

Research Bulletin 21/6 | Estimating Northern Ireland's Mode of Supply of Services Exports and Imports

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Summary

This paper investigates two separate methodologies from Eurostatⁱ and the Office for National Statisticsⁱⁱ for estimating the modes of supply for Northern Ireland services exports and imports using the Northern Ireland subset of data from the International Trade in Services survey (ITIS) for the period 2016-18.

The main points show that:

- A major driver in the difference between models is the estimation of remote trade (Mode 1). Most services were traded remotely (Mode 1) in the period 2016-18. Using the Eurostat model, remote supply (Mode 1) made up 59% of total NI service exports and 60% of total NI service imports. Using the ONS model, remote supply (Mode 1) made up a larger proportion of NI service exports (64%) but a smaller proportion of NI service imports (55%).
- Notable differences between the models can be seen at broad country level. For service exports, the Eurostat model shows that half of the trade with Ireland is by the presence of natural persons (Mode 4), this drops to 35% in the ONS model, with the ONS model putting more emphasis on remote trade (Mode 1) (61% ONS compared to 41% Eurostat). For service imports, the Eurostat model shows that around half of the trade with Ireland is by the presence of natural persons (Mode 4) (51%), dropping to 46% in the ONS model.
- When looking at industrial groups the most notable differences are in manufacturing, Maintenance and repair services and Construction, with the Eurostat model showing for service exports that all manufacturing and 90% of maintenance and repair services were conducted by consumption abroad (Mode 2). The ONS model puts more emphasis on remote supply (Mode 1) with approximately half of Manufacturing and Maintenance and repair services conducted remotely (Mode 1) with the remainder conducted by consumption abroad (Mode 2) and 5% of maintenance and repair service conducted by the presence of a natural person (Mode 4).
- In the Eurostat model, all of construction was conducted by the presence of a natural person (Mode 4), however in the ONS model there is a 50/50 split between remote supply (Mode 1) and being conducted by the presence of a natural person (Mode 4).
- This industrial group pattern findings was similar for imports.

Introduction

The research paper 'International Trade in Services Survey – New approaches'ⁱⁱⁱ explores the information available on Northern Ireland services using a rolling average covering the periods 2015-17 and 2016-18. It provides information on the type of products being traded and who it is being traded with.

Policymakers are increasingly interested in how that services trade is conducted, called the 'modes of supply'. This type of information is critical for understanding what barriers businesses face when looking to trade, and to assist policymakers engaged in trade negotiations and developing trade policy. To increase the information available to users on how services are conducted, this report will investigate two options for estimating the modes of supply for Northern Ireland Services.

Modes of supply categorise services by the way in which they are traded:

Mode 1: Remote trade - Where a supplier in one country sells a service to a customer in another, but without the movement of people.

Mode 2: Consumption abroad - Where a consumer travels to another country and buys a service.

Mode 3: Commercial presence - Where a foreign company sets up a subsidiary abroad to supply services to foreign customers directly in that country.

Mode 4: Presence of natural persons - Where personnel travel abroad to provide a service.

It is important to note that we are not aware of any data available at regional level to estimate Commercial presence (Mode 3) for Northern Ireland and therefore the current report focuses on Modes 1, 2 and 4.

The International Trade in Services (ITIS) Survey is the main source of UK services trade data, although it does not cover the whole of the UK services economy^{iv}, therefore results are limited to the subset of businesses and sectors in the survey. ITIS is a sample of known traders in services and only includes businesses with 10 or more staff. This report treats the ITIS sample data as the universe on a 'known services' basis, covering the period 2016-18. It is important to note that the ITIS sample data used in this report is unweighted and not representative of the whole economy.

To put the figures into context, the number of businesses in ITIS that exported services represented just over one tenth of the estimate for the whole economy produced from the Broad Economy Sales and Exports Statistics (BESES) and accounted for around half of the value of services exported on BESES, this was similar for imports of services. The differential between services outcomes on ITIS and BESES is largely accounted for by fewer micro/small (0-49) and large (250+) businesses and fewer businesses exporting and importing services with Ireland in the ITIS.

This report will look at estimating the modes of supply for NI using two methodologies: the Eurostat [TRADE IN SERVICES BY GATS MODES OF SUPPLY: STATISTICAL CONCEPTS AND FIRST EU ESTIMATES \(europa.eu\)](#) and the ONS [Modes of supply, UK experimental estimates - Office for National Statistics \(ons.gov.uk\)](#).

In preparing the data for analysis, the first step was to take the data from the NI subset of the International Trade in Services survey and use the [Eurostat’s proportional allocation of extended balance of payments services classifications \(EBOPS\) to modes of supply](#) to assign modes of supply (Annex 1).

The second step was to look at the ONS allocation of services. ONS have been able to produce estimates of the proportion of remote trade (Mode 1), using new survey questions to capture the percentage of services exported and imported remotely for 14 broad service categories, using the identified proportions which was combined with the Eurostat proportional allocation to assign the remaining data by service to either consumption abroad (Mode 2) or presence of natural persons (Mode 4).

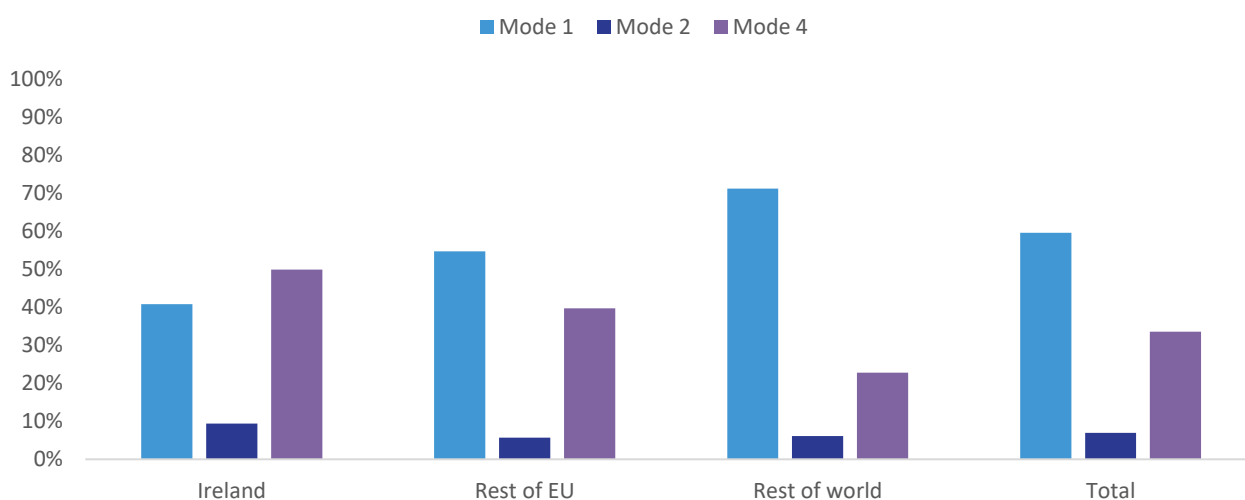
Eurostat Model

Exports by mode of supply

Figure 1 presents the experimental estimates of the proportion of NI services exports by mode of supply for the period 2016-18. The total value of ITIS NI service exports for this period was £1.2bn.

Remote supply (Mode 1) made up 59% of total NI service exports. Broken down by destination, remote supply is the largest proportion for both trade with the rest of the world (71%) and the rest of the EU (55%). The largest proportion of trade with Ireland (50%) is by the presence of natural persons (Mode 4).

Figure 1: NI Service Exports by Broad Country Destination and Mode (Excluding Mode 3) using Eurostat Methodology



Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

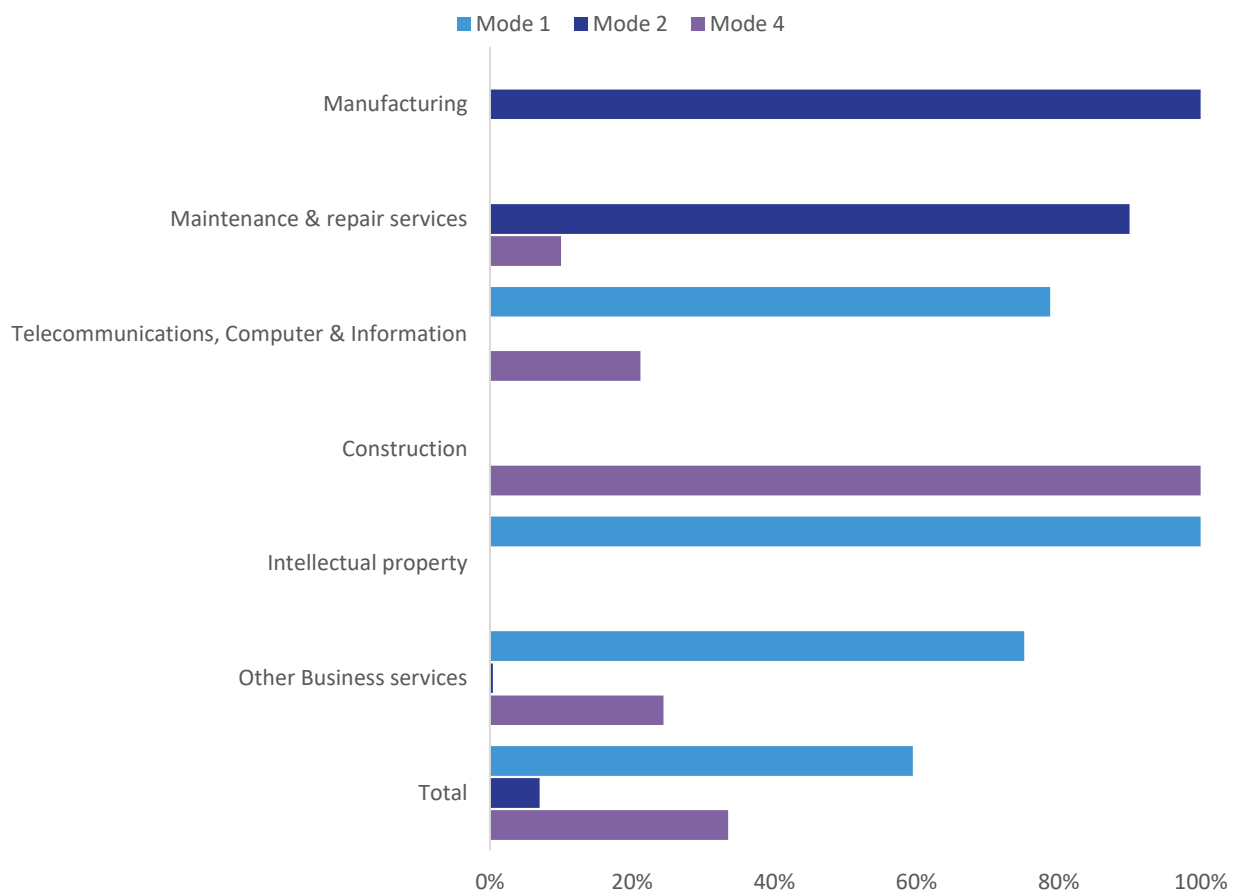
Figure 2 presents modes of supply breakdowns for services types exported from NI in 2016-18.

As shown in Figure 2, all manufacturing and 90% of Maintenance and repair services were conducted by consumption abroad (Mode 2).

All of construction was conducted by the presence of a natural person (Mode 4).

All of intellectual property services were conducted through remote supply (Mode 1), followed by 79% of telecommunications, computer and information services and 75% of other business services.

Figure 2: NI Service Export Type by Mode (Excluding Mode 3) using Eurostat Methodology



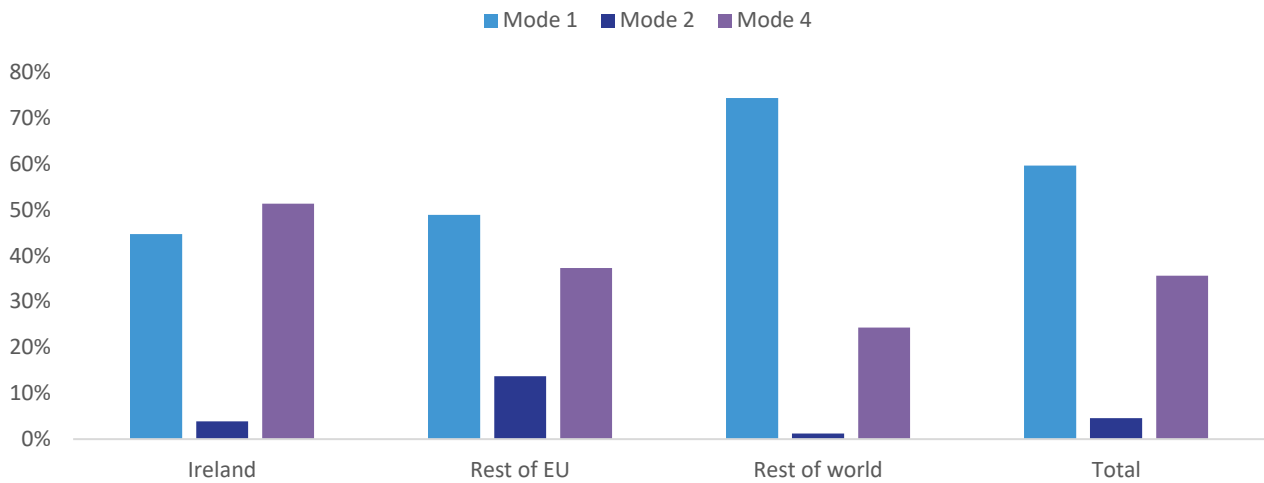
Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

Imports by mode of supply

Figure 3 presents the experimental estimates of the proportion of NI services imports by mode of supply for the period 2016-18. The total value of ITIS NI service imports for this period was £489.3m.

Remote supply (Mode 1) made up 60% of total NI service imports. Broken down by destination, remote supply is the largest proportion for both trade with the rest of the world (74%) and the rest of the EU (49%). However, like exports, half (51%) of trade with Ireland is by the presence of natural persons (Mode 4).

Figure 3: NI Service Imports by Broad Country of Origin and Mode (Excluding Mode 3) using Eurostat Methodology



Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

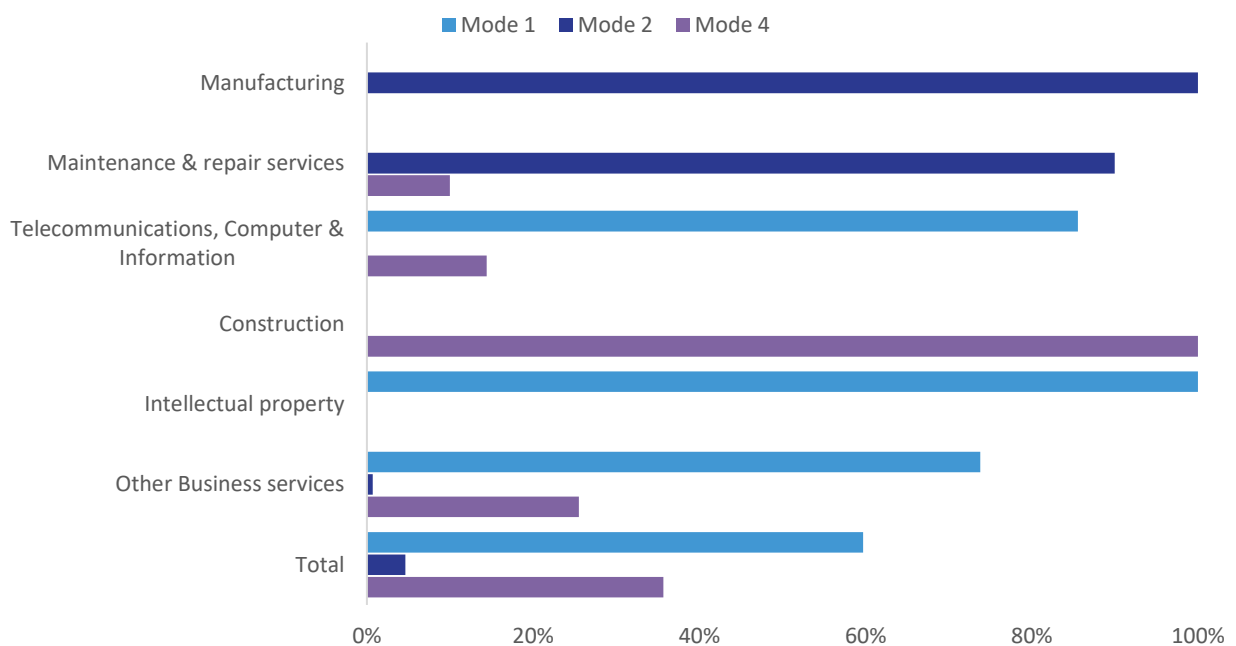
Figure 4 presents modes of supply breakdowns for services types imported from NI in 2016-18.

The proportions for imports were very similar to that for exports. All manufacturing service imports and 90% of Maintenance and repair services were supplied by consumption abroad (Mode 2).

All of construction services was supplied by the presence of a natural person (Mode 4).

All of intellectual property services were supplied remotely (Mode 1) as well as 86% of telecommunications, computer and information services and 74% of other business services.

Figure 4: NI Service Import Type by Mode (Excluding Mode 3) using Eurostat Methodology



Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

ONS model

The ONS model uses new questions in the annual ITIS survey to capture the percentage of services exported and imported remotely for 14 broad service categories. This then allowed ONS to produce a proportion of remote trade (Mode 1) for each service type captured by the ITIS survey.

Using [Eurostat's proportional allocation of EBOPS categories to modes of supply](#), the remaining data by service type were then assigned to either consumption abroad (Mode 2) or presence of natural persons (Mode 4).

This technique has been applied to the NI data, using the proportions determined by ONS to develop the NI estimates.

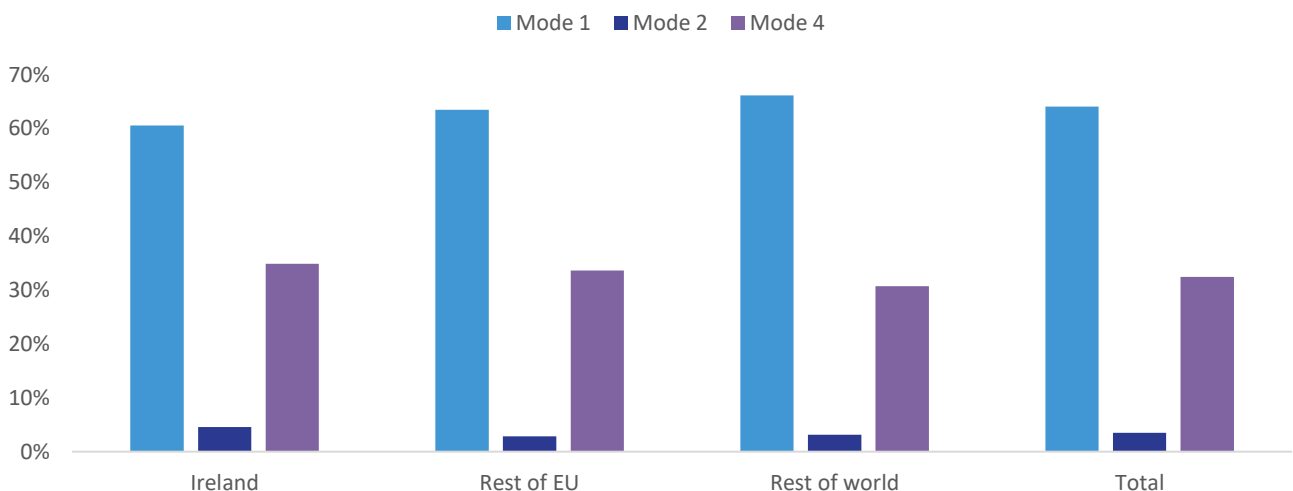
Exports by mode of supply

Figure 5 presents the experimental estimates of the proportion of NI services exports by mode of supply for the period 2016-18 using the ONS model. The total value of ITIS NI service exports for this period was £1.2bn.

Remote supply (Mode 1) made up 64% of total NI service exports. Broken down by destination, remote supply is the largest proportion for all destinations, ranging from 61% to Ireland to 66% to the rest of the world.

The most notable difference between the Eurostat and ONS models are the proportions for Ireland, where remote supply in the Eurostat model is 41% compared to 61% in the ONS model.

Figure 5: NI Service Exports by Broad Country of Destination and Mode (Excluding Mode 3) using ONS Methodology



Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

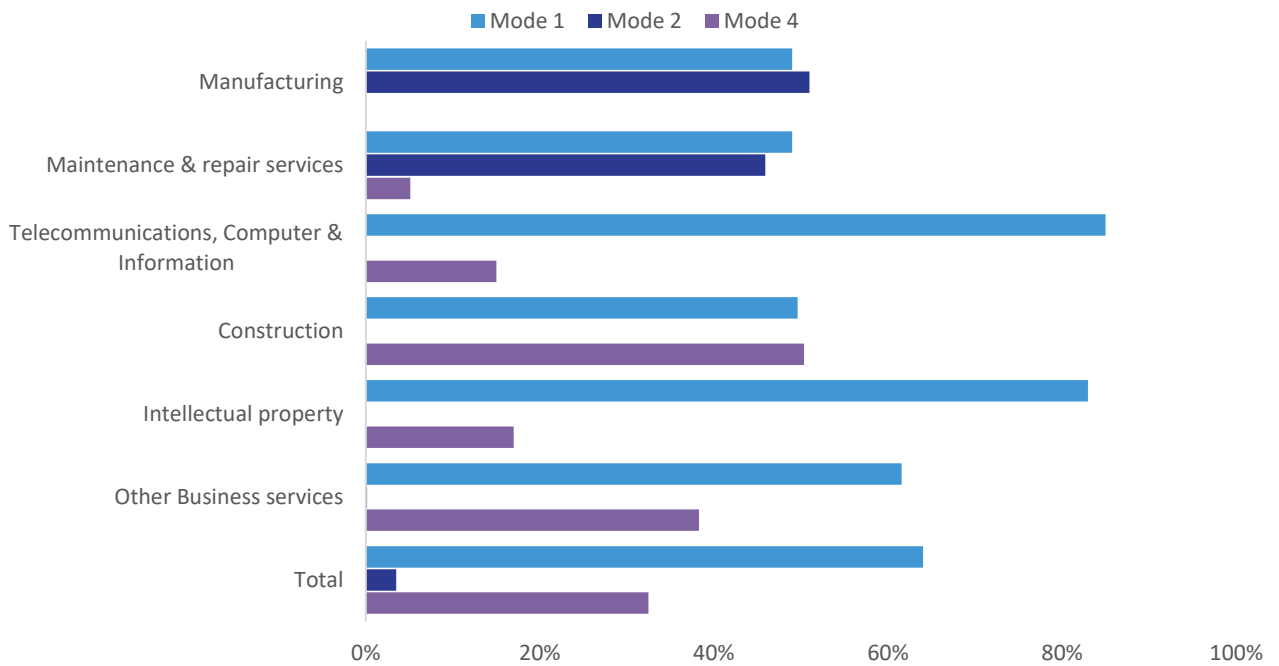
Figure 6 presents modes of supply breakdowns for service types exported from NI in 2016-18 using the ONS model.

As shown in Figure 6, the largest proportions of remote supply (Mode 1) are for telecommunications, computer and information services (85%) and intellectual property services (83%).

Using the ONS method, approximately half of Manufacturing and Maintenance and repair services were both conducted remotely (Mode 1), considerably different than the Eurostat model where the majority of both was conducted by consumption abroad (Mode 2) (Figure 2).

50% of construction was conducted remotely with the other 50% conducted by the presence of a natural person (Mode 4), again considerably different than the Eurostat model where all construction was conducted by the presence of a natural person (Mode 4).

Figure 6: NI Service Export Type by Mode (Excluding Mode 3) using ONS Methodology



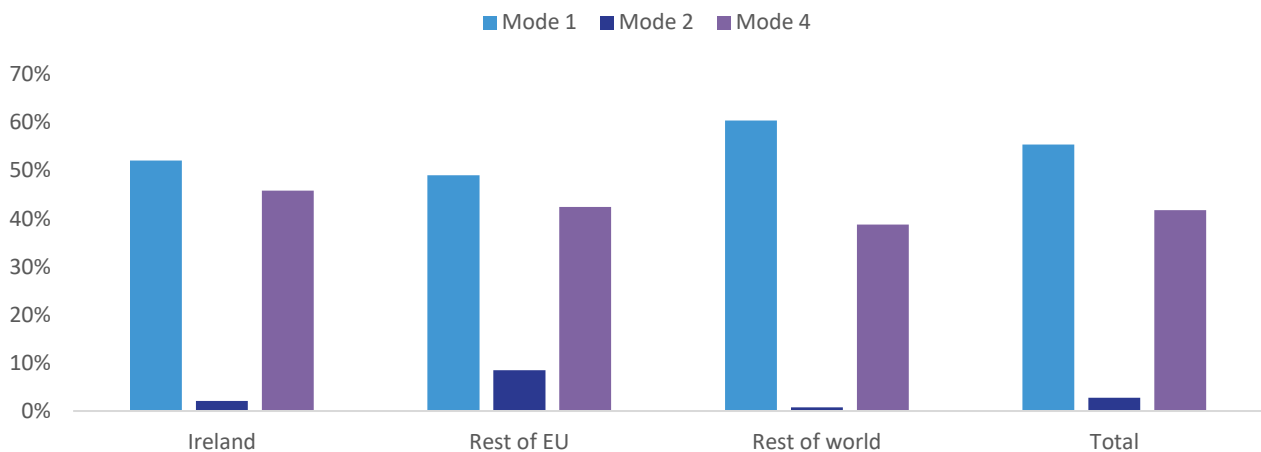
Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

Imports by mode of supply

Figure 7 presents the experimental estimates of the proportion of NI services imports by mode of supply for the period 2016-18 using the ONS model. The total value of ITIS NI service imports for this period was £489.3m.

Remote supply (Mode 1) made up 55% of total NI service imports, with 42% supplied by the presence of natural persons (Mode 4). Broken down by destination, remote supply is the largest mode of supply for all origins.

Figure 7: NI Service Imports by Broad Country of Origin and Mode (Excluding Mode 3) using ONS Methodology



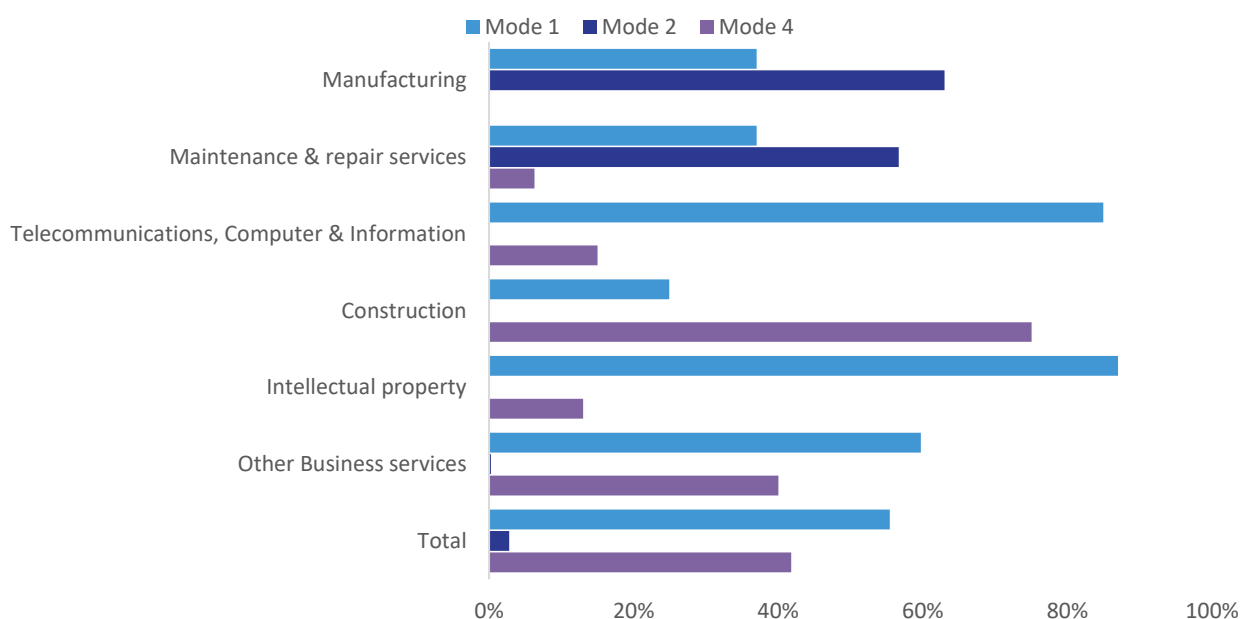
Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

Figure 8 presents modes of supply breakdowns for service types imported from NI in 2016-18 using the ONS model. Remote supply (Mode 1) of imports was the highest for intellectual property services (87%) and telecommunications, computer and information services (85%).

The largest proportion for manufacturing service imports (63%) and Maintenance and repair services (57%) were supplied by consumption abroad (Mode 2), considerably less than with the Eurostat model (100% and 90%).

Three quarters (75%) of construction services was supplied by the presence of a natural person (Mode 4).

Figure 8: NI Service Import Type by Mode (Excluding Mode 3) using ONS Methodology



Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons.

Comparison to the EU 27 country average using the Eurostat model

The latest available figures for EU-27 are for 2017^v, these are produced using the Eurostat model. Table 1 compares EU-27 figures and UK figures for 2017 compared to NI for 2016-18, using the Eurostat model.

Table 1 shows that Remote supply (Mode 1) made up the majority of service exports and service imports to/from each area, however it made up a lesser proportion to/from NI (59% for exports, 60% imports) compared to the EU (72% for exports, 75% for imports) and the UK (79% for exports, 70% imports).

Services supplied by the presence of natural persons (Mode 4) were considerably lower for the EU (10% exports, 9% imports) and the UK (9% exports, 9% imports) than NI (34% exports, 36% imports).

Table 1: Modes of Supply for Services for EU-27 Countries and the UK for 2017 Compared to NI for 2016-18 (Modes 1, 2 and 4) using the Eurostat Model

	Exports			Imports		
	Mode 1	Mode 2	Mode 4	Mode 1	Mode 2	Mode 4
EU-27 (2017)	72%	18%	10%	75%	16%	9%
UK (2017)	79%	11%	9%	70%	21%	9%
NI (2016-18)	59%	7%	34%	60%	5%	36%

Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

Comparison to the UK using the ONS model

Table 2 compares the figures for the UK^{vi} in 2018 to the NI figures 2016-18, using the ONS model. The biggest differences can be seen in Modes 2 and 4. Considerably less services are conducted by consumption abroad (Mode 2) in NI (3% of exports and imports) than in the UK (20% of exports and 38% of imports). More services were supplied by the presence of natural persons (Mode 4) in NI (32% of exports, 42% of services) than for the UK (13% of exports, 10% of imports).

Table 2: Modes of Supply for Services for the UK in 2018 Compared to NI for 2016-18 (Modes 1, 2 and 4) using the ONS Model

	Exports			Imports		
	Mode 1	Mode 2	Mode 4	Mode 1	Mode 2	Mode 4
UK (2018)	67%	20%	13%	52%	38%	10%
NI (2016-18)	64%	3%	32%	55%	3%	42%

Mode 1: Remote Trade/Mode 2: Consumption abroad/Mode 4: Presence of natural persons

Conclusion

The main difference between the Eurostat model and the ONS model in the way in which remote trade (Mode 1) is estimated (Annex 2). For the Eurostat model each type of service is allocated either to one dominant mode or, where there is no single dominant mode, to the most significant modes of supply, based on an expert assessment of how specific service items are most likely to be supplied to consumers.

Users of Office for National Statistics (ONS) data highlighted the usefulness of producing modes of supply estimates based on the experiences of UK businesses; however, there was a concern that while these statistics were familiar to statisticians and trade analysts, they were generally not recorded by businesses in their accounts. This resulted in ONS adding questions to the IT IS survey to collect estimates of remote trade (Mode 1) as it represented the dominant mode.

ONS then produced an estimate for each category for Mode 1, which was applied to NI ITIS data. The remaining modes were then apportioned using the Eurostat model.

The inevitable question posed at the end of this work is: which approach to services trade appears to be a better descriptor for Northern Ireland? We can assume that the Eurostat approach was developed to reflect the realities of services trade within and external to the European bloc whilst the ONS approach would presumably be developed largely on the basis of services trade by businesses in Great Britain to Europe and the Rest of the World. Northern Ireland represents something of a hybrid position given its position within the UK whilst having a land border, ease of travel and an established trading relationship with Ireland representing the dominant services export market.

On that basis therefore, a reasonable but not necessarily helpful assessment is that, potentially, the Eurostat approach might appear to be a better fit for Northern Ireland's services trade with Ireland whilst the ONS approach might appear to be a better fit for Northern Ireland's services trade with the Rest of Europe and the Rest of the World.

Given that this is a first attempt to assess the mode of services exports and imports relating to Northern Ireland, comments and additional analytical work would be welcomed. It may be, for example, that given Northern Ireland's unique position that a bespoke hybrid model combining the most appropriate components of the Eurostat and ONS approaches is the most suitable approach which would have both advantages and disadvantages.

Finally, and in relation to mode 3 services trade, we are not aware of any data available at regional level to estimate Commercial presence (mode 3) for Northern Ireland, however ONS has included an experimental estimate of Commercial presence mode 3 for the UK as a whole in its latest publication covering 2019, which can be found at: [Trade in services by modes of supply, UK: 2019](#).

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ⁱ [Trade in Services by GATS Modes of Supply](#)

ⁱⁱ [ONS modes of supply methods](#)

ⁱⁱⁱ [Research Bulletin 20/6 | International Trade in Services](#)

^{iv} The IT IS Survey covers the whole economy, with a number of exceptions, such as travel, transport, banking and other financial institutions, higher education, charities and most activities within the legal profession.

^v [Eurostat Services trade statistics by modes of supply 2017](#)

^{vi} [Modes of supply, UK experimental estimates: 2018](#)

Annex 1

Proportional Allocation of EBOPS Categories to Modes of Supply for the Eurostat Model

Level	BOP item	BOP sub-item	BOP item name	Mode type	Mode 1 (%)	Mode 2 (%)	Mode 4 (%)
1	S	S	Services:				
2	SA	SA	Manufacturing services on physical inputs owned by others	2		100	
2	SB	SB	Maintenance and repair services n.i.e.	2; 4		90	10
4	SC	SC11	Sea transport; Passenger	1	100		
4	SC	SC12	Sea transport; Freight	1	100		
4	SC	SC13	Sea transport; Other than passenger and freight	2		100	
4	SC	SC21	Air transport; Passenger	1	100		
4	SC	SC22	Air transport; Freight	1	100		
4	SC	SC23	Air transport; Other than passenger and freight	2		100	
4	SC	SC31	Other modes of transport; Passenger	1	100		
4	SC	SC32	Other modes of transport; Freight	1	100		
4	SC	SC33	Other modes of transport; Other than passenger and freight	2		100	
4	SC	SC3E	Pipeline transport	1	100		
4	SC	SC3F	Electricity transmission	1	100		
4	SC	SC3G	Other supporting and auxiliary transport services	2		100	
3	SC	SC4	Postal and courier services	1	100		
2	SD	SD	Travel services (59% of travel exp. and 75% of imp.)	2		100	
2	SE	SE	Construction (10% is included in mode 3)	4			90
2	SF	SF	Insurance and pension services	1	100		
2	SG	SG	Financial services	1	100		
2	SH	SH	Charges for the use of intellectual property n.i.e.	1	100		
3	SI	SI1	Telecommunications services	1	100		
3	SI	SI2	Computer services	1;4	75		25
3	SI	SI3	Information services	1	100		
3	SJ	SJ1	Research and development services	1;4	75		25
5	SJ	SJ2	Professional and management consulting services	1;4	75		25
5	SJ	SJ311	Architectural services	1;4	75		25
4	SJ	SJ312	Engineering services	1;4	75		25
5	SJ	SJ313	Scientific and other technical services	1;4	75		25
5	SJ	SJ321	Waste treatment and de-pollution	2;4		75	25

Level	BOP item	BOP sub-item	BOP item name	Mode type	Mode 1 (%)	Mode 2 (%)	Mode 4 (%)
4	SJ	SJ322	Services incidental to agriculture, forestry and fishing	4			100
4	SJ	SJ323	Services incidental to mining, and oil and gas extraction	4			100
4	SJ	SJ33	Operating leasing services	1	100		
4	SJ	SJ34	Trade-related services (part of distribution services)	1	100		
4	SJ	SJ35	Other business services n.i.e.	1;4	75		25
2	SJ	SJ35Z	Other business services n.i.e.; Of which: Employment services	1;4	75		25
2	SK	SK	Personal, cultural, and recreational services	1;4	75		25
2	SL	SL	Government goods and services n.i.e. (not relevant for exports)	1;4	75		25

[Proportional Allocation of EBOPS categories to modes of supply level](#)

Annex 2

Mode 1 Comparison between Eurostat's Simplified Approach and the UK Estimates from the International Trade in Services Survey, Percentage

Service category	Exports		Imports	
	Eurostat	ITIS survey	Eurostat	ITIS survey
Manufacturing	0	49	0	37
Maintenance and repair	0	49	0	37
Transportation	65	65	80	80
Travel	0	0	0	0
Construction	0	47	0	23
Insurance and pension	100	84	100	71
Financial	100	89	100	79
Intellectual property	100	83	100	87
Telecommunications, computer and information services	87	85	89	85
Other business services	75	65	75	65
Personal, cultural and recreational	75	43	75	29
Government	75	75	75	75