

**TRADER CONCENTRATION FOR IRELAND'S FOREIGN TRADE AND
THE IMPLICATIONS FOR POST-1992 INTRA-EU TRADE STATISTICS**

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1. INTRODUCTION

Since 1993 the detailed statistics on merchandise trade between Ireland and the other members of the European Union have been collected by means of a statistical survey of importers and exporters.

This move from Customs administrative-based statistics to survey-based ones has had significant effects on the collection of Ireland's statistics of trade with our fellow EU member states (intra-EU trade).

In this paper we look at Ireland's trade in 1992 and examine

- the degree to which it is concentrated among the larger traders
- the degree of concentration among the various commodities
- the selection of exclusion thresholds for the detailed INTRASTAT survey
- the effect of the exclusion of small traders from the new survey.

In Section 1 of the paper we set out the background and explain the data sources used. Section 2 contains analyses of the concentration of Ireland's total foreign trade and Section 3 shows how this influenced the setting up and running of the new system for the collection of trade statistics.

Background

From the point of view of official statistics one of the most important effects of the completion of the EU internal market has been the abolition of routine Customs controls in trade between member states. The disappearance of Customs documentation has removed at one fell swoop the basis for the vast bulk of the statistics on our trade with the other member states.

The principal means by which this gap in the trade statistics is being filled is the so-called INTRASTAT system. This system involves

- the carrying out of a detailed monthly survey of all 'large' traders engaged in intra-EU trade, and
- the use of periodic VAT returns to collect the value of total exports and imports to and from all EU member states.

The system is a harmonised EU-wide one which is being operated under EU legislation. In the detailed survey, information is being sought on the value and quantity of trade in each of the 9,750 headings of the trade goods nomenclature (the Combined Nomenclature or CN) broken down by partner country, mode of transport, delivery terms and nature of transaction. This reflected the intention of the EU Commission, which set out proposals for the system, to retain after 1992 most of the type of data and level of detail which was previously available from Customs documentation.

There are some 27,000 importers and 9,300 exporters engaged in intra-EU trade in Ireland. It clearly is not a realistic option to survey all of these. Apart from the fact that traders expected a significant decrease in the form-filling burden after 1992, it would stretch the resources of any government agency to conduct a monthly inquiry on this scale.

It must be remembered that the critical factor which has made it possible heretofore to compile what were an exceptionally detailed and timely body of economic statistics was the incentive for traders to have their goods cleared by Customs without delay. After 1992 this incentive does not exist for intra-EU trade.

The survey has, therefore, been confined to 'large' traders only so as to minimise survey management difficulties and also to keep the form filling burden of traders to a minimum while at the same time endeavouring to ensure that the accuracy and detail of the trade statistics are by and large maintained.

Three questions in particular arose when planning such a survey. The first was what should be the dividing line or threshold when defining a 'large' trader. The second was what did this mean in terms of the size of the survey. The third was what would be the effect on the accuracy of commodity by country information of confining coverage to 'large' traders only.

An analysis of pre-1993 imports and exports by size of trader facilitated an informed discussion on how to strike a balance between the need for a reasonable level of accuracy at the detailed level and the need to minimise the task of collecting the data and the burden on the suppliers of the data.

This paper contains some of the principal findings from that analysis. 1992 is the last year for which such comprehensive trader data will be available. While the main emphasis of this paper is on how the conclusions which can be drawn from intra-EU

trade concentrations helped in setting up the INTRASTAT system, the opportunity is also taken to comment more generally on concentrations for total trade, both intra-EU and extra-EU.

The Data

The vast bulk of our trade statistics prior to 1993 were compiled from data entered by traders on their Customs entry document (the so-called Single Administrative Document or SAD). The value of all exports compiled from this source in 1992 was £16,224 million and that of imports £12,840 million. These figures represent 97.6 per cent and 97.3 per cent of total exports and imports respectively. The remainder of trade was made up of Shannon Free Airport, parcel post and low value trade whose values are derived by the CSO from other sources. The data on which this current analysis was carried out were taken from the SAD-based statistics only since they enabled a detailed cross-classification of 1992 imports and exports by country, commodity and trader to be provided.

Table 1. Foreign Trade in 1992 (£million)

	Exports			Imports		
	Total	Intra-EU	Extra-EU	Total	Intra-EU	Extra-EU
Total	16,629	12,330	4,299	13,195	9,403	3,792
Shannon Free Airport, Parcel post and Low value trade	405	216	189	355	248	107
SAD-based trade	16,224	12,114	4,110	12,840	9,155	3,685
<i>of which</i>						
Trade with valid VAT registration numbers	15,188	11,432	3,756	12,050	8,820	3,230
Other trade	1,036	682	354	790	335	455

Not all SAD-based trade could be used, however, since a trader identifier was not available for every transaction. The trader VAT registration number, which traders were required to provide on each SAD, was used by us as the trader identifier. An advantage in using this is that the INTRASTAT system, because of the role of the VAT collection system in it, demands the use of the trader's VAT number as his/her identifier. Using it in this analysis thus increased the usefulness of the analysis in directly assessing the effect of the exclusion thresholds envisaged in the INTRASTAT system.

Transactions for which no VAT registration number was supplied (mainly transactions by individuals or by small firms not registered for VAT) and transactions on which an invalid VAT registration number was given were excluded

from the analysis. This meant that the remaining transactions used in our analysis covered £15,188 million of exports and £12,050 million of imports. These both represented 91.3 per cent of their respective totals. The overall picture was as shown in Table 1.

Prior to 1992 traders were encouraged to use the newly introduced Direct Trader Input (DTI) system for the submission of their SADs to Customs. With DTI the data were entered directly into the Customs system by the trader or his agent rather than by the Customs service. Automatic checks were carried out by the Customs on the returns received and if the data failed these checks the trader had to re-submit a corrected return. In particular the VAT registration number was checked for validity in this system.

For traders not using DTI the VAT registration number was not always recorded correctly and accordingly some invalid VAT registration numbers remained on the data file. (The VAT registration number was not indispensable to the Customs clearance process since full identification details were supplied separately on the SAD.).

A manual examination of the trade associated with invalid VAT registration numbers showed no obvious pattern amongst the entries. It is possible that the actual concentration of trade may be different than our analysis suggests. However, our examination of the invalid numbers coupled with the relatively small amount of trade involved and the apparent randomness of the errors would suggest that any such differences are likely to be slight.

A second limitation lies in the extent to which traders may have, and use, more than one VAT registration number. To investigate whether this was occurring to any significant extent an examination was made of the largest 2,000 traders. A cross-check was made between VAT registration number and name of trader and a check was then made for repetition of the same or associated trader name. In very few cases did repetition occur and the values involved were so small that they do not affect the analysis to any degree.

A third point to be aware of with the use of VAT registration number as a proxy for trader is the fact that in some cases a number of distinct traders may have entered their Customs declarations under the same VAT number. This is likely to happen only with smaller traders. It can happen, for example, in a groupage situation where a Customs clearance agent or freight company fills a container with the goods of a number of traders and uses the agent's VAT number. Indeed it may be the case that some of the traders are not registered for VAT. A list of agents was checked against the list of names of the largest 2,000 traders and in only a couple of cases did this appear to happen. Again the values involved were too small to affect the conclusions of this analysis.

Commodities were classified according to the Combined Nomenclature (CN) which is the common base for all trade and customs goods classification.

The concept of intra-EU trade used in this paper is:

- Exports - all goods exported to another EU member state;
- Imports - all goods imported having been consigned from another EU member state. (Note particularly that this is not necessarily the same as the country of origin of the goods).

2. CONCENTRATION OF TRADE

Trader Concentration

Total trade

In 1992 some 9,817 traders were engaged in exporting the £15,188 million worth of goods covered in our analysis. The number of importers covered was much higher at 27,354. The value of their imports was £12,050 million which represented an average of £441,000 per importer compared with an average of £1,547,000 exported per exporter.

Table 2. Total Trade – Percentile distribution of traders in 1992

Exports				Imports			
Percentile	Exports of traders above percentile			Percentile	Imports of traders above percentile		
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	29,832	9,462	62.3	99	7,638	6,591	54.7
98	13,226	11,350	74.7	98	3,926	8,053	66.8
97	7,881	12,353	81.3	97	2,383	8,899	73.9
96	5,319	12,995	85.6	96	1,717	9,459	78.5
95	3,880	13,442	88.5	95	1,271	9,861	81.8
90	1,115	14,458	95.2	90	464	10,915	90.6
85	451	14,808	97.5	85	239	11,376	94.4
80	226	14,968	98.6	80	136	11,625	96.5
75	122	15,049	99.1	75	82	11,771	97.7
50	15	15,165	99.9	50	12	12,003	99.6
25	3	15,182	100.0	25	2	12,044	100.0
Total	-	15,188	100.0	Total	-	12,050	100.0
Total number of exporters : 9,817				Total number of importers : 27,354			

Table 2¹ shows that there is an extremely high concentration of exports among the largest traders. In fact the largest 1.0 per cent of exporters, just 99 in number, are responsible for 62.3 per cent of all exports. This is an exceptional concentration of

trade by any standards and indicates the degree to which Ireland's exports are dependent on a very small number of traders (whose individual exports are each in excess of £29,832,000).

Moving further down we can see that the top 10.0 per cent of exporters, who each exported more than £1,115,000 in 1992, covered 95.2 per cent of the total value of exports.

Not surprisingly the concentration of imports is not as marked as that of exports. The largest 1.0 per cent of importers accounted for some 54.7 per cent of imports. The top 1.0 per cent of importers was comprised of the 274 importers who each had imports of over £7,638,000 in 1992.

Table 2 also shows that the largest 10.0 per cent of importers (2,736 in number with imports of over £464,000 each) covered 90.6 per cent of total value of imports.

Intra-EU trade

General

Table 3 gives the percentile distributions of traders engaged in intra-EU trade. These generally show a very similar pattern to that of Table 2.

Table 3. Intra-EU Trade – Percentile distribution of traders in 1992

Exports				Imports			
Percentile		Exports of traders above percentile		Percentile		Imports of traders above percentile	
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	21,983	6,846	59.9	99	5,911	4,423	50.2
98	10,833	8,308	72.7	98	3,117	5,572	63.2
97	6,358	9,088	79.5	97	1,955	6,220	70.5
96	4,453	9,585	83.8	96	1,364	6,655	75.4
95	3,245	9,946	87.0	95	1,043	6,973	79.1
90	978	10,793	94.4	90	401	7,835	88.8
85	419	11,095	97.0	85	211	8,225	93.3
80	216	11,236	98.3	80	122	8,441	95.7
75	115	11,309	98.9	75	75	8,569	97.1
50	14	11,413	99.8	50	11	8,777	99.5
25	3	11,430	100.0	25	2	8,814	99.9
Total	-	11,432	100.0	Total	-	8,820	100.0
Total number of exporters : 9,311				Total number of importers : 26,685			

There were 9,311 exporters engaged in exporting the £11,432 million worth of goods, covered in our analysis, to other member states. The 99th percentile was £21,983,000 with 59.9 per cent of exports being made by the 94 exporters with exports above that figure.

The number of importers covered was 26,685 with a total value of £8,820 million intra-EU imports. The top 1.0 per cent of these, just 267 in number, accounted for 50.2 per cent of such imports.

It can be deduced from the trader numbers here that only 506 traders exclusively exported to non-EU states. These 506 represent just 5.2 per cent of all exporters. The corresponding figure for importers exclusively importing from non-EU states is 669 which is an even smaller proportion, 2.4 per cent, of all importers.

Commodity mix of large traders

For intra-EU trade it is interesting to compare the mix of commodities traded by the top 1.0 per cent of traders with that of the remaining 99.0 per cent. In Table 4 we give such a comparison using the Sections of the CN as the basis for the commodity classification.

For exports the Sections where the top 1.0 per cent of traders have the greatest impact are, not surprisingly, "VI Chemicals" and "XVI Machinery (including ADP)". In these Sections 77.0 per cent and 72.2 per cent respectively of intra-EU exports are done by the top 1.0 per cent of exporters. This highlights the large reliance our intra-EU exports have on a small number of mainly multinational firms. By comparison the comparatively large Section "VII Plastics, rubber" with £349 million worth of exports has just 21.8 per cent of those carried out by the top 1.0 per cent of exporters.

On the imports side the largest traders have their greatest impact on the "V Mineral products", "IV Foodstuffs, beverages, tobacco" and "XVII Transport equipment" Sections where they are responsible for 80.6 per cent, 68.9 per cent and 65.0 per cent of imports respectively. This large concentration in areas comprising mainly goods for household consumption (Section V includes petrol and other motor fuel) indicates that the distribution of large amounts of these commodities is in the control of a small number of companies.

The top 1.0 per cent of importers also have a large impact in the "VI Chemicals" and "XVI Machinery (including ADP)" Sections with 59.7 per cent and 56.2 per cent respectively of intra-EU imports.

Table 4. Intra-EU Trade classified by CN Section showing the percentage carried out by the largest 1% of traders in 1992

CN Section	Exports		Imports		
	Total	Top 94	Total	Top 267	
	£ million	exporters %	£ million	importers %	
I	Live animals; animal products	1,681	54.4	179	36.3
II	Vegetable products	142	31.0	220	45.9
III	Animal, vegetable fats	25	36.0	50	54.0
IV	Foodstuffs, beverages, tobacco	1,171	66.2	790	68.9
V	Mineral products	185	61.6	386	80.6
VI	Chemicals	1,950	77.0	1,067	59.7
VII	Plastics, rubber	349	21.8	568	28.3
VIII	Hides, leather	62	14.5	20	15.0
IX	Wood, cork	80	36.2	58	6.9
X	Pulp, paper, paperboard	159	1.2	433	47.3
XI	Textiles, textile articles	637	40.3	832	41.2
XII	Footwear, headgear etc.	26	0.0	104	34.6
XIII	Stone, ceramics, glass	84	2.4	167	13.8
XIV	Precious metals; jewellery	44	50.0	22	4.5
XV	Base metals, articles thereof	364	32.1	653	31.4
XVI	Machinery (inc ADP)	3,765	72.2	2,329	56.2
XVII	Transport equipment	128	19.5	525	65.0
XVIII	Photographic etc instruments	411	45.3	218	28.9
—	Other sections	168	25.6	197	20.3
****	TOTAL	11,432	59.9	8,820	50.2

Great Britain and Northern Ireland

Tables A and B in the Appendix show the percentile distribution of trade with Great Britain and with Northern Ireland respectively. Table A shows that 6,745 traders were involved in exporting to Great Britain in 1992. This represents 72.4 per cent of all intra-EU exporters.

Exports to Great Britain were very slightly less concentrated than total intra-EU exports with the top 1.0 per cent of traders, 68 in number, covering 56.7 per cent of the total £4,123 million exported. Each of these traders exported in excess of £10,589,000 to Great Britain. The top 5.0 per cent of traders exported 84.5 per cent or £3,483 million of the total.

Looking at imports from Great Britain the same table indicates that a very large number of traders were involved. In all some 22,107 traders imported goods from Great Britain in 1992 which represents 82.8 per cent of all intra-EU importers.

As was the case for exports, imports from Great Britain were very slightly less concentrated than total intra-EU imports. The largest 1.0 per cent of importers, 221 in number, covered 50.0 per cent of the total £5,085 million imports. Each of these

traders imported in excess of £3,957,000 from Great Britain. The top 5.0 per cent of traders imported 77.6 per cent or £3,958 million of the total.

Exports to Northern Ireland, Table B in the Appendix, were considerably less concentrated than those to Great Britain. This is no doubt mainly due to the presence of a relatively large number of traders involved in what is, compared to overall exports, a very small market. In fact there were 4,155 exporters to Northern Ireland, which is 44.6 per cent of all intra-EU exporters, while exports were just £749 million or a mere 6.6 per cent of total intra-EU exports. The top 1.0 per cent of traders exported 39.3 per cent of the total exports to Northern Ireland while the top 5.0 per cent exported 71.4 per cent of the total.

For imports from Northern Ireland there was not a very significant difference in the degree of concentration compared with imports from Great Britain. Again the number of traders involved, 10,072 or 37.7 per cent of all intra-EU importers, is very large considering the value of imports which was just £596 million or 6.8 per cent of the intra-EU total. The top 1.0 per cent of traders imported 50.8 per cent of total imports from Northern Ireland while the top 5.0 per cent imported 76.5 per cent of the total.

Extra-EU trade

Table 5 shows the percentile distributions of traders engaged in extra-EU trade. Again this is similar to the distributions in Table 2.

There were 2,669 exporters engaged in exporting the £3,756 million worth of goods, covered in our analysis, to non-EU countries. The 99th percentile was £27,101,000 with 52.4 per cent of exports being done by the 27 companies with exports above that figure.

The number of extra-EU importers covered was 5,909 with a total value of £3,230 million extra-EU imports. The top 1 per cent of these, just 60 in number, accounted for 59.5 per cent of imports.

Table 5. **Extra-EU Trade – Percentile distribution of traders in 1992**

Exports				Imports			
Percentile		Exports of traders above percentile		Percentile		Imports of traders above percentile	
<i>No.</i>	<i>Value (£000)</i>	<i>£million</i>	<i>%</i>	<i>No.</i>	<i>Value (£000)</i>	<i>£million</i>	<i>%</i>
99	27,101	1,967	52.4	99	7,578	1,923	59.5
98	15,042	2,522	67.2	98	3,953	2,251	69.7
97	8,541	2,821	75.1	97	2,693	2,446	75.8
96	6,644	3,016	80.3	96	1,834	2,575	79.7
95	4,412	3,162	84.2	95	1,417	2,670	82.7
90	1,231	3,494	93.0	90	547	2,925	90.6
85	589	3,612	96.2	85	278	3,040	94.1
80	312	3,670	97.7	80	168	3,104	96.1
75	176	3,703	98.6	75	109	3,144	97.4
50	20	3,750	99.8	50	18	3,215	99.5
25	3	3,755	100.0	25	3	3,228	99.9
Total	–	3,756	100.0	Total	–	3,230	100.0
Total number of exporters : 2,669				Total number of importers : 5,909			

Commodity Concentration

Total trade

As already mentioned trade statistics are classified according to the Combined Nomenclature which is the basis for the Customs tariff nomenclature. This goods classification system, which all member states are required by EU legislation to use, contains some 9,750 headings to which goods can be assigned. This is indeed a very detailed classification. Our analysis for 1992 shows that 6,471 of the headings were used by exporters to classify their goods and 8,475 headings were used by importers.

The significantly larger number of headings used in imports is an indication of the greater heterogeneity of our imports by comparison with exports.

Table 6 shows the degree to which exports and imports are concentrated among CN headings. The table shows that exports are very concentrated among just a few CN headings. In fact the largest 65 headings catering for 60.8 per cent of total exports and 98.0 per cent of exports are covered within the 1,618 headings above the 75th percentile.

Table 6. Total Trade – Percentile distribution of CN headings in 1992

Exports				Imports			
Percentile		Exports in headings above percentile		Percentile		Imports in headings above percentile	
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	32,856	9,238	60.8	99	18,915	4,351	36.1
98	18,006	10,816	71.2	98	11,733	5,567	46.2
97	10,957	11,742	77.3	97	8,321	6,399	53.1
96	7,943	12,327	81.2	96	6,315	7,014	58.2
95	5,970	12,772	84.1	95	5,225	7,507	62.3
90	2,125	13,966	92.0	90	2,634	9,085	75.4
85	1,093	14,462	95.2	85	1,648	9,977	82.8
80	616	14,733	97.0	80	1,096	10,543	87.5
75	369	14,890	98.0	75	796	10,942	90.8
50	54	15,140	99.7	50	182	11,828	98.1
25	9	15,182	100.0	25	35	12,024	99.8
Total	–	15,188	100.0	Total	–	12,050	100.0
Total number of headings : 6,471				Total number of headings : 8,475			

The possible conclusion - that such a degree of concentration must reflect an excessive reliance on a very small number of products - must be qualified somewhat by the international experience that there are inadequacies in using the CN, or any other product nomenclature for that matter, in analyses such as these.

In general the fewer headings in a particular area of the nomenclature the greater will be the value of trade in those headings. For example, the part of the CN covering the automatic data processing equipment area (comprising mainframes, PCs, processing units, input and output units, storage units and other peripheral units) contains only 18 headings (i.e. those headings with codes beginning with '8471'). In contrast there are 82 headings to cover the "footwear and parts thereof" sector, i.e. codes beginning with '64'. These inadequacies reflect, inter alia, the fact that the CN is primarily a classification designed for Customs tariff purposes and for world-wide use.

The fact that Ireland's very large exports of ADP equipment are divided among only 18 headings tends to make the product concentration more pronounced than it would be if there were something in the order of, say, 100 headings covering the area.

However, one conclusion that can certainly be made with regard to Irish exports is that to all intents and purposes only 1,618 of the available 9,750 CN headings were needed in 1992. Put another way 83.4 per cent of CN headings were redundant.

The picture for imports is different with the top 85 (1.0 per cent) headings covering just 36.1 per cent of the total value. This is not much more than half the proportion of exports (60.8 per cent) covered by the largest 1.0 per cent of headings. Moving further down the table we see that some 50.0 per cent or 4,238 headings are needed to cover 98.1 per cent of imports compared with the corresponding figure of around 1,600 headings for exports.

The marked difference in concentration among the commodity headings between imports and exports can be explained by the fact that exporting is done for the most part by manufacturers and agricultural producers with fixed, and fairly limited, product lines, while on the other hand importing done by retailers, wholesalers and agents must cover the vast spread of consumers' requirements.

Intra-EU trade

Restricting ourselves to intra-EU trade only we can see from Table 7 that the degree of concentration among CN headings is not very different from the picture for total trade.

Table 7. Intra-EU – Percentile distribution of CN headings in 1992

Exports				Imports			
Percentile		Exports in headings above percentile		Percentile		Imports in headings above percentile	
No.	Value (£000)	£ million	%	No.	Value (£000)	£ million	%
99	27,061	6,752	59.1	99	14,072	2,944	33.4
98	14,397	7,956	69.6	98	8,574	3,852	43.7
97	9,098	8,684	76.0	97	6,378	4,483	50.8
96	6,302	9,157	70.1	96	5,036	4,953	56.2
95	4,943	9,504	83.1	95	4,071	5,329	60.4
90	1,831	10,447	91.4	90	2,099	6,522	73.9
85	889	10,852	94.9	85	1,308	7,212	81.8
80	510	11,064	96.8	80	887	7,657	86.8
75	312	11,189	97.9	75	629	7,970	90.4
50	46	11,393	99.7	50	141	8,648	98.1
25	8	11,428	100.0	25	28	8,799	99.8
Total	–	11,432	100.0	Total	–	8,820	100.0
Total number of headings : 6,206				Total number of headings : 8,339			

Intra-EU exporters used 6,206 CN headings while intra-EU importers used 8,339. These figures compare with the 6,741 and 8,475 headings used in total exports and imports respectively.

The largest 1.0 per cent of export headings covered 59.1 per cent of the value of exports and the largest 1.0 per cent of import headings covered 33.4 per cent of imports. These proportions are similar to the corresponding ones for total trade. Likewise only 1,552 headings, the 25 per cent with exports above the 75th percentile, were needed to cater for 97.9 per cent of intra-EU exports and 4,169 headings, the 50 per cent with imports above the 50th percentile, covered 98.1 per cent of intra-EU imports.

An examination of the CN headings with the largest intra-EU trade values showed interestingly that the same heading, CN 8473-30-10 "Electronic assemblies for automatic data processing and similar machines", topped the list in both intra-EU exports and imports. Exports were £794,859,000 and imports £204,343,000.

Another aspect of intra-EU trade which we considered important from the point of view of the carrying out of the new INTRASTAT survey was the degree to which CN headings are used by different numbers of traders. In Table 8 we set out such an analysis.

Table 8. **Intra-EU Trade – Number and value of CN headings classified by number of traders with trade therein in 1992**

Number of traders	Exports		Imports	
	Number	£million	Number	£million
1	1,633	128	898	55
2	975	284	621	68
3	636	247	500	60
4	445	198	441	85
5-10	1,285	1,654	1,673	518
11-25	830	2,058	1,709	1,283
Over 25	402	6,863	2,497	6,752
Total	6,206	11,432	8,339	8,820

The table categorises CN headings by the number of traders who had trade in them in 1992. In exports a surprising 1,633 headings were only used by one exporter (in intra-EU trade) and 975 by just two exporters. Although the value of exports in these 2,608 headings was comparatively small at £412 million their number does indicate the extent to which detailed export statistics can be dependent on particular individual traders making accurate returns.

On the other hand only 402 headings were used by more than 25 exporters. These headings covered £6,863 million or 60.0 per cent of the total exports in the analysis.

For imports the figures are much less extreme with just 1,519 headings being used by 1 or 2 importers and 2,497 by more than 25 importers.

Extra-EU trade

Restricting ourselves to extra-EU trade only we can see from Table 9 that the degree of concentration among CN headings is not very different for exports from the picture for total trade.

Table 9. Extra-EU – Percentile distribution of CN headings in 1992

Exports				Imports			
Percentile		Exports in headings above percentile		Percentile		Imports in headings above percentile	
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	16,788	2,352	62.6	99	10,362	1,661	51.4
98	8,956	2,745	73.1	98	4,717	2,004	62.1
97	5,960	2,978	79.6	97	2,968	2,195	68.0
96	4,009	3,129	83.3	96	2,328	2,334	72.3
95	2,965	3,239	86.2	95	1,829	2,442	75.6
90	999	3,486	92.8	90	787	2,749	85.1
85	503	3,597	95.8	85	438	2,901	89.8
80	275	3,656	97.3	80	299	2,996	92.6
75	170	3,689	98.2	75	201	3,061	94.8
50	27	3,745	99.7	50	44	3,195	98.9
25	5	3,755	100.0	25	9	3,225	99.9
Total	–	3,756	100.0	Total	–	3,230	100.0
Total number of headings : 3,094				Total number of headings : 5,258			

Extra-EU exporters used 3,094 CN headings while intra-EU importers used 5,258. These figures compare with the 6,471 and 8,475 headings used in total exports and imports respectively.

The largest 1.0 per cent of export headings covered 62.6 per cent of the value of exports and the largest 1.0 per cent of import headings covered 51.4 per cent of the value of imports. Likewise only 774 headings, the 25 per cent with exports above the 75th percentile, were needed to cater for 98.2 per cent of extra-EU exports and 2,629 headings, the 50 per cent with imports above the 50th percentile, covered 98.9 per cent of extra-EU imports.

3. THE DETAILED INTRASTAT SURVEY

Selection of Exclusion Thresholds

Overall perspective

At this point we discuss how the exclusion thresholds for the detailed INTRASTAT survey were arrived at. These thresholds, which were allowed for in the relevant EU Regulations, were intended to minimise the reporting burden on traders while at the same time maintaining by and large the accuracy and reliability of the detailed trade statistics. Traders whose trade in the previous year was below the relevant threshold (there were to be separate thresholds for imports and exports) would be exempt from the requirement to make a detailed INTRASTAT return.

Table 10. Number of traders needed to cover certain percentages of the total value of intra-EU exports in 1992

Percentage of exports	Traders	Exports		Transactions	
	<i>Number</i>	Total <i>£million</i>	Av. per trader	Total <i>000</i>	Av. per trader <i>Number</i>
90%	594	10,289	17.32	449	756
next 5%	413	572	1.38	79	192
next 1%	158	114	0.72	18	116
next 1%	219	114	0.52	23	106
next 1%	342	114	0.33	24	70
next 1%	679	114	0.17	30	44
next 1%	6,906	114	0.02	44	6
Total	9,311	11,432	1.23	668	72

Table 10 shows the minimum number of exporters required to cover 90 per cent of intra-EU exports, followed by the additional number needed to raise the coverage to 95 per cent and then by 1 per cent jumps to full 100 per cent coverage. The average value of exports per trader and the average number of transactions per trader is also shown at each stage.

A law of diminishing returns clearly comes into play here with each additional 1 per cent of exports requiring a disproportionately larger number of traders to be surveyed.

Table 11 shows a very similar pattern for intra-EU importers where, of course, the numbers of traders involved are much higher.

Table 11. Number of traders needed to cover certain percentages of the total value of intra-EU imports in 1992

Percentage of imports	Traders	Imports		Transactions	
	Number	Total £ million	Av. per trader	Total 000	Av. per trader Number
90%	2,946	7,938	2.70	1,039	353
next 5%	1,930	441	0.23	141	73
next 1%	688	88	0.13	35	51
next 1%	938	88	0.09	38	41
next 1%	1,412	88	0.06	41	29
next 1%	2,596	88	0.03	48	19
next 1%	16,175	88	0.01	68	4
Total	26,685	8,820	0.33	1,411	53

One critical factor that had to be borne in mind in the selection of the INTRASTAT survey thresholds was the number of traders which could realistically be covered in such an administrative operation. The number of traders involved if 95 per cent coverage were to be achieved was about 5,500 (allowing for some overlap between importers and exporters; Tables 10 and 11 indicate that 1,007 exporters and 4,876 importers would be needed). In discussions in the "Interdepartmental Committee on Trade Statistics post 1992" a major concern was the cost of implementing the INTRASTAT system. It was established that available resources would allow a maximum 6,000-7,000 traders to be covered. It was agreed that increasing coverage further was not a cost-effective use of resources within the Office of the Revenue Commissioners - the organisation given the responsibility for collection of the data.

This factor, therefore, seemed to indicate that the selected thresholds should aim to cover in the order of 95-97 per cent of both exports and imports since to try to cover a greater amount would mean that the INTRASTAT survey would become too large.

Another important factor in deciding on the degree of coverage was the fact, already referred to, that small traders were, not unreasonably, expecting to be able to trade in the Single Market not only without Customs delays at frontiers but also without any significant administrative burden being imposed by Government. Increasing the coverage to much above 95-97 per cent would on the imports side, for example, involve surveying traders whose EU imports were much less than £100,000 in a year. From discussions which CSO and the Revenue Commissioners had with traders and trade associations it was clear that such traders would often be small enough to regard this as a daunting burden which might even be a factor in any

decision by them whether or not to trade more extensively with other Member States. This would certainly be an unacceptable consequence.

It is worth noting that the average number of import transactions for the extra traders drawn in by raising coverage from 97 per cent to 98 per cent is 29 in a year. It is likely that such almost occasional traders would not have the in-house facilities for completion of returns and that it would be difficult to justify the initial cost of setting up such facilities.

One of the main simplifications which was being cited for the new system was the scope for the globalisation of transactions within a month. This means that a trader, instead of having to enter on a SAD the details of each transaction when it takes place, can now aggregate his/her transactions within a month provided that they are of the same commodity/partner country etc. category; this is particularly helpful for very large traders. It would be of relatively little benefit to these marginal small traders. For traders of this size the only cost-effective option would be to retain the services of their existing Customs clearance agent and this is a cost which they might have expected to disappear.

In short such traders could object that they had derived little benefit from the expected post-1992 easing of burdens other than the obvious one of the free movement of their goods.

Commodity by partner country considerations

Before agreeing the final thresholds to be used a more detailed analysis was essential to examine the effect of various threshold levels on the commodity by partner country data in intra-EU trade.

In order to do this in Autumn 1992 a set of "test" thresholds for exports and for imports was tried out on the trade data for the 12 months ending June 1992. For exports the selected thresholds (which were rounded to the nearest £10,000) were £690,000, £520,000 and £350,000. These thresholds, if applied, would have resulted in coverage of 95 per cent, 96 per cent and 97 per cent respectively of the total exports. For imports the corresponding selected thresholds were £120,000, £90,000 and £65,000.

The figures shown in this paper are based on trade data for the calendar year 1992.

Table 12. **Export items * classified by percentage of their value which is excluded by the application of certain thresholds**

Percent of value excluded	Threshold applied					
	£690,000		£520,000		£350,000	
	<i>Items</i>	%	<i>Items</i>	%	<i>Items</i>	%
less than 3	9,020	46.2	9,726	49.8	10,580	54.2
3 - 5	339	1.7	369	1.9	390	2.0
5 - 10	579	3.0	614	3.1	655	3.4
10 - 20	734	3.8	764	3.9	764	3.9
20 - 30	516	2.6	520	2.7	530	2.7
30 - 50	816	4.2	809	4.1	782	4.0
50 or over	7,531	38.6	6,733	34.5	5,834	29.9
Total	19,535	100.0	19,535	100.0	19,535	100.0

* Commodity (CN) code by partner country combination.

Since the commodity (CN) by country data are what are required by the bulk of our users of trade statistics it was on the data at that level that the next analysis was done.

Tables 12 and 13 show the effect at the CN by country level of applying the three test thresholds to exports and imports respectively. They show the number of CN by country combinations ("items" in the tables) classified by the percentage of their value which would be excluded from a survey if the corresponding threshold were applied. The percentage of value excluded, distinguished in separate ranges, after applying each threshold is shown in the left-hand column and for each such range the number of CN by country combinations under each threshold is shown. In principle with about 9,750 CN headings and 11 partner countries (Belgium and Luxembourg are combined for trade statistics purposes) there are 107,250 possible combinations. It will be seen from the tables that in practice only 19,535 actually occur on the exports side and only 32,320 on the imports side.

Looking at the Table for exports (Table 12) one is struck by the large proportion, 46.2 per cent, of CN by country combinations for which less than 3 per cent of their value is excluded when the highest of the thresholds, £690,000, is applied. However, 38.6 per cent of combinations had at least 50 per cent of their value excluded.

This is not inconsistent with a loss of 5 per cent overall implied by the £690,000 threshold and arises mainly because of the large proportion of CN headings in which only a small number of exporters trade (see Table 8). While this percentage declines to 29.9 per cent for the smallest threshold it is fair to say that the improvement generally is not very significant.

Table 13. Import items * classified by percentage of their value which is excluded by the application of certain thresholds

Percent of value excluded	Threshold applied					
	£120,000		£90,000		£65,000	
	Items	%	Items	%	Items	%
less than 3	19,888	61.5	21,226	65.7	22,861	70.7
3 - 5	1,115	3.4	1,168	3.6	1,204	3.7
5 - 10	2,017	6.2	1,948	6.0	1,834	5.7
10 - 20	2,294	7.1	2,114	6.5	1,797	5.6
20 - 30	1,299	4.0	1,104	3.4	872	2.7
30 - 50	1,447	4.5	1,182	3.7	973	3.0
50 or over	4,260	13.2	3,578	11.1	2,779	8.6
Total	32,320	100.0	32,320	100.0	32,320	100.0

* Commodity (CN) code by partner country combination.

For imports (Table 13) when the highest threshold, £120,000, is applied it will be seen that an even larger proportion (61.5 per cent) of the combinations actually have less than 3 per cent of their value excluded. At the other extreme only 13.2 per cent of combinations lose at least 50 per cent of their value with this threshold. This very different picture from the situation in exports is again explained by reference to Table 8 where it can be seen that a much smaller proportion of CN headings in imports is used by fewer than 5 traders.

As the thresholds decrease not surprisingly there is a shift to the 'smaller exclusion' categories and for the £65,000 threshold the proportion of combinations for which less than 3 per cent of value is excluded has risen to 70.7 per cent. Again however the large relative differences in the thresholds do not appear to make very significant improvements to the degree of coverage.

Partner country considerations

Table 14 shows for exports and imports the effect of the different test thresholds on trade with each partner country. For exports and imports the most notable feature is the much higher than average effect on trade with Northern Ireland, with a significantly worse position for exports. Even if the lowest of the thresholds were applied the proportion of exports to Northern Ireland which would be excluded is still 12.8 per cent. This undoubtedly results from the fact that cross-border trade contains a large proportion of small local businesses. Trade with Great Britain is, in all cases, the next most affected with between 6.2 per cent and 3.8 per cent of exports and 5.8 per cent and 3.5 per cent of imports being excluded depending on the threshold used.

Table 14. Percentage of trade with each partner country excluded by the application of certain thresholds

Partner country	Exports			Imports		
	Threshold (£000)			Threshold (£000)		
	690	520	350	120	90	65
Great Britain	6.2	5.1	3.8	5.8	4.7	3.5
Northern Ireland	19.3	15.9	12.8	10.2	8.6	6.9
France	2.5	1.7	1.1	1.9	1.5	1.1
Belgium & Luxembourg	1.9	1.6	1.1	2.5	1.9	1.3
Netherlands	2.3	1.8	1.3	2.4	1.8	1.3
Germany	2.9	2.2	1.5	2.3	1.8	1.2
Italy	1.8	1.6	1.2	5.3	4.0	2.9
Denmark	5.0	3.8	3.3	4.8	3.6	2.6
Greece	2.2	1.0	0.9	1.4	1.3	1.0
Portugal	4.7	3.4	3.1	5.4	3.8	2.1
Spain	3.3	2.5	2.0	3.5	2.6	1.9

Apart from Northern Ireland and Great Britain, in general the more important (in terms of value) partner countries are less seriously affected than the smaller countries although imports from Italy are also affected more than the average.

Greece, with whom we have very little trade, is a notable exception to this in that a surprisingly small proportion of its trade is excluded under any of the test thresholds.

Broad commodity headings considerations

Tables 15 and 16 show the effect of the various test thresholds at a broad level of aggregation on commodity information i.e. on data at the CN two-digit or 'chapter' level. These tables are restricted to the largest, in value terms, 10 chapters for intra-EU exports and imports. Also an abbreviated description of the chapter heading is shown. (The full description of the chapters is given in the Appendix.)

For exports (Table 15) chapter 39 "Plastics and articles thereof" has more than twice as much of its trade excluded than any of the other top 10 chapters. This reflects a comparatively unconcentrated sector where a significant amount of exporting is done by smaller units. This chapter together with chapter 90 "Optical, measuring etc. instruments" are the only headings where the proportion of trade excluded decreases significantly as the threshold applied decreases. The percentage excluded in chapter 39 drops from 12.8 per cent to 7.1 per cent with the change in threshold from £690,000 to £350,000. For the other chapters the gains from lowering the threshold are small.

Table 15. Percentage of exports in each of the ten largest chapters of the CN excluded by the application of certain thresholds

CN chapter Code	Description	Threshold (£000)		
		690	520	350
84	Machinery (incl. ADP) and parts	3.4	2.9	2.4
85	Electrical equipment and parts	3.0	2.3	1.8
29	Organic chemicals	0.2	0.2	0.1
04	Dairy products, etc	0.8	0.7	0.5
02	Meat and edible meat offal	1.4	1.1	0.7
21	Miscellaneous edible preparations	0.8	0.6	0.5
90	Optical, measuring etc instruments	5.0	3.8	2.6
30	Pharmaceutical products	2.7	1.4	1.1
33	Essential oils, toilet preparations	2.0	1.7	1.4
39	Plastics and articles thereof	12.8	10.3	7.1

It is worth noting that chapter 29 "Organic chemicals" where much of the trade is carried out by large multinational companies is more or less unaffected by the imposition of any of the thresholds.

On the imports side (Table 16) while none of the top 10 chapters is affected by over 10 per cent a greater number have proportions in the 2.5 per cent to 7.5 per cent range excluded. This reflects the slightly less concentrated structure of the importing traders compared to exporters. The gains in coverage at the chapter level to be made from decreasing the threshold applied are, as with exports, not very significant for most of the chapters shown.

Table 16. Percentage of imports in each of the ten largest chapters of the CN excluded by the application of certain thresholds

CN chapter Code	Description	Threshold (£000)		
		120	90	65
84	Machinery (incl. ADP) and parts	5.3	4.4	3.4
85	Electrical equipment and parts	3.2	2.5	1.9
39	Plastics and articles thereof	5.4	4.1	3.0
87	Vehicles, parts and accessories thereof	6.8	5.7	4.6
27	Mineral fuels, oils etc	1.2	0.9	0.6
48	Paper, articles of paper pulp etc	4.7	3.8	2.7
62	Clothing and accessories, not knitted	5.4	4.4	3.4
73	Articles of iron and steel	7.5	5.7	4.3
29	Organic chemicals	0.5	0.3	0.2
30	Pharmaceutical products	0.8	0.7	0.5

Again it is interesting to note that the application of any of the thresholds has minimal effect on the coverage of chapter 29 "Organic chemicals".

Detailed commodity headings considerations

In examining the effect of thresholds on commodity data we also looked at the effect on CN headings (for all partner countries combined) rather than the effect on CN by partner country combinations. Tables C and D in the Appendix show the effect at the CN level of applying the three test thresholds to exports and imports respectively. As with Tables 12 and 13 the percentage of value excluded after applying each threshold is shown in the left-hand column and for each such range the number of CN headings under each threshold is given.

We now consider what users would regard as an acceptable level of quality in commodity trade statistics.

One tentative initial view is that a user's perception of the usefulness of trade statistics would depend on the likelihood that a commodity heading chosen would, following the adoption of a certain threshold, lose no more than a certain proportion of its full value. We use as the measure of quality the proportion of commodity headings which lose no more than a given percentage of their full value.

Taking as a standard for 1993, that 75 per cent of headings should have no more than 10 per cent of their value excluded for a certain threshold, it will be seen that to achieve this for exports we would need a threshold significantly less than the smallest of our three test thresholds. In other words we would have to add hundreds, or possibly thousands, of very small exporters to the potential INTRASTAT survey. This was obviously not a satisfactory solution. For imports it can be seen from Table D that application of the £65,000 threshold would ensure that the proposed standard would be met.

A factor not taken into account in the discussion in the previous paragraph is that not all commodity codes have an equal importance to the user of trade statistics. For example data for a low-trade heading are much more likely, other things being equal, to be distorted by the timing of a single trade transaction and by factors such as mis-classification, valuation problems etc. than are the data for a heading with a very high value of trade. This is a factor which is easily recognised by users of commodity data.

Table 17. CN headings with exports of over 0.01% of intra-EU exports classified by percentage of their value which is excluded by the application of certain thresholds

Percent of value excluded	Threshold applied					
	£690,000		£520,000		£350,000	
	Number	%	Number	%	Number	%
less than 3	404	48.9	436	52.8	491	59.4
3 - 5	66	8.0	78	9.4	73	8.8
5 - 10	118	14.3	114	13.8	115	13.9
10 - 20	96	11.6	90	10.9	83	10.0
20 - 30	70	8.5	54	6.5	35	4.2
30 - 50	44	5.3	39	4.7	20	2.4
50 or over	28	3.4	15	1.8	9	1.1
Total	826	100.0	826	100.0	826	100.0

It is, therefore, more realistic to confine the analyses of the effects of various thresholds to headings which are high-value or more 'important' in some sense. To do this we recalculated Tables C and D by confining them only to those CN headings which had a value at least 0.01 per cent of the value of Ireland's total intra-EU trade in that direction.

Tables 17 and 18 show the results for exports and imports respectively. It is clear that this confining of the analysis to the larger and more important headings improves the position considerably. For exports, the suggested degree of quality (i.e. 75 per cent of 'important' headings having less than 10 per cent of value excluded) is achieved at close to the middle of our three test thresholds.

It must be mentioned however that, even with the smallest threshold, some 147 large headings would still lose more than 10 per cent of their value. This represents nearly 18 per cent of all 826 large headings.

To give a feel for the size of heading we are referring to here, a heading over 0.01 per cent of total value is about £1,140,000 for exports and £880,000 for imports.

Table 18. CN headings with imports of over 0.01% of intra-EU imports classified by percentage of their value which is excluded by the application of certain thresholds

Percent of value excluded	Threshold applied					
	£120,000		£90,000		£65,000	
	<i>Number</i>	%	<i>Number</i>	%	<i>Number</i>	%
less than 3	798	47.6	908	54.2	1,054	62.9
3 - 5	217	13.0	236	14.1	246	14.7
5 - 10	345	20.6	325	19.4	242	14.4
10 - 20	230	13.7	145	8.7	93	5.6
20 - 30	50	3.0	38	2.3	28	1.7
30 - 50	26	1.6	18	1.1	11	0.7
50 or over	9	0.5	5	0.3	1	0.1
Total	1,675	100.0	1,675	100.0	1,675	100.0

For imports, Table 18 shows that our standard would be met with the highest test threshold, £120,000, which when applied would leave 81.2 per cent of large headings with less than 10 per cent of their value excluded.

Thresholds selected

Taking all of these factors into account it was decided that the threshold above which a trader would have to complete a detailed INTRASTAT return in 1993 should be £100,000 for an importer and £500,000 for an exporter. These thresholds apply separately in that a trader may have to complete a return for his trade in one direction only or for both directions depending on whether he falls below or above these thresholds.

The analyses done, in particular the restriction to headings large enough to be of interest, allows a reasonable degree of confidence in users that the commodity heading they use will not be too seriously affected by the application of the thresholds in the INTRASTAT enquiry. At the same time the collection costs to Government and the burdens on traders are minimised.

The final section of our paper compares the trade levels of those traders above the selected thresholds with total trade levels.

Effect of the Exclusion of Below-threshold Traders

Before attempting to show the effect that the exclusion of below-threshold traders from the detailed INTRASTAT survey will have it is important to stress two points in particular.

Firstly our calculations are carried out on the 1992-based data file referred to at the beginning of the paper. In particular this means that the trade of Shannon Free Airport firms is excluded as is trade for which a valid VAT registration number was not provided.

Secondly data for traders who are excluded from the detailed INTRASTAT survey is included in the official trade statistics for intra-EU trade. This data is derived from the VAT returns made by these traders or, in some cases, by estimation.

The effect on intra-EU exports to each partner country of applying the £500,000 threshold to our 1992 data is shown in Table 19. The first three columns show that, as expected, exports to Great Britain and Northern Ireland were the worst affected. Just 86.2 per cent of exports to Northern Ireland are by traders over the threshold. In other words 13.8 per cent of exports to Northern Ireland will not be covered in the detailed INTRASTAT survey. The corresponding proportion of exports to Great Britain is 4.3 per cent.

For all other major partner countries the figure for trade excluded is much less significant, for instance just 1.2 per cent for exports to France. Overall about 3.3 per cent of exports will be excluded from the detailed survey by the £500,000 threshold. This is a very reasonable loss when compared to the proportion of exporters who are exempted. This proportion is 86.0 per cent or 8,012 exporters and it is they who, from an administrative burden point of view, gain most from the introduction of INTRASTAT.

Table 19. Value of exports and number of exporters with intra-EU exports over £500,000 in 1992

Member state of destination	Value of exports			Number of exporters		
	Total £m	Over threshold £m	%	Total No.	Over threshold No.	%
Great Britain	4,123	3,948	95.7	6,745	1,192	17.7
Northern Ireland	749	646	86.2	4,155	863	20.8
France	1,496	1,478	98.8	1,490	743	49.9
Belgium & Luxembourg	723	713	98.7	1,058	574	54.3
Netherlands	1,076	1,060	98.6	1,352	694	51.3
Germany	2,019	1,983	98.2	1,942	817	42.1
Italy	594	586	98.6	911	494	54.2
Denmark	154	148	96.4	702	403	57.4
Greece	82	81	99.1	238	187	78.6
Portugal	76	73	96.7	378	248	65.6
Spain	341	333	97.7	689	426	61.8
Total	11,432	11,049	96.7	9,311	1,299	14.0

Interestingly 91.8 per cent of exporters above the threshold have exports to Great Britain showing the continued importance of Great Britain as a trading partner for Ireland. On the value side only some 36.1 per cent of exports go to Great Britain.

As regards threshold effects on traders generally it can be seen that about 4 in 5 exporters to Great Britain and Northern Ireland are exempted by the £500,000 limit, while just 1 in 2 of exporters to the other partner countries are excluded. This reflects the far smaller proportion of small traders engaged in exporting to member states other than Great Britain and Northern Ireland.

Since there is a large degree of overlap among the partner countries (i.e. traders exporting to more than one partner country and therefore being contained in more than one line of the table) the trader numbers cannot be added together.

The picture for imports, Table 20, is not very dissimilar to that for exports. From the value excluded perspective Northern Ireland is the worst affected though to a lesser extent (7.9 per cent excluded) than in exports (13.8 per cent excluded). The overall percentage of imports excluded from the INTRASTAT survey is 3.7 per cent which is just a fraction more than the corresponding export proportion.

Table 20. Value of imports and number of importers with intra-EU imports over £100,000 in 1992

Member state of consignment	Value of imports			Number of importers		
	Total £m	Over threshold £m	%	Total No.	Over threshold No.	%
Great Britain	5,085	4,868	95.7	22,107	5,586	25.3
Northern Ireland	596	549	92.1	10,072	3,311	32.9
France	571	564	98.6	2,768	1,861	67.2
Belgium & Luxembourg	276	272	98.2	1,994	1,473	73.9
Netherlands	682	671	98.4	3,280	2,219	67.7
Germany	1,059	1,042	98.4	4,812	2,827	58.7
Italy	279	269	96.4	2,648	1,794	67.7
Denmark	119	115	96.6	1,414	977	69.1
Greece	9	8	98.9	117	103	88.0
Portugal	41	40	97.2	473	376	79.5
Spain	102	100	97.6	1,091	798	73.1
Total	8,820	8,497	96.3	26,685	5,845	21.9

The absolute number of importers exempted by the £100,000 threshold is 20,840. This again represents the number of importers who, from an administrative burden point of view, gain from the new INTRASTAT system (of course all traders gained from the completion of the internal market by the abolition of Customs frontier

controls). Though the absolute number is large, the proportion of importers excluded is less than that of exporters, a result of the lesser degree of concentration of imports.

A total of 22,107 importers purchase from Great Britain representing 82.8 per cent of all intra-EU importers. This proportion rises to a remarkable 95.6 per cent if attention is restricted to the larger importers only. The value of imports from Great Britain in our analysis is 57.7 per cent of the total intra-EU imports.

The exemption rate for importers is in the region of 3 in 4 for traders who import from Great Britain and Northern Ireland and around 1 in 3 for traders who import from other member states.

Looking at the effects on the ten largest (in value) CN chapters in intra-EU exports, Table 21, we see that only one chapter loses more than 3 per cent of its total value. That is chapter 39 "Plastics and articles thereof" which loses £19 million of its total £233 million exports. This is a loss of 8.3 per cent and implies a lesser degree of concentration of exports in this chapter in comparison with the other top ten chapters. Four of the chapters lose less than 1 per cent of their trade.

Table 21. Value of exports and number of exporters with intra-EU exports over £500,000 in 1992 for the ten largest chapters of the CN

CN chapter	Value of exports			Number of exporters		
	Total £m	Over threshold £m	%	Total No.	Over threshold No.	%
84	2,222	2,165	97.4	3,052	747	24.5
85	1,543	1,510	97.9	1,682	465	27.6
29	1,019	1,017	99.9	183	105	57.4
04	781	777	99.4	136	72	52.9
02	709	703	99.2	206	115	55.8
21	507	505	99.5	199	83	41.7
90	410	398	97.1	916	319	34.7
30	375	370	98.7	266	128	48.1
33	263	259	98.5	207	82	39.6
39	233	214	91.7	1,423	483	33.9
Total exports	11,432	11,049	96.7	9,311	1,299	14.0

See Table 12 for a summary description of the CN chapters, and the Appendix for a full description.

For imports (Table 22) chapter 87 "Vehicles, parts and accessories thereof" is the worst affected with only 94.7 per cent of its trade being covered by importers above the £100,000 threshold.

Traders who import in chapter 87 are relatively best treated in that 68.6 per cent of them are exempted. The "organic chemicals" chapter 29 is worst off, among the top ten, in that only 18.5 per cent of its importers are exempted.

The chapter with the greatest number of exporters being exempted is 84 "Machinery (incl. ADP) and parts" where 75.5 per cent or 2,305 traders are below the threshold. Relatively speaking chapter 29 "Organic chemicals" receives the least relief with only 42.6 per cent of traders exempted.

Conclusions

In this paper we have looked at aspects of the concentration of Ireland's trade with other countries in 1992.

We have noted the exceptionally high concentrations of traders on the exports side for both intra-EU and extra-EU trade.

We have looked at the much smaller degree of concentration for trade with Northern Ireland and the importance of the Great Britain market in terms of the extent to which traders trade with it compared with other EU states.

Table 22. Value of imports and number of importers with intra-EU imports over £100,000 in 1992 for the ten largest chapters of the CN

CN chapter	Value of imports			Number of importers		
	Total £m	Over threshold £m	%	Total No.	Over threshold No.	%
84	1,381	1,325	96.0	9,950	3,851	38.7
85	948	926	97.7	5,800	2,727	47.0
39	488	470	96.3	6,738	3,359	49.9
87	474	449	94.7	4,315	1,354	31.4
27	350	347	99.2	573	345	60.2
48	316	305	96.5	3,795	2,090	55.1
62	286	274	95.9	2,440	925	37.9
73	251	238	94.8	5,171	2,743	53.0
29	234	233	99.7	744	606	81.5
30	228	227	99.4	556	396	71.2
Total imports	8,820	8,497	96.3	26,685	5,845	21.9

On the commodity side we have noted the concentration of trade, in particular exports, among a small proportion of commodity headings.

Confining analysis to intra-EU trade we have outlined the diminishing returns resulting from increasing the number of traders covered in the detailed

INTRASTAT survey and the balance to be struck between the degree of precision of the data and the extent of trader burdens. We have considered the effect of various test thresholds on country, commodity and commodity by country data. We have considered how, assuming that low-trade commodities are of lesser interest to users, reasonable criteria for data quality can be met while keeping the number of traders surveyed to an acceptable level.

Finally an outline is given of the effect on country and commodity data of the thresholds chosen.

There is further scope for research in this area generally. It would be reasonable to expect some change in foreign trade patterns following the completion of the Internal Market. This after all was one of the intended results of the abolition of routine Customs controls. Indeed it could be regarded as one measure of the success or otherwise of the changes if, for example, there was a greater proportion of 'small' importers/exporters in the trading community as a whole and also if there was a sharp increase in the total number of importers/exporters.

The regulations setting up the INTRASTAT system have provision for a review of the system. A new analysis may have to be undertaken of concentrations in order to re-assess the level of thresholds in the light of experience and to take account of changed patterns of trade. Such an analysis would have to be done in collaboration with other member states (in order to be able to estimate from mirror-image statistics Ireland's total intra-EU imports and exports of particular commodities). It could also take on board data from occasional surveys of exempted small traders. These again would provide benchmark data for commodities which are worst affected by thresholds. There is provision in the EU legislation for such occasional surveys. Other analyses might, for example, investigate the relationship between size of trader and mode of transport used (road, sea, air etc.).

Finally we would like to express our thanks to staff in the former Computer Trade Statistics Division and the present VIMA Division in the Office of the Revenue Commissioners for their help in providing the raw data and for their patience and courtesy in dealing with our queries in the area. Thanks are also due to colleagues for their comments and suggestions.

Footnote

1. In several of our tables we use percentile distributions to classify traders. (For example, in Table 2, 96 per cent of traders have exports less than or equal to the 96th percentile, 5,319 thousand pounds.) The percentile distribution enables concentration to be readily seen in each table and also facilitates comparison of degrees of concentration between tables.

APPENDIX

Table A. Trade with Great Britain – Percentile distribution of traders in 1992

Exports				Imports			
Percentile		Exports of traders above percentile		Percentile		Imports of traders above percentile	
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	10,589	2,336	56.7	99	3,957	2,543	50.0
98	5,476	2,836	68.8	98	2,001	3,164	62.2
97	3,604	3,134	76.0	97	1,296	3,522	69.3
96	2,574	3,337	80.9	96	945	3,767	74.1
95	1,794	3,483	84.5	95	724	3,958	77.6
90	581	3,833	93.0	90	290	4,451	87.5
85	257	3,966	96.2	85	158	4,688	92.2
80	129	4,029	97.7	80	94	4,823	94.9
75	72	4,062	98.5	75	60	4,907	96.5
50	11	4,113	99.7	50	10	5,053	99.4
25	2	4,121	100.0	25	2	5,080	99.9
Total	-	4,123	100.0	Total	-	5,085	100.0
Total number of exporters : 6,745				Total number of importers : 22,107			

Table B. Trade with Northern Ireland – Percentile distribution of traders in 1992

Exports				Imports			
Percentile		Exports of traders above percentile		Percentile		Imports of traders above percentile	
No.	Value (£000)	£million	%	No.	Value (£000)	£million	%
99	3,327	294	39.3	99	893	293	50.8
98	1,795	394	52.6	98	487	370	62.2
97	1,298	456	61.0	97	306	410	68.8
96	898	502	67.0	96	223	436	73.1
95	714	535	71.4	95	177	456	76.5
90	300	629	84.0	90	73	514	86.3
85	161	674	90.0	85	40	541	90.7
80	94	699	93.3	80	24	556	93.4
75	60	715	95.4	75	17	567	95.1
50	10	742	99.1	50	4	588	98.7
25	2	748	99.9	25	1	594	99.7
Total	-	749	100.0	Total	-	596	100.0
Total number of exporters : 4,155				Total number of importers : 10,072			

Table C. CN headings in intra-EU exports classified by percentage of their value which is excluded by the application of certain thresholds

Percent of value excluded	Threshold applied					
	£690,000		£520,000		£350,000	
	<i>Number</i>	%	<i>Number</i>	%	<i>Number</i>	%
less than 3	1,860	30.0	2,059	33.2	2,373	38.2
3 - 5	183	2.9	215	3.5	230	3.7
5 - 10	350	5.6	382	6.2	415	6.7
10 - 20	438	7.1	475	7.7	484	7.8
20 - 30	323	5.2	322	5.2	336	5.4
30 - 50	476	7.7	478	7.7	458	7.4
50 or over	2,576	41.5	2,275	36.7	1,910	30.8
Total	6,206	100.0	6,206	100.0	6,206	100.0

Table D. CN headings in intra-EU imports classified by percentage of their value which is excluded by the application of certain thresholds

Percent of value excluded	Threshold applied					
	£120,000		£90,000		£65,000	
	<i>Number</i>	%	<i>Number</i>	%	<i>Number</i>	%
less than 3	3,769	45.2	4,219	50.6	4,805	57.6
3 - 5	662	7.9	703	8.4	713	8.6
5 - 10	1,096	13.1	1,088	13.0	1,015	12.2
10 - 20	1,143	13.7	986	11.8	824	9.9
20 - 30	533	6.4	439	5.3	327	3.9
30 - 50	492	5.9	383	4.6	284	3.4
50 or over	644	7.7	521	6.2	371	4.4
Total	8,339	100.0	8,339	100.0	8,339	100.0

Descriptions of the Chapters of the Combined Nomenclature mentioned in tables 15, 16, 21 and 22

Chapter	Description
02	Meat and edible meat offal
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included
21	Miscellaneous edible preparations
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
29	Organic chemicals
30	Pharmaceutical products
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
39	Plastics and articles thereof
48	Paper and paperboard; articles of paper pulp, paper or paperboard
62	Articles of apparel and clothing accessories, not knitted or crocheted
73	Articles of iron or steel
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof

DISCUSSION

Maurice McGuire: I would like to begin by explaining that although I now work for the Central Bank, I have to confess to being a previous employee of the Central Statistics Office. I am not sure if this leaves me peculiarly well-qualified or peculiarly unqualified to make these comments tonight. I feel obliged to point out, however, that any opinions I express here tonight are my own and not those of the Bank.

I notice that the paper describes the concentration of trade in the Irish case as being exceptional by any standards. This is probably true but I wonder if there is any information available for other countries. It would strike me that there must be some countries particularly small countries - where a similar situation must surely apply. In fact, presumably concentration is to some extent a function of smallness since the very large traders who inhabit the upper end of the distribution are probably not particularly large on a world scale. They would be only medium-sized in a UK, French, German or American setting. Concentration is probably also a function of the particular industrial structure of the country. If the country specialises in making products where large-scale production units or firms are the norm then concentration is inevitable. In an Irish context, therefore, concentration is the probably the inevitable outcome of the policy of attracting foreign investment in the chemicals and data processing sectors which has been in place now for some considerable time. It is therefore, probably, a reasonably recent - in historical terms - and ongoing phenomenon.

In fact, I think it is surprising in some ways that exports are not even more concentrated than they appear to be. There seems to be a bit of a counter-weight to the very large multinational firms in the number of smaller firms that do actually export, particularly the more indigenous firms. I would presume that in most other larger countries firms of this size simply do not export at all - finding a sufficient market within their own national boundaries. The extremely small size of the domestic market here simply forces firms to export in order to reach any sort of efficient scale which would allow them to stay in existence and compete effectively with imports. In fact, it is interesting to note that, according to the 1990 Census of Industrial Production over 60 per cent of Irish-owned firms, with less than 20 people employed, engaged in exporting. Of course, when such firms do export, they generally do so to the UK - almost as an extension of the domestic market.

This is not a totally academic point since it means that these small firms have to bear costs in order to export which other firms - with which they compete on international markets - do not. Of course, exporting to the UK is not the same as exporting to France or Germany in terms of costs - as language and cultural barriers are less significant - and I don't want to sound as if I'm suggesting that these firms would be better off if we were part of the UK. Indeed, many of their cost

disadvantages - most particularly the costs of transporting goods to large population centres - would remain irrespective of absorption in a larger entity.

Even allowing for these small exporters, the very large absolute number of exporters identified in the data surprises me a little - nearly 10,000. If you examine the Census of Industrial Production, it seems to suggest - unless I was reading it incorrectly - that in 1990, there were just under 3,000 manufacturing establishments engaged in exporting. Now, of course, the present paper deals with traders and not manufacturers and the authors have run a check for multiple VAT numbers, but I am still a little puzzled - as one might even have expected one VAT number to cover more than one establishment. Non-manufacturing traders - those in agriculture and those engaged purely in the buying and selling of goods must account for some of the difference, but - in some cases - could the one establishment be effectively trading under multiple names as well as numbers? This would not necessarily show up in the authors' check. Perhaps there is some obvious point here that I am missing?

At another point, the authors note the 'continued importance of Great Britain as a trading partner for Ireland' due to the fact that about 92 per cent of exporters above the INTRASTAT threshold export to Great Britain. I don't dispute this but I feel it is important to distinguish between the types of 'dependence' firms in different sectors have on the UK market. Indigenous firms in the more traditional sectors generally concentrate on the domestic and the UK markets and on both these markets face substantial competition from UK-based producers. Most multinationals are servicing the European market including the UK but unlike their indigenous counterparts, they are not really dependent on this market. This is the case not only because they export a relatively small part of their output there but also because the available evidence suggests that they do not face the same level of competition from UK producers even in the UK market itself. This can be seen from the import penetration ratios for the UK for pharmaceuticals and data processing equipment published by the UK CSO which are very high - with prices in the UK market adjusting rapidly to world prices following movements in Sterling's exchange rate. Such firms could not be seen as being vulnerable to UK competition on a comparable basis to indigenous firms and "the continuation of Great Britain as a trading partner" for these firms has to be seen in this light.

This brings me to the wider question of measuring competitiveness. It has often been noted that bilateral trade flows are not necessarily a particularly good indicator of the extent to which the production structure of two economies are in competition. In order to illustrate how misleading they can be, it is interesting to note that according to the IMF's Direction of Trade Statistics for 1993 the share of Japan in Germany's exports was 2.6 per cent, while that of Germany in Japan's was 4.9 per cent. These bilateral weights suggest that producers in these economies are not in

competition. Clearly, however, the level of competition on third markets for consumer durables produced by both economies appears to be enormous.

The only way of accurately assessing the degree of competition between producers based in two economies is to allow for competition on all markets for each product category. This kind of total competitiveness index is rarely used in practice because of the information requirements. Essentially one needs a kind of commodity flow analysis with individual country markets for particular goods being identified and information on the supply of goods to each market from different countries and from domestic suppliers - as well as possibly some measure of price elasticities. The reduction in the reliability of trade data noted in the paper has some implications for this kind of analysis. I also understood that part of the compilation of national accounts data is frequently based on commodity flow data and I wonder if there are any implications in this area.

Turning to some more general points, I recall a well-known statement which suggested that 'the laws of economics stopped at Holyhead' - meaning that some of the relationships which economic text-book theory might suggest as valid are hard to find in Irish data. This is obviously a gross exaggeration. Not only have many robust relationships been found but if one looks, for instance, at the efforts of those engaged in research in other countries, these relationships are often not found there either.

However, I wonder if - in the Irish case - the type of concentration noted in the paper does not have some role to play. The type of relationship one is usually talking about typically relies on the law of large numbers where no one agent can distort the overall relationship by idiosyncratic behaviour. But clearly this does not seem to be the case in Ireland since a behavioural change by even a very small number of multinationals - possibly as few as 3 or 4 - can apparently exert a significant leverage over national aggregates.

This means that relationships which one might have felt one should be able to rely on may prove unreliable or at least unstable. This obviously accounts for the lumpiness of profit repatriations and similar phenomena. However, it might also contribute to apparent divergences in different series on, for instance, output and exports which have no other apparent cause.

Of course, the distortions involved would not be so great if these firms behaved straightforwardly. But, as is well-known they typically engage in transfer pricing - an almost inevitable result of the low tax regime. This distorts some national aggregates noticeably while others are probably very little affected - although some dispute this. In fact, presumably even the concentration measures in the tonight's paper are affected in that the value of the output of the larger multinational firms is

overstated and adds slightly to the impression of concentration. Although I am not suggesting that the overall picture given is in any way misleading.

Clearly, it would be ideal to try to isolate those sectors in, for instance, the compilation of the national accounts to try to ensure that no distortionary effect from their activities is creeping through into those aggregates which should remain largely unaffected. I am not suggesting a publication of two sets of National Accounts - one for the multinational sector - and one for the rest of Ireland but at least if they were separated at the compilation stage this might not only improve the quality of statistics but also users' confidence in them. Publishing some disaggregation would, of course, also be useful. All this would involve extra work, of course, and I am aware, as a previous producer of statistics, that users are always only too willing to suggest extra work - but usually not extra resources. However, it seems to me that the number of firms involved in these sectors is not enormous - indeed, this paper appears to confirm this.

My final suggestion relates to the trade statistics themselves. Since there has been an inevitable increase in the publication time tag for the monthly trade statistics, I wonder if the CSO would give consideration to the publication of advance estimates. It seems to me that the concentration identified in the paper would be an asset in producing such estimates. If a special effort were made to encourage timely submission of INTRASTAT returns for the 100 or 200 largest exporters and importers - in some cases presumably the same firms - a fairly accurate advance estimate would seem possible. Alternatively, one could focus on those firms who tend to vary more in their level of trade from month to month and who contribute disproportionately to monthly changes, perhaps using some sort of matched sample approach. I am conscious of all the difficulties involved but it might at least be worth experimenting with it.

In commenting on this last suggestion the CSO might like to comment more generally on what it considers to be the main problems with the INTRASTAT survey including its opinion of data quality relative to the previous customs-based system. Also, it would be interesting to hear about anticipated future reductions in publication time lag delays. So, with that invitation, I would like to formally propose the vote of thanks to Dave Jennings and Tom McMahon for presenting their extremely interesting paper here tonight.

References

- Census of Industrial Production 1991.** Central Statistics Office, Dublin, 1994
- IMF Direction of Trade Statistics, 1993.** International Monetary Fund, Washington, 1994
- UK Annual Abstract of Statistics, HMSO, London, 1994.**

John McCann: Welcoming this study, Mr McCann sympathised with the difficulties the CSO have had in getting reliable trade statistics due to the introduction of the INTRASTAT system. He observed that INTRASTAT did not prevent or delay non-EU trade figures and hoped that they might be issued earlier than presently.

One advantage of the new system is that it eliminates the "Rotterdam" effect and, in many ways, gives a more accurate figure of our trade performance.

The impact of such a small number of large export performers has a disproportionate impact on our figures compared to our EU partners, but there is little we can do about this unless we were to separate their figures out and this is probably impractical.

Turning to An Bord Trachtala's export measurement procedures Mr McCann outlined ABT's Annual Business Survey which is sent to over 5,000 exporters on ABT's database. A response rate of nearly 50 per cent is received. Within this 5,000 there is a "tracking group" of approximately 1,200 firms which ABT have been monitoring consistently for the past eight years. Considerable emphasis is put on obtaining survey returns from this group and a 99 per cent response is normal.

The tracking group is spread across all sectors and is designed to be representative of Irish industry and was a first attempt at getting a baseline group for comparative purposes over time.

The Survey gets into micro-detail with firms asking them for precise exports to all markets. This is then used by ABT for planning purposes. Individual company information is, naturally, treated strictly confidentially.

In parallel with the Annual Survey, ABT use the ESRI to carry out quarterly telephone surveys of this tracking group in order to monitor their performance and act as an "early warning system" for the ABT Board. There has been a strong correlation between the ESRI surveys and the Annual Survey out-turns.

In conclusion, Mr McCann once again congratulated the authors on their excellent work.