower barriers and ensure fair competition:** for example, the agreement reaffirms commitments to non-discriminatory treatment of domestic and foreign businesses and removes several restrictions on businesses seeking to expand existing trade in Japan or enter the market for the first time. These include, for example, prohibiting restrictions on the number of UK service suppliers seeking to trade in Japan and removing the need for businesses to complete economic needs tests prior to establishing presence in Japan.
- 2. Provide greater certainty to service suppliers,** such as through increased commitments on clarity and transparency of application and licensing procedures for service suppliers seeking to operate in each other's countries. The agreement contains provisions on the movement of natural persons for business purposes, referred to as mode IV services trade. These provisions will help ensure that UK professionals have certainty of entering Japan through a number of routes to provide services or establish, with clearer and streamlined processing for temporary business visas.

5.3 UK macroeconomic impacts

Results from modelling a UK-Japan CEPA, show long term increases in the UK's GDP, trade, welfare, and wages.

The macroeconomic impacts estimated using the CGE model are summarised in table 11. The impacts indicate that a combination of increased competitiveness of UK exports in Japan, increased competition from Japanese firms and price changes are expected to drive productivity gains in the UK. These can, in turn, lead to an expected long run increase in GDP, welfare and trade with Japan.

Table 11 - Summary of UK macroeconomic impacts, long run change on baseline

	Change on baseline
Change in GDP	0.07%
	£1.5 billion
Change in UK exports to Japan	17.20%
Change in UK imports from Japan	79.94%
Change in total UK exports	0.58%
Change in total UK imports	0.51%
Change in real wages	0.09%
	£0.8 billion

Source: External CGE modelling, £ values in 2019 terms

While the analysis draws on robust evidence and the best tools available for this type of analysis, there is inherent uncertainty in the results. Results should be interpreted with caution and not considered economic forecasts for the UK economy.

5.3.1 Gross Domestic Product (GDP)

Gross domestic product (GDP) can be defined as the total value of goods and services produced domestically, total domestic expenditure, or total income from domestic production.

Increases to long run GDP in the CGE model are driven by changes to the relative cost of materials and factor inputs (labour and capital) which are influenced by reductions in the cost of imports and exports (through lower tariffs, non-tariff measures and regulatory restrictions to services). The increases in GDP derive from a more efficient reallocation of resources across the economy. Businesses gain from a higher degree of specialisation enabling high profitability. Further, higher returns to capital can increase investment and productivity, which can also contribute to higher long run GDP.

A UK-Japan CEPA is estimated to increase the UK's long-run annual GDP by 0.07%. This increase would apply to the UK's future GDP, rising in monetary value as the economy grows. In 2019, the GDP of the UK was around £2.2 trillion,¹⁰¹ applying the increase to 2019 GDP levels, it translates into a £1.5 billion increase in the long run. The long run is generally assumed to mean 15 years from implementation of the agreement.

The estimated increase in GDP of 0.07% is largely driven by the modelled reductions in NTMs and regulatory restrictions to services which contributes 0.05% to the total GDP increase, whilst tariff reductions contribute 0.02%.

The UK-Japan CEPA is estimated to increase all of the components of GDP i.e. spending by consumers and government, investment and trade. These impacts are summarised in table 12.

¹⁰¹ ONS, Gross Domestic Product at market prices, Seasonally Adjusted, 2019 data.

Table 12 - Impact on the components GDP relative to the baseline, long run percentage change

Percentage changes	Change relative to the baseline
Consumption	0.06
Investment	0.06
Government	0.05
Exports	0.62
Imports	0.51

Source: External CGE Modelling

5.3.2 Trade

UK exports to Japan are estimated to increase by 17.2% in the modelled scenario. Using UK trade data for 2019,¹⁰² this would imply an increase in UK exports to Japan of £2.6 billion. UK imports from Japan are estimated to increase by 79.9%. Using UK import data for 2019, this would imply an increase in UK imports from Japan of £13.0 billion. Overall UK-Japan trade is estimated to increase by £15.7 billion in the long run using 2019 UK-Japan trade data.¹⁰³

Although UK-Japan bilateral trade is estimated to increase significantly, total UK trade with all countries (including Japan) is expected to result in a more modest increase in trade given the share of UK-Japan trade (2.2% of total UK trade) with UK exports to and UK imports from all countries (including Japan) estimated to increase by 0.62% and 0.51% respectively in the long run. Overall, in the long run, total UK exports and imports to the world are expected to result in a 0.5% or £7.8 billion increase when compared to 2019 levels.

Imports from Japan increase significantly relative to UK exports to Japan due to the assumed tariff and NTMs and regulatory restrictions to services reductions, especially in areas where Japan is relatively more competitive such as 'Chemical, rubber and plastic products', 'Manufactures of materials', 'Motor vehicles and parts', 'Other machinery and equipment' and 'Other transport equipment'. Although imports from Japan increase significantly, total UK imports from all countries (including Japan) are expected to increase by a more modest 0.5%. For context, in 2019 UK imports from Japan were £16.3 billion (2.3% of UK total imports).¹⁰⁴ See section 6.1.3 for more details on changes in bilateral trade by sector.

5.3.3 Welfare

The impact of a UK-Japan CEPA on overall welfare in the UK is driven by better paid jobs but also changes to the prices and variety of goods and services available to consumers and firms. Welfare in the CGE model is calculated using "equivalent variation" which estimates the change in income that, in the absence of the agreement, would have given households the same increase in wellbeing.¹⁰⁵

The UK-Japan CEPA is estimated to increase welfare in the UK by 0.05% in the modelled scenario. Using 2019 data, this implies a long run annual increase in welfare in the UK of around £1.2 billion.¹⁰⁶

¹⁰² ONS, UK total trade: all countries, non-seasonally adjusted, 2019 data.

¹⁰³ Figures may not sum due to rounding.

¹⁰⁴ ONS, Gross Domestic Product at market prices, Seasonally Adjusted, 2019 data.

¹⁰⁵ Note that the CGE results don't account for 'non-monetary' costs and benefits that may arise from the agreement (for example, environmental changes).

¹⁰⁶ Note that £ values are provided to illustrate the potential magnitude of the deal in cash terms in 2019. These do not reflect the actual value of the UK-Japan CEPA in long run (approximately 15 years).

5.4 Macroeconomic impacts on Japan

Results from modelling a UK-Japan CEPA show a long run increase to Japan's GDP.

As a result of the UK-Japan CEPA, Japan's annual GDP is estimated to increase in the long run by 0.03% compared to not having a deal with the UK. Using Japan's GDP values for 2019, this would equate to an increase in Japan's GDP of £1.5 billion.¹⁰⁷ Summary results for the impact on Japan's economy are set out in the table below.

Table 13 - Summary of estimated long run impacts on Japan

Impact	Metric	Change
GDP	Change in GDP	0.03%
Trade	Change in Japan's exports to UK	79.94%
	Change in Japan's imports from UK	17.20%
	Change in total JPN exports	0.50%
	Change in total JPN imports	0.50%

Source: External CGE modelling results

5.5 Impact on UK sectors

Overall output for the UK is expected to increase. Almost all sectors (as aggregated within the model) are estimated to increase output, suggesting productivity gains from further specialisation within sectors and the reallocation of resources to more productive firms.

Gross value added (GVA) is a measure of economic output.¹⁰⁸ The sectoral pattern of changes to GVA can depend on a variety of effects including the scale of assumed trade cost reductions, the existing sector trade flows, the relative competitiveness of the sector in relation to trade partners, and the reliance on other sectors' products in their own production.

The results in this impact assessment provide an indication of the potential changes from assumed reductions in tariffs, non-tariff measures and regulatory restrictions to services across all sectors. The largest percentage increase in GVA is estimated to be in the textiles and leather sector which is primarily driven by the assumed 11% tariff reduction on UK exports to Japan for this sector.¹⁰⁹ The largest reduction in GVA is in the chemical, rubber and plastic products sector which is driven by the assumed 4% tariff reduction on UK imports from Japan in this sector. A small reduction in GVA relative to the baseline is estimated in the manufacture of motor vehicles sector due to reductions in tariffs and NTMs and regulatory restrictions to services. These two sectors are areas where Japan is relatively more competitive; it is likely that the fall in GVA (relative to the baseline) for these two sectors is driven by a reallocation of resources (capital and labour) away from these sectors to other sectors of the economy that are growing more in response to the CEPA.

¹⁰⁷ OECD 2020, Gross domestic product (GDP) (indicator) doi: 10.1787/dc2f7a8c-en (Accessed 06/08/2020)

Note 2019 figures for Japan are estimated values. Based on the latest outturn data (2018), the estimated 0.03% increase would equate to £1.3 billion.
<https://data.oecd.org/gdp/gross-domestic-product-gdp.htm>

¹⁰⁸ GVA is an alternative measure of economic output to GDP. At a sector level, it is the output of that sector minus the value of intermediates that have been used to produce the goods and services in that sector. At the national level, GVA is also the equivalent of the value of GDP plus government subsidies, minus taxes.

¹⁰⁹ External CGE Modelling.

Table 14 - Changes in UK output (GVA, long run % change): detailed sector impacts

	Sector	Sector GVA Share ¹¹⁰	GVA change
Agri-food	Agriculture, forestry, and fishing	<1%	+
	Semi-processed foods	<1%	+
	Other processed foods	<1%	+
	Beverages and tobacco products	<1%	+
Industry	Energy	3%	+
	Textiles, apparel, and leather	<1%	++
	Manufactures	2%	+
	Paper and printing products	1%	+
	Chemical, rubber, plastic products	2%	--
	Manufacture of motor vehicles	<1%	-
	Manufacture of other transport equipment	<1%	+
	Manufacture of electronic equipment	<1%	
	Manufacture of machinery and equipment n.e.c	1%	
	Manufacturing n.e.c	<1%	+
Services	Other services (transport, water, dwellings)	5%	+
	Construction	6%	+
	Wholesale and retail trade	14%	
	Communications	2%	+
	Financial services	5%	+
	Insurance	1%	+
	Business services	29%	+
	Personal services	4%	+
Public services	20%		

Key

Above 0.5% (++)	0.05 to <0.5% (+)	-0.05 to <0.05%	-0.05 to <-0.5% (-)	Below -0.5% (--)
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Source: External CGE modelling

5.6 Impacts by nations and regions of the UK

The CGE model used to produce the results does not produce outputs disaggregated by the different UK nations and regions.

The international evidence suggests that trade agreements and trade liberalisation more generally have the potential to affect regions within an economy differently.¹¹¹ This is primarily because trade agreements affect sectors differently and the sectoral composition of output and employment varies across regions.

The long run impact of increased trade liberalisation on regions is subject to uncertainty due to the mobility of firms across regions. Evidence shows businesses in similar fields tend to concentrate in a particular region as this may generate knowledge spill overs or easier access to inputs and workers. For example, the concentration of car production in the Midlands or the North East of the UK. Reduction in trade costs could further incentivise this type of local concentration of businesses.¹¹²

Regional comparative advantages can change significantly over time resulting in changes to the sector make-up of different regions. This means that the location of production for various sectors may evolve significantly over the 15-year time horizon for the economic modelling.

¹¹⁰ DIT calculations using ONS GVA output approach (2019 prices).

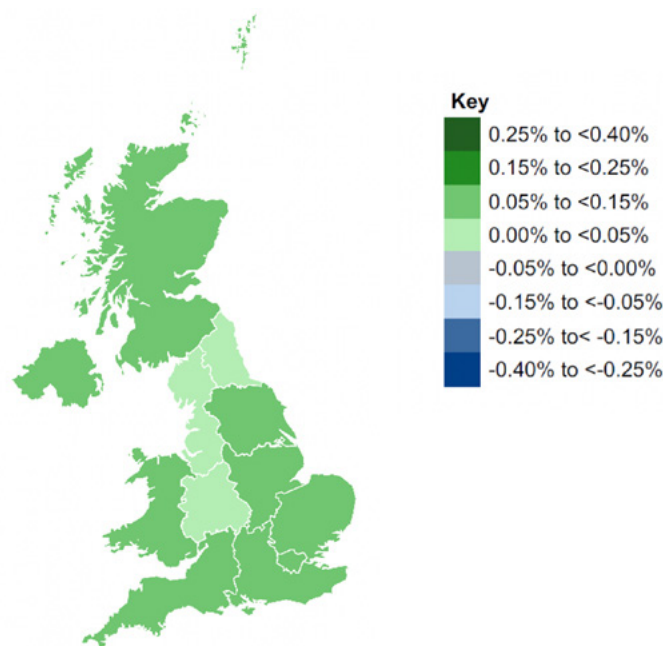
¹¹¹ See, for example: 'Making Trade Work for All' (OECD 2017) and 'Making Trade an Engine of Growth for All' (IMF/World Bank/WTO 2017) for an overview of the international evidence.

¹¹² Winners and losers from international trade: what do we know and what are the policy implications, UKTPO (2019).

Based upon the pattern of estimated sectoral GVA changes (section 5 table 14), the results suggest that the UK-Japan CEPA could increase GVA in all nations and regions of the UK (represented in the chart 6). In percentage terms, GVA in London, the East midlands and Scotland are estimated to expand the most. In line with the sectoral estimates (section 5.5) and regional concentration of industry, the main drivers of the estimated expansion in London are Business, Financial and Other (water transport and dwellings) Services; in the East Midlands the main drivers are expansions in Business Services, Textiles and Other Processed Foods; while the increase in Scotland is largely due to expansions in Business Services and Energy.

Despite the broad expansion in most sectors, GVA in the North East, North West and the West Midlands are estimated to expand the least. Broad based sectoral expansions in the North East and North West are partially offset by a contraction in the chemical, rubber and plastic products sector; while similar broad based sector expansions in the West Midlands are partially offset by contractions in the manufacture of motor vehicles sector.

Chart 6 - Changes in UK nations and regions value added, long run % change



Source: DIT Calculations (2020)

Table 15 below provides additional information on the point-estimates for the percentage change in GVA for each region and associated monetised value. These lie within the ranges presented in the chart 6 above. The methodology used to provide the point-estimates is the same as that used above and outlined in Annex C.

It should be noted that these monetised value estimates are to be interpreted as indicative magnitudes not precise estimates or forecasts. For example, the UK-Japan CEPA is estimated to increase GVA in Scotland by 0.07% in the long run. As an indicative order of magnitude, based on nominal levels of GVA in 2017, this equates to approximately £101 million. Point estimates are provided to give an indicative estimate of the scale of potential impacts on regions and nations; in line with the limitations outlined in Annex C, estimates should be interpreted as indicative rather than precise estimates or forecasts.

Table 15 - Indicative change in regional value added, long run % and value changes, 2017 current prices

	Indicative GVA Impact, %	Indicative GVA Impact, £ million
East of England	0.06	96
East Midlands	0.08	82
London	0.09	398
North East	0.03	14
North West	0.04	64
South East	0.07	177
South West	0.07	90
West Midlands	0.04	56
Yorkshire and The Humber	0.06	76
Northern Ireland	0.06	24
Scotland	0.07	101
Wales	0.05	34

Source: DIT Calculations (2020)

5.7 Impacts on developing countries

In order to deliver on HMG's objective to ensure relevant parts of the agreement support the Government's trade policy principle regarding trade and development, the Government has considered measures to maximise the positive spill overs and minimise negative spill overs of the UK-Japan CEPA on developing countries, where possible. The UK-Japan CEPA includes development-focused provisions in the TBT Chapter and the IP Chapter. These provisions will enable the UK and Japan to work together under the CEPA to explore cooperation on technical assistance for developing countries in these areas. These provisions aim to maximise the positive spill over effects of the UK-Japan CEPA and support the UK's broader trade and development objectives.

This section presents estimates of the impacts on developing countries resulting from the UK-Japan CEPA, including an assessment of the risks of trade diversion or 'preference erosion' which may affect particular developing countries.¹¹³

5.7.1 GDP and trade impacts on developing countries

A UK-Japan CEPA can impact developing countries through a variety of channels. These include:

- the potential for increases in GDP and trade for these countries as higher economic activity in the UK and Japan creates larger export markets for developing countries to export to; and
- the potential for adverse impacts on developing countries that export to the UK under the Generalised Scheme of Preferences, including Least Developed Countries (LDCs), as a result of trade diversion due to reduced tariffs between the UK and Japan.

The modelling provides estimates, which capture the scale of these channels for a group of LDCs. The estimates do not account for the potential for positive spill overs for LDCs resulting from provisions of the agreement such as greater market access due to more liberal rules of origin and lower compliance costs for LDCs in meeting the regulatory requirements of both markets.¹¹⁴

The macroeconomic impacts estimated using the CGE model show that a UK-Japan CEPA with Japan is estimated to have no impact (a 0.00% change) on LDCs' long run annual GDP. The impact on LDCs' trade is expected to be minimal with a negligible impact on total exports and imports. The overall scale of impact is small, in line with the relatively small share of LDCs' exports sent to the UK and Japan – circa 6 per cent (2018).¹¹⁵

¹¹³ Preference erosion refers to a reduction in the competitive advantage of exporting countries, which already benefit from preferential rates, as a result of the UK-Japan CEPA.

¹¹⁴ Lee, W; Mulabdic, A and Ruta, M; Third Country Effects of Regional Trade Agreements: Firm Level Analysis, World Bank Group, 2019; and Mattoo, A, Mulabdic, A and Ruta, M; Trade Creation and Trade Diversion in Deep Agreements, World Bank Group, 2017.

¹¹⁵ UN Comtrade, accessed through WITS.

Table 16 - CGE modelled impacts on LDCs

Impact	Metric	LDCs, %
GDP	Change in GDP	0.00
Exports	Change in exports	0.00
Imports	Change in imports	0.00

Source: External CGE modelling

5.7.2 Static assessment identifying particular countries and products at high risk of trade diversion or preference erosion

Further analysis has been undertaken to provide an indication of whether the market access agreed as part of the CEPA is likely to impact negatively on the trade flows of developing countries receiving preferential market access to the UK. This analysis complements the CGE modelling to provide a more disaggregated view of the potential impacts on preferential access as a result of the CEPA.

Table 17 outlines products which have been identified as being at potential risk of trade diversion from developing country producers under a UK-Japan CEPA. Further detail on the methodology of this assessment can be found in Annex I, alongside more detailed results.

For some products, such as 'prepared or preserved fish' and 'fermented beverages', there is not considered to be a competitive threat at a more disaggregated product level as the products exported by Japan and the identified developing countries likely differ. For the other lines, although the level of reliance on the UK market is significant, the exporting countries are broadly competitive and have relatively diversified economies. Therefore, on balance, it is not likely the UK-Japan CEPA will have major implications on trade flows between the UK and developing countries.

Table 17 - Products exported by developing countries identified as at risk of product diversion and their reliance on the UK market

HS6 code and product description	Developing country	Exports to UK, 2016-2018 average, £ million	Percentage of total Exports to UK, 2016-2018 average
160420: Prepared or preserved fish	Mauritius	3	39%
220600: Fermented beverages	Jamaica	2	84%
540792: Woven fabrics of yarn	India	4	20%
	Pakistan	0.9	84%
560819: Knotted netting of twine	Sri Lanka	4	35%
392190 and 392062: Plates, sheets, film, foil and strip	South Africa	2	13%
	Pakistan	2	43%
870333: Motor cars and other motor vehicles	South Africa	261	29%
848310: Cranks and crank shafts	India	29	11%
843120: Parts of fork-lift trucks	Sri Lanka	4	12%
	Vietnam	2	11%

Source: HMRC, WITS

6. Detailed impacts by main groups

This section provides an assessment of the impacts on UK businesses, consumers, and workers.

UK businesses may benefit from the opportunity to expand into the Japanese market by exporting more and increasing business investment in Japan in response to increased returns from investment.

As output in most sectors of the UK is estimated to expand, the positive gains from the CEPA will be distributed across the economy. Analysis of the distribution of SMEs across sectors does not provide any evidence that SMEs would be disproportionately impacted by the CEPA.

Compared to not having a trade agreement with Japan:¹¹⁶

Total potential annual tariff reductions on UK exports to Japan are estimated to be £30.4 million annually in the short term and £34.9 million annually in the long term.

Total potential annual tariff reductions on UK imports from Japan are estimated to be £84.8 million annually in the short term and £137.1 million annually in the long term.

- Businesses could face annual tariff reductions from liberalisation of intermediate goods of £41.7 million annually in the short term and £44.7 million annually in the long term.

- Cost savings due to tariff liberalisation on final goods are expected to be £43.1 million annually in the short term and £92.5 million annually in the long term.

Workers of all skill types are expected to benefit from a marginal increase in real wages. The modelling suggests some small reallocation of jobs across sectors. This does not account for labour adjustment as the model assumes that in the long run the overall employment level is unaffected by changes in trade costs. The representation of protected groups (in relation to age, sex, ethnicity and disability) in sectors where employment falls relative to the baseline as a result of the UK-Japan CEPA, is estimated to be largely in line with the general population of the workforce.

6.1 Impacts on UK businesses

The evidence suggests that a UK–Japan agreement could have positive impacts on business in the UK and Japan, through export and investment growth, tariff savings, and gains for SMEs.

Many of the provisions in the agreement create opportunities for businesses to grow and expand their exports and to lower the cost of imports, by reducing tariff and non-tariff regulatory barriers to trade with Japan.

Businesses that currently export to Japan are expected to benefit from a growth in exports as a result of becoming more price competitive and having more efficient market access into the Japanese economy. Provisions enhancing transparency and providing better information for SMEs aim to further enable new businesses to enter the Japanese market.

Businesses importing goods from Japan will directly benefit from lower tariffs on and an expected increased variety of imported inputs to production and final goods from Japan. Greater access to global supply chains are an important source and driver of competitive advantage for businesses.¹¹⁷

Some businesses may experience greater competition from imports from Japanese exporters. The evidence shows that competition from trade promotes business innovation and growth.¹¹⁸ Some businesses may expand, creating more jobs, but some businesses may be adversely affected by the increased competition.

¹¹⁶ DIT internal analysis. Eurostat, 2019. Short term is defined as tariff savings in 2021 and long term is tariff savings from 2038 onward. Final and intermediate goods are defined using BEC codes where the intermediate and capital classification has been combined to form intermediate goods. Note there are limitations in identifying goods for intermediate use. BEC codes: <http://unstats.un.org/unsd/trade/classifications/bec.asp>

¹¹⁷ USITC (2019), Global Value Chain Analysis: Concepts and Approaches.

¹¹⁸ CMA (2015) Productivity and competition: A summary of the evidence.

6.1.1 Business growth and exports

Japan is an important trading partner for UK businesses. Around 9,500 businesses exported goods to Japan in 2018.¹¹⁹ These existing exporters would be expected to benefit from the new trade opportunities offered by the tariff liberalisation as well as the reductions in non-tariff measures set out in section 4.

The measures negotiated in the agreement, particularly those measures which reduce the upfront fixed costs associated with exporting such as obtaining recognition from a Japanese national accreditation service, would be expected to incentivise firms that do not currently export to Japan to do so.

The modelling results estimate a 17.2% increase in UK exports to Japan. The expansion of exports can allow businesses to benefit from economies of scale which lower their operating costs, raise profitability, and increase turnover. This in turn can attract investment and support further expansion. The modelling results estimate a 0.02% increase in the long run level of business investment in the UK.

The scale and distribution of potential tariff reductions on UK exports

Section 4 describes the preferential tariffs negotiated under the agreement. The estimated annual potential tariff reductions increase over time from £30.4 million in 2021 to £34.9 million in 2038 due to the staged tariff reduction process that is set out under the agreement. The estimates show that the majority of tariffs are liberalised at entry into force of the agreement.¹²⁰

The reductions in tariffs on UK exports do not accrue directly to UK exporters. While the academic evidence is inconclusive, it is generally accepted that importers in a country bear the cost associated with tariffs.¹²¹ However, UK businesses could benefit from maintaining or increasing competitiveness, particularly when compared to businesses exporting to Japan from countries without an FTA.

Distribution of the potential tariff reductions on UK exports by sector

The largest reductions in export duties in the long term occur in the textiles & textile articles, chemical products and base metals and articles sections (table 18).

Table 18 - Top 10 HS sections, ranked by scale of potential tariff reductions on UK exports to Japan

Product Section	Short term duty reductions, £ million	Long term duty reductions, £ million	Value of exports, 2019, £ million
Textiles and textile articles	8.0	8.0	117.2
Chemical products	6.5	6.5	1,591.6
Base metals and articles	3.7	3.7	173.2
Animals and animal products	1.7	3.1	54.7
Prepared food stuffs	2.0	3.0	310.3
Plastics and rubber	2.7	2.7	125.7
Vegetable products	1.9	2.0	55.7
Hides and skins, leather	0.7	1.8	19.4
Footwear, headgear	0.5	1.5	20.9
Pearls, (semi-)precious stones and metals	1.4	1.4	170.6
Others	1.0	1.1	3,636.2

Source: DIT Internal Analysis (Japan Trade Statistics Portal 2019)

¹¹⁹ HMRC, UK trade in goods by business characteristics 2018. Figures show all businesses which traded in goods, including firms that are predominantly producers of services. Figures are not available for the number of businesses exporting services to Japan.

¹²⁰ Note that tariff reductions apply to goods that meet Rules of Origin requirements.

¹²¹ In some instances, the exporting business may absorb the cost of the tariff. For example, when there is a considerable domestic supply of a product, foreign firms may be forced to absorb tariff costs to remain competitive in the market or may not trade at all.

Distribution of tariff reductions on UK exports by region

Overall, businesses based in London, Scotland and the East of England are expected to benefit the most from lower tariffs on UK exports to Japan. For example, though businesses in Scotland account for 8% of UK goods exports to Japan, they are estimated to benefit from 16.1% of the overall tariff savings to the UK in the long term. Table 19 shows in further detail the proportion of the exports to Japan which come from each nation and region of the UK and the proportion of the overall gains from tariff reductions which may benefit exporters in each nation and region, based upon their recent sectoral patterns of exports.

The methodology for apportioning the gains from tariff reductions to each nation and region is explained further in Annex D, which also sets out a number of important caveats.

Table 19 - Shares of potential tariff reductions on UK exports to Japan, by nations and regions of the UK

Region	Proportion of goods exports to Japan, %	Proportion of tariff reduction affecting each nation and region, %	
		Short term	Long term
London	9	17.6	17.4
Scotland	8	15.9	16.1
East of England	14	11.9	12.4
South East	23	10.7	9.8
Yorkshire and The Humber	3	10.2	9.9
North West	7	8.7	8.6
East Midlands	9	7.4	8.5
North East	5	6.6	6.1
South West	9	4.4	4.4
West Midlands	8	3.3	3.2
Wales	4	2.4	2.2
Northern Ireland	1	1.0	1.4

Source: DIT Calculations (2020). Columns may not sum to 100% due to rounding.

6.1.2 Imports and productivity

Around 6,700 businesses imported goods from Japan in 2018 (representing 2% of the UK's total goods imports).¹²² The UK-Japan CEPA is expected to benefit businesses by expanding access to cheaper and increased varieties of imported inputs. Greater access to global supply chains is an important source of competitive advantage for businesses. The modelling results estimate a 17.2% increase in UK imports from Japan.

The scale and distribution of tariff reductions on UK imports of intermediates and final products

The gains from the estimated reduction in annual duty paid on UK imports comparing the UKGT regime to the tariff schedule under the UK-Japan CEPA increases from £84.8 million in the short term to £137.1 million in the long term, the majority of the duty reductions come from intermediate goods as can be seen in table 20.¹²³

Table 20 - Potential tariff reductions on UK imports from Japan, by end use

	Duty reductions, £ million	
	Short term	Long term
Intermediate goods	41.7	44.7
Final goods	43.1	92.5
Total savings	84.8	137.1

Source: DIT Internal Analysis. Eurostat, 2019.

¹²² HMRC, UK trade in goods by business characteristics, 2018. Figures show all businesses which traded in goods, including firms that are predominantly producers of services.

¹²³ Short term refers to 2021. Long term refers to the end of the liberalisation period for the UK and Japan schedules which are 2033 and 2038 respectively. Final and intermediate goods are defined using BEC codes where the intermediate and capital classification has been combined to form intermediate goods. Note there are limitations in identifying goods for intermediate use. BEC codes: <http://unstats.un.org/unsd/trade/classifications/bec.asp>

The majority of the potential import duty reductions on intermediate goods occur in the transportation equipment and machinery & mechanical appliances sectors. A further breakdown of duties reductions can be seen in table 21. These potential tariff reductions provide benefits for businesses that make use of Japanese imports in their production processes. This could provide competitiveness gains for those UK businesses, but could also result in increased competition between Japanese producers, domestic producers and imports from third countries on intermediate products with liberalised tariffs.¹²⁴ The breakdown of final goods can be found in section 6.2 on consumers.

Table 21 - Potential tariff reductions on UK intermediate imports from Japan, by HS section

HS Section	Short term duty reductions, £ million	Long term duty reductions, £ million	Value of imports affected, 2019, £ million
Machinery and mechanical appliances	16.1	17.8	2429.5
Transportation equipment	9.6	10.0	602.4
Plastics and rubber	7.5	8.0	269.9
Chemical products	5.4	5.4	590.3
Textiles and textile articles	2.0	2.0	67.8
Base metals and articles thereof	0.4	0.6	447.2
Articles of stone, plaster, cement, asbestos	0.4	0.4	48.7
Instruments - measuring, musical	0.2	0.2	110.8
Miscellaneous manufactures	0.1	0.1	16.7
Vegetable Products	0.0	0.0	7.8
Other	0.0	0.0	1834.0
Total	41.7	44.7	6425.0

Source: DIT Internal Analysis (HMRC 2019 and Eurostat)

The effects of liberalisation of intermediate products can be apportioned to the various regions and nations of the UK. On this basis, the largest shares of tariff reductions will affect importers of intermediate inputs in the South East, East Midlands and the North East as evidenced in table 22. The methodology for apportioning the tariff reductions to each nation and region is explained further in Annex D, which also sets out several important caveats.

¹²⁴ In some instances, the exporting business may absorb the cost of the tariff, for example when there is a considerable domestic supply of a product, foreign firms may be forced to absorb tariff costs in order to remain competitive in the market or may not trade at all.

Table 22 - Shares of potential tariff reductions on UK imports of intermediate goods from Japan, by nations and regions of the UK

Region	Proportion of goods imports from Japan, %	Proportion of tariff reductions affecting each nation and region, %	
		Short term	Long term
South East	21	20.4	20.5
East Midlands	13	14.8	14.8
North East	11	12.2	12.1
East of England	10	10.7	10.9
South West	10	9.2	9.3
West Midlands	9	7.1	7.3
London	8	6.5	6.4
North West	4	5.8	5.6
Scotland	4	5.4	5.2
Wales	6	3.9	3.8
Yorkshire and The Humber	2	2.4	2.4
Northern Ireland	2	1.9	1.8

Source: DIT calculations (2020). Columns may not sum to 100% due to rounding.

Increased imports and competition

Some businesses may experience greater competition from imports from Japanese firms. As set out in section 5.3.2, UK imports from Japan are estimated to increase by 79.9%. The evidence shows that competition from trade promotes business innovation and growth.¹²⁵ Some UK businesses may expand, creating more jobs, but others may be adversely affected by the increased competition.

In line with the increased competition, table 22 above provides indicative estimates of the location of businesses that could benefit from tariff liberalisation but also highlights the areas where businesses producing intermediate goods will be more exposed to increased competition owing to tariff liberalisation.

This is discussed further in section 6.1.3 on SMEs.

6.1.3 Small and medium-sized enterprises (SMEs)

This section assesses the potential impacts on Small and Medium-sized enterprises.

SMEs may be defined as:

- Firms employing fewer than 50, and fewer than 250 employees respectively; and
- Firms not exceeding either (a) £44.0 million in annual turnover or (b) an annual balance-sheet total of £38.0 million.

SMEs play an integral role in engaging with the international economy. They are increasingly international traders in their own right. The data suggest that, in 2018, SMEs represented 99% of all UK businesses exporting goods and services globally.¹²⁶ Moreover, SMEs form a key part of the supply chain for larger UK and global firms, by producing intermediate goods used to manufacture other goods. In 2018, around 8,000 UK SMEs export goods to Japan. On goods trade, these SMEs produce 23% of the UK's export value (in goods and services) to Japan and represent 84% of total UK goods exporters to Japan.

Non-tariff measures to trade addressed in FTAs may have a greater impact on SMEs than on larger businesses. This is because SMEs may have more limited financial and human resource capacities than larger businesses. They may be less equipped to overcome the challenges posed by different regulatory frameworks, have less access to information to help them navigate through trade regulations and absorb the financial risks associated with international trade.

The UK-Japan CEPA includes several provisions, as set out in section 4, aimed at benefiting SMEs including; increasing the transparency of the regulatory environment in Japan, commitments to simplify custom procedures and to maintain cooperation on challenges for SMEs in the use of e-commerce and IP.

¹²⁵ CMA (2015) Productivity and competition: A summary of the evidence.

¹²⁶ ONS, Annual Business Survey (2019). Figures do not cover NI businesses and businesses in the insurance sector.

HMRC, UK trade in goods by business characteristics, 2018.

Overall, the sectoral impacts from the CGE model suggest that most sectors are estimated to expand (as measured by GVA). This suggests that the positive gains from the UK-Japan CEPA will be distributed across the economy, so there is no evidence to suggest a disproportionate impact on SMEs (note that turnover data is not available for financial services or insurance sectors). Under the scenario, small (including micro) and medium businesses account for around 52% of total UK businesses turnover across all expanding sectors, in line with the general business population.¹²⁷ Using Business Population Estimates turnover data, Annex F shows the distribution of SMEs across the 23 sectors included in the CGE model.

The modelling exercise shows that imports are expected to increase in a number of sectors of the economy as trade liberalisation via the agreement raises international competition. Increased imports generate benefits for consumers and drive benefits from greater specialisation across sectors. The competitive pressures, resulting from increased imports, drive innovation and productivity growth within sectors.

However, rapid sector or product specific import surges resulting from liberalisation have the potential, in some cases, to adversely affect domestic businesses and generate adjustment costs in the short run. This may be particularly true for SMEs as they may be less able than larger firms to adapt and innovate in the face of increased competition because of factors such as human resource or capital constraints.

Table 23 below shows the estimated change in trade by sector in the long run.¹²⁸ As mentioned above, SMEs account for over 99% of all businesses within each sector stated below. The number of SMEs are most concentrated in business services and construction services where UK exports to Japan are estimated to increase by 7.3% and 0.4% respectively. This is equivalent to £109.6 million and less than £0.1 million respectively in 2018 terms.

Table 23 - Estimated change in trade and distribution of SMEs, by sector

GTAP Sector	Estimated change in imports, %	Estimated change in exports, %	Sectoral Distribution of SMEs, %
Agriculture, forestry, and fishing	15.8	141.1	2.7
Semi-processed foods	171.4	106.2	0.4
Processed foods	129.4	175.7	0.7
Beverages and tobacco products	31.4	18.7	0.2
Energy	18.5	25.8	0.5
Textiles, apparel, and leather	126.6	156.7	0.4
Manufactures	27.1	11.7	0.5
Paper and printing products	-0.2	0.8	1.3
Chemical, rubber, plastic products	222.7	18.2	0.4
Manufacture of motor vehicles	96.7	40.3	0.1
Manufacture of other transport equipment	70.1	1.5	0.6
Manufacture of electronic equipment	105.7	1.3	0.1
Manufacture of machinery and equipment	67.8	5.0	0.8
Manufacturing n.e.c.	37.9	26.7	0.2
Other services (transport, water, dwellings)	-0.3	4.4	9.0
Construction services	-0.2	0.4	17.7
Wholesale and retail trade	-0.3	1.1	14.7
Communications services	-0.2	6.9	1.1
Financial services	-0.1	14.2	1.0
Insurance services	-0.3	7.3	0.5
Business services	-0.2	7.3	22.7
Personal services	-0.6	3.7	9.0
Public services	-0.3	1.1	15.6
Total	79.9	17.2	100

Source: External CGE modelling

¹²⁷ This includes "micro"-sized firms which are included in "small" firms in the data. Estimates are outputs from the CGE modelling.

¹²⁸ The estimated change in imports and exports (%) covers all businesses (i.e. is not specific to SMEs)

6.1.4 Voluntary costs for businesses in utilising the agreement

The one-off familiarisation and on-going administration cost to UK businesses trading under preferences are voluntary. Firms have the option to choose whether to trade with businesses in Japan under preferences in the UK-Japan CEPA or under MFN terms. There is therefore no net cost to businesses for those who do not wish to trade under the agreement's preferences.

FTAs provide an incentive for businesses to trade under preferences to reduce the costs of trading. However, firms may incur one-off familiarisation costs and on-going costs administrative costs in doing so.

It is not possible to monetise the precise impact of this one-off cost, however an illustration of the potential impacts on UK businesses that trade with Japan has been provided. For this reason, ranges are presented as well as a qualitative description of the costs and activities involved to demonstrate the impact on businesses. There are some limitations to the data used in this section, these include:

- HMRC empirical data on the administration costs incurred by businesses to trade are commercially sensitive and not available for this analysis; and
- Historic data on the volume of forms submitted to HMRC to trade under preference is not available for this analysis.

One-off familiarisation costs

There will be one-off costs to firms, enforcers, and customs and government officials from reading and understanding the text of this agreement. The cost associated with reading and understanding the text by customs and government officials are likely to be absorbed by existing resources. There are one-off familiarisation costs for UK businesses associated with reading and understanding the treaty's provisions regarding proving goods are eligible for preferences. The central estimate of these costs is £4.6 million, with a range between £4.5 million and £4.8 million (2019 price base), depending on estimates of reading time which can vary considerably. This figure could be an overestimate as it double counts firms who export to, and import from, Japan. However, it does not consider the number of new businesses that may trade with Japan as a result of the agreement which may lead to the figure being an underestimate. Annex E sets out further information on the methodology.

On-going administration costs

Businesses will need to follow administration procedures in order to trade under the agreement preferences i.e. access preferential (lower) tariffs. These include customs declarations forms which will be an additional cost borne by new firms that start trading with Japan because of the agreement. The main form used in international trade is the Single Administrative Document or "C88" form.¹²⁹

To trade under the agreement preferences businesses are required to produce a certificate to confirm the origin of the export content meets the rules of origin set out in the text. Businesses can submit rules of origin forms to HMRC to process free of charge, which could take several days to complete. Alternatively, businesses can choose to obtain a certificate from the British Chambers of Commerce which processes the certificate in a shorter period of time for a fee of either £27 or £54 depending on whether a business is a member or not.¹³⁰

Recent academic studies estimate the tariff equivalent trade costs associated with rules of origin administration and compliance requirements to range between 2% and 6%.¹³¹ These estimates vary considerably depending on the methodology, time period, and the countries under consideration. Evidence suggests costs for developed markets skew to the lower part of the distribution, but significant uncertainty remains. Therefore, the tariff equivalent trade costs between the UK and Japan associated with rules of origin requirements are assumed to range from 2% to 4%. The potential cost to UK business is estimated to be between £10.9 million and £11.7 million per annum, with a central estimate of £11.3 million (2019 price base year). Annex E provides further detail on the methodology used to estimate the potential familiarisation and administration costs.

6.2 Impacts on UK consumers

The provisions set out in the UK-Japan CEPA aim to benefit UK consumers through increased consumer choice, better product quality and lower prices for imported products. This section presents the potential tariff reductions for consumers, the likely impact of the UK-Japan CEPA on consumer choice and a summary of the provisions that would benefit consumers in the UK-Japan CEPA.

¹²⁹ GOV.UK, Single Administrative Document full 8 part set (C88 (1-8)). <https://www.gov.uk/government/publications/import-and-export-single-administrative-document-full-8-part-set-c88-1-8>

¹³⁰ London Chamber of Commerce and Industry. Export documents. Price list 2020. <https://www.londonchamber.co.uk/cofo/>

¹³¹ Should Canada unilaterally adopt global free trade? <http://www.ceocouncil.ca/wp-content/uploads/2014/05/Should-Canada-unilaterally-adopt-free-trade-Ciuriak-and-Xiao-May-20141.pdf>

6.2.1 Consumer benefits from tariff liberalisation

The extent to which businesses or consumers in the UK will benefit from the reduction in tariffs in the agreement's tariff schedule will depend on the rate of "pass through" of lower import costs from the importing business to the end consumer.¹³²

Consumers can benefit both from:

- tariff reductions on final consumer goods (goods that are imported from Japan for sale in the UK without processing or modification for household use, e.g. finished cars); and
- tariff reductions on the intermediate goods that are passed onto the consumer in the longer term (materials that are used to produce final consumer goods, e.g. car engines).

However, not all of the tariff reductions will pass through into consumer prices as some businesses may absorb the benefit from the reduced tariff cost on intermediate goods. Calculated in this way, consumer savings when importing final goods are equivalent to the reduction in tariff revenues accruing to the UK Exchequer.

The scale of annual tariff duty reductions on imported final goods from Japan is estimated to be around £43.1 million in the short term compared to the baseline of trade with no agreement. This could increase to around £92.5 million annually at the end of the tariff staging period in the long term.¹³³

Mapping the UK's preferential tariff schedule negotiated in the agreement to consumer expenditure categories used to classify household expenditures, UK consumers are expected to benefit most from tariff reductions on recreational goods and transport goods.¹³⁴ The types of recreational consumer goods with the highest estimated tariff savings include stationary, cooking knives and recreational goods made from plastic. The types of transport goods with the highest potential tariff savings include passenger cars and tyres. This is summarised in table 24 below, which also includes the proportion of an average household's weekly expenditure that is spent on imports by combining UK household expenditure survey data with UK Input-Output Analytical Tables (IOATs).¹³⁵

The estimated tariff reductions do not account for tariff reductions on intermediate goods that may be passed on to the consumer in the longer term.

Table 24 - Potential annual tariff cost reductions on consumer goods imported from Japan

Type of Consumer Good	Proportion of household spending on imports, %	Short term, £ million	Long term, £ million
Recreation and culture	19	16.6	41.1
Transport	27	16.2	40.5
Clothing and footwear	63	3.5	3.5
Food and non-alcoholic beverages	50	2.6	2.6
Furnishings, household equipment and routine household maintenance	47	1.7	2.0
Miscellaneous goods and services	11	0.4	0.4
Alcoholic beverages, tobacco and narcotics	59	0.2	0.2
Housing, water, electricity, gas and other fuels	5	0.1	0.2
Health	36	0.1	0.1
All else (Communication, Education, Restaurants and hotels)	1	0.0	0.0
Not classified	-	1.7	2.0
Total final consumer goods tariff reductions	17	43.1	92.5
Intermediate goods tariff reductions	-	41.7	44.7
Total tariff reductions	-	84.8	137.1

Source: DIT analysis (2020), UK input-output analytical tables, ONS (2019) and Living Costs and Food Survey (LCF), ONS (2019).

¹³² It is generally accepted that importers bear the costs of tariffs. In some instances, the exporting business may absorb the cost of the tariff, for example when there is a considerable domestic supply of a product, foreign firms may be forced to absorb tariff costs in order to remain competitive in the market or may not trade at all.

¹³³ These results are based on trade flows between the UK and Japan in 2019. The analysis therefore does not account for any changes in consumer behaviour which may change the value or composition of goods imported once the agreement is implemented.

¹³⁴ According to Eurostat Reference And Management Of Nomenclatures (RAMON) correspondence tables from Harmonised System (HS) to Classification of individual consumption by purpose (COICOP)

¹³⁵ UK input-output analytical tables - industry by industry, ONS, April 2020

6.2.2 Tariff reductions for consumers by UK nations

Given variations in spending patterns across the country, it is expected some households will benefit more from tariff reductions than others. Table 25 shows the estimated potential value of annual tariff reductions in the long term for each UK nation by apportioning tariff reductions to weekly household estimated spending on imports in each nation.

Table 25 - Potential tariff reductions from a UK-Japan CEPA by UK nation

	UK	England	Wales	Scotland	Northern Ireland
Estimated annual tariff reductions, all households, £ million	92.5 (100%)	76.9 (83%)	4.0 (4%)	7.5 (8%)	2.2 (2%)
Proportion of UK imports from Japan, 2019, %	100	83	7	4	2

Source: DIT analysis (2020), UK input-output analytical tables, ONS (2019) and Living Costs and Food Survey (LCF), ONS (2019), HMRC (2020). Note: The sum of each nation's reductions may not add up to the UK total as there are £2 million worth of estimated final goods savings that are not classified within COICOP. The sum of each nation's imports from Japan does not add up to 100% because there is a small proportion of goods not allocated to a particular UK nation.

Table 26 below shows the proportion of an average households' weekly expenditure that is spent on imports of different types of good across UK nations, by combining UK household expenditure survey data with UK Input-Output Analytical Tables (IOATs).¹³⁶

Overall, households across UK have broadly similar demand for imported goods. Northern Irish households, on average marginally import more consumer goods as a proportion of their weekly household spending (26.5%) than Welsh (25.5%), Scottish (24.9%), and English (24.2%) households.

As highlighted above, tariff reductions are estimated to be largest on recreational goods, worth around £41.1 million per year from in the long term. It is estimated that the average UK household spends 2.8% of their total weekly spend on these goods, while the average Scottish household spends the highest proportion of income on these goods of all UK nations at 3.0%.

Transport related goods (such as passenger cars and tyres) are also estimated to have substantial tariff reductions of just under £40.5 million annually in in the long term. The average UK household spends 4.4% of their total weekly spend on such goods, with Welsh households spending the highest proportion at 4.6%.

Across all types of consumer goods, food and non-alcoholic beverages are estimated to have the highest proportion of weekly expenditure spent on imports at 6.2% for the UK, rising to 7.3% for Northern Ireland. These goods are expected to have tariff savings of up to £2.6 million per year from in the long term. The types of food imported from Japan with the highest potential tariff reductions include beef, sauces/condiments, and soups.

Table 26 - Comparison of potential tariff reductions from a UK-Japan CEPA to average UK household weekly expenditure by nation

Type of Consumer Good	Estimated national annual tariff reductions, £ million		Estimated proportion of total weekly household spend owing to imports, %				
	Short term	Long term	UK	England	Wales	Scotland	Northern Ireland
All expenditure groups	43.1	92.5	24.4%	24.2%	25.5%	24.9%	26.5%
Recreation and culture	16.6	41.1	2.8%	2.8%	2.9%	3.0%	2.3%
Transport	16.2	40.5	4.4%	4.4%	4.6%	4.3%	4.5%
Clothing and footwear	3.5	3.5	3.2%	3.2%	3.3%	3.3%	4.4%
Food and non-alcoholic beverages	2.6	2.6	6.2%	6.1%	6.6%	6.4%	7.3%
Furnishings, household equipment and routine household maintenance	1.7	2.0	3.8%	3.8%	4.1%	3.7%	3.4%

Source: DIT analysis (2020), UK input-output analytical tables, ONS (2019) and Living Costs and Food Survey (LCF), ONS (2019)

Note: Tariff reductions for passenger vehicles as defined by the Harmonised System (HS-8703) are split between 'Recreation and Culture' and 'Transport' in line with the mapping of COICOP to HS categories of goods according to Eurostat's Reference And Management Of Nomenclatures.

The proportion of an average households' weekly expenditure spent on imports can also vary by region within each UK nation. For transport related consumer goods, estimated weekly spend as a proportion of total household expenditure varies from 2.2% in London to 3.3% in the North East. For recreational goods, this varies from 3.6% in London to 4.7% in the East.

Table 27 - Comparison of potential tariff reductions from a UK-Japan CEPA to average UK household weekly expenditure by UK region

		Recreation and culture	Transport
Estimated national annual tariff reductions, £ million	Short term	16.6	16.2
	Long term	41.1	40.5
Estimated proportion of total weekly household spend owing to imports, %	United Kingdom	2.8	4.4
	North East	3.3	4.2
	North West	2.9	4.4
	Yorkshire and the Humber	3.0	4.4
	East Midlands	2.7	4.5
	West Midlands	2.8	4.3
	East	2.9	4.7
	London	2.2	3.6
	South East	3.1	4.7
	South West	3.0	4.6
	Wales	2.9	4.6
	Scotland	3.0	4.3
	Northern Ireland	2.3	4.5

Source: DIT analysis (2020), UK input-output analytical tables, ONS (2019) and Living Costs and Food Survey (LCF), ONS (2019)

6.2.3 Tariff reductions for consumers by household income level

As well regional variations, there are differences in spending patterns across households by income level. Table 28 shows the proportion of an average households' weekly expenditure that is spent on imports by household income decile. In general, imported goods account for a greater proportion of the weekly spend for high income households. This is the case for recreation goods and transport related goods, the two consumer good categories with the greatest estimated tariff reductions. Goods such as food and beverages make up a greater proportion of low-income households weekly spending from imports.

Table 28 - Comparison of potential tariff reductions from a UK-Japan CEPA to average UK household weekly expenditure by income level

Type of consumer good	Estimated UK annual tariff reductions, £ million		Estimated proportion of total weekly household spend owing to imports, %		
	Short term	Long term	All households	Lowest 20%	Highest 20%
All consumer goods	43.1	92.5	23.6	20.4	23.9
Recreation and culture	16.6	41.1	2.7	1.4	3.0
Transport	16.2	40.5	4.4	2.8	4.6
Clothing and footwear	3.5	3.5	3.2	2.6	3.4
Food and non-alcoholic beverages	2.6	2.6	5.8	6.9	5.4
Furnishings, household equipment and routine household maintenance	1.7	2.0	3.6	2.5	4.0

Source: DIT analysis (2020), UK input-output analytical tables, ONS (2019) and Living Costs and Food Survey (LCF), ONS (2019)

6.2.4 Product choice for consumers

Liberalising trade with Japan could lead to greater choice for consumers as they could have easier access to a wider variety of products that they currently import, as well as new products they would not have purchased before the agreement.

Under the current UKGT schedule, the UK would have 796 types of final consumer products (as defined by 6-digit level tariff lines) that are tariff free. With a UK-Japan CEPA this would increase to 1,885 consumer products, increasing the choice of products that are free from import tariffs for the UK consumer.

Table 29 shows that for consumer goods within Recreation and Culture, where estimated tariff savings are largest for consumer goods, an additional 292 consumer products would become tariff free (from 302 to 594). For consumer goods within Transport, where estimated tariff savings are also substantial, an additional 64 product lines would become tariff free (from 45 to 109).

Table 29 - Comparison of tariff free product lines in UKGT to the UK-Japan tariff schedule

Category	Estimated long run tariff reductions, £ million	Number of HS6 lines on consumer products that are tariff free under:	
		UKGT tariff schedule	UK-Japan (CEPA) tariff schedule
All consumer goods	92.5	796	1,885
Recreation and culture	41.1	302	594
Transport	40.5	45	109

Source: DIT analysis (2020)

6.3 Impacts on the labour market and UK workers

Workers can benefit from the negotiated agreement through higher incomes and more opportunities for employment. Modelling suggests that the reallocation of employment across sectors represents a very small proportion of the total UK labour force.

Workers can benefit from FTAs through a variety of channels.

- **Higher incomes and wages.** Where FTAs boost productivity within firms and sectors, and across the economy, this is likely to increase employment opportunities and worker incomes. Where FTAs lower consumer prices, this is likely to benefit workers in the form of higher real wages, meaning that they can purchase more even if wages were constant.
- **Changes to the composition of employment.** Trade liberalisation can affect the structure of the economy over time. This can generate transitional costs for workers, who may move between jobs and sectors, as changes in the pattern of trade cause some sectors to expand and others to decline. The UK has one of the most dynamic and flexible labour markets in the world, which helps to facilitate adjustment and reduce transitional costs for workers.

The CGE model estimates long run impacts (with the long run interpreted as the period of time taken for the economy to fully adjust to the FTA). The model does not provide estimates of the magnitude of any potential short run impacts, such as the impact on unemployment associated with workers moving jobs within or across sectors or within and across geographical nations and regions of the economy.

As is common in CGE modelling exercises, it is assumed that both the supply of labour and overall rates of employment and unemployment in the economy are fixed in the long run (i.e. they are assumed to be unaffected by the FTA). This is appropriate as over the long term, the labour market would be expected to adjust over the timeframe and FTAs would not be expected to influence the underlying drivers of the long run employment rate.

This means that the results below show estimates of the impacts on wages (6.3.1) and the composition of employment across sectors over the long run (6.3.2), but do not provide estimates of any potential impacts on the short or long run employment and unemployment rates.

This section presents the labour market impacts on wages, sectoral employment, nations and regions and protected characteristics.

6.3.1 Impact on wages

The modelling estimates an increase in the long run level of the average real wage in the UK (nominal wages adjusted for impact of inflation) of around 0.09% (£0.8 billion).

The real wage changes can be broken down into type of occupations which vary in their skill levels (table 30). The results show that all skill types benefit from increasing liberalisation.

Table 30 - Gains in wages by occupation

Occupation	Gains in wages, %
Managers	0.09
Technicians	0.09
Service workers	0.08
Clerks	0.09
Labourers	0.09

Source: External CGE modelling

6.3.2 Impact on sectoral employment

This section presents indicative estimates of long run impacts on the composition of employment in UK sectors.¹³⁷

There is estimated to be some variation in the sectoral employment impacts. Table 31 shows the sectors in which the greatest proportionate decrease in employment could occur are chemicals, rubber and plastic products, motor vehicles, manufacture of machinery and equipment and other services (transport, water and dwellings) relative to the baseline. In the long run employment could increase the most in the textiles and leather sector compared to the baseline. The modelling assumes no overall changes in the total UK employment, so this represents a movement of labour between sectors.

¹³⁷ Employment is according to the ILO definition as specified by the relevant LFS indicator (ILODEFRR). That is, a person is considered employed if they are 16 or over/16-64 and have been engaged for at least one hour within a 7-day reference period in any activity to produce goods or services. This also includes employed persons "not at work" i.e. those who did not work in the reference period due to temporary absence or working patterns

Table 31 - Long run changes in employment (long run % change)

	Sector	Change in employment
Agri-food	Agriculture, forestry, and fishing	+
	Semi-processed foods	
	Processed foods	+
	Beverages and tobacco products	
Industry	Energy	+
	Textiles, apparel, and leather	++
	Manufactures	+
	Paper and printing products	
	Chemical, rubber, plastic products	--
	Manufacture of motor vehicles	-
	Manufacture of other transport equipment	+
	Manufacture of electronic equipment	
	Manufacture of machinery and equipment n.e.c	-
	Manufacturing n.e.c	+
Services	Other services (transport, water, dwellings)	-
	Construction	
	Wholesale and retail trade	
	Communications	
	Financial services	
	Insurance	
	Business services	
	Personal services	
	Public services	

Key

Above 0.5% (++)	0.05 to <0.5% (+)	-0.05 to <0.05%	-0.05 to <-0.5% (-)	Below -0.5% (--)
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Source: External CGE modelling

Modern, dynamic economies change continuously in response to global developments. This causes an ongoing process of worker and job transition in the labour market. Lower trade barriers and greater import competition could accelerate this ongoing process.

It is important to note that the modelled changes in employment composition do not necessarily represent the movement of individuals across sectors. Some of the employment changes are likely to occur through the process of natural 'churn' as retired workers exit the labour market and new entrants enter the labour market in expanding sectors. Industrial turbulence indices can be used to quantify the proportion of all jobs in the economy which change sector over a given period.¹³⁸ Data analysis on industrial turbulence suggests that the magnitudes of the changes to the composition of employment across sectors resulting from the agreement are small in comparison with regular changes in the labour market. The agreement is estimated to lead to a turbulence of less than 1% across all sectors. This compares to an average turbulence of around 20% in existing employment over the last 15 years.¹³⁹

The transition of employment across sectors has the potential to generate long run gains for workers, for example leading to higher wages.

¹³⁸ Industrial turbulence indices are calculated as: $\frac{1}{E} \sum \Delta E_i \left(\frac{E_i}{E} \right)$ where ΔE_i is the change in employment in each sector, and E is overall employment in the economy. (Layard, Nickell and Jackman (1991) "Unemployment" Chapter 6)

¹³⁹ This average is based on the 15 years to June 2019.

Some workers may also incur short term adjustment costs and periods of transitional unemployment. The UK has a dynamic and flexible labour market, helping to facilitate adjustment and reduce the transition costs for workers. Between October and December 2018, approximately 59% of unemployed people in the UK had been unemployed for less than 6 months.¹⁴⁰

It is, however, important to assess the potential scale of adjustment costs and to ensure that the potential for adjustment costs are not concentrated disproportionately among regions or certain groups in the labour market.

Assessing the implications for the broad scale of adjustment costs for labour

Economic adjustment generates long run gains for the economy, but the process often entails adjustment costs in the short term. One of the sources of adjustment costs for workers is the potential for transitory periods of unemployment for individuals, and the associated loss in income, when they transition jobs. These costs may be higher where workers need to retrain or move home in order to transition and depend upon macroeconomic conditions in the labour market.¹⁴¹

Quantifying the scale of adjustment costs is challenging but several sources of evidence can provide some insight. For example, evidence on baseline movement of employees across sectors can provide an indication of the extent to which these adjustments can be absorbed through existing labour market churn. Data from the Annual Survey of Hours and Earnings (ASHE) shows that at least 2% of employees moved from any given sector to a new sector each year.¹⁴²

Table 32 provides an indication of historic UK labour market movement for those sectors with the highest estimated decrease in employment share through the UK-Japan CEPA (below -0.05% in table 31). The table suggests that only one of the four sectors (manufacture of motor vehicles) has a lower baseline sector movement than the average, while it was at least 6% on average across all sectors.¹⁴³ This suggests that the annual movement of people across sectors is substantially higher than the modelled changes in employment share due to the trade agreement.

Table 32 - Existing proportion of people who stay in the same sector in any given year

	Sector	Move to a new sector
Industry	Chemical, rubber, plastic products	
	Manufacture of motor vehicles	
	Manufacture of machinery and equipment n.e.c	
Services	Other services (transport, water, dwellings)	

Key

Above 9 %	Between 6%-9%	Below 6%
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Source: DIT analysis of Longitudinal ASHE data, 1% sample (2011 – 2019 averages)

Table 33 shows the sectors with the largest inflow of workers from the sectors highlighted above. The data suggests that workers most frequently move from the sectors above into Business Services, Manufactures or Wholesale and retail trade.

¹⁴⁰ ONS unemployment by age and duration (seasonally adjusted); figure shows people aged 16 and over: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/unemployment/datasets/unemploymentbyageanddurationseasonallyadjustedunem01sa>

¹⁴¹ For example, there is reliable academic evidence that job losses which occurs during a recession are associated with larger earnings reductions for those workers over both the short and medium term. This is driven by job seekers finding it harder to secure a new job and therefore either remaining unemployed for longer or taking jobs at a significant salary reduction. For instance, in their 2011 paper 'Recessions and the Cost of Job Loss' Davis and von Wachter found that the value of pre-displacement earnings lost by men in mass-layoff events doubles from 1.4 years to 2.8 years if the unemployment rate exceeds 8% when they are laid-off.

¹⁴² This is based on average movement between GTAP sectors between 2011-2019

¹⁴³ This does not account for 'unknowns' where people could not be tracked from one year to the next, such as people who left the labour market entirely. Therefore, the actual proportions who moved sectors could be higher than this.

Table 33 - Highest sector movement in 'declining' sectors

Sector	Largest Sector Move	2nd Largest Sector Move
Chemical, rubber, plastic products	Business services	<i>Insufficient Data</i>
Manufacture of motor vehicles	Manufactures	Business services
Manufacture of machinery and equipment n.e.c	Wholesale and retail trade	Business services
Other services (transport, water, dwellings)	Business services	Wholesale and retail trade

Key

Legend	Above 2.6% (average)	Above 1.2% (average)
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Source: DIT analysis of Longitudinal ASHE data, 1% sample (2011 – 2019 averages)

The geographical location of sectors within the economy varies across regions of the UK; as described previously, some regions specialise in particular sectors. For several reasons, including the evolution of the regional comparative advantage in response to global trends, the location of production and employment may evolve significantly over the assumed 15-year time horizon for the economic modelling. It is therefore difficult to accurately assess the impacts of the estimated changes in composition of sectoral employment on various regions of the UK.

The long run movement of labour across sectors and regions within the UK contributes to the estimated output and wage gains from increased specialisation resulting from the UK-Japan FTA.

6.3.4 Assessment of implications for protected groups in the labour market

The representation of protected groups (in relation to age, sex, ethnicity and disability) in sectors where employment falls relative to the baseline as a result of the UK-Japan CEPA, is estimated to be largely in line with the general population of the workforce.

The pattern of potential long run changes to the sectors where workers are employed may affect different groups in the labour market differently. This is because the characteristics of workers, such as sex, age, ethnicity and disability status, differ across sectors. Annex G provides statistics describing the characteristics of workers located in sectors where employment is expected to fall relative to the baseline as a result of the agreement.

Workers currently located in sectors where employment is estimated to be lower than would otherwise have been the case (in the absence of the agreement) cannot be assumed to be adversely affected by the UK-Japan CEPA. For example, in some cases, workers who remain in the sector could benefit from increases in wages, owing to higher productivity in the sector. In addition, some of the adjustment may take place as workers leaving the labour market are not replaced, with new entrants more likely to find employment in sectors where employment is higher. Any workers who do transition across sectors may incur short term adjustment costs or periods of transitional unemployment but could also benefit from the creation of higher wage jobs in other sectors of the economy. The analysis is based on the structure of the UK workforce from 2016-18, whereas the CGE modelling results reflect the global economy in the long run when the composition of the workforce may have changed.

With the exception of men who are disproportionately concentrated in sectors where employment is estimated to fall relative to the baseline, the descriptive statistics show no evidence of a disproportionate impact of an agreement with Japan on protected groups in the UK. Unemployment durations can differ between males and females. In 2016-18, 7% of males in unemployment had been unemployed for 5 years or more, compared to 3% of females.¹⁴⁴

Sex

- 47% of those in employment in the UK are female and 53% are male.¹⁴⁵
- 24% of the workforce in sectors where employment is estimated to fall relative to the baseline are female and 76% are male.

Ethnicity

- 12% of those in employment in the UK are from an ethnic minority group and 88% report that they are white.
- 13% of the workforce in sectors where employment is estimated to fall relative to the baseline are from an ethnic minority background and 87% are white.

Age

- 12% of those in employment in the UK are aged 16-24, 84% are 25-64 and 4% are over 65. The proportion of workers in sectors where employment is estimated to fall relative to the baseline who are aged 16-24 is around 8%. The proportion of workers in sectors where employment is estimated to fall relative to the baseline who are aged 65+ make up around 4%.

Disability

- Around 13% of those in employment in the UK report that they have a disability (as defined by the Equalities Act 2010).¹⁴⁶ The proportion of workers in sectors where employment is estimated to fall relative to the baseline who have a disability is estimated to be around 12% and those without a disability are estimated to be around 88%.

¹⁴⁵ According to DIT Analysis of the ONS three-year pooled Annual Population Dataset (2016-2018).

¹⁴⁶ It is possible that non-response to this question in the Annual Population Survey affects the estimated proportion.

7. Food safety and animal welfare

Nothing in the UK-Japan CEPA prevents the UK from continuing to uphold its' high environmental, food safety and animal welfare standards now that the UK has left the European Union. The agreement with Japan works for UK consumers, farmers, and companies. Without exception, imports into the UK will continue to meet the UK's stringent food safety standards. The Government stands firm in trade negotiations to ensure any future trade deals live up to the values of farmers and consumers across the UK.

Provisions in the UK-Japan CEPA commit both parties to cooperation on matters of animal welfare (Chapter 18), and to the exchange of technical information and best practices for providing safe and high quality foods for consumers in the UK and Japan (Chapter 19). In addition, DIT is committed to scrutiny of animal welfare standards in FTAs through a range of measures, including where appropriate the assessment of animal welfare impacts.

7.1 Sanitary and Phytosanitary Measures (SPS)

Sanitary and Phytosanitary Measures (SPS) aim to ensure that consumers are supplied with goods which meet food safety and animal and plant health standards in a particular country. SPS measures are necessary for the protection of human, animal or plant life or health, but, in some cases, can act as a barrier to or increase the costs of trading.

According to UNCTAD's Trade Analysis Information System (TRAINS), SPS measures are the second most common type of NTM which applies to goods trade between the UK and Japan. Nearly 100 SPS measures are applied by the UK on Japanese imports and over 200 SPS measures are applied by the Japanese on UK imports.¹⁴⁷

The SPS chapter of the UK-Japan CEPA (Chapter 6) aims to help UK and Japanese businesses by:

- Improving the transparency on SPS provisions and improve the published information on laws and regulations related to SPS and which affect trade (Article 6.11).
- Improving the recognition of bilateral SPS standards in line with international standards for controlling animal disease and identifying the health status of animals and plants, while emphasising the primacy of the WTO's SPS Agreement (Articles 6.3 and 6.7).
- streamlining procedures for approving food imports from the UK into Japan (Article 6.7). This should shorten the time it takes Japan to give such approvals (Article 6.9 and annex 6).

These commitments could benefit UK agri-food exporters by helping to ensure that their products are not hindered from entering the Japanese market by unjustified SPS trade barriers.

¹⁴⁷ UNCTAD, TRAINS - The global database on Non-Tariff Measures [downloaded 17/08/2020]
<https://trains.unctad.org/Forms/TableView.aspx?mode=search>
Note, European Union NTMs were used as a proxy for United Kingdom NTMs.

8. Impacts on the environment

The UK-Japan CEPA is not expected to have significant impacts on Greenhouse gas emissions (CO₂ and Non-CO₂), energy usage, trade-related transport emissions and wider environmental impacts such as air quality, biodiversity, and water use/quality.

Both the UK and Japan are party to a range of Multinational Environmental Agreements (MEAs) and have domestic legislation in place to protect the environment. FTAs have the potential to impact the environment, by changing patterns of production, the types of goods and services that are traded and the commitments made by countries in respect of environmental policies and outcomes.

This section presents the implications of the UK-Japan CEPA on the UK environment, including an assessment of the implications on Greenhouse gas emissions (CO₂ and Non-CO₂), energy usage, trade-related transport emissions and wider environmental impacts on areas such as air quality, biodiversity and water use/quality. An overview of current environmental policy in the UK and Japan can be found in the environment section of the Japan scoping assessment.¹⁴⁸

Assessing the impact of any future environmental provisions in FTAs is challenging as the available empirical evidence has not robustly concluded whether provisions intended to protect the environment in previous FTAs have had a significant effect.¹⁴⁹ This is particularly true when an agreement is between two high income economies, such as the UK and Japan, where high existing environmental standards are expected to already be enforced.

However, the economic changes resulting from FTAs have the potential to affect some aspects of the environment. Impacts on the environment may occur:¹⁵⁰

- as a direct result of greater volumes of bilateral and world trade (e.g. from increased production and transport emissions, a 'scale effect');
- as economic activity shifts between sectors with different levels of emissions (a 'composition effect');
- as increased trade leads to the transfer and adoption of new, and potentially more environmentally friendly, technologies as well as production methods (a 'technique effect'); and
- as economic activity shifts between countries with differing levels of environmental protection.¹⁵¹

8.1 Environmental impacts from UK production

The Government is deeply committed to domestic and international efforts to tackle climate change. Climate change is a threat that requires an urgent global response, one which can be facilitated by aspects of bilateral free trade. Between 1990 and 2018, the UK's economy has grown by 75% while emissions have decreased by 43%¹⁵² - faster than any other G7 nation.¹⁵³ Since 2000, the UK has decarbonised its economy faster than any other G20 country.¹⁵⁴ In 2019, the UK became the first major economy in the world to legislate to end its contribution to global warming by 2050 by reaching net zero emissions.¹⁵⁵

As shown in section 5, a bilateral trade agreement with Japan is estimated to increase UK GDP in the long run by around 0.07%. This increase in GDP could result in greater domestic consumption, investment and production. An increase in production (as measure by output) is expected to strengthen economic activity through efficiency gains and technological progress shifting activity between more and less emissions intensive sectors.

148 UK-Japan Free Trade Agreement: The UK's Strategic Approach

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/885176/UK_Japan_trade_agreement_negotiations_approach.pdf
149 OECD (2018), "Assessing the Effectiveness of Environmental Provisions in Regional Trade Agreements".

150 ONS, UK Environmental Accounts: 2020. <https://www.ons.gov.uk/releases/ukenvironmentalaccounts2020>

151 The pollution haven hypothesis (PHH) predicts that trade liberalisation will lead to the relocation of pollution-intensive production to countries with lower environmental protections, where firms will face lower costs of compliance with environmental regulations. This could in theory encourage a 'race to the bottom' where governments lower environmental protections to give domestic firms a competitive advantage over foreign competitors. However, with harmonised environmental regulations FTAs can reward the most efficient and therefore low-cost producers, with the smallest environmental impacts. The evidence on the PHH is mixed, although newer more credible studies tend to find some support for it (see Broner, Bustos and Carvalho, 2012; Millimet and Roy, 2016; Martínez-Zarzoso, Vidovic and Voicu, 2016).

152 Committee on Climate Change (2019); Reducing UK emissions 2019 Progress Report to Parliament; p.19. Available from: <https://www.theccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/>

153 Department for Business, Energy & Industrial Strategy (2018); The Clean Growth Strategy; p.5. Available from: <https://www.gov.uk/government/publications/clean-growth-strategy>

154 PwC (2017); UK leads the G20 in clean growth. [Press release published 12 September 2017]. Available from: https://www.pwc.co.uk/press-room/press-releases/UK_leads_the_G20_in_clean_growth.html

155 Department for Business, Energy & Industrial Strategy and The Rt Hon Chris Skidmore MP (2020); UK becomes first major economy to pass net zero emissions law [Press release published 27 June 2020]. Available from: <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>

8.1.1 Greenhouse gas emissions (CO₂ and Non-CO₂)

The agreement is estimated to increase domestic greenhouse gas emissions marginally by 0.028% compared to projected levels in 2035.¹⁵⁶ However, this does not take into account future policy measures to reach net zero by 2050.

Most of the estimated increase is attributable to the scale effect (i.e. increases in emissions as a direct result of greater volumes of trade). The negative environmental outcomes via the scale effect are partially offset by some positive environmental outcomes via the composition effect (due to economic activity generally shifting to sectors with relatively lower levels of emissions) and via the technique effect due to technological progress.

8.1.2 Domestic consumption of fossil fuels

The cross-economy analysis indicates that a UK-Japan trade agreement could increase energy consumption of fossil fuels marginally by 0.028% when compared to the projected 2035 UK energy usage under the baseline.¹⁵⁷

However, this analysis does not account for future government policy, such as the phasing out of coal power stations in the UK by 2024. In any case, this forecast would still represent a continuing decline in fossil fuel energy usage as a proportion of total energy (i.e. relative to renewable/low carbon sources).

The analysis suggests that the communications services sector will drive this marginal increase in consumption of fossil fuels based on historical trends. In comparison, the consumption of fossil fuels is estimated to decrease in the transport, water and waste services sector and the energy sector as a result of the agreement.

Table 34 summarises the overall impacts on greenhouse gas emissions and energy consumption.

Table 34 - Results for greenhouse gas emissions and energy consumption

	Net impact	Change impact, %
Greenhouse gas emissions Mega tonnes of CO ₂ -equivalent (MtCO ₂ e)	0.09952	0.028
Energy consumption from fossil fuels, Terajoules (TJ)	2,235.97	0.028

Source: DIT calculations 2020

Annex H outlines the methodology used to translate the change in economic activity estimated by the CGE model into changes in greenhouse gas emissions and energy consumption.

8.2 Bilateral transport emissions

The impact of this agreement on transport emissions is uncertain but may marginally increase trade-related maritime emissions by volume.

The UK government has committed to net zero greenhouse gas emissions by 2050. The International Maritime Organisation (IMO) has also adopted mandatory measures to reduce emissions of various pollutants, including greenhouse gases from international shipping, under IMO's pollution prevention treaty (MARPOL). The impact of the UK-Japan CEPA on transport emissions is uncertain but potential changes may result from the change to the volume of trade, the distance goods are transported, and the composition of goods traded.

International transport is estimated to be responsible for 33% of world-wide trade-related emissions, with shipping freight alone accounting for at least 3% of global greenhouse gas emissions.^{158 159} Different modes of transport vary greatly in their carbon intensity; one kilogram of cargo flown on a plane generates approximately 100 times the emissions of a kilogram of cargo transported by ship (over the same distance).¹⁶⁰

¹⁵⁶ BEIS (2019). Updated energy and emissions projections: 2018, Annex A

¹⁵⁷ BEIS (2019). Updated energy and emissions projections: 2018, Annex E

¹⁵⁸ T. Smith, et al., "CO₂ emissions from international shipping: Possible reduction targets and their associated pathways," UMAS (2016).

¹⁵⁹ For example, see A. Cristea, et al., Trade and the greenhouse gas emissions from international freight transport, Journal of Environmental Economics and Management (2012).

¹⁶⁰ For more information on transport carbon emissions, see BEIS greenhouse gas reporting conversion factors (2020). The mode of transport used will be influenced by the type of good being exported, in particular whether it is perishable or part of a supply process that requires rapid delivery of intermediate products, and the proximity of the export destination to an airport, seaport or rail network.

There are several potential channels through which transport emissions are impacted including:

- Increased transport emissions from increased bilateral trade;
- Displacement of trade with partners that are geographically closer to the UK, which could increase the distance travelled by transported goods; and
- A change in the types of goods traded between the UK and Japan and the modes of transport used. Transport emissions are aligned with the weight, rather than value of trade. Shifts between sectors where the ‘£ per kg’ ratio is low, such as agriculture and energy, to sectors where it is high, such as electronic equipment, could reduce transport emissions. Shifts between sectors may also impact transport emissions by changing the overall proportion of goods that are travelling by sea and air freight.

The increase in bilateral trade with Japan, as set out in section 5, is expected to have a negligible impact on aviation emissions and a small impact on maritime emissions (by volume). Table 35 shows the long term emissions increase estimated for dedicated freight transport, as a result of an increase in the volume of trade with Japan in various goods sectors (as described by the economic modelling in section 5.5). More detailed results are presented in Annex H.

Aviation emissions are negligible because, with the exception of one or two cargo flights per year, all air cargo is transported as “bellyhold” freight in the hold of passenger aircraft, captured as passenger emissions. This mode of air cargo transport is not expected to change as a result of the CEPA.

Maritime emissions show a significant increase proportionally, but this represents a small absolute increase in emissions.¹⁶¹ Long term annual emissions increase by 0.15 – 0.22 MtCO₂e¹⁶² for exports and 0.16 – 0.26 MtCO₂e for imports respectively.¹⁶³ For comparison, UK territorial emissions are forecast to fall to 350 MtCO₂e by 2035, approximately 875 times the increase due to UK-Japan goods transport.¹⁶⁴ The large proportion reflects the small volume of baseline emissions, i.e. emissions in the absence of the UK-Japan CEPA. Drivers behind this emissions growth are outlined in Annex H.

International transport emissions due to services are expected to be negligible but are difficult to calculate in detail. Assuming that passenger aviation demand is correlated with the change in GVA generated by the UK-Japan CEPA, the emissions change is insignificant compared to that from goods.

The emissions estimates in table 35 are an upper bound. Emissions intensity (CO₂e emissions per tonne.km) is expected to improve over time regardless of the agreement, as new ships and aircraft enter the fleet and older models retire.

Table 35 – Results for emissions due to trade-related maritime and aviation freight

	Change in UK exports in 2035 compared to baseline		Change in UK imports in 2035 compared to baseline	
	Aviation	Maritime	Aviation	Maritime
Relative change (%)	Negligible	156	Negligible	56
Absolute change (MtCO ₂ e)	Negligible	0.148 – 0.223	Negligible	0.165 – 0.257

Source: BEIS calculations 2020

Fractional change of freight emissions between Japan and UK due to trade liberalisation provided by the bilateral agreement. Percentage changes are presented as a percentage of transport emissions from baseline bilateral trade with Japan.

¹⁶¹ The large proportional increase reflects the small volume of baseline emissions i.e. emissions in the absence of the UK-Japan CEPA.

¹⁶² Mega tonnes of CO₂-equivalent.

¹⁶³ These ranges are based on a sensitivity analysis that considered the potential shipping routes that can be taken between the UK and Japan. The shortest and longest shipping routes are applied to the increase in maritime freight to create the lower and upper bounds of the emission increase ranges.

¹⁶⁴ BEIS, Energy and Emissions Projections 2018 Annex A: Greenhouse gas emissions by source.

8.3 Low carbon economy Impacts

UK-Japan CEPA provisions have the potential to increase the UK Low Carbon Economy's investment and export potential, but the scale is uncertain.

The transition to a low carbon economy constitutes one of the most significant challenges and opportunities for the UK and the world over the coming decades. The Government is taking action in every sector, including: over £3 billion to transform energy efficiency in homes and public buildings^{165, 166}; £2 billion to kickstart a cycling and walking revolution¹⁶⁷; £1 billion support for ultra-low emission vehicles^{168, 169, 170, 171}; £800 million to capture carbon from power stations and industry¹⁷²; a £640 million Nature Climate Fund¹⁷³; £290 million to cut emissions in heavy industry¹⁷⁴; and £100 million to research and develop Direct Air Capture technologies.¹⁷⁵ These innovations are creating new green jobs and economic opportunities while also providing cleaner air and warmer, better insulated, homes heated from more low carbon sources.

The UK-Japan CEPA provides a range of provisions which may benefit the low carbon economy. Services such as the UK's environmental and engineering consultancy sector stand to benefit from provisions on data flows supporting cross-country storage, transmission and processing as well as provisions on the prohibition of data localisation. In addition, green finance providers will continue to have the same market access that has been secured for broader financial services. Reduced tariffs on parts in complex automotive and rail supply chains may reduce costs for UK companies undertaking low-emissions R&D in these sectors. Both goods- and services-based low carbon sectors may benefit from improved freedom of mobility for business purposes ("Mode IV commitments") which reduce the burden of moving skilled workers between the UK and Japan.¹⁷⁶

However, the diffusion of low-carbon sectors across the whole economy and the difficulties in predicting the scale of growth both make quantitative analysis uncertain.

8.4 Wider environmental impacts

8.4.1 Air quality

Exposure to air pollution is one of the UK's biggest public health challenges, shortening lifespans and damaging quality of life for many people.¹⁷⁷ Pollutants in the air are known to exacerbate the impact of pre-existing health conditions, such as respiratory and cardio-vascular illnesses, especially for the elderly and infants.¹⁷⁸ Air pollution also harms the natural environment, affecting the UK's waterways, biodiversity and crop yields. Air pollution can come from a range of sources many of which are linked to economic activity. Sources include industry, transport, intensive agricultural food production, heating the UK's homes or even cleaning with certain solvents.

Both the UK and Japan have set out high ambitions to reduce air pollution. The UK has adopted ambitious, legally binding international targets to reduce emissions of five of the most damaging air pollutants (fine particulate matter, ammonia, nitrogen oxides, sulphur dioxide, non-methane volatile organic compounds) by 2020 and 2030. In the UK's Clean Air Strategy, published in January 2019, tough new goals have been proposed to cut public exposure to particulate matter pollution.

Japan is a founding member of the North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC), an intergovernmental organisation that since 1993 aims at tackling environmental challenges, including air pollution, in North-East Asia.¹⁷⁹ The UK is a founding member of the UNECE International Convention on Long Range Transboundary Air Pollution (CLRTAP).¹⁸⁰ Since its inception in 1979 the convention has delivered significant air quality benefits.

165 HM Treasury and The Rt Hon Rishi Sunak MP (2020); Chancellor's Plan for Jobs to help the UK's recovery [Press release published 8 July 2020]. Available from: <https://www.gov.uk/government/news/rishis-plan-for-jobs-will-help-britain-bounce-back>

166 HM Treasury (2020); Policy paper: A Plan for Jobs 2020. Available from: <https://www.gov.uk/government/publications/a-plan-for-jobs-documents/a-plan-for-jobs-2020>

167 Department for Transport, Office for Low Emission Vehicles, and The Rt Hon Grant Shapps MP (2020); £2 billion package to create new era for cycling and walking [Press release published 9 May 2020]. Available from: <https://www.gov.uk/government/news/2-billion-package-to-create-new-era-for-cycling-and-walking>

168 Department for Business, Energy & Industrial Strategy, Department for Transport, Rachel Maclean MP, and Nadhim Zahawi MP (2020); £73.5 million to boost green economic recovery in automotive sector [Press release published 23 June 2020]. Available from: <https://www.gov.uk/government/news/735-million-to-boost-green-economic-recovery-in-automotive-sector>

169 Department for Transport, Office for Low Emission Vehicles, and The Rt Hon Grant Shapps MP (2020); Green number plates get the green light for a zero-emission future [Press release published 16 June 2020]. Available from: <https://www.gov.uk/government/news/green-number-plates-get-the-green-light-for-a-zero-emission-future>

170 Deloitte (2020); Chancellor accelerates electric vehicle adoption with £500m charge point investment [News article published 11 March 2020]. Available from: <https://www.ukbudget.com/press-releases-2020/chancellor-accelerates-electric-vehicle-adoption-with-500m-charge-point-investment.aspx>

171 Roberts, Gareth (2020); Budget 2020: Plug-in grant for electric vehicles cut [News article published 11 March 2020]. Available from: <https://www.fleetnews.co.uk/news/company-car-tax-and-legislation/2020/03/12/budget-2020-plug-in-grant-for-electric-vehicles-cut>

172 Farmer, Matthew (2020); UK 2020 Budget announces funding for carbon capture schemes [News article published 12 March 2020]. Available from: <https://www.offshore-technology.com/news/uk-budget-2020-carbon-capture/>

173 HM Treasury and The Rt Hon Rishi Sunak MP (2020); Budget Speech 2020 [Speech delivered 11 March 2020]. Available from: <https://www.gov.uk/government/speeches/budget-speech-2020>

174 Prime Minister's Office, 10 Downing Street, Department for Transport, Department for Business, Energy & Industrial Strategy, The Rt Hon Boris Johnson MP, The Rt Hon Grant Shapps MP, and The Rt Hon Alok Sharma MP (2020); PM commits £350 million to fuel green recovery [Press release published 22 July 2020]. Available from: <https://www.gov.uk/government/news/pm-commits-350-million-to-fuel-green-recovery>

175 Prime Minister's Office, 10 Downing Street and The Rt Hon Boris Johnson MP (2020); PM: A New Deal for Britain [Press release published 30 June 2020]. Available from: <https://www.gov.uk/government/news/pm-a-new-deal-for-britain>

176 Where in person delivery of the service/physical presence is required.

177 PHE, Health matters: air pollution, 2018.

178 PHE, Health matters: air pollution, 2018.

179 NEASPEC.

180 UNECE, Clean air. <http://www.unecce.org/env/lrtap/welcome.html.html>

The Environmental Performance Index (EPI) developed by Yale University shows that the UK and Japan are comparable in terms of air quality, respectively 14th and 12th in the global ranking.¹⁸¹ However, according to the same index, the UK has improved its score in the last 10 years, while Japan index has remained the same.¹⁸² For PM2.5, Japan and the UK ranks 17th and 18th. However, while the UK has significantly improved in the last 10 years Japan's PM2.5 index score decreased.¹⁸³

Increasing trade generates a mixture of potential positive and negative effects on the environmental and natural resources of countries. On the one hand, an increase in global economic activity due to increased trade can raise the total amount of pollution and, consequently, create environmental damage.¹⁸⁴ On the other hand, higher incomes affect environmental quality positively, meaning that trade and economic growth give countries the means to clean the air or invest in less polluting technologies, provided they have effective institutions and regulation in place at the national level.¹⁸⁵

The UK-Japan CEPA is likely to increase economic activity, which in turn can have the effect of raising the total amount of pollution. However, both Japan and the UK have a history of regulating and improving air quality. Both countries have effective institutions and regulations in place at the national level with extensive air quality monitoring systems. The new bilateral relationship created by the trade deal and commitments to cooperate on matters on environmental protection also have the potential to drive forward progress on air quality issues. Overall, the UK-Japan CEPA is estimated to increase UK GDP in the long run by around 0.07%,¹⁸⁶ with minimal increases in manufacturing. Based on this it is not expected that there will be any significant negative impacts on UK air quality.

8.4.2 Resources and waste

The UK and Japan both have domestic regulation for waste for environmental and public health purposes, including requirements on the disposal of hazardous waste,¹⁸⁷ and are also party to multilateral agreements, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes & their Disposal.¹⁸⁸

Resource use and waste is a complex system that covers the extraction, production, use and disposal of materials. How products are designed, and the materials used, determines how they will be treated at end of life. Waste occurs across all parts of the supply chain. There are a number of ways in which increased economic activity arising from a UK-Japan CEPA can have implications for waste streams. The magnitude of these environmental impacts is dependent on the extent to which economic activity¹⁸⁹ arising from the UK-Japan CEPA is additional, rather than just displaced.

An increase in imports from Japan is one of the main ways in which the agreement could impact the volume and composition of waste streams in the UK. The CGE modelling indicates an increase in imports in multiple sectors. Once these goods or services reach their end of life they will need to be treated within the UK or exported as a waste product (provided it meets international waste shipments controls).

The CGE modelling of a UK-Japan CEPA finds increases in imports for "Chemicals, Rubber & Plastics" and "Textiles, Apparel and Leather". Textiles and plastics are significant waste streams for the UK, for which much is currently exported for treatment overseas. In terms of displacement activity, the impact on the waste stream would depend on factors like product durability, reparability and recyclability compared to current consumption. So, if imported Japanese products are subject to higher environmental design standards this may lead to a reduction in non-biodegradable waste.

The CGE modelling also indicates an increase in domestic production in almost all sectors modelled. Waste occurs in both production and consumption. If additional production takes place in the UK it will increase the waste that occurs during production. There is also the potential for an increased level of waste arising from the transportation of goods.

181 The EPI air quality indicator consists of three indicators: PM2.5 exposure, household solid fuels, and ozone exposure.

182 EPI, Air Quality, 2020. UK score in 2020: 84.7, up 5.5 points since 2010 - Japan score in 2020: 85.9, up 0.1 points since 2010.

183 EPI, PM2.5 exposure, 2020. Particulate matter (PM) can be anything in the air that isn't a gas and can include both man-made and naturally occurring materials. PM can find itself in the air as a result of all types of human activities as well as natural processes. For example, PM is directly emitted from industry, vehicles or homes, but is also generated through physical processes such as brake and tyre wear from the vehicles we use, or simply lifted into the air as a result of human activity or wind patterns. PM is commonly separated into two size fractions PM2.5 and PM10. PM2.5 relates to the smaller particles with a size limit of 2.5 microns in diameter and is the most damaging to health.

184 Frankel, J. (2009), Environmental Effects of International Trade, p.6. <https://www.government.se/contentassets/006470cc2f544bd793924f11cad8f068/environmental-effects-of-international-trade>

185 Frankel, J. (2009), Environmental Effects of International Trade, p.15. <https://www.government.se/contentassets/006470cc2f544bd793924f11cad8f068/environmental-effects-of-international-trade>

186 DIT, 2020. <https://www.gov.uk/government/publications/uks-approach-to-negotiating-a-free-trade-agreement-with-japan/uk-japan-free-trade-agreement-the-uks-strategic-approach>

187 Japan - Govt of Japan, <https://www.env.go.jp/en/laws/recycle/03.pdf> UK - Environment law.org <http://www.environmentlaw.org.uk/rte.asp?id=82>

188 Basel Convention - <http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/4499/Default.aspx>

189 Changes to output, imports and exports

Nevertheless, trade agreements may be an important lever for enhancing circular economies, through enabling ease of trade of secondary raw materials and goods.

The CGE modelling shows an overall net increase in output as a result of the UK-Japan CEPA.¹⁹⁰ Whilst relatively small, this is still likely to lead to an increase in waste produced, adding to the challenge of managing this waste. The environmental consequences are therefore considered to potentially be negative unless mitigations are put in place.

8.4.3 Water use and water quality

A major environmental concern for policy makers is the impact of trade on water resources including water quality and supply. All economic sectors need water; agriculture, industry and most forms of energy production are not possible without it. The UK benefits from high annual rainfall but is seeing localised water stress notably in Southern England due to increased abstraction demands. Over-abstraction leads to groundwater depletion, loss of habitats and deteriorating water quality. There are concerns that increased economic activity resulting from a trade deal could put additional strain on water resources. Water consumption is expected to rise in the next decades due to climate change and the UK's increasing population.¹⁹¹ Research by the National Infrastructure Commission (NIC) has shown that if this trend continues, England could see significant water deficits by 2050.¹⁹² Water abstraction in the UK is regulated,¹⁹³ these regulations together with other initiatives such as Defra's Abstraction Plan 2017¹⁹⁴ promote sustainable water use and may help to mitigate against some of the water consumption risk.

Increased economic activity particularly in agriculture is often a key contributor to water pollution (via diffuse pollution). One measure commonly used in the analysis of water quality is the level of Biochemical Oxygen Demand (BOD).¹⁹⁵ In 2011, the average figure for UK freshwaters was around 1.47 mg/litre¹⁹⁶ indicating relatively low levels of water pollution.¹⁹⁷

The impact of trade openness on water quality is not clear in the academic literature.¹⁹⁸ Multiple studies show how trade agreements and trade openness may lead to increased water pollution.¹⁹⁹ However, these studies mostly focused on the impact on poorer countries. Numerous other studies appear to indicate that water pollution does not increase as a result of growing incomes in richer countries.²⁰⁰

The impact of the UK-Japan CEPA based on CGE modelling shows an increase in the GVA of the agricultural sector, energy sector, and specific manufacturing industries. Whilst the CGE modelling shows potential for increased agricultural production in the Japan-UK CEPA, these potential impacts are modest compared to other sectors which produce the top UK exports to Japan. Given this, and the high regulatory standards and enforcement in the UK protecting the water environment from both pollution and abstraction, impacts on the UK's water quality and resources from the agreement will be very limited.

8.4.4 Timber and forestry

Forests play a key role in the balance of carbon in the atmosphere. Forestry in the UK is the largest source of carbon sequestration, removing 18 million tonnes of CO₂e in 2017.²⁰¹ Timber is an essential natural resource for many industries, including construction and furniture manufacture. Owing to this and disparities in natural endowments of timber globally it is a frequently traded commodity (FAO estimate the total value of global exports of timber products in 2016 to be US\$227 billion).²⁰² Trade in timber therefore largely affects deforestation and any resulting environmental impacts from a loss in forest cover or unsustainable logging practices.

¹⁹⁰ Output changes take account of trade diversionary effects.

¹⁹¹ National Infrastructure Commission 2018, p.3.

¹⁹² National Infrastructure Commission 2018, p.2.

¹⁹³ Defra, The Impact of Water Abstraction Reform, 2015, p.1.

¹⁹⁴ Defra, Water abstraction plan, 2017. <https://www.gov.uk/government/publications/water-abstraction-plan-2017/water-abstraction-plan>

¹⁹⁵ Biochemical Oxygen Demand: amount of oxygen consumed by bacteria and other microorganisms while they decompose organic matter under aerobic conditions.

¹⁹⁶ Defra, Biological oxygen demand (1980-2011), 2011.

¹⁹⁷ According to the United Nations World Water Development report (2016) 1 mg/litre indicates high water quality and a level above 8 mg/litre severe water pollution

¹⁹⁸ Van Tran, N. (2020). The environmental effects of trade openness in developing countries: conflict or cooperation? <https://link.springer.com/article/10.1007/s11356-020-08352-9>

¹⁹⁹ Shen, J. (2011). Trade liberalization and environmental degradation in China. <https://www.tandfonline.com/doi/full/10.1080/00036840600771148>

²⁰⁰ Dellachiesa, A., Myint, A. (2016). Trade openness and the changing water polluting intensity patterns of 'dirty' and 'clean' industrial sectors. <https://www.sciencedirect.com/science/article/pii/S0921800915301749>

²⁰¹ Ran, Y., Deutsch, L., Lannerstad, M., & Heinke, J. (2013). Rapidly intensified beef production in Uruguay: Impacts on water-related ecosystem services. *Aquatic Procedia*, 1, 77-87. <https://www.sciencedirect.com/science/article/pii/S2214241X13000084>

²⁰² Grossman & Kruger, 1993; Cole et al., 2003

²⁰¹ Office for National Statistics, "UK natural capital accounts 2019"- see carbon sequestration chapter- <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalaccounts/2019>

²⁰² Traffic.org, "protecting species and forests"- <https://www.traffic.org/what-we-do/species/timber/>

Japan and the UK are amongst the largest importers of timber globally.²⁰³ For the period 2016-2018, by value Japan was the third largest importer of wood products whilst the UK ranked 5th globally.²⁰⁴ Imports of timber accounted for 81% of all wood supplies (domestic production plus imports) in the UK in 2018.²⁰⁵ Trade in wood products between the UK and Japan is relatively small. In 2018 and 2019 the UK exported less than 1% of its wood exports to Japan and imported 0.02% from Japan.²⁰⁶ Whilst a fall in Japanese tariffs on some wood products may increase UK exports to some extent this is not expected to have a significant environmental impact.

A free trade agreement between the UK and Japan is expected to result in increased economic activity in both countries due to greater access to another market through more liberalised trade. This increased economic activity could result in environmental impacts on UK forestry through increased demand for land for agriculture (reducing the land available for afforestation). However, increases in agricultural output may come from technological advances rather than an expansion of land area used. CGE modelling also indicates an increase in UK production of paper and printing products. This could result in increased felling in the UK or greater imports of raw materials.

There may also be biosecurity risks for UK forests arising from continued wood imports from Japan. Japan has pinewood nematode, which if imported into the UK, poses a serious threat to UK forests²⁰⁷ through causing pine wilt and ultimately tree death. This could also have knock-on impacts on forestry ecosystems and biodiversity. There are, however, measures already in place to protect against this biosecurity risk²⁰⁸ and these same import controls and checks will continue after the Transition Period. As mentioned above, there are low levels of existing trade in wood products between the UK and Japan, including in pinewood making the risk of this threat low.

8.4.5 Biodiversity

Biodiversity is the variety of life on Earth – the variety of ecosystems and species, and the genetic diversity within them.²⁰⁹ The benefits of biodiversity include carbon sequestration, climate change mitigation and ecosystem productivity. Biodiversity is valued intrinsically and the components of biodiversity (the UK's species, the genetic diversity within them, the ecosystems of which they are part and the functions and services they provide) underpin the UK's wellbeing and economic prosperity.

The UK and Japan both have domestic policies to protect biodiversity, through laws on conservation, endangered species and ecosystems.²¹⁰ The UK and Japan are also party to a number of multilateral environmental agreements such as the Convention on Biological Diversity.

The Environmental Performance Index²¹¹ looks at a range of indicators to provide a score out of 100 for different aspects of national performance concerning the environment to provide a gauge of how close countries are to environmental policy targets. Table 36 below summarises the UK and Japan's baseline performance concerning biodiversity and ecosystem protection.

Table 36 - Environmental Performance Index scores

	Biodiversity & Habitat ²¹²	Ecosystem Services ²¹³
Japan ²¹⁴	76.6	41.7
UK ²¹⁵	88	28.3

Source: Yale, Environmental Performance Index

203 Office for National Statistics, "UK natural capital accounts 2019" - <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapitalaccounts/2019>

204 HMRC trade data, 2018 and 2019

205 Forest Research, "Pine wood nematode" - <https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/pinewood-nematode-embursaphelenchus-xylophilus/>

206 HMRC trade data, 2018 and 2019

207 Forest Research, "Pine wood nematode" - <https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/pinewood-nematode-embursaphelenchus-xylophilus/>

208 These are currently through controls that apply to the import of conifer wood from Japan under EU Plant Health Regulations. The wood must be accompanied by an official statement from the Japanese National Plant Protection Organisation to certify that it has undergone the appropriate phytosanitary treatment. The phytosanitary certificate and the wood itself are both subject to checks before the material can be cleared for landing into the UK.

209 The Convention on Biological Diversity- defines biodiversity as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystem

210 Japan: Wildlife Protection System and Hunting Law, UK: UK Biodiversity 2020

211 Wendling, Z. A., Emerson, J. W., de Sherbinin, A., Esty, D. C., et al. (2020). 2020 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy. <https://epi.yale.edu/>

212 Comprised of seven indicators- Terrestrial biomes (natural), terrestrial biomes (global), marine protected areas, Protected Areas Representativeness Index, Species Habitat Index, Species Protection Index, Biodiversity Habitat Index

213 Comprised of three indicators- Tree cover loss, grassland loss, wetland loss

214 Japan EPI profile- https://epi.yale.edu/sites/default/files/files/JPN_EPI2020_CP.pdf

215 UK EPI profile- <https://epi.yale.edu/epi-results/2020/country/gbr>

The main drivers of biodiversity loss are land-use change, climate change, pollution and invasive alien species. The UK-Japan CEPA has the potential to impact upon many of these drivers, through impacts on production levels and the sectoral composition of production resulting from more liberalised trade with Japan, as well as potential changes to consumption patterns.

The CGE modelling shows increases in output of the UK “Construction” and “Agriculture” sectors under an agreement with Japan. The State of Nature report 2019 highlights Urbanisation as one of the major threats to biodiversity for the UK²¹⁶ and “Planning and Development” is highlighted by the Evaluation of Biodiversity 2020 as one of the areas exerting direct pressure on biodiversity.²¹⁷ Agriculture has been identified as the most important driver of biodiversity loss in the last 45 years²¹⁸ with more intensive farming playing a key role, through for example the increased use of pesticides and fertilisers, greater mechanisation and loss of nature-friendly farm features like hedgerows.²¹⁹ The growth in production from these sectors, could be detrimental to UK biodiversity unless the impact of the growth in production is mitigated. Domestically we have a number of measures in place to protect biodiversity. The planning system exists to balance social, economic and environmental needs. We also have a network of protected sites, which are intended to protect the UK’s most rare and threatened habitats and wildlife.²²⁰ Additional policies which seek to protect and enhance nature and biodiversity are part of the Environment Bill, which will introduce biodiversity net gain and local nature recovery strategies.²²¹ On the agricultural side, the Environmental Land Management (ELM) scheme, which will form a key part of the UK’s future agricultural policy following the UK’s departure from the EU, will have the core aim of delivering environmental benefits through paying farmers and other land managers for interventions and actions that improve and enhance UK’s environment.²²² Given the domestic policies already in place to protect biodiversity²²³ and since the predicted expansion in UK output in construction and agriculture sectors as a result of this trade deal is expected to be small, any detrimental impact on biodiversity is also expected to be small.

The agreement with Japan could also increase the risk of more Invasive Non-Native Species being introduced into the UK through increased levels of trade - unintentional introductions are often linked to trade in agricultural commodities.²²⁴ Given introductions are often random and accidental it is not possible to say the likelihood of this risk materialising, however effective SPS measures should go some way to offset this risk.

8.4.6 Fisheries and marine

Global trade in seafood has increased dramatically in recent decades. One of the key environmental concerns for policy makers is whether trade agreements will lead to further exploitation of fishing stocks and disruption to marine ecosystems and marine biodiversity. Sustainable fishing requires the conservation of fish stocks, whilst preserving the marine environment and ensuring the livelihoods of those dependent on fishing are protected. The Environmental Performance Index (EPI) ranks the health and sustainability of the world’s fisheries by comparing country performance in several indicators including: fish stock status (FSS)²²⁵, and fish caught by trawling (FGT).^{226,227} The tables below show the latest UK and Japan rankings. It should be noted that the UK and Japan score poorly on both of these measures, although the UK’s fish stock status has improved in the past 10 years and the proportion of fish caught through trawling has also reduced. For Japan the reverse is true, indicating declining performance.

216 State of Nature 2019 <https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf>

217 Defra, 2019 “Evaluation of Biodiversity 2020” <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20409&FromSearch=Y&Publisher=1&SearchText=BE0170&SortString=ProjectCode&SortOrder=Asc&Paging=10>

218 Burns F, Eaton MA, Barlow KE, Beckmann BC, Brereton T, Brooks DR, et al. (2016) Agricultural Management and Climatic Change Are the Major Drivers of Biodiversity Change in the UK. *PLoS ONE* 11(3): e0151595. <https://doi.org/10.1371/journal.pone.0151595>,

219 State of Nature 2019- <https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf>

220 Gov.uk <https://www.gov.uk/check-your-business-protected-area>

221 Parliament.uk <https://publications.parliament.uk/pa/bills/cbill/58-01/0009/20009.pdf>

222 Defra ELM policy document https://consult.defra.gov.uk/elm/elpolicyconsultation/supporting_documents/ELM%20Policy%20Discussion%20Document%20230620.pdf

223 This includes the additional changes that this Government is introducing via the Environment Bill and ELM

224 R.Lopian & C.Stephen 2013, “International Trade & Invasive Alien Species”, Standards and Trade Development Facility- <https://www.oie.int/doc/ged/D13294.PDF>

225 The Fish Stock Status refers to the percentage of a country’s total catch that comes from overexploited or collapsed stocks, considering all fish stocks within a country’s exclusive economic zone (EEZs). Overexploitation would lead to less stock over time

226 Fish caught by trawling measures the percentage of a country’s fish catch (within its exclusive economic zones) caught by bottom or pelagic trawling, where a fishing net is pulled through the water behind a boat. This practice is indiscriminate and wasteful and can severely damage marine ecosystems

227 EPI Fisheries: <https://epi.yale.edu/epi-results/2020/component/fsh> as of August 2020

Table 37a and 37b - Environmental Performance Index (EPI) for the health and sustainability of fisheries: United Kingdom & Japan

Table 37a: United Kingdom²²⁸

Indicator	Rank	EPI Score (0-100) ²²⁹	10-Year Change
Fish Stock Status	38th	13.1	+4.7
Fish caught by trawling	52nd	3.7	+2.0

Table 37b: Japan²³⁰

Indicator	Rank	EPI Score (0-100)	10-Year Change
Fish Stock Status	104th	1.1	-3.7
Fish caught by trawling	36th	7.0	-1.6

Source: Yale, EPI

Additional trade resulting from the new agreement could incentivise overfishing. However, the UK has a number of policies in place to prevent overfishing including the regulation of fishing effort²³¹ and Total Allowable Catch (TAC) quotas.²³² Post the UK's Transition Period, similar measures will remain in place.

Japan has also adopted measures to mitigate against the risks of further overfishing through employing quotas in some instances. The effectiveness of these measures has not been assessed as part of this report.

Increased trade between the UK and Japan could potentially also have an impact on aquaculture (i.e. aquatic farming). Without effective control or mitigation measures in place, aquaculture practices are linked to reductions in water quality (as a result of fish waste build up) and negative impacts on local fish species (as a result of escape and disease spread).²³³ In the UK, aquaculture production is dominated by Atlantic salmon, followed by molluscs and rainbow trout whilst other species are farmed in small volume. The latest available data indicates trade in these categories between the UK and Japan is small in absolute terms.²³⁴ However, efforts in Japan and the UK to address some of the environmental concerns of aquaculture through improved site location, technology and regulation are ongoing. Given current UK regulation of aquaculture, including regulations to limit environmental degradation, significant environmental impacts from changes in UK aquaculture production (assuming other variables remain constant) are not expected.

With tariff liberalisation, there is a risk that demand increases for specific categories of fish including endangered or at-risk species and other less sustainable fish products. However, tariff liberalisation could increase the availability of more sustainable substitutes, thereby reducing demand on more at-risk species. The net impact of tariff liberalisation on demand and supply is therefore difficult to assess. In the UK-Japan CEPA schedule, tariffs on fish are ultimately liberalised over a 15-year period, becoming duty free on the 16th year. The liberalisation path varies, and many fish start on higher tariffs, meaning in the short term this impact could be reduced.

The overall environmental implications of the agreement on fisheries are difficult to discern in part because the CGE modelling does not assess fisheries as a stand-alone sector in the model. In addition, it is difficult to assess the effect of the declining tariffs in specific fish and seafood products on trade (not just bilaterally, but in terms of trade diversion and wider patterns of trade in fish products). However, the UK can mitigate against many of the environmental risks through continuing to ensure measures are in place to manage and protect fish stocks and marine habitats. Although there are no specific new measures within this trade deal, the UK and Japan are seeking to address environmental concerns through existing regulations as well as through multilateral agreements.

228 UK: <https://epi.yale.edu/epi-results/2020/country/gbr> DATA: FSS 1950-2014 & FGT 1950-2014

229 A score of 0 indicates worst performance.

230 Japan: <https://epi.yale.edu/epi-results/2020/country/jpn> DATA: FSS 1958-2014 & FGT 1950-2014

231 Amount of fishing gear of a specific type used over a given unit of time (e.g. number of hooks per day), FAO- <http://www.fao.org/cwp-on-fishery-statistics/handbook/capture-fisheries-statistics/fishing-effort/en/> as of August 2020

232 Catch limit set for a particular fishery (typically year or fishing season), OECD, Definition OECD: <https://stats.oecd.org/glossary/detail.asp?ID=2713>

233 FAO, <http://www.fao.org/3/ad002e/AD002E01.htm>

234 HMRC, trade data

9. Uncertainty and analytical limitations

The modelling exercise and quantitative estimates are subject to a range of uncertainties and analytical limitations. To reflect uncertainties regarding the appropriate baseline, this section presents modelling results for the agreement compared to an alternative baseline where the UK trades with the EU under WTO MFN rules. This section also assesses the sensitivity of the estimated impacts of the UK-Japan CEPA to alternative global GDP projections. The limitations of this analysis are also explained; both the data limitations and the areas not covered by the modelling exercise.

9.1 Uncertainties

The estimated scale and distribution of impacts from the modelling exercise depend upon a range of assumptions applied in the exercise, including the baseline and the scale and sectoral pattern of assumed trade cost reductions.

To reflect uncertainties regarding the appropriate baseline, this section presents modelling results for the agreement compared to an alternative baseline where the UK trades with the EU under WTO MFN rules. This section then considers the sensitivity of the results to alternative projections of global GDP growth.

9.1.1 Alternative baseline: UK-EU trading relationship under WTO terms

The baseline is based on stylised assumptions to represent the potential long run future trading relationship between the UK and the EU. However, to reflect uncertainty around the future relationship between the UK and EU, a WTO relationship baseline is also modelled. The WTO baseline results show higher potential gains from the UK-Japan CEPA.

All modelling outputs are estimated relative to a 'baseline'. The baseline represents the economy in the absence of a UK-Japan CEPA. An important assumption in this case concerns the future trading relationship between the UK and the EU. Stylised assumptions are used to represent a future hypothetical free trade agreement between the UK and EU using assumptions from the previous published Government analysis of long-term impacts of EU Exit.²³⁵

The choice of baseline influences the impact of the agreement due to the trade diversionary impacts resulting from the UK's future economic partnership with the EU.

To assess the sensitivity of the main results to the choice of baseline inputs, the impact of the UK-Japan CEPA is assessed against an alternative baseline where the UK trades with the EU on WTO terms. This is the "modelled no deal" in the Government's published analysis of the long-term economic impacts of EU Exit.

This sensitivity analysis suggests that under an alternative WTO baseline, the impact of a UK-Japan CEPA could be 0.09% (equivalent to £1.9 billion based on 2019 GDP values). This is higher than under the core baseline included in the assessment as higher barriers to trade between the UK and the EU provide higher potential for gains from trade with Japan. Table 38 below summarises the differences in results.

²³⁵ HMG (2018), "EU Exit: Long-term economic analysis: Technical Reference Paper".

Table 38 - Summary of macroeconomic impacts under WTO baseline

	Scenario under Core Baseline, %	Scenario under WTO baseline, %
Change in GDP	0.07	0.09
Change in UK exports to JPN	17.20	17.21
Change in UK imports from JPN	79.94	81.14

9.1.3 The sensitivity of the results to alternative growth projections

The modelling exercise uses projections of the world economy to 2035. More detailed information regarding the underlying dataset is set out in Annex 10. These projections do not reflect the recent economic impacts of the global coronavirus pandemic, nor policy responses to it.

Changes to macroeconomic projections such as GDP growth have the potential to influence the estimated impacts of the agreement. To assess the sensitivity of the core results to a change in growth projections, the long run level of global GDP is adjusted in line with the IMF's latest downward revisions to its GDP forecasts.²³⁶

The macroeconomic results are not sensitive to the alternative projections for the size of the global economy; the estimated scale of UK impacts remain unchanged.

9.2. Analytical limitations

The results set out the potential long run economic impacts of a trade agreement scenario between the UK and Japan, assuming no other changes. This analysis is not a forecast of the UK economy.

In addition, there are several analytical limitations which affect the central estimates of the scale of impacts of the agreement and sensitivity analyses. These are common to most modelling exercises of this kind. These limitations include data limitations as well as other factors which are not explicitly captured in the modelling, but which could affect the scale of impacts.

9.2.1 Data

The data is based on a GTAP version 10, which was the latest version available when this modelling was first commissioned. The GTAP 10 dataset draws on data from 2004, 2007, 2011, and 2014. As such, changes in the pattern of World trade between 2014 and today will not be reflected in results. Depending on changes in the pattern of trade over this period, this could lead to under- or over-estimation of the impact of a UK-Japan CEPA. For example, for a given sector an increase in the proportion of UK exports being sent to Japan between 2014 and 2019 could lead to the model underestimating the impact of the UK-Japan CEPA with Japan. Similarly, any changes in tariff schedules between 2014 and 2019 will not be reflected in results produced by the model. Though it should be noted that more recent trade agreements have been incorporated into the baseline as outlined in section 5.2.1 and consideration of more recent changes to tariffs and trade patterns has found no major discrepancies.

In order to assess economy-wide impacts, the model provides a sectoral aggregation of 23 sectors based on the underlying GTAP dataset. While this is appropriate for looking at broad magnitudes of impact, it may not fully capture the more granular interactions that occur at a sub-sector level. This limitation is common to all CGE and macroeconomic analysis.

9.2.2 Factors not accounted for in the modelling

In addition, there are several potentially important factors which are not explicitly captured in the modelling. The modelling does not explicitly account for:

- Future trade policy initiatives that are undertaken by Japan, the UK or the European Union.
- Future domestic policy choices which influence the value of the agreement.
- The future effects of global trends such as the rise of global value chains, the increasing importance of services trade, changing demographics, technological advancement, and economic development.
- Transitional or short run costs arising due to the economic adjustment of the economy.
- The CGE modelling framework does not take account of the full range of potential for the so-called 'dynamic effects' resulting from increased trade on the long run growth rate of productivity in the economy.

10. Plans to monitor and evaluate the agreement

Monitoring and evaluation (M&E) of the implementation and impact of the UK-Japan CEPA is an important part of ensuring the benefits are maximised for businesses, workers, and consumers and that the new trade opportunities FTAs create are fully realised.

DIT's plan for M&E of the UK-Japan CEPA is based upon the general process for M&E of new trade agreements that will be set out in DIT's forthcoming M&E Framework. In line with this, and as part of the DIT's transparent approach, for the UK-Japan CEPA:

- DIT will **publish a monitoring report** every two years following entry into force of the agreement; and
- DIT will **publish a comprehensive ex-post evaluation** for the UK-Japan CEPA within 5 years of entry into force of the agreement. The evaluation report will synthesise findings from monitoring, evaluation, and stakeholder engagement activities to assess the impact of the agreement and answer DIT's core evaluation questions. Following the report's publication, DIT will conduct engagement activities and consider whether there is a need to follow up with further evaluation activities or take any direct action to improve the agreement's implementation.

DIT's evaluations will answer three overarching evaluation questions:

1. How **effective** is the agreement and its' implementation in achieving the UK's trade policy aims, the objectives of the agreement and in delivering benefits to UK businesses, workers, and consumers?
2. How, if at all, can the agreement and its implementation be **improved** to maximise benefits to UK businesses, workers, and consumers?
3. What, if anything, can DIT **learn** from the agreement and its' implementation to improve the design and implementation of the UK's future agreements?

The evaluations will cover a broad range of impacts, including but not limited to, intended and unintended impacts on:

- Trade in Goods and Services & Investment Flows;
- Consumers, businesses (including SMEs) and workers;
- Nations and regions of the UK; and
- The Environment.

In addition, M&E activities will focus in greater depth on a number of specific sectors. These sectors will be selected if evidence suggests that they may be (or have been) particularly affected by aspects of the agreement. The choice of additional sectors will be informed by monitoring activities once the agreement has entered into force.

Technical Annexes

11. Annex A: Description of Computable General Equilibrium model

The externally commissioned macroeconomic analysis uses a Computable General Equilibrium (CGE) model. The model is based on the standard Global Trade Analysis Project (GTAP) model and GTAP 10 dataset (referenced to 2014 as the base year). The GTAP model and dataset is one of the most widely used tools for international trade analysis. The following sections highlight the key model features, data and assumptions underpinning the model.

11.1 Underlying dataset

The CGE model uses the GTAP dataset.²³⁷ GTAP is a global network of researchers and policy makers conducting quantitative analysis of international policy issues. The consortium produces a consistent global economic database which is widely used to study prospective international economic policy.

The data in the CGE model is based on a GTAP version 10, which was the latest version available when this modelling was commissioned. The latest version of GTAP now publicly available is version 10a. Given the nature of the updates between the two releases, any database differences are unlikely to matter substantively for the purposes of this assessment. Similar to GTAP 10a, the GTAP 10 dataset draws on data from 2004, 2007, 2011, and 2014. As such, changes in the pattern of world trade between 2014 and today will not be reflected in results. Though it should be noted that more recent trade agreements have been incorporated into the baseline as outlined in section 5.2.1 and consideration of more recent changes to tariffs and trade patterns has found no major discrepancies.

The CGE model used also employs a projection of the world economy to 2035. Macroeconomic baseline projections are based on the SSP2 scenario developed by the Organisation for Economic Co-operation and Development (OECD) and the International Institute for Applied Systems Analysis (IIASA) for the Intergovernmental Panel on Climate Change (IPCC) and related projection-based assessments.²³⁸ The database is first updated from 2014 to 2025 based on actual and projected macroeconomic data from the International Monetary Fund (IMF), and from 2025 to 2035 SSP2 projections are applied. IMF data are taken from the IMF's World Economic and Financial Surveys: World Economic Outlook Database, while estimates of the macroeconomic effects of the coronavirus pandemic are reported in IMF (2020), World Economic Outlook Update, June. Technical aspects of model implementation of projections follow Bekkers, et al. (2018). "Melting ice caps and the economic impact of opening the Northern Sea Route." *The Economic Journal*, 128(610), 1095-1127.

11.2 Definition of 'long run'

The analysis focuses on the long run impacts on the UK economy after it has adjusted to the change in economic relationship. In this analysis the long run is assumed to be around 15 years after the UK has signed the FTA. This is a common assumption as it is generally assumed that the full range of transitional effects could take in the order of 15 years to fully work their way through the economy. However, this should not be interpreted as the expected length of any potential short run changes, nor should it be assumed that these changes are uniformly distributed across the specified time period. Similarly, the analysis should not be interpreted as a forecast of UK economic performance 15 years from now.

²³⁷ Global Trade Analysis Project (GTAP): <https://www.gtap.agecon.purdue.edu/databases/v10/index.aspx>

²³⁸ Dellink et al. (2017). "Long-term economic growth projections in the Shared Socioeconomic Pathways," *Global Environmental Change*, 42: 200-214; and Riahi et al. (2017). "The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview," *Global Environmental Change*, 42 (2017): 153-168.

11.3 Model features

There are two well-established, robust methods used in this assessment to estimate the impact of a UK-Japan FTA:

- **Econometric gravity modelling** – This type of modelling can test the relative importance of the economic size and geographic distance between two countries in determining bilateral trade flows. In this assessment, gravity modelling has been used to estimate the changes in non-tariff measures and regulatory restrictions to services.
- **General equilibrium modelling** – This model links all sectors and agents of an economy together and therefore captures any positive or negative spill over effects from a trade agreement. For example, if tariffs are reduced for a particular good, its use as a final and intermediate good may increase due to lower prices. This has expansionary effects for other sectors that rely on the good for their own production and further effects for the incomes of workers, firms, and government.

The CGE model used in this assessment is the same model as that used in the recently published Journal Article “Melting Ice Caps and the Economic Impact of Opening the Northern Sea Route,” *The Economic Journal*, Volume 128.²³⁹ The model is a general equilibrium model with multiple countries, multiple sectors, intermediate linkages and multiple factors of production, as developed in Bekkers et al (2018a,b).

Trade is modelled as in Eaton and Kortum (2002) with the remaining structure of the model largely following the GTAP model (Hertel, 2013). The main difference from GTAP is the incorporation of the Eaton and Kortum demand structure, where Professor Francois derives the gravity equation for structural estimations of the trade elasticities and changes in trade costs, as discussed above, from this same model.

The model set-up and calibration combine features of the older computable general equilibrium (CGE) models (cf. Dixon and Jorgenson, 2013), with the micro-foundations of the more recent quantitative trade models (see Costinot and Rodríguez-Clare, 2014, for an overview). This means analytically it models trade linkages with the improved micro-founded Eaton and Kortum (2002) structure, while at the same time he has structurally estimated the trade parameters and relevant trade cost changes employing a gravity model derived from the structural general equilibrium model.

In the computational model, parameters are based on the underlying model data – trade elasticities are estimated econometrically from the underlying trade data, others (share terms) are fitted from the actual model data, and some elasticities (specifically substitution in value added) are taken from the literature. Following Egger and Nigai (2015) and Bekkers et al (2018), total trade costs and technology parameters are fit from actual import shares (calibration), imposing an exact fit. Changes in trade costs (the structural general equilibrium experiments themselves) follow from the gravity-based estimates of trade costs arising from non-tariff measures and regulatory restrictions to services.

In the scenarios, the model follows the literature and employs recursive dynamics to link changes in investment expenditure to changes in capital stocks. This involves a fixed savings rate, with changes in savings following from changes in income levels. This change is then transmitted into investment and hence into changes in capital stocks. (See Francois, McDonald, and Nordstrom 1997 and Bekkers et al 2018 for technical discussion). In reporting, Professor Francois focusses on the reference year of 2035, where he incorporates the dynamic effects linking savings, investment, and capital stocks.

The model is technically known as a comparative steady state model, as it incorporates long run investment effects. This contrasts with comparative static models, where capital stocks are fixed. The incorporation of the investment effects from trade agreements follows international best practice. Such models are the most commonly used tool for this type of assessment within international trade organisations e.g. United States International Trade Commission (USITC), European Union (EU) Commission and others use steady state models in their impact assessments. As is common practise by many of these international trade organisations, the model extends the comparative static framework to a dynamic framework by incorporating international capital mobility and capital accumulation. In this way it captures important effects of the agreements on investment and wealth that are not captured by a static model. In this model, each region is endowed with physical capital stocks owned by domestic firms. These capital stocks are endogenous, and adjust to changes in net investment, where net investment is sourced from regional households’ savings. The savings in one region are invested directly in domestic firms and indirectly in foreign firms. The dynamics arising from positive savings in one region are related to the net investment in other regions. Overall, at the global level, the savings across regions are fully invested in home and overseas markets. However, even though the model accounts for capital mobility, FDI is not explicitly modelled since capital stocks do not have specific national ownership tied to the location of individual firm headquarters.²⁴⁰

²³⁹ Bekkers, E., J. Francois, and H. Rojas-Romagosa (2018), “Melting Ice Caps and the Economic Impact of Opening the Northern Sea Route,” *The Economic Journal*, Volume 128, Issue 610, 1 May, Appendix available at pages 1095–1127.

²⁴⁰ Nilsson Lars (2019) Reflections on the Economic Modelling of Free Trade Agreements

As is common practice in applied general equilibrium models, the model used in this assessment assumes a fixed labour supply (and employment level) in the long run. In the model, production sectors demand labour to minimise costs subject to a constant returns to scale production function. A flexible wage rate then clears the labour market and all available labour is then employed.²⁴¹ It is an appropriate standard closure rule to use, given that there is currently no established theoretical framework linking the long run functioning of labour markets to changes in trade policy.²⁴²

It should be noted that the costs to Government associated with ongoing efforts to enhance trade with other countries have not been taken into account in the CGE modelling.

It should also be noted that the model used in this assessment is different from that used for other HMG Economic Analyses, including Department for International Trade's Scoping Assessments related to the United States and Government published analysis related to EU Exit.²⁴³

Some primary differences (not an exhaustive list) that may affect the results include:

This CGE Model:

- > is based on slightly newer data, 2014, rather than 2011.
- > assumes perfect competition in all sectors of the economy, and that they are subject to Constant Returns to Scale.
- > assumes that capital is mobile across regions.
- > is calibrated to economic estimates of trade cost elasticities derived from structural gravity modelling. See Appendix A of Bekker et al (2018) for more information.
- > employs a projection of the world economy to 2035.
- > assumes that non-tariff measures and regulatory restrictions to services are completely deadweight barriers known as "Iceberg Costs". Other HMG modelling assumes that 30% of non-tariff measures and regulatory restrictions to services are instead rent generating.

11.4 Sectors aggregation

The GTAP 10 database's sectoral coverage is 57 sectors. These sectors have been aggregated to 23 sectors to ensure consistency with the previous published Government analysis of long term impacts of EU Exit.²⁴⁴ Table 39 shows how the sectors provided in the source data are grouped together for the purposes of this Impact Assessment analysis.

Table 39 - Sector aggregation

Sector name	GTAP 10 code	Sector description
Agriculture, forestry, and fishing	pdr	Rice
	wht	Wheat
	gro	Maize
	v_f	Vegetables, fruits and nuts
	osd	Oil seeds and oleaginous fruit
	c_b	Plants used for sugar manufacturing
	pfb	Raw vegetable materials used in textiles
	ocr	Plants and crops
	ctl	Livestock except swine and poultry
	oap	Swine, poultry and other animals, live
	rmk	Raw milk
	wol	Raw animal materials used in textile
	frs	Forestry and logging
	fsh	Hunting and fishing
	cmt	Livestock meat
omt	Meat of swine	

²⁴¹ H Pant, P Warr (2016) gtap.agecon.purdue.edu

²⁴² Nilsson Lars (2019) Reflections on the Economic Modelling of Free Trade Agreements

²⁴³ EU Exit: Long-term economic analysis, November 2018.

²⁴⁴ HMG (2018), "EU Exit: Long-term economic analysis: Technical Reference Paper".

Sector name	GTAP 10 code	Sector description
Semi-processed foods	vol	Vegetable oils
	Mil	Dairy products
	pcr	Rice semi- or wholly milled
	sgr	Sugar
Other processed foods	ofd	Other processed foods
Beverages and tobacco products	b_t	Beverages and tobacco products
	coa	Mining of coal
	oil	Extraction of crude petroleum and natural gas (part)
	gas	Extraction of crude petroleum and natural gas (part)
Energy	omn	Mining and quarrying of metals and ores
	p_c	Manufacture and processing of fuels
	ely	Production, collection and distribution of electricity
	gdt	Manufacture and distribution of gas, steam and hot water supply
Textiles, apparel, and leather	tex	Manufacture of textiles and man-made fibres
	wap	Manufacture of wearing apparel; dressing and dyeing of fur
	lea	Leather products
Paper and printing products	ppp	Paper and printing products
Chemical, rubber, plastic products	crp	Manufacture of basic chemicals, rubbers, and plastics
Manufactures	lum	Wood products
	nmm	Manufacture of other non-metallic mineral products
	i_s	Manufacture of basic iron and steel
	nfm	Manufacture of non-ferrous and basic precious metals
	fmp	Manufacture of fabricated metal products, except machinery and equipment
Manufacture of motor vehicles	mvh	Manufacture of motor vehicles
Manufacture of other transport equipment	otn	Manufacture of other transport equipment
Manufacture of electronic equipment	ele	Manufacture of electronic equipment
Manufacture of machinery and equipment n.e.c	ome	Manufacture of machinery and equipment n.e.c
Manufacturing n.e.c	omf	Manufacturing n.e.c
Construction	cns	Construction
Wholesale and retail trade	trd	Wholesale and retail trade
Other services (transport, water, dwellings)	wtr	Collection, purification and distribution of water
	otp	Land transport
	wtp	Water transport
	atp	Air transport
	dwe	Dwellings
Communications	cmn	Post and telecommunications
Financial services	ofi	Financial services
Insurance	isr	Insurance
Business services	obs	Business services
Personal services	ros	Personal, cultural, and recreational services
Public services	osg	Public services

12. Annex B: Derivation of modelling inputs

This annex outlines the methodology used to estimate the assumed reductions in non-tariff measures affecting trade in goods and regulatory restrictions affecting trade in services. These are then applied to the modelling as set out in section 5.

12.1 Tariffs

Tariff reductions are simulated both in the baseline of the modelling and in the modelled scenario. In the baseline of the modelling tariff shocks are applied between Japan and the UK. These are sourced from the tariff schedule of the EU-Japan EPA.²⁴⁵

For this assessment, stylised assumptions are made to represent a trading relationship between the UK and EU based on a hypothetical free trade agreement, with zero tariffs and average NTM costs, such as standard customs arrangements with the EU.²⁴⁶ These assumptions about the long run relationship are required to establish a baseline for modelling new trade agreements, but do not represent government policy.

12.2 Non-tariff measures (NTMs) and regulatory restrictions to services

NTMs and regulatory restrictions to services are policy measures that can influence trade by changing what can be traded, and at what price. These can increase the cost of trade and therefore reduce the amount that is traded, even though NTMs and regulatory restrictions to services can serve legitimate public policy objectives. Some NTMs and regulatory restrictions to services may also increase trade – for example, the enforcement of high product standards may increase consumer demand for some goods.

NTMs and regulatory restrictions to services can be hard to observe and are often wide-ranging, resulting in difficulties in estimating the cost they place on businesses.²⁴⁷ There is a growing body of literature estimating how non-tariff measures affect trade (most commonly expressed in terms of tariff ad-valorem equivalents).²⁴⁸ There are two main approaches to estimating the scale of non-tariff measures and regulatory restrictions to services affecting trade between partners in the literature: direct (observing how prices have changed because of barriers or FTAs) and indirect (inferring the impact of NTMs from distortions in the patterns of trade).²⁴⁹

This assessment uses the indirect approach. Building upon best practice in the literature, a gravity model²⁵⁰ is used to provide estimates of the historic liberalisation of non-tariff measures that have been reduced by different types of free trade agreements (Shallow, Medium and Deep). Combined with estimates of the level of non-tariff measures and regulatory restrictions to services that are faced when trading with each country, these provide country specific reductions in NTMs resulting from Deep FTAs.

More specifically, trading costs of NTMs are modelled by extension of the gravity modelling in ECORYS (2009), CEPR (2012), and Egger et al (2015), meaning iceberg trade cost reductions. In the case of both goods and services, benchmark values for trade costs and for cost reductions are based on gravity-based estimates of the trade cost reductions realized under different types of FTAs, as classified by level of ambition. For this purpose, Professor Joseph Francois' gravity model data includes a version of the DESTA database indicators of FTA depth.²⁵¹

²⁴⁵ European Commission, EU-Japan Economic Partnership Agreement: texts of the agreement. <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684>

²⁴⁶ The detail of the modelled average FTA scenario is described in the Government's publication on the long-term economic analysis of EU Exit. This represents a hypothetical FTA between the UK and EU in the long run. HMG (2018), "EU Exit: Long-term economic analysis".

²⁴⁷ For example, language barriers, local regulations, safety standards and border checks are all non-tariff measures that would be expected to result in significantly different operational costs. These costs would also likely change according to the type of firm and in the country where the trade is taking place.

²⁴⁸ This represents the equivalent tariff (as a % of the value of the good) that would restrict trade by the same effect as the non-tariff measure. For example, if a labelling requirement were to increase the cost of wine production by 3%, the impact of the labelling requirement would be estimated as equivalent to a 3% tariff.

²⁴⁹ For further discussion of each approach see Chen & Novy (2012) or Bekkers, Francois & Rojas-Romogosa (2018)

²⁵⁰ Gravity modelling is an econometric framework for estimating the determinants of international trade patterns. It is commonly referred to as the "workhorse model of international trade", due to its ability to consistently explain patterns of international trade. For a discussion of the history and uses of gravity modelling, see Head & Mayer (2013).

²⁵¹ Design of Trade Agreements Database (DESTA). <https://www.designoftradeagreements.org/project-description/>

13. Annex C: Methodology and results for assessment of impacts on production in the regions and nations of the UK

13.1 Methodology

The modelling apportions the UK-wide Gross Value Added (GVA) shocks from the CGE modelling to the NUTS-1 regions of the UK nations and regions.²⁵² Firstly, the sectoral shocks from the CGE modelling, set out in table 14, are applied to the GVA of the relevant sector in each region. The full impact in each region is derived by summing the impact on each sector in a nation or region to give the percentage change from the baseline level of GVA for each nation or region, as set out below:

$$Shock_r = \sum_s^S Share\ of\ GVA_{rs} \times National\ Shock_s$$

where r stands for NUTS 1 region and s stands for sector.

There is a risk that this approach underestimates the overall impact in each region because it does not account for second-round effects from a shock resulting from the concentration of, and UK regional specialisation in, different industries. To take this into account and to provide a sensitivity check, the model weights the shock using location quotients (see box 1 for an explanation of how the location quotients are calculated). For each sector, the shock for each region is derived by multiplying the location quotient for that sector and region by the estimated impact for each sector in each region. The sectoral changes are constrained to ensure the overall change in a sector matches the sectoral change from the CGE results. For this method:

$$Shock_r = \sum_s^S Share\ of\ GVA_{rs} \times National\ Shock_s \times Location\ Quotient_{rs} \times Constraint_s$$

where r stands for NUTS 1 region and s stands for sector.

The location quotient-weighted approach amplifies positive and negative UK regional results, but for most nations and regions the difference is small. In the modelled scenario the methods agree on which nations and regions are estimated to increase or decrease their output relative to the baseline. To acknowledge the uncertainty around the apportionment approach, the map in chart 6 use the mid-point of the two methods.

²⁵² NUTS-1 regions of the UK are used. These include Northern Ireland, Scotland, Wales and nine English regions. Further information on the NUTS-1 classification can be found at 'The establishment of a common classification of territorial units for statistics (NUTS)', Eurostat 2018.

Table 40 - Specialisation of sectors across the 12 NUTS 1 regions of the UK

GTAP 23 Sectors		Region											
		North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East of England	London	South East	South West	Wales	Scotland	N. Ireland
Agri-Food	Agriculture, forestry, and fishing	0.47	0.58	0.79	1.38	1.14	1.36	0.03	1.16	1.38	1.55	2.22	2.27
	Semi-processed foods	0.34	0.92	2.25	2.01	1.32	1.25	0.16	0.23	1.45	1.55	1.03	4.61
	Other processed foods	0.86	1.27	1.90	2.25	0.67	0.78	0.50	0.55	0.80	1.41	1.16	1.16
	Beverages and tobacco products	0.47	0.55	1.37	0.89	1.39	0.92	0.84	0.39	0.66	1.02	2.91	0.78
Industries	Energy	1.30	0.75	0.73	1.69	0.92	0.51	0.37	0.89	0.93	1.10	3.03	0.73
	Textiles, apparel, and leather	0.83	1.49	1.81	3.07	0.86	0.47	0.46	0.41	0.72	0.64	1.21	1.18
	Manufactures	1.60	1.14	1.72	1.58	1.83	0.82	0.14	0.66	0.83	1.72	0.87	1.29
	Paper and printing products	0.67	0.85	1.01	1.09	0.68	1.21	1.48	1.00	0.79	0.97	0.58	0.70
	Chemical, rubber, plastic products	1.69	1.56	1.32	1.89	1.10	1.14	0.16	0.76	0.88	1.33	0.75	1.35
	Manufacture of motor vehicles	2.73	1.35	0.81	0.84	3.81	0.31	0.15	0.66	0.63	1.71	0.27	0.98
	Manufacture of other transport equipment	0.82	1.45	0.34	2.15	0.58	0.90	0.17	0.72	2.46	1.85	1.02	1.75
	Manufacture of electronic equipment	0.98	0.71	0.38	1.01	0.81	1.51	0.15	1.84	1.71	1.26	1.16	1.53
	Manufacture of machinery and equipment n.e.c	1.86	1.01	1.28	1.37	1.57	1.29	0.18	0.87	1.18	0.83	0.96	1.19
	Manufacturing n.e.c	0.63	1.05	1.93	1.68	1.41	0.87	0.35	0.98	0.94	1.24	0.66	0.99
Industries	Other services (transport, water, dwellings)	0.81	1.05	1.07	1.09	1.15	1.04	1.08	0.99	0.83	0.65	0.86	0.74
	Construction	0.92	0.99	1.00	0.91	0.90	1.13	0.83	1.14	1.10	0.87	1.18	0.94
	Wholesale and retail trade	1.02	1.00	1.01	1.02	1.04	1.04	0.86	1.05	1.14	0.95	0.97	1.07
	Communications	1.34	1.03	0.83	0.48	0.66	0.87	1.08	1.56	0.82	0.80	1.09	0.71
	Financial services	0.69	0.80	0.93	0.52	0.61	0.65	2.14	0.77	0.99	0.54	0.92	0.74
	Insurance	0.60	0.97	0.30	0.19	0.87	1.04	1.12	1.24	1.05	2.06	1.42	0.47
	Business services	0.78	0.94	0.88	0.86	0.88	1.10	1.43	1.00	0.84	0.77	0.80	0.65
	Personal services	0.79	0.95	0.74	0.72	0.90	0.97	1.34	1.07	0.91	1.03	1.02	0.79
Public services	1.17	1.03	1.02	0.98	0.99	0.92	0.86	1.01	1.02	1.23	1.12	1.21	

Source: Business Register and Employment Survey, 2017 (ONS, NISRA) and DIT calculations.

13.2 Results

Based on this approach, chart 6 presents the estimated changes in UK national and regional GVA under the agreement scenario modelled, compared to the baseline. It shows there could be a small positive impact across all the regions of the UK from an agreement with Japan. It is estimated that London, the East Midlands and Scotland expand the most, while the North East, North West and West Midlands expand the least.

13.3 Limitations

The analysis requires several simplifying assumptions and is subject to limitations, for example, it:

- is based on sector results at an aggregate level, so will not fully reflect differences in patterns of production across nations and regions of the UK;
- does not explicitly consider the varying trade patterns of individual sectors across each part of the UK;
- uses employment Location Quotients to weight the apportionment of the national, sectoral GVA shock, which may not accurately reflect the structure of regional economies;
- assumes the long term structures of regional economies are consistent with employment location quotients calculated using 2017 Business Register Employment Survey data (ONS, NISRA);
- assumes that the sector GVA shock is the same for all regions i.e., the CGE model provides only a UK-wide sectoral shock;
- does not give any insight into how regions adjust to a new long-term equilibrium position; does not explicitly take account of any impacts arising from the Protocol on Ireland/Northern Ireland (to the Withdrawal Agreement).

The aim is to provide a high-level overview of potential UK regional impacts, using an intuitive analytical approach rather than precise point estimates or forecasts.

14. Annex D: Methodology for tariff analysis

This annex sets out the methodology for providing an approximation of the potential scale of tariff reductions for UK businesses on the imports of intermediate and final goods and for UK consumers.

14.1 Methodology for estimating tariff reductions

14.1.1 UK imports from Japan

The order of magnitude of potential tariff reductions for businesses and consumers importing goods from Japan are calculated using trade flow data in 2019 at the 8-digit product classification (HS2017) sourced from HMRC.

The HMRC data is aggregated into the UN's 'Broad Economic Categories' (BEC) via the conversion table developed by the UN. The BEC classification of goods is then assigned to the two basic kinds of domestic end-use categories as laid out in the System of National Accounts (SNA), namely – intermediate or final goods.²⁵³

- i. **MFN duties:** Without the UK-Japan CEPA, Japanese exports would face UK MFN tariffs (UKGT).²⁵⁴ To estimate the duties that would have been paid without an agreement, 2019 import trade values are multiplied with the corresponding tariff line under the UKGT.
- ii. **Preferential duties:** The UK-Japan CEPA tariff schedule has been used to as the source of the preferential tariffs available to Japanese exporters. As above, 2019 import trade values are multiplied by the preferential rate.

To calculate the tariff reduction estimates, the preferential duties estimates are subtracted from the MFN duties estimates. These tariff reduction estimates are then multiplied by the percentage of 'MFN Non-Zero' trade that claimed no duty relief for inward or outward processing (2019 data from EU Comext).²⁵⁵ Due to lack of data, this assumes 100% duty relief for trade claiming duty relief. The final estimated results are aggregated to a single figure.

It is important to note that reductions in tariff costs facing importers also reflect an equivalent reduction in government tariff revenues on these products, which may be offset by increased tax revenues from higher economic activity in the UK.

14.1.1 UK exports to Japan

The order of magnitude of potential tariff reductions for businesses exporting goods to Japan are calculated using 2019 trade data from the portal site of official statistics of Japan at the 8-digit product classification (HS2017).

The data is aggregated into the UN's 'Broad Economic Categories' (BEC) via the conversion table developed by the UN. The BEC classification of goods is then assigned to the two basic kinds of domestic end-use categories as laid out in the System of National Accounts (SNA), namely – intermediate or final consumption goods. Before aggregation, the trade data is matched to corresponding data for applied tariffs in 2019 in Japan.

The initial scale of tariff liberalisation is calculated by multiplying the import values over the period with the corresponding tariffs.

²⁵³ See accompanying manual of the 5th revision of BEC <https://unstats.un.org/unsd/trade/classifications/bec.asp>. For the purposes of this analysis, goods that are allocated as "Capital Goods" are treated as "Intermediate", as they are likely to be purchased by businesses.

²⁵⁴ GOV.UK, <https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021>

²⁵⁵ For information about inward processing, see <https://www.gov.uk/guidance/inward-processing>, and for outward processing see <https://www.gov.uk/guidance/outward-processing-relief-opr>. Goods not claiming some form of duty relief are recorded as "normal" trade in "Stat regime" in the EU database. This adjustment may slightly understate potential tariff reductions, as it assumes that processing trade receives 100% tariff relief, which is unlikely to be the case.

14.2 Apportioning tariff reductions by UK nations and regions: data and methodology

The approach takes the following steps:

- Data are collated from various sources:
 - DIT calculations of estimated tariff reductions on a HS/CN basis.
 - HMRC Regional Trade in goods estimates for all UK regions and nations (NUTS1) by country and commodity (SITC 2-digit).
 - Mappings of CN8-SITC (2018)/HS6-SITC (2017).²⁵⁶
- Tariff reductions are mapped from CN8/HS6 to SITC.²⁵⁷
- A trade in goods pattern is estimated for each SITC 2-digit commodity by UK nations and regions using a three-year average of trade flows between UK nations and regions and Japan.
- Trade not assigned to a UK nation or region was removed from calculations.
- Tariff reductions are apportioned across nations and regions according to the pattern of trade then aggregated to estimate the total tariff reduction in each nation and region.

14.3 Preference utilisation rates (PURs)

The estimated tariff savings in section 6.1.1 and 6.1.2 assume:

- that all bilateral trade in a liberalised tariff line is eligible for preferences;
- that all eligible trade makes use of those preferences.

Preference utilisation rates (PURs) show how close these assumptions come to the evidence on preference utilisation rates of agreement. The data shows the value of trade that enters under preferences as a percentage of all trade in each HS Section. For example, a PUR of 92.3% for animals and animal products means a large proportion of imports made use of the EU-Japan preferential rates in 2019, which is similar to the PUR for all other EU agreements of 93.6%. The high PUR for animals and animal products is in contrast with the PUR for plastics and rubber (49.6% for the EU-Japan agreement), meaning actual tariff savings could be less than estimates in table 20. In 2019, the PURs for the EU-Japan EPA are relatively low compared to the PURs for other EU agreements, however this was the first year of the agreement and in general the data shows that PURs increase in the years after an agreement enters into force.

²⁵⁶ Data for defensive gains was collated using CN8 data, it was not possible to map these using the same versions of the HS-SITC concordance.

²⁵⁷ Note: for some commodity groups, e.g. SITC: 35.94, 95, 97, tariff gains were not apportioned. However, they account for a small proportion of tariff gains (0.01%).

Table 41 - Preference Utilisation Rates (PURs) across sectors for EU–Japan EPA and across EU continuity deals, 2019²⁵⁸

HS Section	PUR for EU–Japan EPA, %	PUR for all other EU agreements, %
Animals and animal products	92.3	93.6
Articles of stone, plaster, cement, asbestos	50.3	81.3
Plastics and rubber	49.6	87.2
Prepared foodstuffs	47.1	93.4
Base metals and articles thereof	37.2	84.2
Footwear and headgear	33.3	76.1
Miscellaneous manufactures	32.0	74.6
Machinery and mechanical appliances	30.9	61.9
Pearls, (semi-)precious stones and metals	30.8	64.1
Arms and ammunition	30.8	81.8
Textiles and textile articles	25.1	79.9
Transportation equipment	24.6	95.0
Instruments - measuring, musical	24.5	82.3
Vegetable products	21.6	98.8
Chemical products	17.2	84.4
Hides and skins, leather	13.3	83.7
Wood and wood products	10.0	87.5
Mineral products	9.3	89.0
Animal or vegetable fats	4.8	99.0
Overall	28.5	87.1

Source: DIT Internal analysis (Eurostat, 2019)

14.4 Limitations

Following a similar approach widely applied in the literature, the calculations aim to provide an indication of the magnitude of direct reductions owing to tariff liberalisation.²⁵⁹ They are subject to a number of limitations:

- They are based upon current trade patterns and do not take into account the likely changes in trade patterns resulting from the price changes. Therefore, these estimates may underestimate the gains to UK businesses and consumers from reduced tariffs if trade were estimated to increase after price effects;
- The proportion of the tariff reductions passed through to consumers is not known, some businesses may consume final goods or not fully adjust the prices of their products/services to UK consumers.
- The tariff reductions on final consumer goods are estimated by mapping harmonised system classifications (HS) of goods imported from Japan into classifications of individual consumption by purpose (COICOP).
- The analysis is based on the UK's current tariff levels and does not take into account future changes to its MFN tariff levels.
- It assumes the current pattern of trade (from the average of 2017-2019) is in line with the future trade patterns.
- Tariff gains from exports are mapped according to the export pattern. This assumes that any reduction on tariff gains would be a benefit to UK exporters. While UK exporters will gain from increased competitiveness from a reduction in partner country tariffs, the estimated gains from tariff differentials will be realised by firms and consumers in the partner country.
- Tariff gains from imports are mapped to regions according to the import pattern, this does not account for inter-UK trade and may distort the picture as to where the actual gains are realised. Similarly while tariff reductions can be viewed as a benefit via reduced prices to firms and, depending on the pass through to final consumption, consumers; importers will also face increased competition so benefits will only be realised by those firms productive enough to withstand additional foreign competition.

²⁵⁸ HS sections covering wood pulp products and works of art are not included in the table as MFN rates are zero across all products within the sections.

²⁵⁹ For example, see, "Consumer benefits from EU trade liberalisation: How much did we save since the Uruguay Round?" Lucian Cernat, Daphne Gerard, Oscar Guinea and Lorenzo Isella - Chief Economist Note, DG Trade, Issue 1, February 2018.

15. Annex E: Methodology for assessment of the potential impacts on businesses including businesses administration costs

15.1 Methodology

One-off familiarisation costs

The method to estimate the **one-off familiarisation** costs to businesses is as follows:

- In 2018, data shows that around 6,700 UK businesses imported goods from Japan, and that around 9,500 UK businesses exported goods to Japan.²⁶⁰ Data is not available on the number of UK businesses that trade with Japan in the service sectors, including financial services. However, data on UK trade flows show that 41% and 52% of UK imports from, and export to, Japan are in services. The estimated number of UK businesses that import services from Japan is therefore around **4,700** [$6,700 / (1-0.41)*0.41$], and the estimated number of UK businesses that export services is around **10,300** [$9,500 / (1-0.52)*0.52$]. **The total potential number of UK businesses that trade in goods and services with Japan is estimated at 31,100.**
- Many firms trading with Japan are yet to familiarise themselves with the EU-Japan EPA. The utilisation rate of the agreement is estimated to be 29% in 2019 (as seen in annex D).²⁶¹ Therefore, 71% of imports from Japan are yet to trade under preferences. It is therefore assumed that 71% of businesses are not familiar with the agreement which equates to around **22,300 total businesses.**
- HMRC published a report in 2015 on a business survey of the tax administration process. The survey evidence shows that 60% of business seek advice from an agent to complete tax affairs. The same survey provides the average cost of using an agent of £286.²⁶² It is therefore assumed that around 40% of businesses familiarise themselves by reading guidance and 60% of businesses use an external agent at a cost of £286.
- It is assumed the remaining 8,900 businesses would invest time to read to agreement text. There are established methods to estimate the time cost to businesses associated with reading guidance. The average number of words an individual can read per minute is 228. The same study shows the standard deviation around this is 30 words per minute which is used to estimate a range in this methodology.²⁶³
- Measures of employee earnings is based on 2019 data from the Annual Survey for Hours and Earnings (ASHE). The most recent data shows that the average weekly hours is 32 hours and average earning is £538.²⁶⁴ Average earning per hour is therefore estimated at £16.76. Non-wage cost is assumed to be around 20%.²⁶⁵ The estimated total cost to businesses is therefore around £20 per hour.
- Businesses will need to read the UK-Japan CEPA text, which is estimated to contain around 83,300 words.

²⁶⁰ HMRC, Number of VAT registered businesses in 2018.

²⁶¹ Eurostat, <http://epp.eurostat.ec.europa.eu/newxtweb/>

²⁶² Understanding tax administration for businesses, HM Revenue and Customs Research Report 375, July 2015 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443746/HMRC_Report_375_Tax_Administration.pdf. Note: this has been rebased to 2019 prices in line with consumer price inflation from the 2015 cited price of £265.

²⁶³ IOVS, Standardized assessment of reading performance. <https://iovs.arvojournals.org/article.aspx?articleid=2166061#90715174>

²⁶⁴ ONS, ASHE, July 2020 (average earnings for 2019)

²⁶⁵ RPC guidance note on 'implementation costs'. Data source: Eurostat.

On-going costs associated with Rules of Origin Compliance

There is a wide range of academic literature on the impact of rule of origin compliance on trade flows and a range of estimated on the potential associated trade cost to businesses.

Academic studies²⁶⁶ estimate the tariff equivalent trade costs associated with rules of origin administration and compliance requirements ranges between 2% to 6%.²⁶⁷ These estimates vary considerably depending on the methodology, time period, and the countries under consideration.

Evidence suggests costs for developed markets skew to the lower part of the distribution, but significant uncertainty remains. Therefore, the tariff equivalent trade costs between the UK and Japan associated with rules of origin requirements are assumed to range from 2% to 4% where for UK exports, the difference between the Japan MFN rate and the preferential rate is greater than 2% under the lower bound scenario or greater than 4% in the upper bound scenario.

15.2 Results

One-off familiarisation costs

Based on 2019 as a price base year, the estimated one-off familiarisation cost to businesses that are assumed to seek advice from an external agent is around **£3.8 million** (around 13,400 businesses multiplied by £286).

In addition, the estimated one-off costs (2019 price base) associated with reading the text ranges between £1.0 million and £1.3 million depending on the time to read the agreement:

- Lower bound estimate: 5.4 hours to read the agreement x £20 total labour cost x 8,900 businesses = **£1.0 million**.
- Central estimate: 6.1 hours to read the agreement x £20 total labour cost x 8,900 businesses = **£1.1 million**.
- Upper bound estimate: 7.1 hours to read the agreement x £20 total labour cost x 8,900 businesses = **£1.3 million**.

On-going costs associated with Rules of Origin Compliance

In 2019, £689.1 million worth of UK exports to Japan are eligible for preferential rates. The value of goods estimated to incur the costs of qualifying for preferences is £585.3 million²⁶⁸ when the cost of doing so is 2%, but only £271.4 million²⁶⁹ when the cost of doing so is 4%.

Based on 2019 as a price base year, the on-going costs are therefore estimated at **£11.7 million** (585.3 x 2%) under the lower bound and **£10.9 million** (£271.4 x 4%) under the upper bound.

15.3 Limitations

One-off familiarisation costs

The limitations to precisely estimate the one-off familiarisation cost are:

- This estimated impact could be an overestimate as it double counts firms who both export to Japan as well as import from Japan.
- The method does not consider the number of new businesses that may trade with Japan as a result of the agreement which may lead to an underestimate.
- Data is not available on the number of business that trade in services, however an estimated number is based on the share of UK trade in services with Japan.
- Data is not available on the number of businesses that are already familiar with the EU-Japan EPA text.

On-going costs associated with Rules of Origin Compliance

- Estimated the tariff equivalent trade costs associated with rules of origin administration and compliance requirements ranges between 2% to 6%. There is limited literature on the trade costs with rules of origin administration and compliance that is specific to trade between the UK and Japan.

²⁶⁶ World Bank 2014, Ciuriak & Xiao 2014

²⁶⁷ World Bank 2014, Ciuriak & Xiao 2014

²⁶⁸ The amount of UK exports to Japan where the difference between the Japan MFN rate and the preferential rate is greater than 2%

²⁶⁹ The amount of UK exports to Japan where the difference between the Japan MFN rate and the preferential rate is greater than 4%

16. Annex F: Methodology for assessment of potential impacts on small and medium-sized enterprises (SMEs)

SMEs can be defined as:

- > Firms employing fewer than 50, and fewer than 250 employees respectively; and
- > Firms not exceeding either (a) £44.0 million in annual turnover or (b) an annual balance-sheet total of £38.0 million.

SMEs represent a key component of the UK economy: in 2019 these made up over 99% of the total number of private sector businesses, representing 60% of private sector employment and 52% of private sector turnover.²⁷⁰ UK SMEs play an integral role in engaging with the international economy and they are increasingly international traders in their own right. For example, in 2018, SMEs represented 99% of all UK businesses exporting goods and services globally.²⁷¹ Moreover, SMEs form a key part of the supply chain for larger UK and global firms, by producing intermediate goods used to manufacture other goods.

SMEs typically face more of an impact from trade barriers than larger firms, since larger firms are better able to leverage influence or exploit economies of scale to reduce the associated costs and risks of internationalisation. This is particularly the case where trade barriers represent fixed costs to businesses, as regulatory and non-tariff measures can be burdensome to comply with.

This section considers the variation of SMEs across sectors of the economy in order to compare with the estimated pattern of impacts across sectors set out in table 14.

16.1 Methodology

The CGE model presents the indicative impact on each of the 23 sectors of the model, as identified in the main results section (table 14).

The BEIS Business Population Estimates (BPE) show that the concentration of SMEs varies markedly across sectors of the economy.²⁷² The BPE data – classified according to the Standard Industrial Classifications (SIC) – are mapped to the sectors included in the modelling.

Table 42 - SMEs in the Profile of UK Businesses

Business size (number of employees)	Number of Businesses	% of Total Businesses	Employment Contribution (number of employees)	% of Employee Contribution	Turnover Contribution	% Turnover Contribution
None	4,457,820	76.0	4,835,000	17.6	304,508	7.3
1-49	1,366,680	23.3	8,323,000	30.3	1,224,176	29.5
50-249	35,585	0.6	3,473,000	12.6	639,322	15.4
>249	7,685	0.1	10,868,000	39.5	1,981,968	47.8
Total	5,867,770	100.0	27,499,000	100.0	4,149,974	100.0

Source: BEIS Business Population Estimates (2019).

²⁷⁰ BEIS, Business Population Estimates (BPE, 2019)

²⁷¹ ONS, Annual Business Survey (2019). Figures do not cover NI businesses and businesses in the insurance sector.

²⁷² BEIS, Business Population Estimates (BPE) combines a number of data sources on the business population (UK Business: Activity, Size and Location (ONS), Business Demography (ONS) and Small and Medium Enterprise Statistics (BEIS)) to generate holistic estimates for all active private sector businesses, including sole-traders and unregistered businesses See Economic & Labour Market Review (Vol. 5, No. 4) (ONS). Please note in the turnover data, there is no data for Financial Services and Insurance sectors.

Table 43 - SMEs across sectors by Number and Turnover

GTAP Sector	Sectoral Distribution of SMEs	SMEs Turnover by Sector, £ million	Estimated Contribution to Turnover		
			Micro/Small	Medium	Large
Agriculture, forestry, and fishing	2.69%	40,914.0	80.20%	9.50%	10.30%
Energy	0.49%	33,858.6	16.60%	8.28%	75.12%
Semi-processed foods	0.35%	14,808.7	14.81%	17.76%	67.43%
Other processed foods	0.70%	29,617.4	14.81%	17.76%	67.43%
Beverages and tobacco products	0.23%	9,872.5	14.81%	17.76%	67.43%
Textiles, apparel, and leather	0.35%	14,808.7	14.81%	17.76%	67.43%
Manufactures	0.47%	19,744.9	14.81%	17.76%	67.43%
Paper and printing products	1.28%	30,595.1	23.67%	16.89%	59.44%
Chemical, rubber, plastic products	0.35%	14,808.7	14.81%	17.76%	67.43%
Manufacture of electronic equipment	0.12%	4,936.2	14.81%	17.76%	67.43%
Manufacture of machinery and equipment n.e.c	0.82%	34,553.6	14.81%	17.76%	67.43%
Manufacture of motor vehicles	0.12%	4,936.2	14.81%	17.76%	67.43%
Manufacture of other transport equipment	0.59%	24,681.1	14.81%	17.76%	67.43%
Manufacturing n.e.c	0.23%	9,872.5	14.81%	17.76%	67.43%
Other services (transport, water, dwellings)	8.95%	157,916.6	35.80%	14.23%	49.97%
Public services	15.61%	133,754.4	44.22%	14.22%	41.56%
Construction	17.70%	267,674.0	63.19%	11.79%	25.02%
Wholesale and retail trade	14.69%	814,063.7	36.76%	16.75%	46.50%
Personal services	8.98%	84,878.0	30.13%	12.35%	57.52%
Communications	1.05%	20,722.7	29.62%	16.31%	54.07%
Business services	22.69%	400,986.6	44.58%	15.81%	39.61%
Financial services	1.03%	-	-	-	-
Insurance	0.51%	-	-	-	-

Source: DIT Internal Analysis of BEIS Business Population Estimates (2019). Note: No turnover data available for Financial or Insurance sectors.

SMEs are present in all sectors of the economy, but four sectors - construction, business services, public services, and retail and wholesale trades – are estimated to make up over two-thirds of the total number of UK SMEs (table 43).

The data on sectors where SMEs are located above are combined with the sectors where output is expected to increase or decrease relative to the baseline, as set out in table 14 of the main report.

16.2 Limitations

The aim of the analysis is to provide an indication of whether the potential implications of long run changes to the sectoral composition of output are likely to exert a disproportionate impact on SMEs.

The preliminary analysis is in line with best practice in this area but requires several simplifying assumptions and is subject to several limitations:

- This approach does not take into account whether SMEs may be more or less affected by changes in trade barriers than other businesses, for example for reasons set out above.
- Mapping the Standard Industrial Classifications to the sector aggregations used in the GTAP modelling requires several simplifying assumptions which could result in biases in the estimated distribution of SMEs across GTAP sectors.
- BEIS BPE data captures data on unregistered and sole traders, however it does not allow for disaggregation between small and micro businesses and there is no available turnover data for Finance or Insurance sectors.

17. Annex G: Methodology and results for assessment of potential impacts of various groups in the labour market

This annex assesses the implications of the agreement for various groups in the labour market including sex, ethnicity, disability and age.²⁷³

The international evidence suggest that trade agreements and trade liberalisation have the potential to affect various sectors of the economy and groups differently.²⁷⁴ This is because consumption patterns and employment patterns can differ systematically across groups.

17.1 Methodology

The CGE modelling assumes that the UK-Japan CEPA would not impact on overall UK employment compared to not having a trade agreement with Japan. However, the model presents indicative impacts on the number of jobs located within each of the 23 sectors of the model. For the purposes of estimating potential impacts on groups in the labour market, the only sectors which are included are those in which employment changes by more than +/- 0.05%. The analysis shows the proportion of the workforce in each sector that come from particular groups. The analysis does not infer changes in employment for each group nor other work-related impacts such as whether these groups see a change in pay or productivity.

Table 44 presents data from the Annual Population Survey showing estimates of the proportions of those employed in each of the 23 sectors with various characteristics.²⁷⁵

²⁷³ These characteristics are a subset of those protected under Equalities Act 2010. Other characteristics are not analysed due to a lack of data covering their demographics across sectors of the economy.

²⁷⁴ The characteristic that has been studied in the greatest depth is sex. (UNCTAD, 2017) uses a method similar to the one used in this annex and (OECD, 2018) extends this approach to look at how women are affected as a result of impacts to global value chains.

²⁷⁵ The sectoral data from the Labour Force Survey are based upon the SIC 2007 classification which are mapped to GTAP sectors.

Table 44 - Proportion of employment by sector and protected characteristics²⁷⁶

GTAP Sector (23 Disaggregation)	Women	Disabled	Ethnic Minorities	Age (16-24)	Age (65+)
Agriculture, forestry, and fishing	27.39%	14.46%	1.42%	10.03%	18.29%
Semi-processed foods	31.26%	7.85%	12.07%	10.19%	2.62%
Other processed foods	37.93%	11.44%	14.99%	8.97%	2.08%
Beverages and tobacco products	26.47%	6.85%	5.82%	8.96%	1.21%
Energy	21.17%	10.07%	6.75%	8.46%	2.03%
Textiles, apparel, and leather	49.58%	11.63%	16.62%	9.67%	4.79%
Manufactures	16.42%	10.53%	5.02%	10.75%	4.02%
Paper and printing products	36.92%	12.11%	8.83%	7.12%	4.56%
Chemical, rubber, plastic products	32.40%	9.52%	8.03%	8.66%	2.43%
Manufacture of motor vehicles	13.04%	10.44%	9.09%	9.11%	2.44%
Manufacture of other transport equipment	13.17%	10.40%	4.69%	9.64%	2.55%
Manufacture of electronic equipment	30.43%	8.22%	10.88%	7.61%	2.75%
Manufacture of machinery and equipment n.e.c	18.68%	11.32%	6.08%	8.33%	3.33%
Manufacturing n.e.c	31.33%	12.14%	8.55%	8.00%	3.88%
Other services (transport, water, dwellings)	25.63%	12.19%	16.61%	7.69%	4.45%
Construction	12.41%	11.05%	5.53%	9.76%	3.72%
Wholesale and retail trade	48.38%	13.63%	14.17%	24.59%	3.49%
Communications	26.35%	11.45%	14.05%	9.46%	0.85%
Financial services	42.46%	9.26%	16.12%	8.26%	1.64%
Insurance	46.66%	10.25%	9.09%	11.76%	1.62%
Business services	40.16%	11.41%	13.60%	8.73%	4.52%
Personal services	54.78%	13.35%	9.11%	18.43%	5.11%
Public services	68.65%	13.76%	12.16%	7.55%	3.40%
Total	46.87%	12.56%	11.95%	11.89%	3.80%

Source: ONS 3-year Annual Population Survey (Mapped using an internal DIT GTAP-SIC mapping)

The estimated employment changes in various sectors are combined with the data from the Labour Force Survey to consider the characteristics of the workforce within sectors where employment may decline or expand relative to the baseline over the long run. The results focus on whether the protected groups are proportionally concentrated in sectors where employment is estimated to fall relative to the baseline to see whether such groups are more or less likely to work in sectors that reduce the size of their workforce. This does not imply other work-related impacts such as changes in wages.

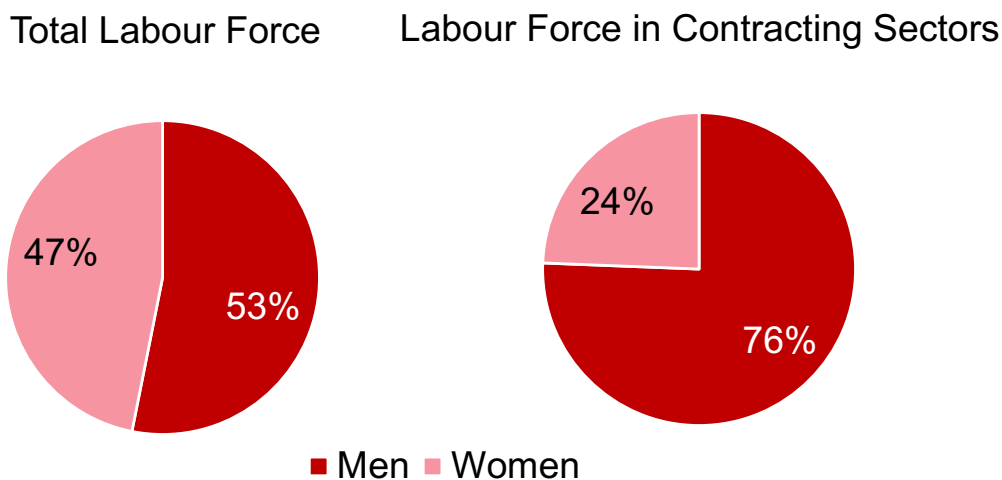
17.2 Descriptive statistics

17.2.1 Sex

- Based upon DIT's analysis of the Annual Population Survey (2016-18), 47% of those in either full-time or part-time employment in the UK are female and 53% are male.
- The analysis shows that the proportion of workers that are female in sectors where output is expected to fall relative to the baseline is 24%, less than the proportion of females in the total workforce. Therefore, female workers are less concentrated in sectors that are expected to reduce the size of their workforce.

²⁷⁶ Employment is defined as set out in ILODEFRR. For further information see Labour Force Survey User Guide: Details of LFS variables 2019.

Chart 7 - Sex breakdown for the labour market as a whole and for the contracting sectors

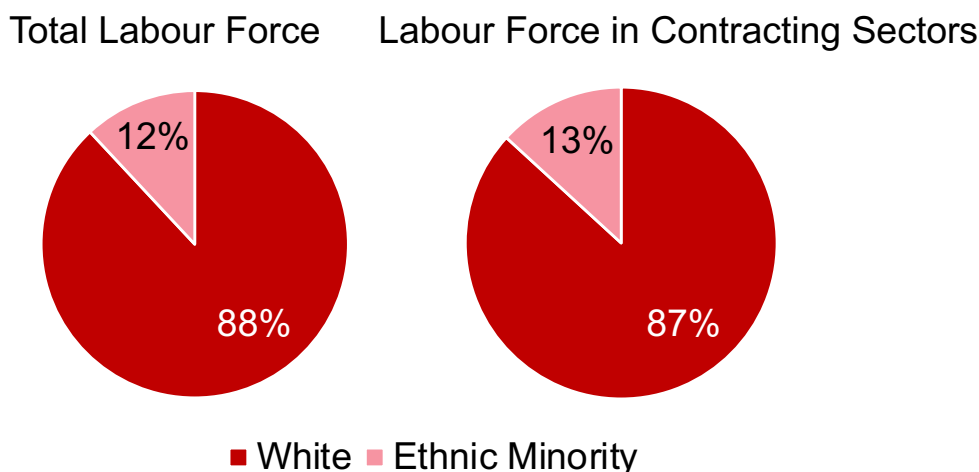


Source: DIT internal analysis using Annual Population Survey

17.2.2 Ethnicity

- Based upon DIT's analysis of the Annual Population Survey, around 12% of those in employment in the UK are from an ethnic minority background and around 88% are white.
- The analysis suggests that the proportion of workers in sectors where employment is estimated to fall relative to the baseline which are from an ethnic minority background is broadly 13%, which is in line with the 12% of ethnic minority workers that make up the total workforce.

Chart 8 - Ethnicity breakdown for the labour market as a whole and for the contracting sectors

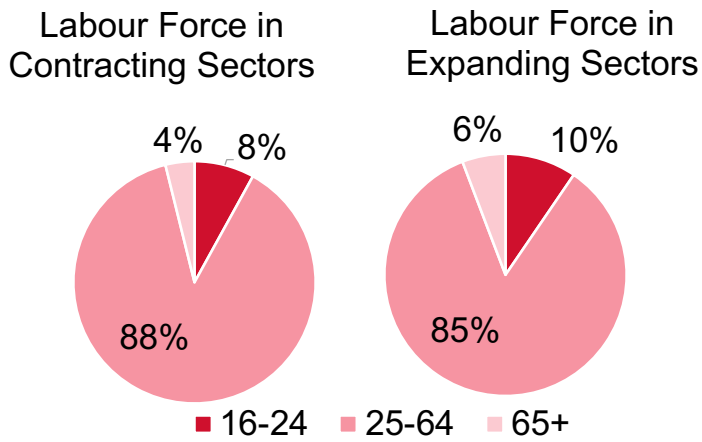


Source: DIT internal analysis using Annual Population Survey

17.2.3 Age

- Based upon DIT's analysis of the Annual Population Survey, around 12% of those in employment in the UK are aged between 16-24, 84% are aged between 25 and 64 and 4% are 65+.
- The analysis suggests that the proportion of 16-24 year old workers who are concentrated in sectors where employment is estimated to fall relative to the baseline is in line with the proportion who make up the total workforce, standing at 8% compared to 12% in the wider population.
- Workers aged 65 and over are estimated to make up 4% of the workforce in sectors where employment is estimated to fall relative to the baseline, which is in line with the 4% of this age group who make up the total workforce.

Chart 9 - Age breakdown for the labour market as a whole and for the contracting sectors

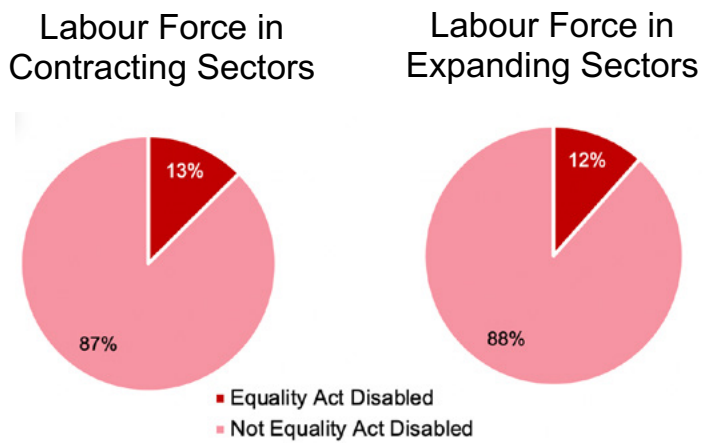


Source: DIT internal analysis using Annual Population Survey

17.2.4 Disability

- Based upon DIT’s analysis of the Annual Population Survey, around 12% of those in employment in the UK report that they have a disability (as defined by the Equalities Act 2010). It is possible that non-response to this question in the Annual Population Survey affects the estimated proportion.
- The analysis suggests that the proportion of workers in sectors where employment is estimated to fall relative to the baseline which have a disability is roughly in line with the proportion of the workforce; estimated to be 12%.

Chart 10 - Disability breakdown for the labour market as a whole and for sectors where employment is estimated to fall relative to the baseline



Source: DIT internal analysis using Annual Population Survey

17.3 Limitations

The aim of the analysis is to provide an indication of the potential implications of long run changes in employment in various sectors for various groups. This provides an assessment as to whether the labour market impacts of the agreement may result in a disproportionate impact on specific groups.

The analysis is in line with international best practice in this area but requires several simplifying assumptions and is subject to several limitations.

- The data from the Annual Population Survey only allows descriptive analysis of where groups are employed in the economy, not inferential analysis of how groups or employers will respond to sectoral shocks. The analysis therefore cannot make inference about how groups will be impacted.
- The analysis uses the available data sources to describe the characteristics of workers in sectors which may increase or decrease their employment relative to the baseline under an agreement. It does not assess the welfare impacts of the trade agreements on various groups.
- Mapping the employment data which is recorded in the Annual Population Survey by Standard Industrial Classifications to the sector aggregations used in the GTAP modelling requires several simplifying assumptions which could result in biases in the estimated distribution of employment across GTAP sectors.
- The proportions estimated here are based on a snapshot of the demographics. By only using the years available in the APS, the analysis does not take into account trends that may be present in the proportions.
- There is a potential problem of missing data in the APS. Employees in some groups, such as those with a disability, may be less likely to respond to the survey meaning that the data collected is not representative of the true employee demographics.
- The analysis is based on the structure of the UK workforce from 2016-18.²⁷⁷ Whereas the CGE modelling results reflect the global economy in the long run when the composition of the workforce may have changed.

²⁷⁷ The data on the UK total workforce is sourced from the Annual Population survey, using a 3-year average (2016-18).

18. Annex H: Methodology and results for assessment of environmental impacts

18.1 Greenhouse gas emissions and energy use from UK production

18.1.1 Methodology

With reference to the literature on trade and the environment,²⁷⁸ and using data from the ONS environmental accounts, the impact on environmental variables of increased production due to trade is broken down into three channels: the scale, the composition and the technique effects.

The estimated output changes from the CGE-based economic analysis are linked to ONS data to estimate the impact of production changes from a new trade agreement on three environmental variables: greenhouse gas emissions (CO₂ and Non-CO₂), and energy consumption from fossil fuels.

Each indicator is further decomposed into three effects:

- 1) **Scale:** The scale effect reflects environmental changes resulting from an expansion in economic activities holding the existing economic structure constant; directly linked to the new trade policy.
- 2) **Composition:** The composition effect reflects environmental changes arising from changes in economic structure; directly linked to the new trade policy. The net effect of structural change on the levels of emissions and energy uses depends on whether emission-intensive and energy-intensive activities expand or contract.
- 3) **Technique:** The technique effect represents on-going progress of environmental quality in the UK owing to the adoption of new environmental technologies and a better enforcement of environmental regulations, which are independent of the implementation of a new trade policy.

Overall, the net impact of a new trade policy on the environment is determined by the three competing mechanisms, each with its own unique value: the scale effect (negative impact), the composition effect (ambiguous impact), and the technique effect (positive impact). The overall impact of trade will depend on the magnitude of each of these three effects.

The CGE estimated changes in production output are converted to emissions output using sector-level emissions intensity (based on ONS data). This gives the scale and composition effects. Due to the lack of available projection data for every environmental indicator, historical data from the ONS are used as a proxy to calculate the technique effect.²⁷⁹

²⁷⁸ Grossman & Krueger (1994) and Copeland & Taylor (1994).

²⁷⁹ This is due to the lack of projection data for GHG. We use data from 1998 and 2018 to approximate the potential trend by when the agreement is expected to be fully implemented.

18.1.2 Results

Table 45 presents the estimated impact of the free trade agreement, broken down into the three effects outlined above.

Table 45 - Results for Greenhouse gas emissions and energy consumption

	Scale Effect	Composition Effect	Trade induced impact	Technique Effect	Total	2035 UK Total emissions/ energy usage	% increase in 2035 UK emissions/ energy usage resulting from the CEPA
Greenhouse gas emissions - ktCO₂e	367.92	-69.28	298.64	-199.12	99.52	350,000	0.028%
- Of which CO ₂ emissions- ktCO ₂ e	306.70	-78.80	227.89	-150.52	77.38	285,000	0.027%
- Of which Non-CO ₂ emissions - ktCO ₂ e	60.63	11.03	71.66	-30.02	41.64	65,000	0.064%
Energy consumption from fossil fuels - TJ	4,191.65	540.95	4,732.60	-2,496.63	2,235.97	8,038,656	0.028%

Source: DIT calculations 2020

The economic analysis suggests that changes in UK trading patterns will cause a shift from more to less GHG emissions intensive sectors. For example, the agreement is expected to reduce production in GHG emission intensive sectors such as agriculture (which would grow less than the national output), manufacturing (which would see a decrease in output) and other services (which would see its production grow less than the national output) whereas less GHG emission intensive sectors such as financial and insurance services and business services are expected to grow more than the national output. This is encapsulated in the composition effect. As expected, the scale effect has a negative effect on environmental outcomes due to expanded production, and the technique effect has a positive effect due to technological progress.

A bilateral trade agreement with Japan is expected to increase UK production in the long run which is expected to impact the environment by expanding economic activity, shifting economic output between more and less energy-intensive sectors, and through efficiency gains and technological progress. The sectors of other services (transports, water usage and waste services) and energy, contribute the most to any increase in GHG emissions via the scale and the composition effects. The results underline the sectors of other services and energy as the ones contributing the most to decreases of the UK energy consumption of fossil fuels (the technique effect).

Overall, the analysis suggests that the change in production of 0.07% due to freer trade may result in an increase of 0.028% for both GHG emissions and energy consumption from fossil fuels. The change in the composition of the economy as a result of the UK-Japan CEPA and the improvement to processes expected to be made to meet policy requirements helps mitigate the negative environmental impact of the scale effect.

18.1.3 Limitations

Quantitative assessment of the environmental impact of the new trade policy is undertaken based on the estimated economic impact. Consequently, the environmental assessment conducted in this analysis inherits the same limitations of economic modelling.

With respect to the environmental modelling, there are some cautionary notes concerning the interpretation of the results:

- The results do not factor in known policy measures to deliver net zero.
- The historical data used to reflect the technique effect do suffer from a myopic view. The assumption is that the trend of the last twenty years will be an indicator of the on-going progress of emissions intensity trends at the time of the implementation of the CEPA. With the recognition that the past does not provide a guarantee for the future and due to the lack of available data on projections of environment indicators, this proxy approach was chosen.
- The results of the environmental modelling reflect the impacts based on the indicators used in the analysis and does not capture the breadth of environmental issues that could occur as a result of the new trade policy.
- The analysis provides an assessment of the environmental impact resulting from increasing economic activities under the implementation of the agreement, but it fails to capture direct emissions in UK households resulting from changes in the consumption pattern as the analysis models the changes in the production pattern only.
- This approach does not take into account the change in emission intensity (emission per unit of output) that could result from the implementation of the agreement. The pre and post UK-Japan CEPA emission intensity may not be the same. The removal of barriers could affect firms' choices of production inputs (domestic vs. foreign or less fuel efficient vs. more fuel-efficient), resulting in a different emission intensity.
- The technique effect reported in this study represents the on-going progress of environmental quality in the UK independent of this agreement. This technique effect is different from the feedback effect (sometimes also called "the technical effect" in environmental assessment literature) in the sense that the improvement in income as a result of the new trade policy could translate into greater demand for environmental quality, leading to lower emission intensity.

18.2 Transport emissions

18.2.3 Methodology

The impact of a new trade agreement on aviation and maritime emissions is estimated using the CGE-based economic analysis and HMRC trade data.

HMRC trade data gives the tonnage of goods transported via each mode of transport. Published forecasts in aviation and maritime traffic are used to estimate projected traffic by mode. The estimated output changes from the CGE-based economic analysis are linked to HMRC Overseas Trade Statistics to convert the impact of the deal to tonnage, and added to traffic projections to estimate the effects of the bilateral agreement on aviation and maritime traffic. Using the distance between trading partners and emissions factors for specific ship types and freighter aircraft, this traffic impact is converted into an emissions impact.

18.2.4 Results

Aviation emissions were not subjected to a detailed quantitative analysis. This is due to cargo being almost exclusively bellyhold freight, which is out of scope of the analysis, as it is included in passenger aircraft emissions. While it is possible to estimate changes in the latter due to the trade agreement, this would be proportionate to the long-term GDP change, with negligible effects. Despite the stark reduction in passenger services due to the global coronavirus pandemic, all three of the typical bellyhold freight operators for UK-Japan (BA, Japan Airlines and All Nippon Airways) now have passenger services operating at least weekly. Some lingering cargo-only services may extend into 2021, but not in the long term. Consequently, no substantive changes in aviation emissions due to the UK-Japan CEPA are expected.

Table 46 – Long run annual emissions increase due to maritime freight, compared to a scenario without the UK-Japan CEPA

Change compared to baseline in 2035	Exports		Imports	
	%	ktCO ₂ e	%	ktCO ₂ e
Greenhouse gases	156.05%	148–223	56.50%	165–257
- of which CO ₂	156.05%	146–220	56.50%	162–253
- of which CH ₄	156.05%	0–0	56.50%	0–0
- of which N ₂ O	156.05%	2–3	56.50%	2–3

Source: BEIS calculations 2020

Percentage changes are presented as a percentage of transport emissions from baseline bilateral trade with Japan.

Table 46 shows a detailed breakdown of greenhouse gas emissions from shipping freight. These figures illustrate the long term expected increase in transport emissions from trade with Japan per year, compared to a baseline scenario without the UK-Japan CEPA. These ranges are based on a sensitivity analysis that considered the potential shipping routes that can be taken between the UK and Japan. The shortest and longest shipping routes are applied to the increase in maritime freight to create the lower and upper bounds of the emission increase ranges. Absolute emissions are small for both imports and exports. The majority is carbon dioxide, while nitrogen dioxide has trace emissions and methane is negligible. The proportionate growth is large, driven by both a general increase in tonnage traded and a change in the type of which goods are traded. Exports will benefit from an increase in trade in every goods sector, which accounts for the high emissions increase. Each sector has a different ratio of value to weight, therefore also value to emissions. Consequently, the increase in emissions is not simply proportionate to the increase in value generated by the UK-Japan CEPA.

International transport emissions due to services are expected to be negligible. While the movement of persons associated with services trade is captured in business travel statistics, these records are not industry specific. Therefore, it is difficult to extrapolate the potential change in business travel which results from the change in sector-specific output estimated by the CGE modelling. Many cross-border services would likely be those without a physical component, such as IT services. As a consequence, these would not contribute to transport emissions at all. Using long run GDP as a proxy for passenger demand, the increase in emissions is approximately 0.07%.

While the fractional increase in transport emissions appears large, the absolute emissions are small. Cumulative effects from 2020-2035 are estimated to be 917–1382 ktCO₂e for exports and 1164–1815 ktCO₂e across all modes of transport. This is based on extremely conservative assumption regarding emissions factors.

18.2.5 Limitations

As with production emissions, the impact of the UK-Japan CEPA on transport emissions is based on the CGE results and therefore inherits the same limitations of economic modelling.

The scope of this assessment does not include the impact on transport emissions from changes in trade with third countries.

The methodology uses several strong assumptions:

- Services are negligible (i.e. ignore the movement of people driven by the UK-Japan CEPA and examines goods only); and
- Significant technological change has a negligible impact in the mid-term (i.e. long-haul electric aircraft and hydrogen-powered cargo ships do not become available). Emissions savings come from more modest improvements from cleaner fuels, energy efficiency savings, engine upgrades, etc.

The limitations of the transport extension analysis arise from the strong assumptions used. For example, emissions intensity (CO₂e emissions per tonne.km) is expected to improve over time under business-as-usual conditions. However robust estimates of future changes in emissions factors for maritime and aviation are not available. Therefore, technological change is not reflected in the results. Using current emissions factors is a conservative approach that will likely overestimate the change in emissions.

18.3 Wider environmental impact: supporting information

18.3.1 Air Quality

The UK is also a founding member of the UNECE International Convention on Long Range Transboundary Air Pollution (CLRTAP). Since its inception in 1979 the convention has delivered significant air quality benefits including significant reductions in sulphur (70%) and nitrogen oxide (40%) emissions.²⁸⁰

Scotland,²⁸¹ Wales,²⁸² and England²⁸³ have published clean air strategies and Northern Ireland is preparing a strategy of its own.²⁸⁴

In Japan the Ministry of the Environment (MoE) is responsible for setting air quality standards. Since the 1960s, Japan has undertaken several key environmental regulations and policies to improve air quality.²⁸⁵ The latest revision of the Air Pollution Control Act was enacted in 2006.²⁸⁶

18.3.2 Resources and waste

The below table provides a snapshot of the UK and Japan's current performance with regards to waste management.

Table 47 - Summary baseline performance indicators of waste management, UK & Japan

Waste management Indicator	Japan	UK
Solid waste generated (kg per day per capita) ²⁸⁷	0.94	1.32
Proportion of waste designated for recovery operations, average 2015-2017, (recycling, compost, energy recovery, re-use) ²⁸⁸	92%	78%
"Waste management" Environmental Performance Index ²⁸⁹ Score (100 is the top score)	86.5	92.9

Sources: World bank, OECD, Environmental Performance Index

The "waste hierarchy" ranks waste management options according to what is best for the environment.²⁹⁰ Re-use ranks higher than recycling, which in turn ranks higher than other recovery measures. Therefore, this single measure in the table above masks potential disparities in performance against the hierarchy.

18.3.3 Timber and forestry

The UK is committed to combatting illegal logging. At the end of the Transition Period exiting EU legislation will be transposed into domestic law as the UK Timber Regulations and FLEGT (Forest Law Enforcement, Governance and Trade). The UK Timber Regulations will continue to prohibit market sales of illegally harvested timber through the requirement that 'operators' - those first placing timber on the market - exercise due diligence. Both countries are also party to the International Tropical Timber Agreement (2006), which aims to promote the trade of timber products and requires sustainable practices.²⁹¹ There are 59 signatories which represent 80% of the world's tropical forests and 90% of the global timber trade.²⁹²

18.3.4 Biodiversity

Japan and the UK both have rich biodiversity. Japan has a high rate of endemic species (a species defined to a geographic location),²⁹³ as well as unique ecosystems with distinct biota in many of its 6,800 islands. The UK has a diverse mix of habitats and species. Despite the UK's relatively small size it has approximately 13% of the world's blanket bog²⁹⁴ and 20% of Europe's lowland heathland.²⁹⁵ The main threats to habitats in the UK are habitat change and pollution, as well as invasive species and climate change.²⁹⁶

280 UNECE, 2016.

281 Scottish Government, Cleaner Air for Scotland, 2019.

282 Welsh Government, Clean Air Plan for Wales: Healthy Air, Healthy Wales, 2020.

283 Clean Air Strategy (2019)

284 DAERA.

285 Japanese Law Transition, Air Pollution Control Act, 1968.

286 Japanese Law Transition, Air Pollution Control Act, 1968.

287 World Bank, "What a Waste 2.0" database- <https://datacatalog.worldbank.org/dataset/what-waste-global-database>

288 OECD, calculated by Amount designated for recovery / Municipal waste generated <https://stats.oecd.org/Index.aspx?DataSetCode=EPS>

289 Environmental Performance Index, Based on indicator "controlled solid waste"- <https://epi.yale.edu/epi-results/2020/component/wmg>, Japan profile: https://epi.yale.edu/sites/default/files/files/JPN_EPI2020_CP.pdf UK profile: https://epi.yale.edu/sites/default/files/files/GBR_EPI2020_CP.pdf

290 Defra, "Guidance on applying the waste hierarchy", 2011, "https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf

291 European Commission, "The 2006 International Tropical Timber Agreement"- <https://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=5241>

292 European Commission, "The 2006 International Tropical Timber Agreement"- <https://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=5241>

293 Convention on Biological Diversity- Japan profile- <https://www.cbd.int/countries/profile/?country=jp>

294 Blanket bog is an area of peatland with a variable depth of peat and is a natural carbon store- International Union for Conservation of Nature <https://www.iucn.org/resources/issues-briefs/peatlands-and-climate-change>

295 Convention on Biological Diversity- U.K. profile- <https://www.cbd.int/countries/profile/?country=jp>

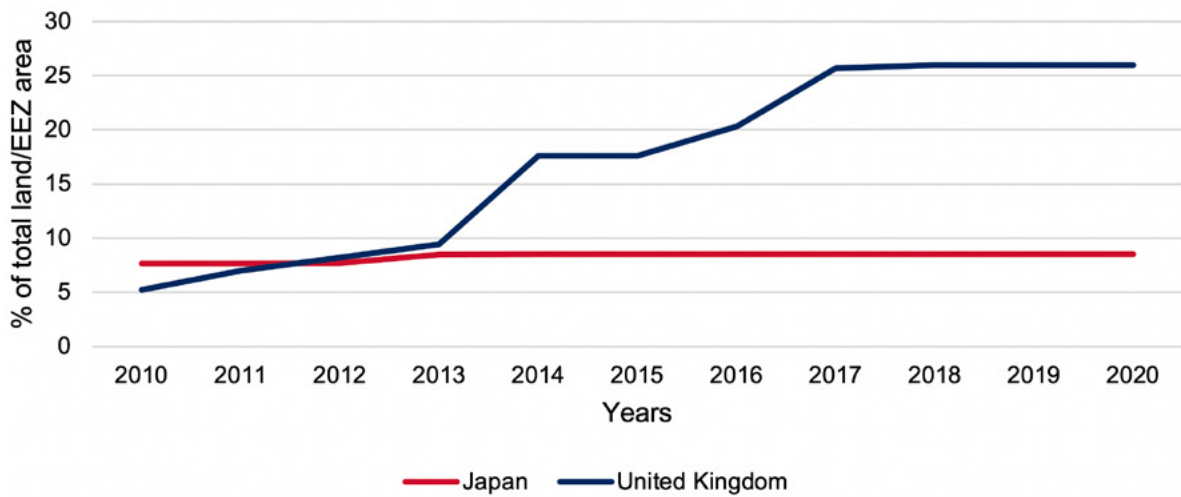
296 Convention on Biological Diversity- U.K. profile- <https://www.cbd.int/countries/profile/?country=jp>

18.3.5 Fisheries and marine

There is a positive trend towards a greater proportion of stocks fished sustainably and within safe biological limits in UK waters.²⁹⁷ The percentage of fish stocks of UK interest²⁹⁸ fished at or below levels capable of producing maximum sustainable yield (MSY) has increased from 7% in 1990 to 49% in 2017, and the percentage of stocks subject to quota management increased from 32% to 60%.²⁹⁹

Marine protected areas can help to address issues of overfishing, by conserving habitat and reducing the fishing pressure on stocks in specific locations. The percentage of EEZ designated as a marine protected area over a 10-year period for Japan and the UK is shown in the chart below. The UK has made a significant improvement in protecting marine areas within its EEZ.³⁰⁰ Japan and the UK have also signed up to similar multilateral level agreements as shown in table 48.

Chart 11 – UK and Japan Marine Protected Area % of total land/Economic Exclusive Zone (EEZ) area



Source: OECD, Environmental Policy Stringency Index

²⁹⁷ Sustainable fisheries: fish stocks harvested within safe limits: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/829198/23_Sustainable_fisheries_2019_rev.pdf

²⁹⁸ (including Nephrops)

²⁹⁹ Sustainable fisheries: fish stocks harvested within safe limits: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/829198/23_Sustainable_fisheries_2019_rev.pdf

³⁰⁰ OECD: <https://stats.oecd.org/Index.aspx?DataSetCode=EPS>

Table 48 - The UK's international agreements to protect or improve the environment³⁰¹

MEA Fisheries Agreements	Objective/Purpose	UK	Japan
1946 International Convention for the Regulation of Whaling	To conserve and protect endangered species of whales and ensure whaling is properly regulated.	Ratified	Not ratified (withdrew in 2019)
1978 Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries (NAFO)	To contribute through consultation and cooperation to the optimum utilization, rational management and conservation of the fishery resources of its area of competence, and to ensure the long term conservation and sustainable use of the fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources are found.	Ratified	Ratified
1993 Agreement for the establishment of the Indian Ocean Tuna Commission (IOTC)	Responsible for the management of tuna and tuna-like species in the Indian Ocean	Ratified	Ratified
1993 Agreement to promote compliance with international conservation and management measures by fishing vessels on the high seas	To improve the regulation of fishing vessels on the high seas by strengthening 'flag-state responsibility'.	Ratified	Ratified
1994 Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (CCBSP)	To establish an international regime for conservation, management, and optimum utilization of pollock resources in the Convention Area;	Ratified	Ratified
2000 Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	To restore and maintain the pollock resources in the Bering Sea at levels which will permit their maximum sustainable yield.	Ratified	Ratified
2001 Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean	To ensure the long-term conservation and sustainable use of the fishery resources in the South East Atlantic Ocean.	Ratified	Accession
2004 Convention for the strengthening of the Inter-American Tropical Tuna Commission established by the 1949 Convention between the United States of America and the Republic of Costa Rica (Antigua Convention)	To ensure the long-term conservation and sustainable use of the fish stocks covered by the Convention.	Ratified	Ratified
2006 Southern Indian Ocean Fisheries Agreement (SIOFA)	To ensure the long term conservation and sustainable use of the fishery resources in the area through cooperation among the Contracting Parties, and to promote the sustainable development of fisheries in the Area, taking into account the needs of developing States bordering the Area that are Contracting Parties to this Agreement, and in particular the least developed among them and small-island developing States.	Ratified	Ratified
2009 Convention on the Conservation and Management of High Seas Fisheries Resources in the Southern Pacific Ocean (SPRFMO)	To cooperate in addressing the gap that existed in the international conservation and management of non-highly migratory fisheries and protection of biodiversity in the marine environment in high seas areas of the South Pacific Ocean.	Regional Ratified	Not a participant

³⁰¹ A Green Future: Our 25 Year Plan to Improve the Environment: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/678681/25-env-plan-annex3.pdf

19. Annex I: Impact on developing countries

19.1 Methodology

Preference erosion refers to a reduction in the competitive advantage of exporting countries, which already benefit from preferential rates, as a result of the UK-Japan CEPA. Several indicators have been used to determine whether trade diversion as a result of preference erosion may occur from tariff reductions between the UK and Japan; specifically, products exported from Japan to the world which exceed \$10 million, products with a positive UKGT rate and products in which Japan has a revealed comparative advantage.³⁰²

Sensitive products at risk of preference erosion are identified where trade to the UK is above £500,000 at HS8 and above £1.0 million at HS6; and the preference receiving country's reliance on the UK market for its exports is above 10%.³⁰³ Only tariffs which are greater than 2% in the UK's MFN are included.

Products which meet the above threshold criteria are highlighted as potentially at risk of trade diversion as a result of an agreement which proposes to liberalise trade in these product lines.

19.2 Results

The detailed results from this analysis are presented in table 49 below. Table 49 outlines products which have been identified as being at potential risk of trade diversion from developing country producers under a UK-Japan FTA.

For some products, such as 'prepared or preserved fish' and 'fermented beverages', there is not considered to be a competitive threat as the products exported by Japan and the identified developing countries are likely to differ. Whilst the level of reliance on the UK market for the other products outlined below is significant, the exporting countries are broadly competitive and have relatively diversified economies.

Therefore, on balance, it is not likely the UK-Japan CEPA will have major implications on trade flows between the UK and developing countries.

³⁰² Calculated using TradeMap data of Revealed Comparative Advantage at HS4

³⁰³ Reliance on the UK market is where exports from a developing country to the UK as a share of total exports exceeds 10%

Table 49 - Products identified as being at potential risk of trade diversion from developing country producers under a UK-Japan CEPA

HS6 code and product description	Japanese exports to World, 2017-2019 average (£ million)	UKGT Rate	Developing country at risk	Developing country exports to the UK, 2016-2018 average (£ million)	Developing country exports as a share of total exports to the UK, 2016-2018 average
160420: Prepared or preserved fish	89.4	20%	Mauritius	3	39%
220600: Fermented beverages	155.6	6.40 GBP/hl	Jamaica	2	84%
540792: Woven fabrics of yarn	45.9	GSP – 6.40% GSP+ – 0% MFN – 8%	India	4	20%
			Pakistan	0.9	84%
560819: Knotted netting of twine	45.0	GSP – 6.40% GSP+ – 0% MFN – 8%	Sri Lanka	4	35%
392190 and 392062: Plates, sheets, film, foil and strip	906.3	GSP+ – 0% MFN – 6%	South Africa	2	13%
	848.5		Pakistan	2	43%
870333: Motor cars and other motor vehicles	2876.3	MFN – 10%	South Africa	261	29%
848310: Cranks and crank shafts	880.8	GSP – 0% MFN – 4%	India	29	11%
843120: Parts of fork-lift trucks	209.1	GSP – 0% MFN – 4%	Sri Lanka	4	12%
			Vietnam	2	11%

19.3 Limitations

The aim of this analysis is to provide an indication of whether the market access agreed as part of a UK-Japan CEPA is likely to impact negatively on the trade flows of developing countries that receive preferential market access to the UK. This static analysis complements the CGE modelling to provide a more disaggregated view of the potential impacts on preferential access as a result of the agreement.

However, there are limitations with this analysis. Only static competitiveness threats are considered rather than dynamic considerations of emerging industry and trade expansion across developing country partners. It is not possible to fully predict the extent to which a change in relative tariffs faced by the developing country and by Japan would lead importing firms in the UK to switch from suppliers in one country to another. The presence of globally competitive producers in the FTA Partner country is one factor, however using Revealed Comparative Advantage may be an imperfect measure of the FTA Partner's competitiveness in a certain sector. In some cases, where preferential access is not being used, developing countries are already more competitive than other producers. Other factors that shape how the market will respond include price elasticity, the availability of substitutes, the transaction costs involved in changing suppliers. These are not considered in this static analysis. Additionally, the analysis does not assess the impact on trade flows of developing countries receiving preferential market access to Japan.

20 Annex J: Note on corrections

The following corrections were made on the 26th February 2021 following the first publication of the Impact Assessment on the 23rd October 2020:

- Page 10: The figure for the long term annual tariff reductions on UK exports has been corrected from £137.1 million to £34.9 million. The figure for the long term annual tariff reductions on UK imports has been corrected from £34.9 million to £137.1 million. In the previously published version of the Impact Assessment, the figure for long term annual tariff reductions on UK exports was correctly stated 3 times, and the figure for long term annual tariff reductions on UK imports was correctly stated 5 times.

It has been clarified that the estimated £44.7 million long term annual tariff reductions refers to UK imported intermediate goods.

- Page 31: In Table 9, the PSR lines have been corrected from 52 to 74.

There has been no change in methodology. These changes do not result in any other figure changes elsewhere in this publication.

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