



Expert Witness Evidence from
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Professor Winters has advised, *inter alia*, various UK government departments, the OECD, the Commonwealth Secretariat, the European Commission, the European Parliament, UNCTAD, the WTO, and the Inter-American Development Bank. He was made a Companion of the Most Honourable Order of the Bath in 2012.

Professor Winters is a leading specialist on the empirical and policy analysis of international trade and has recently also worked on migration, the brain drain and economic growth. He has published over two hundred and forty articles and chapters and authored or edited forty books in areas such as regional trading arrangements, non-tariff barriers, European integration, transition economies' trade, international labour migration, agricultural protection, trade and poverty, and the world trading system. He has also published on small economies, global warming, pricing behaviour and econometrics.

¹ I wish to recognise excellent and invaluable assistance from Julia Magntorn Garrett, Research Officer, UK Trade Policy Observatory.

Summary

1. This evidence considers the extent to which, under the Protocol on Ireland/Northern Ireland, Northern Ireland is subject to the tariffs and other regulations of commerce of the European Union rather than those of the United Kingdom. I interpret this as asking what proportion of Northern Ireland's imports, including those from Great Britain, will pay tariffs defined by the EU rather than by the UK.
2. **It concludes that about 75% of Northern Ireland's imports of goods would be subject to EU tariffs on their arrival in the region**, despite the government's assertion in the Protocol on Ireland/Northern Ireland that Northern Ireland remains within the UK customs territory.
3. The evidence proceeds by separating Northern Irish imports into those from the EU excluding the UK but including the Republic of Ireland (25% of the total in recent years) from those from Great Britain (63%) and from the rest of the world (12%). Under the Protocol, imports from the EU are all subject to the Union Customs Code. Among those from elsewhere, the Protocol requires that those deemed 'at risk of moving to the [European] Union' should be subject to the tariffs of the EU rather than those of the UK. Being 'at risk' is imputed to any good subject to 'commercial processing in Northern Ireland', as well as to other goods depending, inter alia, on the nature of the good and the incentive to move them through Northern Ireland to the Union. I interpret the latter as relating mainly to the difference between the tariff that the good would pay if were imported directly into the Union and what it would pay if it entered Northern Ireland first.
4. I proceed by breaking the imports from the rest of the world and from Great Britain into what economists refer to intermediate (which are prima facie subject to further commercial processing) and the remainder. All of the former are subject to EU tariffs, while I calculate the share of the latter that may be subject to EU tariffs according to the difference between the EU and the UK tariffs and the ease of transferring the product to the Union, which I relate to the value/weight ratio of the good
5. Imports from the rest of the world into the ports of Northern Ireland are well documented. About 75% of them are classified by the United Nations as intermediate goods and hence face EU tariffs, while of the remaining 25%, a little over a quarter are likely to face EU tariffs. Thus about 82% of Northern Ireland's imports from the rest of the world are subject to EU tariffs, accounting for about 10% of the region's total imports.
6. Imports from Great Britain into Northern Ireland are very poorly documented, because until now they have been counted as internal UK trade like, say, trade between Surrey and Sussex. I have to approximate the flows and much of parts 3 and 4 of the paper discuss how this may be done. A variety of sources suggest similar figures, however, and lead me to conclude that about 40% of this trade flow is of intermediate goods and that of the remaining 60% about 40% would face EU tariffs. Thus about 64% of imports from Great Britain would face EU tariffs and, recalling that the GB→NI flow accounts for about 63% of Northern Ireland's total imports, this implies that 40% of total imports face EU tariffs through this route.

7. Summing the contributions to Northern Ireland's imports from the EU, the rest of the world and Great Britain suggests that around 75% of all Northern Irish imports will pay the EU tariff on entering the province.
8. Following this conclusion, I also document the fact that imports of all goods subject to EU trade defence instruments have to pay those duties on entry to Northern Ireland and my view that over time the share of the EU in Northern Ireland's imports is likely to increase. Finally, I note that while goods that are proved to have been sold to final buyers in Northern Ireland can have any EU tariff they have paid rebated, claiming those rebates is likely to be difficult for the private sector and hence rebates are unlikely to refund much tariff revenue.
9. The calculations described in this evidence are based on very approximate data and a series of, generally, untested assumptions. However, the assumptions have been made explicit and I believe that they are perfectly reasonable. I cannot put formal confidence intervals around my estimates, but at an informal level it would be surprising on the basis of this work if the true proportion of Northern Irish imports that paid the EU tariff fell outside the range 65%-85%.

1. Preliminaries

1.1. This evidence considers the extent to which, under the Protocol on Ireland/Northern Ireland, Northern Ireland is subject to the tariffs and other regulations of commerce of the European Union rather than those of the United Kingdom. I interpret this as asking what proportion of Northern Ireland's imports, including those from Great Britain, will pay tariffs defined by the EU rather than by the UK. The exercise is one of measurement, not one of assessing whether the amount of trade that is so subject to EU tariffs and other regulations amounts to 'a substantial part'.

1.2. Article 55 of the Taxation (Cross-border Trade) Act 2018 states that

(1) *It shall be unlawful for Her Majesty's Government to enter into arrangements under which Northern Ireland forms part of a separate customs territory to Great Britain.*

(2) *For the purposes of this section "customs territory" shall have the same meaning as in the General Agreement on Tariffs and Trade 1947 as amended.*

1.3. A customs territory is defined by Article XXIV paragraph 2 of the GATT, which states that

For the purposes of this Agreement a customs territory shall be understood to mean any territory with respect to which separate tariffs or other regulations of commerce are maintained for a substantial part of the trade of such territory with other territories.

1.4. Article 5 paragraphs 1 and 2 of the Protocol state that

1. *No customs duties shall be payable for a good brought into Northern Ireland from another part of the United Kingdom by direct transport, notwithstanding paragraph 3, unless that good is at risk of subsequently being moved into the Union, whether by itself or forming part of another good following processing.*

The customs duties in respect of a good being moved by direct transport to Northern Ireland other than from the Union or from another part of the United Kingdom shall be the duties applicable in the United Kingdom, notwithstanding paragraph 3, unless that good is at risk of subsequently being moved into the Union, whether by itself or forming part of another good following processing.

.....

2. *For the purposes of the first and second subparagraph of paragraph 1, a good brought into Northern Ireland from outside the Union shall be considered to be at risk of subsequently being moved into the Union unless it is established that that good:*

- (a) will not be subject to commercial processing in Northern Ireland; and*
- (b) fulfils the criteria established by the Joint Committee in accordance with the fourth subparagraph of this paragraph.*

For the purposes of this paragraph, 'processing' means any alteration of goods, any transformation of goods in any way, or any subjecting of goods to operations other than for the purpose of preserving them in good condition or for adding or affixing marks, labels, seals or any other documentation to ensure compliance with any specific requirements.

Before the end of the transition period, the Joint Committee shall by decision establish the conditions under which processing is to be considered not to fall within point (a) of the first subparagraph, taking into account in particular the nature, scale and result of the processing.

Before the end of the transition period, the Joint Committee shall by decision establish the criteria for considering that a good brought into Northern Ireland from outside the Union is not at risk of subsequently being moved into the Union. The Joint Committee shall take into consideration, inter alia:

- (a) the final destination and use of the good;*
- (b) the nature and value of the good;*
- (c) the nature of the movement; and*
- (d) the incentive for undeclared onward-movement into the Union, in particular incentives resulting from the duties payable pursuant to paragraph 1.*

.....

- 1.5. The effect of these provisions, together with Articles 5(3) and (4), as I understand them and as explained to me by the Petitioner's legal advisers, is that
- i. unless goods imported into Northern Ireland from Great Britain or from anywhere else outside the EU are shown not to be at risk of subsequently being moved into the EU then EU tariffs and the provisions of the EU Uniform Customs Code ("UCC") will apply;
 - ii. subject to any qualification set out in a Joint Committee decision, any goods imported into Northern Ireland from Great Britain or from anywhere else outside the EU that cannot be shown not to be subject to commercial processing in Northern Ireland will be subject to EU tariffs and the UCC;
 - iii. any other goods imported into Northern Ireland from Great Britain or from anywhere else outside the EU that are deemed to be at significant risk of subsequent movement into the EU will be subject to EU tariffs and the UCC; and
 - iv. in any event, any goods subject to EU trade remedies (anti-dumping duty, countervailing measures or safeguard measures) will be subject to the duty imposed by those remedies

- 1.6. In relation to goods imported into Northern Ireland from Great Britain or from anywhere else outside the EU that are subject to commercial processing in Northern Ireland, I note that the Joint Committee has power to exclude goods falling within that category from EU tariffs and the application of the UCC “taking into account particularly the nature, scale and result of the processing”. That is, on the basis of the users of the goods, not on the characteristics of the goods themselves, making exceptions firm-specific.
- 1.7. It seems to me likely that the EU will wish to be cautious about using its exclusionary power, given the risks and perceived risks to the EU of allowing final goods to be produced in Northern Ireland out of intermediate goods that have not paid EU tariffs where those goods can then freely be sold into the rest of the EU. I therefore assume that exclusions would be de minimis and that all or almost all goods of a sort that are generally used as inputs into the production of other goods imported by Northern Ireland from a non-EU country (Great Britain included) would face EU customs duties upon entry in Northern Ireland. Economists refer to goods that are used as inputs into the production of other goods as intermediate goods, or intermediates, and that is the terminology I will use here.
- 1.8. Element (iii) in the list above pertains to non-intermediates – i.e. goods that prima facie will not be sold to firms for further commercial processing. I will refer to these as ‘finished goods’ and assess the risk of their being moved into the Union in terms of the criteria (a)-(d) in subparagraph 4 above.
- 1.9. The elements of the Protocol relevant to the question at hand concern trade in goods. Hence, I consider imports only of goods and define ‘commercial processing’ as only processing by industries producing physical goods rather than services. In addition, this evidence will not consider the legal framework under which customs are administered, or what other types of “regulation of commerce” apply to them, but only whether or not goods have to pay EU rates of duty. Thus, I will express the outcome in terms of the proportion of Northern Ireland’s imports of goods that is subject to EU tariffs.
- 1.10. There will be tariff headings for which the EU and UK tariffs on a good presently happen to be equal – around 29% of the total number on current plans.² We will not define these as automatically paying the UK tariff, but classify them according to the criteria laid out above, recognising that at any point EU and UK tariffs could become unequal.
- 1.11. The exercise will be conducted on historical data, but brief consideration will be made of likely future developments in the value of Northern Ireland’s trade.
- 1.12. The data I use are described in a data Appendix at the end of the paper.

² Based on EU’s Most Favoured Nation tariffs and the UK’s No Deal tariff schedule, published 8th October 2019

2. The Geography of Northern Ireland's External Trade³

- 2.1. To identify the share of imports potentially subject to EU tariffs, I divide imports into three components, one of which is further subdivided:
- Northern Ireland's trade with Great Britain
 - Northern Ireland's trade with the rest of the EU, of which I will pay particular attention to that with the Republic of Ireland, and
 - Northern Ireland's trade with non-EU countries.
- 2.2. Since the issue of customs territories relates exclusively to trade in goods, the data presented below focus only on Northern Ireland's goods trade.
- 2.3. Trade statistics are predominantly available at a national basis, and data availability at a sub-national level is considerably more limited. While some data exist for all three components, they come from different data sources, with differing methodologies, and are available at varying levels of detail. This inevitably limits the extent to which comparisons can be made. Further, some of the data sources are still considered 'experimental', meaning that they are still undergoing evaluation and could be subject to revisions.
- 2.4. Table 1 gives Northern Ireland's trade with Great Britain, Ireland, the rest of the EU and the rest of the world. The table is taken from the UK Government's EU (Withdrawal Agreement) Bill Impact Assessment⁴, and is based on data from the Northern Ireland Broad Economy Sales & Exports Statistics (BESES)⁵. It refers to the most recent year available.
- 2.5. Great Britain is by far the largest trading partner of Northern Ireland, accounting for 63% of Northern Ireland's imports of goods in 2017. Imports from the EU comprised 25% of the total and non-EU countries accounted for 12%.

³ Following the Northern Ireland Statistical and Research Agency (NISRA), we term Northern Ireland's trade with Great Britain and all foreign countries as its 'external' trade.

⁴ Page 48, table 2. Document available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/841245/EU_Withdrawal_Agreement_Bill_Impact_Assessment.pdf

⁵ <https://www.nisra.gov.uk/statistics/business-statistics/broad-economy-sales-and-exports-statistics>

Table 1: Value of Northern Ireland trade in goods by trading partner, 2017

	‘Imports’ (£bn)	Share of total (%)	Liability to duties
Great Britain	10.5	63	According to the Protocol
Ireland	2.3	13	Subject to EU duties as levied between member states – i.e. zero under all circumstances
Rest of the EU	2.0	12	
Rest of the World	2.0	12	According to the Protocol

2.6. Imports from the EU (and hence from Ireland) are governed by EU tariff regulations, which insist on zero tariffs on trade between EU Member States under all circumstances. The Protocol is quite clear that this will not be violated. Hence I do not need to delve any further into the nature of this trade at this stage, although I will revisit it briefly when I come to consider how trade might evolve in future.

2.7. Trade with the Rest of the World and with Great Britain, on the other hand, require more detailed exploration. We will start with intermediate goods and then move to final goods.

3. Intermediate Goods – i.e. those requiring further processing

3.1 Imports from the Rest of the World

3.1.1. We can do this quite precisely. The United Nations has defined a trade classification by Broad Economic Categories (BEC).⁶ This is a widely used international product classification, which categorises goods into broad categories based on detailed commodity classifications such as the Harmonised System (HS) and the Standard International Trade Classification (SITC). Most importantly, the BEC classifies goods by three main end-use categories: intermediate goods, consumption goods and capital goods. In addition, it has separate categories for motor spirits, passenger motor cars and a few small unclassified items, which are used extensively by both industry and households, and can therefore not easily be separated into intermediate or consumption goods. We treat all goods except for intermediates as finished goods, which I will analyse in section 4.

3.1.2. There is an ideal data source for Northern Ireland’s imports from non-EU countries: HMRC’s Overseas Trade Statistics (OTS).⁷ This is a highly detailed

⁶ <https://unstats.un.org/unsd/trade/classifications/bec.asp>

⁷ <https://www.uktradeinfo.com/Statistics/OverseasTradeStatistics/Pages/OTS.aspx>

dataset, with export and import data for over 9,000 different products defined at the 8-digit level of the Combined Nomenclature (CN) trade classification⁸. The dataset contains information on the UK's non-EU imports by port of entry ('Place of Clearance'), although in rare cases the port may be an approved inland location, or even a port different from the port at which the good actually enters the UK.⁹

3.1.3. HMRC's data by port allows us to isolate non-EU trade coming in solely through Northern Irish ports. For the years 2016-18 HMRC reports trade for five ports in Northern Ireland: Belfast, Belfast Airport, Belfast City Airport, Londonderry and Warrenpoint. Data from Northern Ireland Statistics and Research Agency (NISRA) confirm that these ports indeed constitute the main ports in Northern Ireland, with close to 88% of inward goods freight (in tonnes) coming through Belfast, Londonderry or Warrenpoint in 2018.¹⁰

3.1.4. The one notable omission from the HMRC data is the port of Larne, which accounted for 9% of Northern Ireland's total inward freight (in tonnes) in 2018.¹¹ However, the port of Larne appears to be predominantly directed towards trade with Great Britain. The port runs ferries solely between Larne and Cairnryan in Scotland, and is the only approved port of entry for livestock from Great Britain.¹² It is not, however, an approved Border Inspection Post for animals or animal products from outside the EU. Any animal products from outside the EU therefore need to be imported through another Northern Irish port.¹³ The omission of Larne in HMRC's data is not important, therefore, because Larne does not appear to receive any significant volumes of non-EU imports.

3.1.5. Data for the Northern Irish ports have been collected for years 2016-18 at the most detailed (CN 8-digit level) and converted from CN to BEC using conversion tables created by Eurostat.¹⁴

⁸ https://ec.europa.eu/taxation_customs/business/calculation-customs-duties/what-is-common-customs-tariff/combined-nomenclature_en

⁹ HMRC estimates that this may affect around 2-3% of trade overall. For more, see: <https://www.uktradeinfo.com/Statistics/OverseasTradeStatistics/AboutOverseastradeStatistics/UnderstandingOTSDData/Pages/UnderstandingOTSDData.aspx>

¹⁰ See NISRA's 'Northern Ireland Ports Traffic 2018', 26 Sept 2019. <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NI-Ports-Traffic-2018.pdf>

¹¹ Ibid.

¹² <https://www.daera-ni.gov.uk/articles/introduction-importing-animals-and-animal-products>

¹³ <https://www.daera-ni.gov.uk/articles/border-inspection-posts-bips>

¹⁴ Available at:

https://ec.europa.eu/eurostat/ramon/other_documents/index.cfm?TargetUrl=DSP_OTHER_DOC_DTL#cn, accessed 24/10/2019

Table 2: Imports into Northern Irish ports from Non-EU countries, by end-use

Share of total imports falling into each group (%)

	2018	2017	2016
Intermediate	76.5%	73.8%	72.5%
Consumption	14.5%	15.8%	17.9%
Capital	8.9%	10.2%	9.3%
Not categorised*	0.0%	0.2%	0.3%

* This includes imports of motor spirit, motor cars and other products which are not categorised in the BEC classification

Source: Data from HMRC Overseas Trade Statistics database, downloaded at the CN 8-digit level and converted into UN's Broad Economic Categories (BEC). The ports for which data exists for these years are Belfast, Belfast Airport, Belfast City Airport, Londonderry, and Warrenpoint.

3.1.6. Table 2 gives Northern Ireland's imports from Non-EU countries by end-use. As can be seen, a very large proportion, over 70%, of Northern Ireland's non-EU imports is comprised of intermediates. This includes, for example,

- parts of seats used for aircraft (CN 94019010), where Northern Ireland sourced close to £74 million from non-EU countries in 2016, predominantly the US (74%) and China (24%);
- technically specified natural rubber (CN 40012200), accounting for over £14 million worth of imports, mostly from Thailand (39.5%) and Indonesia (38.3%); and
- unwrought aluminium alloys in the form of slabs or billets (CN 76012020), where Northern Ireland imported over £10 million from the United Arab Emirates.

3.1.7. As per Article 5 of the Protocol, such imports would almost inevitably face EU tariffs upon arrival in Northern Ireland.

3.1.8. There is another dataset that gives Northern Ireland's imports from the Rest of the World – HMRC's Regional Trade Statistics – but I do not use it here. It relies on a UK-wide survey of companies, allocating to Northern Ireland all imports by firms whose only UK location is in Northern Ireland and allocating imports by multi-regional firms in proportion to their regional employment. Its disadvantages are (a) that it is available only at a 2-digit level of the Standard International Trade Classification (SITC), which identifies only 98 product groups, and (b) that customs procedures are actually applied at the port of entry

to what the customs officer can (in principle) directly observe. This is exactly what the OTS data give us.

3.2 Imports from Great Britain

Assessing the inflow of parts that may be subject to further processing from Great Britain (GB) is much more complex, because, as part of the domestic circulation of goods, trade between GB and Northern Ireland (NI) is not subject to any statistical monitoring. This section, therefore, has to adopt a number of approximations and estimates to infer what the flow may be.

3.2.1 Proxy countries

3.2.1.1. One approach to estimating the pattern of GB→NI trade is to look at the patterns of UK trade with countries that might be thought to be reasonably similar to NI. There is evidence that the share of intermediate goods in total trade is inversely related to distance, so one criterion is proximity.¹⁵ A second criterion is income level. We consider two sets of proxies:

3.2.1.2. The Republic of Ireland (RoI), which is contiguous and closely integrated with NI and in several respects economically similar to NI. Moreover, the quickest route from most of GB to the island of Ireland is Holyhead-Dublin and so one may presume that some part of UK exports to Ro I am actually destined for NI.¹⁶ On the other hand, there will clearly be a significant trade between NI and RoI, which is included within the UK statistics. NI accounted for 2.17% of UK Gross Domestic Product in 2015¹⁷, however, so it will not be a dominant component.

3.2.1.3. The second are EU economies – first in aggregate and then the Netherlands and Sweden separately. The Netherlands is close and has a

¹⁵ Baldwin and Taglioni (2011) find that distance has a negative impact on intermediate flows, more so than for non-intermediate goods trade. Bergstrand and Egger (2010) similarly find that intermediates respond more negatively to increased distance than final goods trade does. Finally, Johnson and Noguera (2012) find that the average distance from source to destination is lower for gross trade than for trade in value added, consistent with fragmentation serving to localise trade.

Baldwin and Taglioni, (2011), “Gravity Chains Estimating Bilateral Trade Flows when Parts and Components Trade is Important” European Central Bank Working Paper Series No 1401

Bergstrand and Egger (2010), “A general equilibrium theory for estimating gravity equations of bilateral FDI, final goods trade, and intermediate trade flows”

Johnson and Noguera, (2012), “Proximity and Production Fragmentation”, American Economic Review: Papers & Proceedings 2012, 102(3): 407–411.

¹⁶ See NISRA ‘Overview of NI trade with GB’, October 2019, slide 21

¹⁷ NISRA (2018) for NI; ONS Gross Domestic Product at market prices for UK

(<https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/ybha/edp2>)

significant agriculture sector, as does NI, and Sweden illustrates the distance effect.

- 3.2.1.4. For each proxy I repeat the exercise above conducted on imports into NI ports from non-EU sources.

Ireland

- 3.2.1.5. Table 3 reports the composition of UK exports to RoI.

Table 3 UK exports to the Republic of Ireland, by end-use

UK exports to Ireland (share)			
	2018	2017	2016
Intermediate	41.5%	40.7%	35.7%
Consumption	39.7%	40.7%	42.8%
Capital	13.6%	13.0%	13.9%
Not categorised*	5.2%	5.7%	7.6%

* This includes imports of motor spirit, motor cars and other trade values not classified according to the BEC classification

Source: data from Eurostat, downloaded from Comext at the CN 8-digit level. Converted into UN's Broad Economic Categories (BEC)

- 3.2.1.6. Intermediates are a far smaller share here than in NI imports from non-EU sources, probably reflecting the close connections between the UK and RoI in terms of consumption habits and tastes. Nonetheless, at around 40%, the share of intermediates is sizable.

EU markets

- 3.2.1.7. Table 4 repeats the exercise for the EU, the Netherlands and Sweden. Intermediates are a larger share in exports to the EU than to the RoI. As noted above, there are reasons to believe that consumption flows are unusually large to Ireland, but these data reinforce the weight of evidence that intermediates are a major part of UK exports to its close neighbours. The forces underlying this will also apply in GB→NI trade, and so we should not be surprised to observe significant shares there also.

Table 4 UK exports to certain EU markets, by end-use

UK exports to EU markets 2016-18 average share

	EU	Netherlands	Sweden
Intermediate	51.8%	64.9%	51.3%
Consumption	25.3%	17.7%	21.6%
Capital	12.5%	9.1%	14.5%
Not categorised*	10.4%	8.3%	12.6%

* This includes imports of motor spirit, motor cars and other trade values not classified according to the BEC classification
Source: data from Eurostat, downloaded from Comext at the CN 8-digit level. Converted into UN's Broad Economic Categories (BEC)

3.2.2 Supply and Use tables for Northern Ireland

3.2.2.1. These are experimental data produced by the Northern Ireland Statistical and Research Agency (NISRA) describing the sources of goods and services in NI and the uses to which they are put.¹⁸ The supply comprises 'domestic' (i.e. NI) supply, imports and some valuation adjustments. Imports are disaggregated into those from the Republic (RoI), from GB and from all other countries (REU+RoW). The use tables then identify the uses of that supply, including intermediate use in NI (i.e. things purchased by other producing sectors – i.e. things that are processed), exports (to RoI, GB and REU+RoW) and all the elements of final demand in NI such as investment and consumption. Total supply and total demand are constructed to be equal. Data are published for 32 industries (sectors) and products, although more detailed data underlie them.

3.2.2.2. These data are ideal for identifying intermediate flows, but there are caveats. First, they are experimental statistics “still undergoing evaluation and are subject to revision. Given that these are the first such official economic statistics produced for NI, users should adopt a cautious approach on their use.” Second, while “intermediate consumption of products [which is] the value of products used-up or altered by the production process,” is the concept I seek, NISRA notes that “these estimates are currently based on UK purchasing patterns.” This means that the product-composition of each industry’s purchases is set equal to the composition derived (from real data) in the UK-wide Supply and Use Tables. Thus the reported values are

¹⁸ <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NI-Economics-Accounts-Project-Methodology-guide-2014-2015.pdf>

only approximations to NI patterns. On the other hand, there are no obvious reasons to expect systematic biases in one direction or another.

- 3.2.2.3. One further caveat should be also noted. Our principal interest is in the commodity composition of NI's imports. This is not observed directly but is inferred. NISRA write (p.11) that "Once all large imbalances are confronted [to eliminate errors arising because data are drawn from several sources] implied imports and exports are calculated. Implied imports arise where demand is more than supply. Implied exports arise where there is an excess of supply over demand. As there is no data available on imports from GB these imbalances were checked to see if it was reasonable to assume that the imbalances were created by trade with GB."
- 3.2.2.4. These paragraphs leave a clear impression of the fragility of the data, but one should not conclude from this that we know nothing, or that anyone can assert anything with impunity. There is clearly information content in the statistics (and they *were* officially published) and they may reasonably be used to draw broad-brush conclusions. In the circumstances, I would think it right for those who wish to support views that are inconsistent with the statistics to explain why it is not safe to rely on them.

Commercial processing of imports from Great Britain in Northern Ireland

- 3.2.2.5. The use table tells us how much of the total supply of a product goes for further processing. If one were to assume that the same share of intermediate demand applied to all sources of supply, one could calculate the share of imports of goods from GB that went for further processing and hence could be presumed to be intermediate goods. Since I am interested only in goods trade and 'processing' implies transformation, not the mere use of the purchased good, I restrict my measure to only intermediate purchases by goods-producing sectors (of which there are 15 in the tables). On these assumptions the share of GB→NI trade that incurred EU tariff rates under Article 5.2.a. would be 21%.
- 3.2.2.6. A reasonable refinement of this approach would be to observe that it is very unlikely that goods exported from GB to NI would be returned as exports to GB without any further processing, and unlikely that they would be exported directly to REU+RoW (since such exports would be much more likely to leave directly for REU+RoW from GB.) Excluding these two potential uses of imports, on the grounds that they would be met by supplies other than those imported from GB, the share of NI's imports from GB going to intermediate use would rise to 27%. (Note that exports to RoI remain a highly plausible use of imports from GB.)
- 3.2.2.7. These data are informative but not definitive for the purposes of defining a customs territory. The use table reports use of products by industries, and, while national accounts statisticians aim to identify what

actually flows from one sector to another, customs procedures work on the basis of products, and if a product *could* flow into a goods industry, all imports of it could be viewed as at risk of doing so, even if ultimately they flow to, say, a service sector rather than a goods sector. Thus while a duty rebate may be feasible when a good is shown to have been absorbed by a service industry in NI, the Protocol suggests that it will have to pay the EU tariff initially. And, as I note below, the effort and expense of proving the ultimate destination may well preclude claiming a refund even when it is legitimate to do so.

- 3.2.2.8. For this reason, I believe that the Supply and use Tables significantly understate the proportion of GB→NI trade that will face EU tariffs. Moreover, the assumption that the uses of supplies of different goods are the same regardless of the origins of those supplies is extreme. It is easily conceivable that imports from GB to NI are used much more intensively for further processing by NI's goods producing sectors than are other supplies of the same goods.

Using data on imports from Great Britain directly

- 3.2.2.9. The supply and use tables estimate imports from GB directly and so one can ask whether one could infer the share of intermediates within them. The answer is 'yes', although with two significant caveats. First, as noted above, imports are not observed directly, but are inferred. Second, the statistics are highly aggregated – only 15 goods products/sectors – and so any inferences will be rather coarse.
- 3.2.2.10. The results reported in section 3.2.1 above on the shares of intermediates in UK exports to RoI and selected EU markets depended wholly on the composition of the flows to those particular countries. However, the data on imports to NI from GB allow us to adjust them to reflect the broad composition of GB→NI trade. Thus for each of the 15 product classes in the Supply table, I calculate the share *of that aggregate* that falls into different end-use categories in each of the non-NI flows I have analysed. From these I can infer the intermediate (and other end-use) shares within each product class and aggregate them to get an overall figure.
- 3.2.2.11. Table 5 reports for each of the goods product classes in the Supply table, its share of total imports into NI from GB. Thus, for example, 0.5% of goods imports from GB are of agricultural goods, 21.4% of food products, etc. The next four columns report on the share of intermediates in UK exports of that product class to each of the markets listed. Thus, for example, 53.0% of UK exports of agriculture to the Netherlands are intermediate goods. We observe that the two largest imported product classes – Food and Equipment – are not particularly intermediate-heavy,

whereas the products in the middle of the table such as wood, coke, chemicals, rubber are largely comprised of intermediates. The figures at the foot of the table are the overall shares of intermediates in GB→NI trade using UK exports to the EU, the Netherlands, Sweden and Ireland respectively to define the product-specific intermediate share. The result is fairly robust across different proxy countries, and suggests that the most likely share of intermediates in GB→NI trade is about 40%.

3.2.3. An alternative source?

3.2.4.1. There is one other source of data on NI's imports from GB. Table 6 gives Northern Ireland's purchases from Great Britain by purchasing industry based on a survey of NI businesses.¹⁹ It does not record what products/services were purchased, but it gives some flavour of the GB→NI flow. Nor do the data collect information on total imports from GB, which means that the proportion of the total flow that is of intermediates is not available from this source.

3.2.4.2. Table 6 shows that wholesale and retail businesses accounted for £6.8 billion, 65%, of all goods purchased from businesses in Great Britain in 2017, followed by manufacturers of food, beverages and tobacco products (£507 million). In an earlier version the Overview referring to 2016 (published 27th September 2018), similar data were used to state that "Local 'High Street' businesses accounted for £7.7bn. (70%) of all goods purchased from GB businesses", which sounds close to claiming that 70% of GB→NI trade was of non-intermediate flows. This was incorrect because many of the subsequent sales by wholesalers are to other business, not to retail or individuals. The recent version corrects this mis-impression.

3.2.3.3. Table 7 gives the Northern Irish manufacturing industries most dependent on goods from Great Britain. It shows, for example, that 81% of all purchases by Northern Irish manufacturers of coke and refined petroleum products come from Great Britain and 60% of purchases by leather manufacturers.

¹⁹ Data from Northern Ireland Statistics and Research Agency, 'Overview of NI trade with GB' slide pack 23rd October 2019, available at https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/NISRA_Overview_of_NI_Trade_with_GB_2017_0.pdf, accessed 05/11/2019

Table 5 Share of Intermediates corrected for broad structure of GB→NI trade, 2016-18

		share in GB→NI, 2015	Share of Intermediates in UK exports of product class to (2016-18 average)			
			EU	Netherlands	Sweden	Ireland
Broad product classes from Supply and Use Tables						
A01	Agriculture	0.5%	57.4%	53.0%	79.5%	47.3%
A02&03	Forestry and fishing	0.3%	5.1%	7.1%	55.9%	26.7%
B	Mining and quarrying	4.0%	100.0%	100.0%	100.0%	100.0%
CA	Food products, beverages and tobacco	21.4%	13.2%	19.0%	7.0%	15.5%
CB	Textiles, wearing apparel and leather products	4.1%	14.0%	10.7%	16.4%	6.0%
CC	Wood and paper products and printing	6.0%	78.9%	89.0%	74.2%	69.0%
CD	Coke and refined petroleum products	6.8%	84.0%	85.4%	99.9%	81.6%
CE	Chemicals and chemical products	5.8%	77.4%	87.2%	77.0%	50.9%
CF	Basic pharmaceutical products and preparations	2.4%	30.8%	38.6%	21.7%	47.4%
CG	Rubber and plastic products	2.0%	77.4%	76.8%	76.7%	75.2%
CH	Basic metals and metal products	9.0%	91.0%	88.5%	96.9%	84.0%
CI	Computer, electronic and optical products	9.1%	17.3%	15.7%	19.1%	8.8%
CJK	Electrical equipment & Machinery and equipment not elsewhere classified	13.2%	42.1%	53.8%	40.8%	36.1%
CL	Transport equipment	7.8%	53.2%	31.5%	39.8%	28.1%
CM	Other manufacturing and repair	7.5%	13.5%	6.4%	10.4%	9.1%
	Inferred share of intermediates in goods from GB to NI		45.5%	46.9%	44.3%	39.2%

Table 6: Purchases of goods from Great Britain by Northern Irish businesses, 2017

Industry description	Value of purchases (£m)
Retail trade, except of motor vehicles and motorcycles	2,601
Wholesale trade, except of motor vehicles and motorcycles	2,351
Wholesale and retail trade and repair of motor vehicles and motorcycles	1,882
Manufacture of food, beverage and tobacco products	507
Civil engineering	311
Manufacture of other transport equipment	311
Electricity, gas, steam and air conditioning supply	280
Specialised construction activities	206
Manufacture of fabricated metal products, except machinery and equip.	200
Manufacture of machinery and equipment n.e.c.	193
Manufacture of motor vehicles, trailers and semi-trailers	176
Manufacture of rubber and plastic products	171
Land transport and transport via pipelines	148
Manufacture of computer, electronic and optical products	114
Manufacture of other non-metallic mineral products	88
Construction of buildings	79
Warehousing and support activities for transportation	60
Manufacture of paper and paper products	54
Manufacture of furniture	51
Computer programming, consultancy and related activities	40
Manufacture of basic pharmaceutical products and pharmaceutical preparations	38
Food and beverage service activities	35
Other manufacturing	32
Manufacture of chemicals and chemical products	30
Manufacture of textiles	29
Manufacture of wood and of products of wood and cork	25
Residential care activities	23
Rental and leasing activities	21
Manufacture of wearing apparel	19
Printing and reproduction of recorded media	17

Source: Northern Ireland Statistics and Research Agency, 'Overview of NI trade with GB' slide pack 23rd October 2019

Note: Values are subject to disclosure. No data are reported for live animals. Purchases may not equate to a full market transaction, some purchases may relate to a GB company transferring goods from a distribution centre in GB to a branch in NI. Also, while products have been purchased from GB, they may not originate in GB.

Table 7: Northern Irish Manufacturing Industries most dependent on purchases of goods from Great Britain (2017)

Industry Description	% of all purchases of goods sourced from GB
Manufacture of coke and refined petroleum products	81%
Manufacture of leather and related products	60%
Manufacture of basic metals	45%
Manufacture of rubber and plastic products	41%
Manufacture of motor vehicles, trailers and semi-trailers	39%
Manufacture of other transport equipment	37%
Manufacture of paper and paper products	35%
Manufacture of fabricated metal products, except machinery and equipment	33%
Other manufacturing	32%
Manufacture of wearing apparel	31%
Manufacture of computer, electronic and optical products	30%

Source: Northern Ireland Statistics and Research Agency, 'Overview of NI trade with GB' slide pack 23rd October 2019

Note: Values are subject to disclosure. No data is reported for live animals. Purchases may not equate to a full market transaction, some purchases may relate to a GB company transferring goods from a distribution centre in GB to a branch in NI. Also, while products have been purchased from GB, they may not originate in GB.

3.2.4 Overall assessment

Taken overall, the three exercises in this section suggest that the share of intermediates in GB→NI trade is around 40%. In this assessment I place a good deal of weight on the parallel between UK→RoI and GB→NI trade, and appeal to the other flows and the Supply and Use tables to suggest that the figure is unlikely to be much lower .

4. Final Demand

4.0.1 Final demand is the use of goods and services other than that by businesses for the sake of their production. The Protocol on Ireland/Northern Ireland defers decisions as to whether a good that is not for further processing is at risk of being moved to the Union to the Joint Committee, but it has set out four criteria which will be considered. The following analysis takes these as literally as possible. They are:

- a) the final destination and use of the good;
- b) the nature and value of the good;
- c) the nature of the movement; and
- d) the incentive for undeclared onward-movement into the Union, in particular incentives resulting from the duties payable pursuant to paragraph 1.

Criterion (a) seems somewhat superfluous in this discussion – the issue *is* goods moving to the Union. Intermediate goods have been discussed above and so this section concerns only the Joint Committee’s decisions on final goods. In terms of commodities these are products that are classified by the Broad Economic Categories (BEC) as consumer, investment or not classified.²⁰ We will make no distinction here between private and public expenditures on these goods.

Criterion (b) focusses attention on goods that might easily be moved covertly and on economically significant flows. We will translate these into having high value/weight ratios and large import flows respectively.

Criterion (c) also enters the risk calculus for transmission of goods to the Union. It arguably has two dimensions. The first depends on the port by which goods enter Northern Ireland. No Northern Irish port is far from the Republic – Belfast is approximately 90 km from Dundalk (the entry point into the Republic along the principal route) and Larne is approximately 120km. Londonderry and Warrenpoint, on the other hand, are very close to the border. However, the last pair accounted for only about 6% of imports from non-EU sources in 2018, so I do not treat them separately below. The second dimension is mode of transport. In most cases, movement on the island of Ireland is by road, but in some cases moving bulky goods by rail to a destination within Northern Ireland may be taken as evidence that the good is not moving to the Union.

Criterion (d) focusses firmly on the difference between EU and UK tariffs. For the EU, I assume the current EU most favoured nation (MFN) tariff; for the UK, while there has been no announcement about tariffs if the UK has a free trade agreement with the EU, my working assumption is that the UK will apply the MFN tariff announced on 8th October 2019.²¹

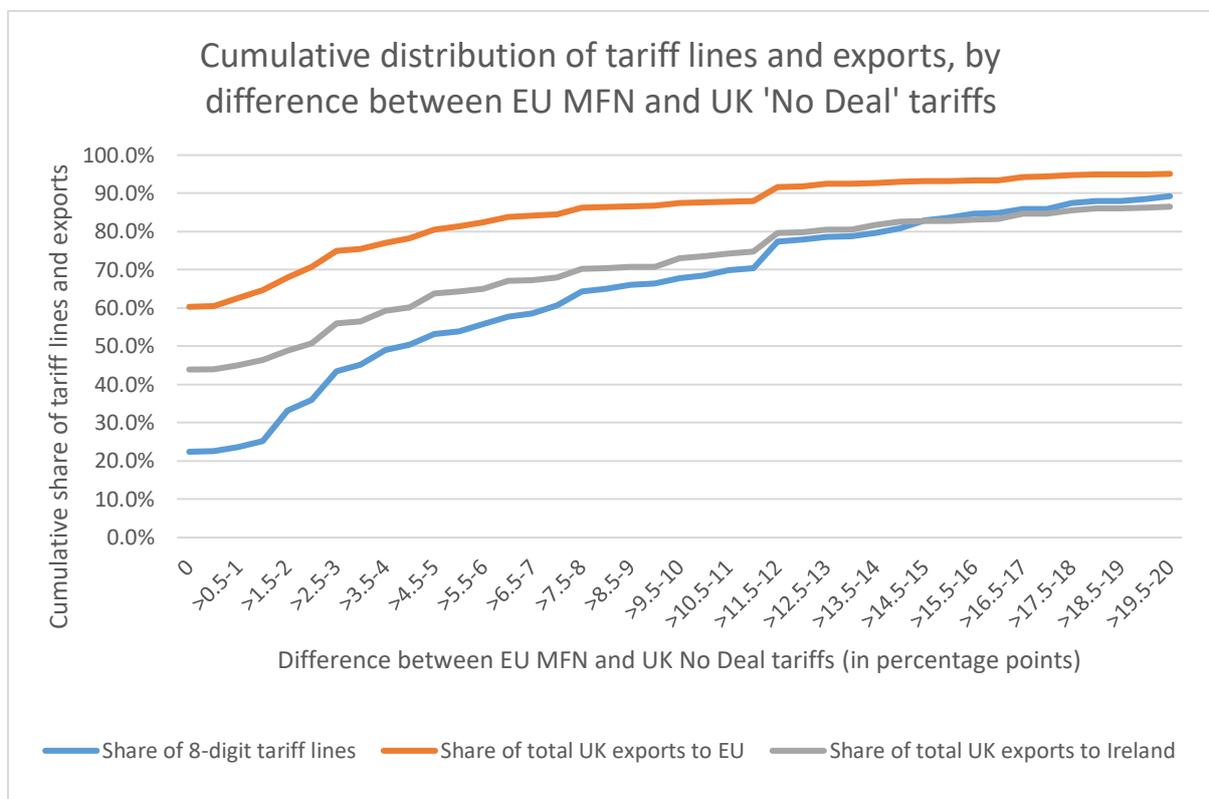
²⁰ ‘Not classified’ primarily covers motor vehicles and motor spirit, the treatment of which seems likely to parallel of consumer and investment goods. For the BEC, see <https://unstats.un.org/unsd/trade/classifications/bec.asp>

²¹ See <https://www.gov.uk/government/publications/temporary-rates-of-customs-duty-on-imports-after-eu-exit/mfn-and-tariff-quota-rates-of-customs-duty-on-imports-if-the-uk-leaves-the-eu-with-no-deal>

4.1 Tariff Differentials

4.1.1. For goods entering Northern Ireland (NI) from the rest of the world (i.e. non-EU countries), the differential that matters is that between the EU and UK MFN tariffs. Figure 1 plots these differences, showing the percentages of finished-goods tariff lines for which the tariff differential is less than or equal to the value shown on the horizontal axis, and, to illustrate their relative importance, the associated percentages of UK exports to the EU or to the Republic of Ireland (RoI) in those headings in 2017. Thus, 22% of headings have no difference in tariffs, and these account for about 44% of UK exports of final goods to Ireland and 60% of UK exports such to the EU. 68% of headings have differences equal to or less than 10 percentage points, covering 73% and 88% of exports respectively.

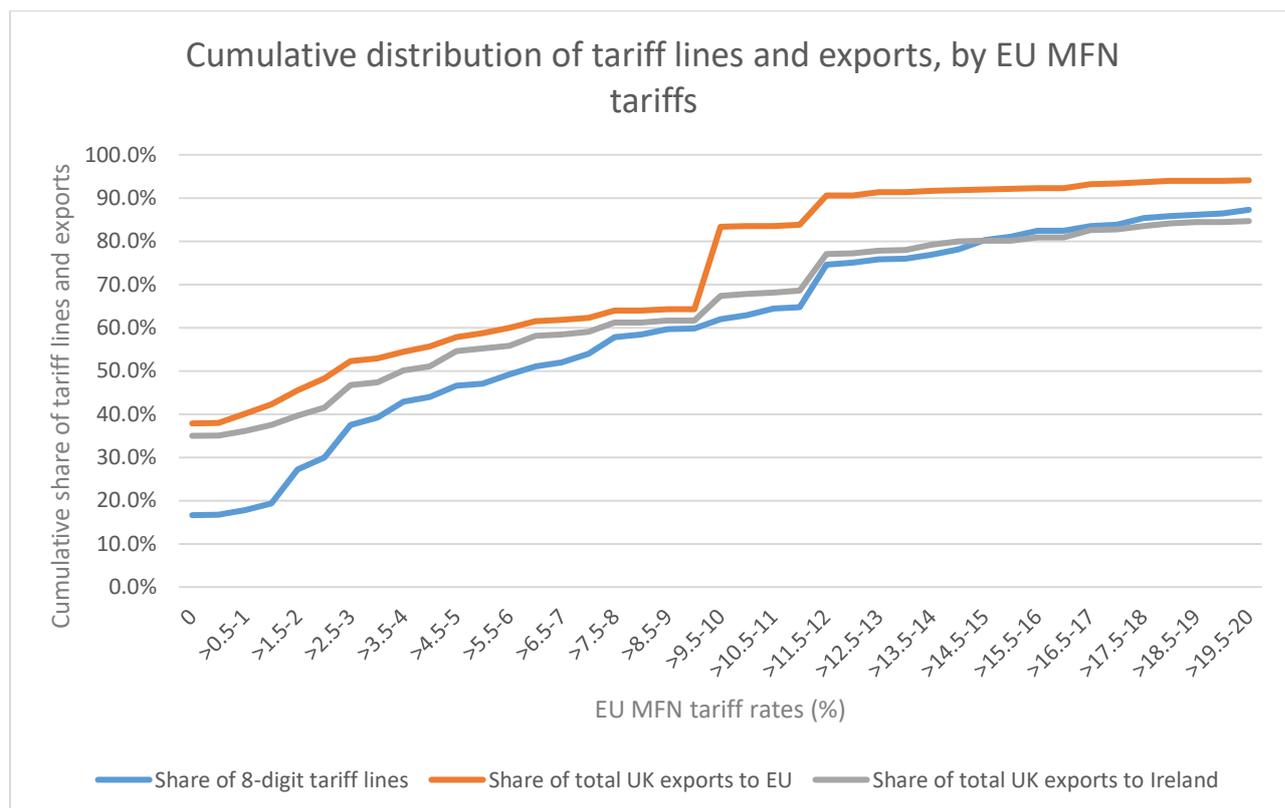
Figure 1: Differences between EU and UK MFN tariffs on finished goods



4.1.2. For goods entering NI from Great Britain (GB) the relevant differential is between the EU MFN tariff and zero, because there are to be no UK tariffs between GB and NI – that is, the difference in tariff between, say, entering the island of Ireland via Dublin or via Belfast is the EU MFN tariff itself. Figure 2 plots these for finished-goods headings along with the relevant UK export flows, as above. Thus, for example, fewer than 20% of headings have zero rates and they account for 35% and 38% of UK exports to Ireland and to the EU respectively. At the other end of the distribution, 37% of headings have EU MFN rates of over 10%, and they account for 17% and 32% of UK's exports to the EU and Ireland respectively.

4.1.3. For many purchasers, avoiding a 10% tariff would imply a worthwhile saving. Thus, if no tariffs were levied on exports from GB to NI, but GB exporters faced MFN tariffs when exporting to the Republic of Ireland, around one third of GB→RoI trade in finished goods would have a strong incentive to travel from GB to RoI via NI. And, in addition, at least some of the current GB→NI trade is likely to end up in RoI, so, if one accepts that GB→NI trade in finished goods is proxied by GB→RoI trade, around one third of that would be similarly vulnerable to movement into the Union.

Figure 2: The EU MFN tariffs on finished goods



4.1.4. Whereas Figures 1 and 2 report tariff differentials only up to 20 percentage points, Table 8 reports the whole distribution. It has two interesting features. First, there are 71 lines for which the EU-UK tariff differential exceeds 50 percentage points, and 114 for which the EU MFN tariff does so.²² At a threshold of 20 percentage points, the figures are 404 and 490 respectively. Second, as the differential increases, so the share of Ireland in the UK’s exports of finished goods to the EU increases strongly. In other words, UK exports to Ireland are currently biased towards goods in which there will be particularly high EU tariffs. These are precisely the goods that would be at risk of being diverted via NI if the EU tariff were not levied on exports to NI as well as to RoI.

²² Note that the tariff rates, taken from WITS, include Ad Valorem Equivalents, where specific tariffs have been converted into percentage terms using UNCTAD estimation method.

Table 8 Distribution of tariff differences (EU-UK) and EU MFN tariffs, plus associated trade in finished goods

Difference or Tariff (in percentage points)	EU less UK MFN ('No Deal') rates			EU MFN rates		
	Number of tariff lines	Total UK exports to EU (€bn)	Total UK exports to Ireland (€bn)	Number of tariff lines	Total UK exports to EU (€bn)	Total UK exports to Ireland (€bn)
0	973	51.4	5.4	721	32.3	4.3
>0-5	1336	17.2	2.5	1297	17.0	2.4
>5-10	631	6.0	1.1	673	21.7	1.6
>10-15	657	4.9	1.2	789	7.4	1.6
>15-20	275	1.6	0.5	306	1.7	0.6
>20-30	204	0.9	0.3	230	0.7	0.3
>30-50	129	0.8	0.2	146	1.1	0.3
>50	71	0.6	0.4	114	1.4	0.6
Missing tariff info	62	1.9	0.8	62	1.9	0.8
<i>Total</i>	<i>4338</i>	<i>85.2</i>	<i>12.4</i>	<i>4338</i>	<i>85.2</i>	<i>12.4</i>

N.B. Trade and tariff data for year 2017

4.2 Value/weight ratios

4.2.1. We calculate value/weight ratios (£ per kg) for each CN 8-digit heading from data on UK imports from the EU in 2017.²³ Table 9 reports the distribution of these ratios. For low value/weight products, transportation is pretty costly, and maybe technically difficult, whereas at the high end, goods are easily – and often covertly – transportable. It is notable that tariff levels decline monotonically as one moves to higher value/weight ratios, possibly a reflection of the fact that tariff enforcement is easier on bulky heavy goods.

4.2.2. Table 9 also reports the shares of the different value/weight groups in NI's imports from non-EU sources and in UK exports to the EU, Sweden, the Netherlands and Ireland, the four flows I used above to proxy for GB→NI trade. It is also notable that heavy goods are disproportionately represented in UK exports to Ireland, presumably reflecting the benefits of proximity (and possibly a land border) for these goods.

²³ In fact, at this level of disaggregation, this ratio is almost a technical coefficient and it varies rather little across trade flows, but since we are dealing with flows between developed countries (or regions thereof) it seems best to use similar flows for valuation.

Table 9 Value to weight ratios, finished goods

Data on tariff differential relevant to NI imports from RoW, and on EU tariff relevant to NI imports from GB

		Tariff Differential; relevant to NI imports from RoW			EU MFN tariff; relevant to NI imports from GB					
Value/Weight ratio	Number of products	Average tariff difference EU MFN - UK MFN (p.p)	Max tariff diff ^a	Share of NI imports from RoW	Average EU MFN tariff	Max tariff ^a	Share of UK exp to EU	Share of UK exp to IRL	Share of UK exp to SWE	Share of UK exp to NLD
0-1	332	15.5%	122.1%	3.8%	16.8%	122.1%	3.7%	9.4%	1.4%	6.4%
>1-5	1336	13.6%	180.3%	25.2%	15.9%	180.3%	19.3%	35.0%	17.1%	19.5%
>5-10	658	6.5%	74.9%	16.1%	7.7%	75.4%	17.5%	14.0%	23.2%	16.4%
>10-50	1209	4.9%	141.0%	37.2%	6.3%	143.1%	33.8%	23.6%	35.4%	27.1%
>50-100	251	4.3%	26.0%	5.8%	5.3%	26.0%	13.5%	8.1%	11.4%	16.1%
>100 - 1000	210	2.9%	24.0%	4.1%	3.7%	53.4%	10.9%	9.5%	11.2%	13.7%
>1000	30	1.7%	11.0%	7.8%	1.7%	11.0%	1.3%	0.4%	0.3%	0.7%

N.B. Based on tariff and trade data at the CN 8-digit level. Any products classified as 'Intermediate' according to the BEC classification have been excluded. Value/Weight ratio based on UK's imports from the EU where weight is the net weight in kg. Any products where trade value or net weight is zero have been excluded from this table.

^a The minimum tariff differential or tariff is zero in every value/weight group.

Source: Import data on value and weight from HMRC Overseas Trade Statistics. UK export data from Eurostat. EU tariff data from UNCTAD TRAINS.

4.3 Goods ‘at risk’

4.3.1. The risk of any good being moved onward to the Union presumably depends a good deal on its particular characteristics and so the Joint Committee has a massive task of sorting the 9,000+ CN 8-digit headings. We can, however, infer that the incentive for onward movement will be positively related to both the tariff differential and the value to weight ratio, and that, plausibly, the two effects interact such that the effect of a larger differential is greater the higher the value/weight ratio of the good. We capture this by postulating that risk is related to the product of the tariff differential and ratio. To that end, row 1 of table 10 is constructed by arraying the 8-digit CN headings in order of increasing values of the product (tariff differential x value-weight ratio) and asking how much trade falls under the headings in the top quintile (the top 20%). For NI imports from RoW the figure is almost exactly 20%, whereas for UK exports to other markets (our proxies for GB exports to NI), the figure is lower –16% for exports both to the EU and to Ireland.²⁴

4.3.2. However, the simple product of tariff and value/weight is too crude because once products have been transferred from ships to road transport in a NI port, the marginal cost of transferring them a little bit further to the Republic seems rather low. Thus, I adopt a somewhat more refined approach to the risk of transfer to the Union (the Republic), although one which has no particular justification in empirical research. We consider all products at risk if their tariff differential (or, for GB→NI trade, the MFN tariff) is 10 percentage points or more. Products are deemed *not* to be at risk if they have a tariff differential (tariff) below 3 percentage points. We similarly assume that, as long as the tariff differential is below 10 percentage points, products are *not* at risk if their value to weight ratio is below £1 per kg. Between tariff differentials of 3 and 10 percentage points, products are deemed to be at risk if the product of their value/weight ratio and tariff differential exceeds 10 – reflecting the trade-off between the two criteria discussed in the previous paragraph. Schematically, these criteria split the product space as follows:

²⁴ The relevant tariff for these latter flows is the EU MFN tariff because we are using them to proxy GB→NI trade.

		Value/weight ratio £/kg	
		<1	≥1
Tariff Differential	≥10 ppt	At risk	At risk
	3 ≤ and < 10 ppt	Not at risk	At risk Not at risk
	<3 ppt		Not at risk

Table 10 Shares of trade in the most ‘at risk’ products sorted by tariff differential x value/weight ratio

	Share in NI imports from Non-EU	Share in UK exp to EU	Share in UK exp to IRL	Share in UK exp to SWE	Share in UK exp to NLD
Top quintile	20.9%	16.4%	15.8%	12.0%	11.3%
Refined measure	26.1%	42.6%	41.0%	41.6%	37.1%

4.3.3. Row 2 of table 10 thus gives the shares of finished goods trade ‘at risk’ on this ‘refined measure’. Thus 26.1% of finished imports into NI from non-EU sources are at risk; and for GB→NI about 40% of finished goods are deemed to be at risk.

4.3.4. To give an idea of the finished products which are deemed to be at risk by this analysis I have taken the 792 CN 8-digit headings in the top quintile of the product tariff differential x the value/weight ratio) and aggregated them into HS 4-digit categories. They are reported in table 11 below.

4.3.5. Sixteen of these 20 headings also feature in a similar exercise to find the top exports from the UK to Ireland, so the list is pretty robust. It shows that the bulk of the ‘at risk’ headings lie in the clothing and footwear sectors, which will be eminently tradable across the border in the absence of any formalities. One refers to motor vehicles (more on which below), three are foodstuffs and two in the aircraft sector.

4.3.6. The key results in this section are in table 10, row 2. We estimate that the share of NI’s imports of finished goods from the RoW that is at risk of onward transmission to the Union is 28%. For NI’s imports from GB, following the reasoning above for intermediate goods, I place a good deal of weight on the

structure of UK exports to Ireland as a proxy for GB→NI, but check it against other UK export flows. This indicates that it is likely that around 40% of finished goods imports would be at risk of onward transmission. In addition, there is also a strong possibility that in the absence of EU tariffs levied on GB→NI trade, a good deal of current GB→RoI could simply be re-routed via NI.

Before concluding, I consider three further possible refinements to my arguments above:

- the significance of EU trade defence instruments,
- the possible evolutions in trade patterns beyond the present and
- the argument that while ‘at risk’ may be a criterion for applying EU tariffs at the NI external border or in the Irish Sea, the final outcome will entail fewer goods being so taxed because once the destination of goods is plain, firms and consumers may apply for rebates of any tariffs that have been levied on goods that actually remain within NI.

Table 11 Top 20 product groups by UK exports to EU in 2017, out of the 8-digit product lines in top quintile based on [Value/Weight * EU MFN]

HS 4-dig	Description	Average EU MFN (%)	Max	Min	Average Value/Weight	Max	Min	UK exp to EU (€m)	Share of total UK exports to EU (excl. intermediates)
8703	Motor cars and motor vehicles	9.4%	10.0%	5.0%	48	149	17	2824.0	3.3%
6204	Women's suits, ensembles, jackets - not knitted/crocheted	12.0%	12.0%	12.0%	65	301	14	1046.8	1.2%
6403	Footwear with uppers of leather	7.9%	8.0%	5.0%	47	153	20	820.0	1.0%
7113	Articles of jewellery and parts thereof	3.3%	4.0%	2.5%	2456	4612	299	678.7	0.8%
6110	Jerseys, pullovers, cardigans, waistcoats	11.9%	12.0%	10.5%	58	146	14	648.8	0.8%
6109	T-shirts, singlets, other vests	12.0%	12.0%	12.0%	31	36	24	556.7	0.7%
6203	Men's suits, ensembles, jackets, blazers	12.0%	12.0%	12.0%	57	358	16	522.5	0.6%
6104	Women's suits, ensembles, jackets.. - knitted/crocheted	12.0%	12.0%	12.0%	55	179	13	417.9	0.5%
6404	Footwear (uppers of textiles)	16.9%	17.0%	16.9%	65	133	24	412.6	0.5%
0201	Meat of bovine animals (fresh or chilled)	62.9%	75.4%	54.5%	4	6	3	364.1	0.4%
4202	Trunks - suits, camera, jewellery, cutlery cases	5.9%	9.7%	3.0%	56	141	19	302.0	0.4%
8526	Radar apparatus, radio navigational aid apparatus	1.8%	2.1%	1.4%	233	254	213	271.2	0.3%
6202	Coats – women's or girls overcoats..	12.0%	12.0%	12.0%	55	95	31	247.9	0.3%
6206	Blouses, shirts, shirt-blouses - not knitted/crocheted	12.0%	12.0%	12.0%	68	151	19	245.6	0.3%
6402	Footwear - outer soles and uppers of rubber/plastics	16.9%	17.0%	16.8%	25	44	11	245.0	0.3%
0406	Cheese and curd	40.2%	74.6%	21.1%	6	11	3	225.3	0.3%
0405	Butter and other fats and oils from milk	54.3%	61.5%	50.4%	5	7	4	203.8	0.2%
6201	Men's overcoats, car-coats.. - Not knitted/crocheted	12.0%	12.0%	12.0%	56	98	30	176.9	0.2%
8802	Aeroplanes and other powered aircraft	2.4%	4.2%	1.4%	1007	98	30	176.8	0.2%
8528	Monitors and projectors	12.4%	14.0%	2.0%	42	125	16	162.9	0.2%

5. Trade Defence Instruments

- 5.1. The analysis so far, has been conducted in terms of MFN tariff rates. However, there are two further elements of trade policy that would mandate the application of EU tariffs on GB→NI trade in order to preserve the autonomy of the EU customs union. First, if the UK ever signed an FTA with a country which did not have one with the EU (or which had a more limited one with the EU), imports from that partner would face even fewer non-zero tariffs in NI than did MFN partners. Second, to the extent that the EU imposed trade defence duties which the UK did not replicate, there would be new tariff differentials.
- 5.2. In the case of FTAs, this difficulty has not yet occurred, and so I do not analyse it here.
- 5.3. However, trade defence instruments do already exist in the EU, and UK policy post-Brexit is not to replicate every one of EU's duties. The EU currently has 106 active trade defence measures, of which the UK will maintain 43 and terminate 63 after Brexit. These latter cases are the ones in which tariff differentials will be widened.
- 5.4. If, as I have argued above, intermediate goods will substantially always face EU tariffs when they enter NI, trade defence duties will not change the analysis above qualitatively. All that will happen is that the intermediate good will have to pay the sum of the MFN tariff and the trade defence duty on entry to NI. This subjects such imports to a second set of EU rules, and thus re-emphasises the fact that EU duties and customs rules are being applied at the NI border, but it does not extend their reach across commodities beyond my current calculation.
- 5.5. For finished goods imports, on the other hand, their risk status depends, in part, on the level of EU duty they face. Thus a trade defence duty on a finished product may push it from my 'not at risk' category to the 'at risk' category in my calculation above, and thus extend the reach of EU duties and regulations. However, only six cases of trade defence appear to deal with finished goods and all of them are restricted to one or a few suppliers:
 - Aluminium foil
 - Bicycles (2 cases)
 - Citrus fruits
 - Electric bicycles
 - Sweetcorn
- 5.6. Thus, while these might increase the coverage of EU duties and rules across trade headings, they will do so only slightly, and so I do not pursue the issue further here.

6. The future evolution of trade

- 6.1. The analysis to this point has been based entirely on past data – sometimes regrettably distant past data, although in fact trade patterns do not change very fast. However, the Protocol is intended to operate many years into the future and so it is worth reflecting briefly on how the analysis above might change.
- 6.2. The most obvious potential change in trade patterns is the one the Protocol is intended to prevent – the diversion of exports from the UK to EU destinations through Northern Ireland in order to avoid EU duties. This will be strongest for Great Britain’s exports to Ireland, where such trade diversion is simple and cheap – to use Belfast, say, as the port of entry to the island of Ireland rather than Dublin (or even cheaper, Warrenpoint, which is very close to Dublin.) This possibility alone provides a strong case for the EU/Ireland to want the extensive application of EU tariffs to GB exports. After the Protocol comes into operation, checking for such trade diversion will be a high priority for the implementation authorities.
- 6.3. Assuming that the Protocol is implemented effectively and covers the proportions of trade that I have discussed above, the principal force for change in Northern Ireland’s import pattern will be that imports from Great Britain will face tariffs (and paperwork), while those from the EU (notably Ireland) will not. Relative to the status quo, the position will be that
 - imports from the EU will face no change;
 - imports from non-EU sources will face no change if they are ‘at risk’ (around 80% of the total), but will experience a tariff liberalisation if they are not (because the UK ‘no deal’ tariff is something of a liberalisation relative to EU MFN rates),
 - imports from Great Britain will face tariffs if they are at risk (perhaps 64% of the total) and no change otherwise.
- 6.4. The other source of goods that will face no change will be locally-produced goods in NI.
- 6.5. While it is not part of the Protocol on Ireland/Northern Ireland, there are indications that the UK government wishes standards and regulations for GB to diverge from those used by the EU (and, via the Protocol, Northern Ireland). This, too, will discourage GB→NI trade and so re-inforce the tariff effect on GB’s competitiveness in NI.
- 6.6. Setting aside net subsidies and traders’ margins, the shares in the total supply of goods in NI are 48% domestic, 35% Great Britain, 5% the Republic, 6% from the rest of the EU and 6% from the rest of the world (NISRA Supply and Use Tables and table 1 above). Great Britain is likely to lose market share both to domestic supply and other imports. As noted, the rest of the world will get an improvement in access to NI markets for finished goods. However, this will not generate a large effect on trade relative to the other changes that occur because the rest of the world’s finished exports to NI start from a low level and because, for a large number of goods,

importing from distant suppliers is not going to be a good substitute for importing from Great Britain.

- 6.7. As NI's imports from the EU (including Ireland) grow, the proportion of NI imports falling under the EU tariff regime will grow while that subject to GB tariffs falls. That is, over time NI will appear quantitatively more like part of the EU's customs territory and less like part of the UK's.

7. Tariff rebates

- 7.1. We have calculated the share of Northern Ireland's (NI's) imports that will face EU tariffs under the Protocol on Ireland/Northern Ireland at the time that they enter NI. However, this is not quite the same as the proportion that will ultimately have to pay the tariff. Article 5, paragraph 6 (c) of the Protocol permits the UK to re-imburse tariffs charged at the border on goods that can be shown not to have entered the Union and so in principle the burden of the EU tariff will be smaller than the immediate incidence. For two reasons, however, I would argue that this does not materially change the calculations or the analysis above.
- 7.2. First, even if the UK government chooses to rebate the tariff on receipt of proof that a good has remained within NI (or has been sent to the UK or exported outside the EU), this is a different process from applying the EU tariff and the EU customs rules initially. It is a UK act rather than an exemption from the EU regulations.
- 7.3. Second, the rebate will be subject to legal and practical reservations. Legally, the rebate has to fall within the de minimis thresholds of the EU's state aid rules (which, under Article 10 of the Protocol, will continue to apply to the United Kingdom in respect of measures that affect trade between Northern Ireland and the EU – which of course includes Ireland). If it exceeds this limit – which stands at EUR 200,000 over any three year period – it will be subject to individual approval by the European Commission (unless one of the other exemptions applies, which appears unlikely) and if not notified and approved will be prohibited. Individual notification to the Commission does not seem likely to be a viable route in most cases, given the delay and cost involved. Moreover, the practical consideration is that, even to get a rebate at below the de minimis limit, the burden of showing that a good has remained within NI will undoubtedly fall on private firms and traders.
- 7.4. A de minimis threshold of about £67,000 per year means that rebates to large traders are likely to be constrained. For smaller traders, on the other hand, whereas rebates may be permissible, the cost of claiming them will be a discouragement to firms from even trying. Without information on transactions by firm over the GB→NI route it is impossible to tell how much use may be made of the de minimis concession. Clearly the possibility of such rebates means that some trade that I have counted as vulnerable will eventually avoid paying the EU tariff, but overall the quantity does not seem likely to be large.
- 7.5. If it were straight-forward and re-imbursement were quick and certain, one might argue that levying EU tariffs on the Northern Irish border was a mere formality that would be rectified within a month or two. With private interest rates set at, say, 6% p.a., the burden on firms would be equivalent to, say, a two month delay, which would impose a charge on firms equal to 1% of the tariff paid – generally a pretty trivial amount. (Note that this is one hundredth of the tariff payment, not the equivalent of a one percent tariff which would equal one percent of the value of good imported.)

- 7.6. However, in reality it is likely to be more complicated than this. The burden of proof is likely to be high. Even final goods are likely to pass through several hands before getting from the port to the final consumer. And the problem is even greater for intermediate goods, which may go through several stages of processing before finally leaving Northern Ireland for the Union. Proving that they will never do so is basically impossible, so each stage of processing seems likely to have to keep records in order to reclaim tariffs paid when the final sale in Northern Ireland is made.²⁵ Other cases will be more complex to achieve. Trade scholars and practitioners are used to Rules of Origin (ROOs) whereby firms have to demonstrate the origin of the parts and/or the production processes used in their exported products. The Protocol, on the other hand, is introducing Rules of Destination (RODs)!
- 7.7. How large a burden is the book-keeping for RODs? The best guide is the costs of ROOs, on which there is a large empirical literature in economics. ROOs exist because free trade agreements (FTAs) offer zero tariffs on goods produced in the FTA partner country, not on goods that were dispatched from that partner. Thus in order to take advantage of the preferential access to the market, exporting firms need to prove origin, and the ROOs define how this is to be done. Estimates of the costs of ROOs vary considerably across FTAs, partners and products, but a conservative general estimate would be 3 to 6% of the value of a transaction.²⁶
- 7.8. One feature of ROOs that does not arise with RODs is that to satisfy a ROO, firms are often tempted to switch the origin of (some of) their inputs – choosing to use a less satisfactory input (dearer or worse quality) which is cheaper in net terms because it permits the final product to meet the ROO. A recent study seeks to separate this cost from the bureaucratic costs of satisfying the ROO.²⁷ Hayakawa et al estimate that the bureaucratic cost is 4% to 8% of the transaction value.
- 7.9. A further feature of ROOs, which is clearly likely to transfer to RODs, is that they are substantially comprised of fixed costs – once you have worked out how to prove destination and set up your systems to do so, the cost for a marginal transaction is probably low, and the cost is the same regardless of the size of the transaction. Northern Ireland is a small economy even if you add it to the Republic and many of the firms that undertake trade in Northern Ireland are small.²⁸ Thus the cost of RODs

²⁵ One case in which the rebate may be significant and easy to claim will be for motor vehicles, where the registration of a new vehicle in Northern Ireland could trigger the rebate payment. There may be difficulties over vehicle hire – which can presumably be dealt with given the finite number of firms – and over informal transfers between individuals, which may need to be tackled by examining insurance policies. Likewise, cross-border trading of motor spirit is currently ignored on grounds of practicality.

²⁶ See, for example, Carrère, Céline, and Jaime De Melo. "Are different rules of origin equally costly? Estimates from NAFTA.", *CEPR Discussion Paper 4437*, (2004); Anson, J., Cadot, O., Estevadeordal, A., Melo, J. d., Suwa-Eisenmann, A. and Tumurchudur, B. (2005) Rules of Origin in North–South Preferential Trading Arrangements with an Application to NAFTA. *Review of International Economics*, 13(3): 501–17; and Hayakawa, Kazunobu, Hansung Kim, and Hyun-hoon Lee. "Determinants on utilization of the Korea–ASEAN free trade agreement: margin effect, scale effect, and ROO effect." *World Trade Review* 13.3 (2014): 499-515

²⁷ Hayakawa, Kazunobu, et al. Costs of Utilizing Regional Trade Agreements. Research Institute of Economy, Trade and Industry (RIETI), 2019.

²⁸ See NISRA 'Overview of NI trade with GB', October 2019, slide 16.

is likely to be proportionately higher than one finds in larger economies – e.g. Japan, from which Hayakawa’s estimates are drawn.

- 7.10. The costs of administering ROOs have a very clear consequence. The utilization of tariff preferences is most commonly significantly below 100% - that is, not every transaction that is eligible for a preferential tariff bothers to claim it. It is sometimes just not worth it. Fully informed, rational, firms would not incur costs of $x\%$ proving origin in order to avoid a tariff of below $x\%$. There are naturally all sorts of imperfections in making these decisions, and, of course, firms’ circumstances all vary, but the upshot is that the take-up of small preference margins is low.
- 7.11. None of this literature answers precisely the question that is posed here, not least because RODs are quite new. However, it leaves an overriding impression that in cases where the difference between EU and UK tariffs is small, not many firms will bother to claim it back.
- 7.12. The final question may be whether or not one could determine at the first point of entry whether a good would remain within Northern Ireland or not and thus administer the correct tariff right from the start. This argument has a pedigree: in discussing the UK-wide Facilitated Customs Arrangement that Mrs May advanced in July 2018, the government stated that for a lot of goods HMRC would be able to determine immediately whether the good would remain within the UK or not, and that therefore it would be possible to levy the UK tariff ab initio. We did not find this claim very plausible at the time, but even if it were, it clearly does not transpose to Northern Ireland, where nowhere is more than two hours away from a land border with the EU.
- 7.13. In terms of the results above, for intermediates, I would argue that few transactions will bother to seek tariff re-imburement, so that my calculations, that have every intermediate import falling under the EU tariff, are unlikely to be far wrong. Similarly for finished goods: I defined goods with tariff differentials below 3 percentage points as not ‘at risk’ because the incentives for covert movement were low. This could be turned into a *de minimis* threshold so that no EU tariff below 3% were ever collected.²⁹ If, however, such tariffs were ever levied, few traders are likely to bother to claim re-imburement. Thus, the results above are almost certainly under-estimates of the proportion of finished goods that will fall under the EU tariff.

²⁹ And even this would be an EU regulation, so that strictly speaking a good entering NI and not paying 3% EU tariff would still be subject to EU rules of commerce.

8. The bottom line

8.1. Pulling the above together suggests that around 75% of Northern Ireland’s imports of goods would be subject to EU tariffs on their arrival in the region, despite the government’s assertion in the Protocol on Ireland/Northern Ireland that Northern Ireland remains within the UK customs territory.

Table 12: Northern Ireland’s imports under the Protocol

	‘Imports’ (£bn) 2017	Share of total (%)	Split % ^a		% paying EU tariff	% of total paying EU tariff
			I	F		
Great Britain	10.5	63	I	40	100	40
			F	60	40	
Ireland	2.3	13	I	N/A	100	13
			F		100	
Rest of the EU	2	12	I	N/A	100	12
			F		100	
Rest of the World	2	12	I	75	100	10
			F	25	28	
Total liable to EU tariffs and duties						75

^{a/} between intermediate goods (I) and finished goods (F)

8.2. Moving from left to right, the table reports the shares of different regions as suppliers of NI’s imports in 2017. It then gives the breakdown into intermediate goods (which are prima facie subject to further commercial processing) and the remainder. For each group it then reports what share of them is likely to face the EU tariff, and finally sums the respective amounts of imports.

8.3. All of the imports into Northern Ireland from EU member states pay the EU tariff – zero under all circumstances. We have argued that all intermediates will have to pay the EU tariff initially. A little over one quarter of the consumption, investment and unclassified goods from the rest of the world will pay the EU tariff, and around 40% of such goods from Great Britain will also do so. The grand sum is around 75% of all Northern Irish imports will pay the EU tariff on entering the province.

8.4. The calculations in this note are based on very approximate data and a series of, generally, untested assumptions. However, the assumptions have been made explicit and I believe that they are perfectly reasonable. We cannot put formal confidence intervals around these estimates, but at an informal level it would be surprising on the basis of this work if the true proportion of Northern Irish imports that paid the EU tariff fell outside the range 65%-85%.

9. Data Appendix

This appendix summarises the sources from which my data have been collected, and the methodology by which the calculations have been put together.

9.1. The data used in this note were collected from a range of different sources:

- Data on Northern Ireland's imports by port has been sourced from HMRC's Overseas Trade Statistics database, at the CN 8-digit level of aggregation, for years 2016-2018.³⁰
- Data on UK's exports to the EU, Ireland, Sweden and the Netherlands have been sourced from Eurostat (Comext), also at the CN 8-digit level for years 2016-2018. As this is an EU source, values are reported in € rather than £.³¹
- EU tariff data have been sourced from UNCTAD TRAINS for year 2017, downloaded through the World Integrated Trade Solution (WITS) at the TARIC (10-digit) level, and aggregated to the 8-digit level. The tariff data include Ad Valorem Equivalents, calculated using the UNCTAD estimation method.³²
- UK tariff data are based on the 'No Deal' tariff announcement by the UK Government on 8th October 2019.³³ In cases where specific (non Ad Valorem) tariffs are levied, these have been approximated using the Ad Valorem Equivalent (AVEs) estimated in the EU tariff data, and adjusted appropriately where UK's specific tariffs are lower than the EU's.
- We also use data from Northern Ireland 2015 Supply and Use table, particularly to inform on trade between GB and Northern Ireland.³⁴

9.2. We categorise data into end-use categories according to the UN's Broad Economic Categories (BEC).³⁵ To do this, I use Eurostat concordance tables between CN (8-digit) level and BEC.³⁶

9.3. For some exercises, it has been necessary to convert the trade data from CN 8-digit level to SIC07 categories, to relate the trade data to the categories in the Northern Ireland Supply and Use table. To do this, I first convert the data to ISIC revision 4 using the OECD's Bilateral Trade in Goods by Industry and End-Use conversion key, and subsequently from ISIC revision 4 to NACE revision 2 using a concordance table from Eurostat. From NACE rev. 2 I am able to infer the SIC 07 categories, as

³⁰ <https://www.uktradeinfo.com/Statistics/OverseasTradeStatistics/Pages/OTS.aspx>

³¹ <http://epp.eurostat.ec.europa.eu/newxtweb/>

³² <https://unctad.org/en/Pages/DITC/Trade-Analysis/Non-Tariff-Measures/NTMs-trains.aspx>

³³ <https://www.gov.uk/government/publications/temporary-rates-of-customs-duty-on-imports-after-eu-exit/mfn-and-tariff-quota-rates-of-customs-duty-on-imports-if-the-uk-leaves-the-eu-with-no-deal>

³⁴ <https://www.nisra.gov.uk/statistics/economic-accounts-project/ni-economic-accounts-overview>

³⁵ <https://unstats.un.org/unsd/trade/classifications/bec.asp>

³⁶ https://ec.europa.eu/eurostat/ramon/rerelations/index.cfm?TargetUrl=LST_REL

NACE and SIC07 are identical up to the 4 digit level of aggregation.³⁷ Because the HS/CN nomenclature is commodity based but ISIC is industry based, the correspondence between the two is not always perfect. For example, in some cases a CN goods commodity corresponds to a services category of the ISIC (and SIC). Where this happens, or where we cannot match a heading, we omit the flow. Overall, between 4-6% of trade flows (by value) fall in HS categories which I am unable to convert to SIC, and a further 1-2% fall in ‘services’ industries. However, for the vast majority of products, the conversion from CN to SIC works well.

- 9.4. In the second part of this note, we look at tariff differentials and construct a dataset containing value to weight ratios. To do this, we use trade data from HMRC’s Overseas Trade Statistics database, containing data on UK’s imports from the EU in £, and by net mass (kg). The weight represents the weight of the goods themselves without any packaging, rounded up to the nearest kilogram. If necessary, the weight has been estimated by HMRC.³⁸ The value to weight ratios should therefore be interpreted as £ per kg. The dataset also contains EU MFN tariffs, UK ‘No deal’ tariffs and trade data with a number of trading partners, all at the CN 8-digit level.
- 9.5. In creating this dataset, we exclude any trade values not defined at the 8-digit level of aggregation, or falling outside chapters 01-97 of the HS classification. In some cases, the data from Eurostat (for UK’s exports to the EU, Ireland, Sweden and the Netherlands) report trade values in codes such as ‘36SSS999’ or ‘84MMM000’, which we are not able to match to the tariff data. These observations are omitted from the analysis by tariff differential, and, as before, account for about 4%-6% of headings.

³⁷<https://www.ons.gov.uk/file?uri=/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007/uksic2007web.pdf>

³⁸ For more details, see:

<https://www.uktradeinfo.com/Statistics/OverseasTradeStatistics/AboutOverseastradeStatistics/UnderstandingOTSDData/Pages/UnderstandingOTSDData.aspx>

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