WORKING PAPER:

INVESTIGATION INTO NORTH/SOUTH TRADE STATISTICS

Methodological Profile and Time Series Comparisons

August 2009

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Steering Group members:

Christopher Ryan	Forfás (formerly InterTradeIreland)
James Gillan	DETI
Pat Fanning	CSO
Aidan Gough (Chair)	InterTradeIreland
Eoin Magennis	InterTradeIreland

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EXECUTIVE SUMMARY

Background
This report investigates the differences between North/South trade figures up to 2006 published by CSO, HMRC and DETI. It is a follow-up to the 2003 report which considered broadly similar issues. Since the 2003 report, however, there have been significant changes in the methodology applied to the HMRC data and increasing discrepancies between the different data sources have become evident.

This investigation is timely as recent years have seen a substantial increase in discrepancies between the three indicators of North/South trade. In 2006, DETI put the value of North to South trade in goods (manufactured products) at £1.51bn compared to HMRC estimates of £2.31bn and the CSO estimate of £0.75bn. In terms of South to North trade, estimates are only available from HMRC (£1.43bn) and CSO (£0.90bn). HMRC figures also suggest much more rapid growth in North/South trade volumes than either of the other two sources, suggesting much larger differences than would be anticipated between alternative estimates of national trade flows.

Some clear differences in scope exist between the three data sources. Most notably the DETI data focuses on goods manufactured in Northern Ireland rather than the whole volume of cross-border trade in goods (regardless of their place of manufacture). However, this is unlikely to explain the discrepancies. Other potential sources for the discrepancies are issues around the original origin and point of dispatch of goods, the estimation of unreported trade and the allocation of trade by firms which report nationally to the UK regions.

This report is an initial step in exploring these discrepancies. It provides an overview of the three main data sources and a review of the methodological changes which have been made since the 2003 study. The report includes an overview of the aggregate and sectoral time series for each data source and a profile of differences between the different series both in aggregate and by sector. Detailed information on the construction of each data source based on discussions with each of the data providers is also included in the annexes.

Summarising the Discrepancies
The main methodological changes which have been made since the 2003 report have been to the HMRC data. These were designed to align the construction of regional trade data more closely with national trade data but have had uncertain effects on Northern Ireland trade volumes.

Despite these changes there is almost no correspondence between the HMRC, DETI and CSO trade estimates either in scale, growth or time profile. In terms of North to South trade, for example:

- HMRC consistently estimate North to South trade volumes higher than those of DETI and CSO over the 1995-2006 period. The gap between the HMRC and DETI series (and between the DETI series and that from CSO) have increased sharply in recent years.

- While the CSO series suggests a stable picture with some fluctuation but little overall change in the scale over the 1995-2006 period both the DETI and HMRC figures suggest a doubling of trade volumes.

In terms of South to North trade the situation is little better with an apparent correspondence between the HMRC and CSO series over the 1996-99 period breaking down in more recent years. The HMRC figures in particular have increased sharply reaching twice the value of the CSO series by 2006.

Scoping Potential Explanations

As a first step towards investigating the reason for these discrepancies the report undertakes two sectoral comparisons between the different data sources. The aim is to establish whether differences between the sources of data are sectorally specific or occur across a range of sectors. The latter result would suggest some methodological or systemic difference between the data sources.

Chapter 2 reports a sectoral comparison based on SIC sectors designed to match the DETI Sales and Exports survey. Here we find that discrepancies between the different sources occur in most sectors although some sectors do account for a particularly large proportion of the discrepancy. Food, transport equipment and other manufacturing are particularly important in terms of North to South trade with food also dominating the discrepancy between the HMRC and CSO estimates of South to North trade.

In Annex 5 we report a complementary and more detailed analysis of the CSO and HMRC series on the basis of the 2-digit commodity codes. These suggest an essentially similar picture to the SIC based comparisons with significant discrepancies occurring across a range of sectors.

These two comparisons suggest the likelihood that methodological differences which apply to all sectors lie behind the differences in the data sources rather than any sectorally specific effects. This conclusion is confirmed by a detailed comparison of the CSO data in terms of goods' point of origin and point of dispatch. Calculating series on both bases for CSO suggests this distinction is responsible for only a relatively small proportion of the discrepancy between series and cannot help to explain the growing disparity in recent years.

In Chapter 3 we outline a range of factors – related to methodological differences between the data sources reporting issues – which might be shaping these outline the range of f<> differences. Making further progress in understanding the importance of these discrepancies, however, is likely to require more information on the scale of estimation implicit in the HMRC data series and more detailed firm-level analysis.

An ideal approach?

Given the discrepancies identified earlier – and the need for more detailed analysis to understand these differences – it is difficult to make definitive recommendations to the best approach to capturing trends in cross-border trade in the short term. Our view, however, is that given the considerations outlined above it is probably most appropriate for analysis to utilise the DETI export figures to Ireland and the CSO exports to

Northern Ireland in any analysis. This type of approach is not uncommon internationally, where similar inconsistencies have been identified. From a practical point of view it is worth noting that in a recent cross-country analysis of trade flows which included many country pairs, the results were unaffected by the choice of North/South trade statistics.[1]

[1] InterTradeIreland, *A Gravity Model Approach to Estimating the Expected Volume of North/South Trade* (2009), hereafter Morgenroth (2009).

CHAPTER 1: INTRODUCTION

1.1 Aims and Objectives

This report investigates the differences between North/South trade figures published by CSO, HMRC and DETI. The project – which is designed to update and extend an earlier 2003[2] study – focuses on a comparison of readily available data sources and makes some suggestions for more detailed analysis. More specifically the report includes:

- An overview of the three main data sources and a review of the methodological changes which have been made since the 2003 study (Chapter 1).
- An overview of the aggregate and sectoral time series for each data source and a profile of differences between the different series both in aggregate and by sector (Chapter 2)
- Detailed information on the construction of each data source based on discussions with each of the data providers (Annexes).
- Final remarks relating to the agenda for the rest of the project and in particular some suggestions for the comparative analysis of data for individual businesses (Chapter 3).
- A brief summary of the report's main conclusions and recommendations (Chapter 4).

1.2 Overview of Data Sources

1.2.1 DETI Manufacturing Sales and Exports Data

This data provides a profile of manufacturing exports from Northern Ireland firms – that is, it covers North to South trade but not that from South to North. It also differs from the two other data sources considered here in that:

- The DETI Manufacturing Sales and Exports data is compiled using a specially undertaken annual company survey designed to pick up manufacturing firms' total and export sales.
- Information is compiled on a company by company basis (rather than commodity by commodity basis) with firms being grouped on the basis of their main SIC code.

[2] InterTradeIreland, *North/South Trade: A Statistical Ground Clearing Exercise* (2003), hereafter Anyadike-Danes and Morgenroth (2003)

- Firms are asked to report sales and exports solely of goods manufactured in Northern Ireland. This includes subcontract production but excludes goods brought in for sale without any further processing.

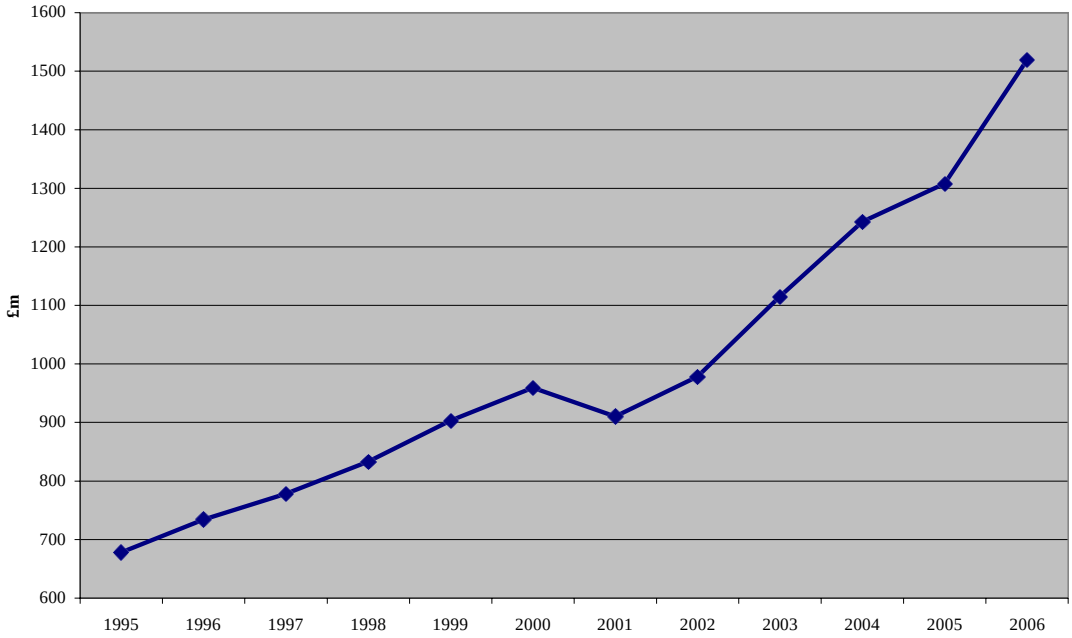
In the survey interest centres on three main variables: firms' total sales of goods manufactured in Northern Ireland (exclusive of tax), external sales of these goods (i.e. sales outside Northern Ireland) and export sales of these goods (i.e. sales outside the UK). Data is collected on an annual basis relating primarily to financial years.

Data is therefore available on a financial year basis for all manufacturing firms and for 12 manufacturing sub-categories (see Annex 1 for details).

No significant changes in the methodology applied to this survey have been made over the 1995/06 to 2005/06 period. For 2006/07, however, the Manufacturing Sales and Exports survey has been changed from a voluntary inquiry to a statutory inquiry which should ensure a higher response rate. DETI are planning to extend the coverage of the measurement of manufacturing and service sector exports and imports to Ireland using the Annual Business Inquiry and the Exports survey.

DETI estimates of the North-to-South trade imply steady growth over the 1995 to 2005 period, rising from around £700m to £1500m in nominal terms with a sharp rise from 2005 to 2006 (Figure 1.1). Upward growth in this series has been relatively consistent with the only fall being evident from 2000 to 2001, the period marked by the global high-tech downturn.

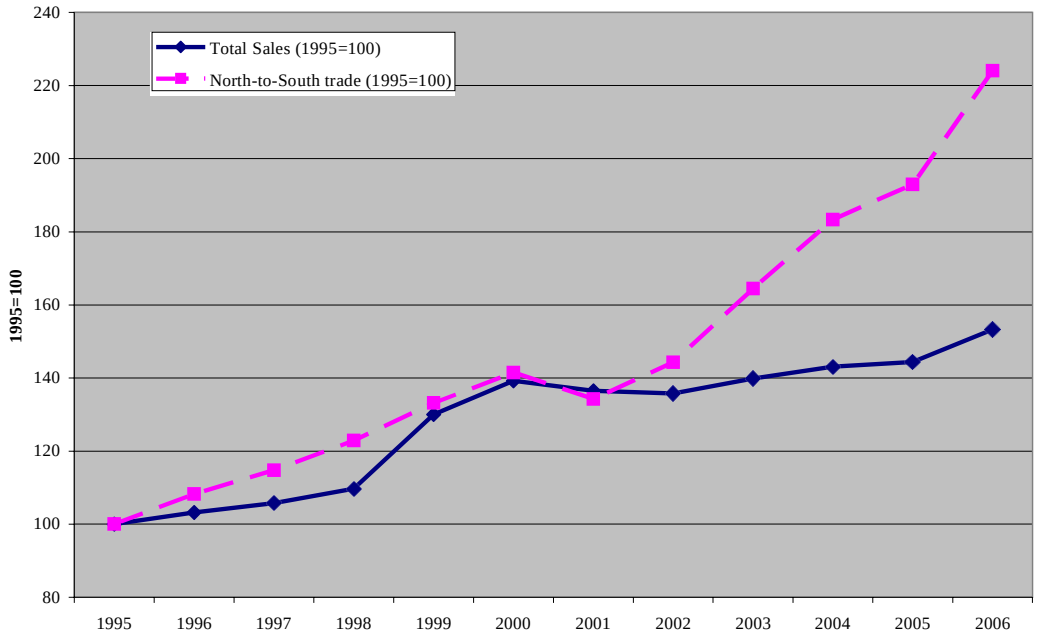
Figure 1.1: North to South Manufacturing Trade



Source: DETI

Perhaps more interesting, however, is a comparison of the time profile of Northern Ireland manufacturing firms' total sales and their exports to Ireland. Figure 1.2, for example, indexes both series in 1995 (i.e. 1995=100) and compares the subsequent time series. From 1995-2001 these series track each other relatively well, suggesting a broadly stable export share. More notably since 2003 these series have diverged suggesting a sharp increase in the proportion of Northern Ireland firms' sales which are being exported to Ireland (Figure 1.2). This trend has accelerated between 2005 and 2006.

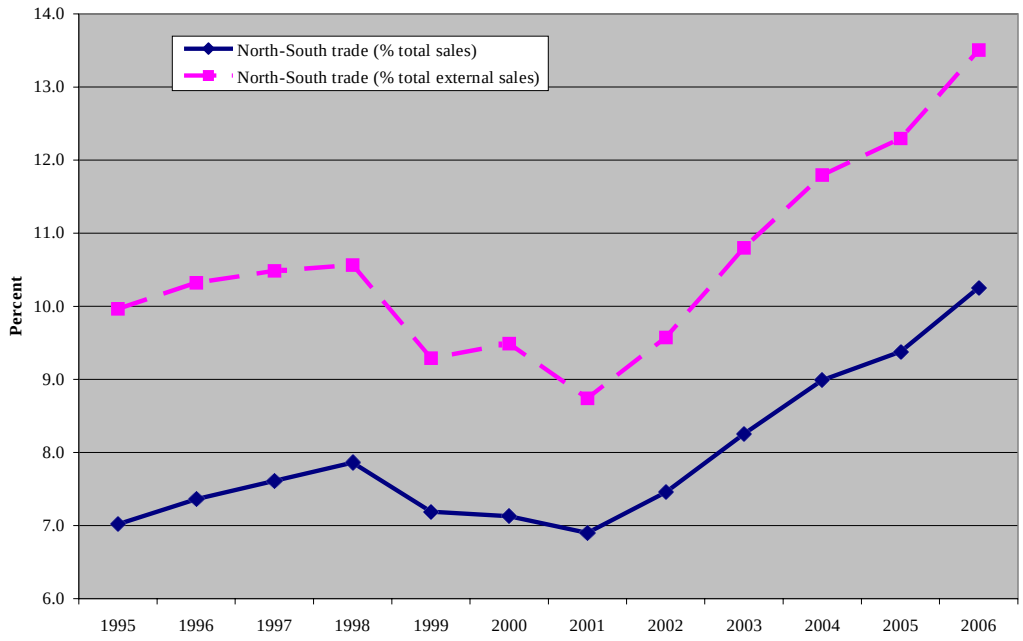
Figure 1.2: Sales and North to South Trade Growth Since 1995



Source: DETI

Figure 1.3 reinforces this message by comparing Northern Ireland firms' exports to Ireland to total sales and total external sales. Between 2001 and 2005 North to South trade rose from around 7 per cent to 9 per cent of Northern Ireland firms' total sales and from around 10 per cent to around 13 per cent of firms' external sales.

Figure 1.3: North to South Share of Total External and Export Sales



Source: DETI

1.2.2 CSO Trade Data

CSO trade statistics on North-South trade are collected as part of the national trade statistics for Ireland. Since the completion of the Single European Market (1994) these statistics like those for the rest of intra-EU trade have been based on the INTRASTAT survey and VAT returns. More specifically, larger firms whose imports from EU countries amount to more than €190,000 in the previous year are required to make monthly returns of imports and exporters whose exports exceeded €635,000 in the previous year have to make monthly export returns.

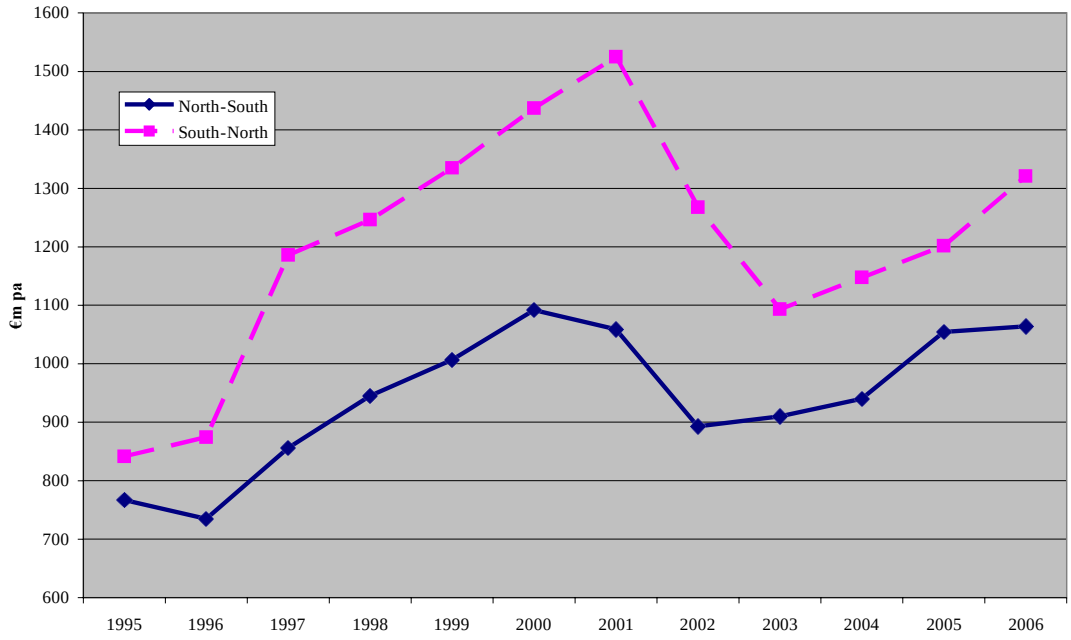
Monthly figures are therefore available for imports of commodities by Irish firms from Northern Ireland and exports to firms based in Northern Ireland (or at least those registered for VAT). Figures are recorded in nominal terms, in € and by detailed SITC commodity code. These can be aggregated into larger commodity groups and into series which match – as closely as possible – the DETI SIC based series.

No major changes in methodology have taken place in the derivation of the CSO data since the 2003 report and the detailed methodology for the derivation of the data is included in Annex 3.

Figure 1.4 presents the aggregate CSO time series for manufacturing trade with Northern Ireland in €m for financial years from 1995 to 2006. Over this period, South to North trade volumes have remained consistently above those for North to South trade although

the gap between series has narrowed in more recent years. Notably the CSO series – particularly in South to North trade suggests a much greater downturn in 2001-2003 than that suggested by either the North to South CSO data or that from DETI.

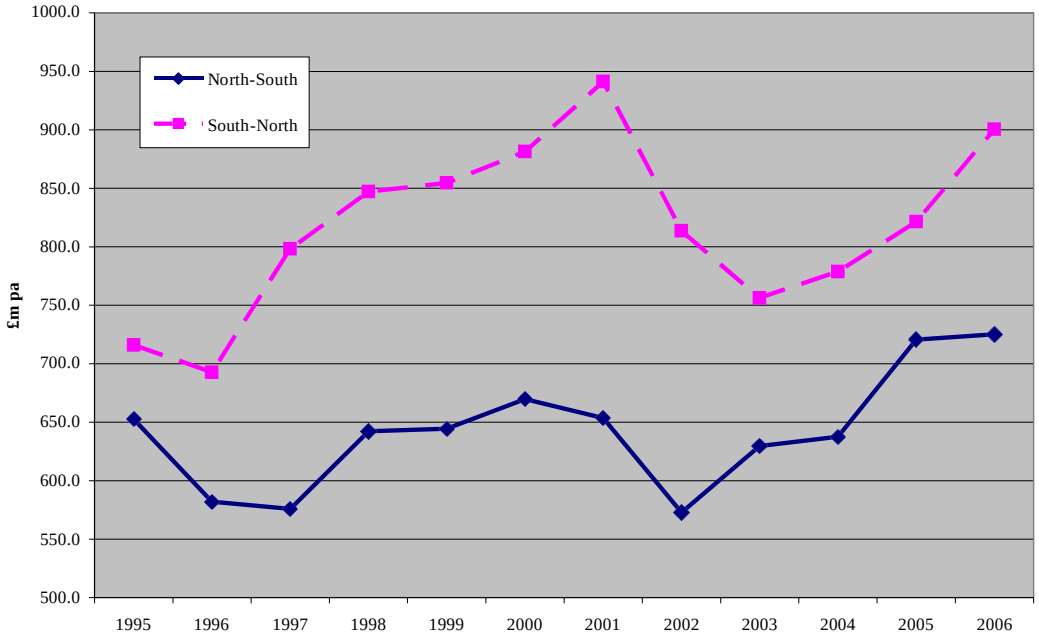
Figure 1.4: Manufacturing Trade with Northern Ireland: €m pa



Notes: Figures are in financial years and for all manufacturing.
Source: CSO

One issue with comparing figures from CSO with the DETI and HMRC series is that of currency conversion. This report uses a market currency conversion and for comparison the Sterling equivalents of the time series given in Figure 1.4 are given in Figure 1.5. Two issues are worthy of note here. First, the broad time series pattern of the series remains very similar. Second, the appreciation of Sterling relative to the Euro over the post-1995 period tends to flatten the CSO series suggesting that while in €m North to South trade volumes have increased, their Sterling values have risen only slightly.

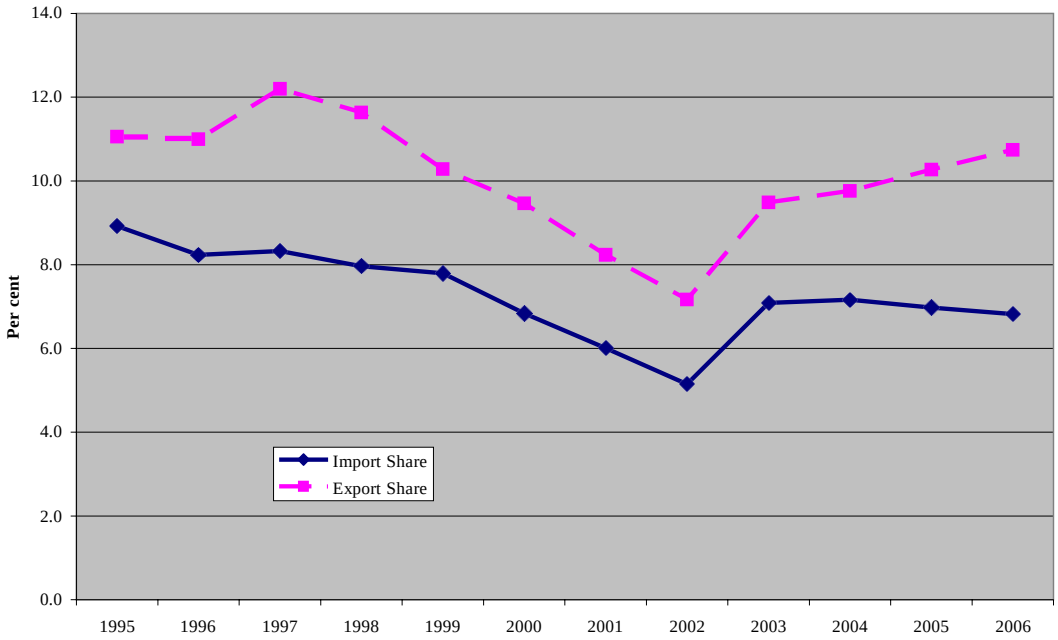
Figure 1.5: Manufacturing Trade with Northern Ireland: £m pa



Notes: Figures are in financial years and for all manufacturing.
Source: CSO

Finally, it is worth considering the importance of North to South trade to Ireland. Figure 1.6 therefore gives the share of Ireland's trade with the UK which is with Northern Ireland based on the CSO figures. In terms of imports to Ireland (i.e. North to South trade), Northern Ireland has been of decreasing importance over the last decade with around 7 per cent of Ireland's UK imports coming from Northern Ireland in 2006. As an export market too Northern Ireland is currently less important for Irish firms than it was in the mid-1990s accounting for around 11 per cent of all Irish exports to the UK.

Figure 1.6: Northern Ireland shares of Ireland's trade to the UK



Source: CSO

1.2.3 HMRC Trade Data

The HMRC data is similar in construction to that from the CSO and is derived primarily from INTRASTAT data (see Annex 2). In the UK all VAT registered business must complete two additional boxes on their VAT returns showing the total value of exports (dispatches) to and imports (arrivals) from other EU Member States. These returns are submitted quarterly. Traders whose annual value of arrivals / dispatches exceed thresholds (£260,000) must provide supplementary information on a monthly basis. Like the CSO data figures are published by commodities (i.e. SITC codes) and regional data is available on a quarterly basis since 1996.

Unlike the CSO and DETI data however, significant changes have been made to the methodology by which HMRC compiles the regional trade statistics (RTS) since the publication of the 2003 report on North/South trade statistics. These changes were designed to make the RTS compatible with the methodology used to compile HMRC's overseas trade statistics (OTS), and to improve the quality of the RTS data.

The key changes to the RTS methodology since 2002 are:

- ***The availability of data back to Q1 1996.*** Providing data back to 1996 Q1 was undertaken to widen the range of historic data (previously available from 1999 Q1). The historic data is now based on the revised methodology.

- ***The availability of data at SITC two-digit (division) level.*** This was introduced to extend the product breakdown from the initial 20 industry groups.

- ***Improved 'below threshold trade allocations' (BTTAs) at regional level.*** Trade below the Intrastat threshold is contained within OTS in the form of 'below threshold trade allocations' (BTTAs), and is also included within the RTS system. Although these BTTAs do not contain trader information, the same methodology used in OTS to calculate BTTAs is replicated in RTS. For EU trade only, this is based on the assumption that the allocation of below-threshold trade into partner countries and commodities is effectively the same as the allocation of goods traded by traders who are just above the Supplementary Declaration Threshold.The estimates of BTTA were excluded from the previous methodology. BTTA estimates are now allocated to regions.

- ***Better postcode matching.*** The previous methodology would only match the first four digits of a trader's postcode to a region. The new methodology matches the postcode at the full 8 alphanumeric level using data from the All Fields Postcode Directory. This improves the allocation of full postcodes which improves the accuracy of placing traders into the correct region.

- ***A survey of top 200 traders to deal (in part) with head office distortion issues.*** For some consignments, the trade declaration will contain the registered number of the administrative centre as the declarant. The RTS process will allocate this trade to the region of the declarant and not to the region of the facility responsible for manufacture or processing. The impact of this phenomenon on the RTS figures is that there is a bias to record trade to regions

around London and the South-East (where head/administrative offices predominate) and away from other regions.

To reallocate trade data, the Statistics and Analysis of Trade Unit (SATU) carry out periodic surveys of the top 200 traders by value of exports (both EU and non-EU), to elicit information regarding the values and proportions of trade generated by each branch. Trade carried out by respondent traders is allocated to regions according to the information provided by the respondents. Although this cannot eradicate all of the distortion, at least by surveying the top companies HMRC estimate that they are dealing with a significant proportion of the trade in a statistically sound manner.

This approach is applied to both the EU and non-EU export data. For imports, such adjustments cannot be made, as survey respondents cannot produce a reasonable assessment of the final regional location for goods. For example, imports of finished goods such as cars are destined for many places throughout the UK, typically to salesrooms or other points of sale, which would be difficult to quantify for RTS purposes. The approach works better on exports, because manufacture of goods is typically more regionally concentrated compared to sale of goods.

The Survey of the top 200 traders is conducted every 5 years. In the last survey undertaken, 161 unique traders provided responses. During 2002, these traders accounted for £31.5 billion (29%) of exports to the EU and £22 billion (28%) of exports to non-EU. It is not clear whether any of these top traders were based or had operations in Northern Ireland.

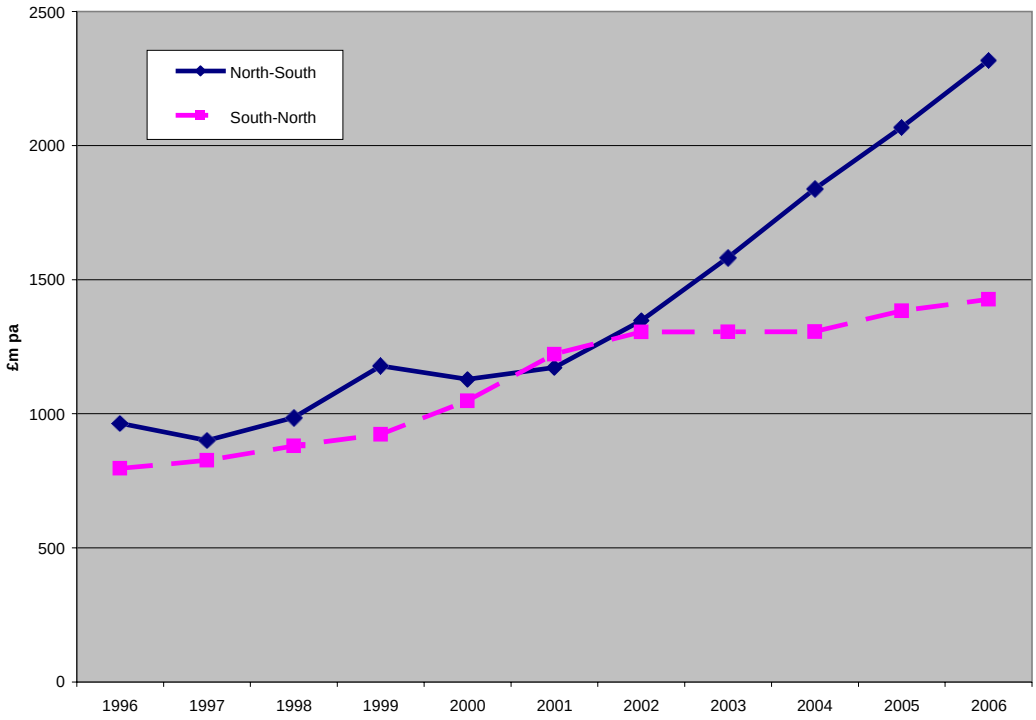
While these changes have clearly improved the HMRC methodology it is far from clear what effect they have had on the HMRC estimates of cross-border trade. When the changes to RTS methodology were first introduced in 2003, HMRC gave some indication of the effect of the changes on estimates of UK regional exports. This was done by showing the effect of the changes on one quarter's data (Q4 2002) and suggested a proportionately smaller impact than for the UK as a whole[3]. Two factors may account for this. First, around half of the UK increase arises from 'unusual trade'[4] or 'unknown traders', data on which are included in the total RTS estimates but cannot be allocated to a specific region. Second, most of the remainder of the estimated increase arises from the process of better postcode matching: for Northern Ireland the change from 4 digits to 8 digit matching would have no impact as all postcodes within Northern Ireland begin with 'BT".

However, as indicated above, no attempt was made to estimate the impact of improved BTTAs, which affect intra-EU trade only, or of the top traders survey. HMRC were unable to give any indication of the possible impact of these changes on the estimates of exports from Northern Ireland, except to say that in theory the inclusion of BTTAs would 'marginally increase' regional trade.

[3] SATU / HM Customs and Excise, *Improvements in Regional Trade Statistics Methodology* (July 2003).
[4] This relates to issues such as trade in oil exports, overseas traders registered in the UK, private individuals and non-registered entities, the Government and the Channel Islands and The Isle of Man. This 'unusual' trade was excluded from the RTS until 2003, but cannot in any case be allocated to specific regions.

Figure 1.7 gives HMRC series for cross-border trade in manufacturing for financial years from 1995. South to North trade – i.e. purchases from Ireland either reported by or allocated to Northern Ireland based operations – have increased steadily over recent years. Exports to Ireland from Northern Ireland, however, have increased very sharply since 2002 on the basis of the HMRC figures.

Figure 1.7: HMRC Cross-Border Trade Series for Manufacturing



Notes: Figures are in financial years and for all manufacturing
Source: HMRC

The recent changes in HMRC methodology do mean that UK regional trade is now more consistent with national estimates. Less clear are the implications for regional flows and in particular those for a small region like Northern Ireland. Figures provided by HMRC suggest, for example, that around 30 per cent of trade flows are accounted for by the top 200 traders surveyed. These firms – and potentially others which might expand this proportion – are reporting sales on a UK basis and these are then being regionally allocated on the basis of the Top Traders survey. It is not clear what proportion of the HMRC estimate of Northern Ireland's sales or imports are being 'allocated' in this way rather than being based on regionally identifiable firms, or whether this proportion is larger or smaller than that in other regions. Other elements of estimation – particularly that for smaller firms covered by the BTTAs – are also part of the HMRC survey methodology.

1.3 Key Points

Since the trade comparison report of 2003 there have been relatively few changes in the methodology of either the DETI or CSO data series. The HMRC methodology has changed, however, with the top traders survey in particular focussing on one of the key

issues identified in the 2003 report – the headquarters allocation problem. What is less clear, however, is the extent to which this exercise has led to changes in the volume of headquarters reported trade allocated to Northern Ireland and whether this is playing any part in the sharp increase in Northern Ireland's exports to Ireland seen over this period in the HMRC figures. What is also unclear is the extent to which the HMRC estimates of Northern Ireland trade are based on this type of regional allocation. In other words, what proportion of the estimate is based on actual returns allocated by postcode and what proportion is accounted for by the regional allocation of headquarters related trade.

Chapter 2 examines the contrasts between the three sources in more detail both at the aggregate and sectoral levels.

CHAPTER 2: TRADE SERIES COMPARISON

2.1 Introduction

This chapter provides an overview of the time series for cross-border trade published by CSO, HMRC and DETI. As indicated earlier each body provides a series for North to South trade with only CSO and HMRC publishing data on South to North trade. Explanations for differences in the trends suggested are outlined later in Chapter 3.

Section 2.2 focuses on the derivation of comparable series both for all manufacturing and for individual sectors. Nominal rather than constant price series, denominated in Sterling, are constructed for calendar years and SIC codes to match the DETI manufacturing exports data. These series are reported in full in Annex 4. Section 2.3 focuses on a comparison of national trade flows to set the context for the more detailed analysis of subsequent sections. Section 2.4 then focuses on a brief comparison of the aggregate series over the period 1996 to 2006 before the more detailed sectoral comparisons in Section 2.5. Section 2.6 deals with another issue raised in the 2003 report – contrasts between point of origin and point of dispatch of goods involved in cross-border trade. Section 2.6 then highlights the key differences between the series.

Supporting the comparisons made in this chapter are more detailed comparisons between the HMRC and CSO series at the 2-digit SITC level. These are reported in detail in Annex 5 but largely confirm the results of the more aggregate analysis in this chapter. The DETI data is not included in this more detailed comparison as it is not available for individual product codes.

2.2 Constructing Comparable Series

The aim here was to use the published information from CSO, HMRC and DETI to produce comparable time series. As information from DETI is published at the highest level of aggregation the most sensible approach seems to combine elements of the HMRC and CSO data to match the DETI exports data as closely as possible.

The base DETI exports data – derived from the Survey of Manufacturing Sales and Exports – is published annually, relates to the exports of manufacturing firms, is reported in nominal Sterling terms, and for each year relates to firms' exports during the financial year. Sectoral data is published in 12 SIC categories within manufacturing. HMRC data on both North to South and South to North trade are published in nominal Sterling on a quarterly basis for around sixty 2-digit SITC codes. CSO data is also published quarterly on a much more detailed 4-digit SITC code basis but in Euros.

Constructing data series from the HMRC data to match the DETI exports data involved the following steps:

(1) Matching each of the 2-digit SITC codes published by HMRC to the DETI SIC codes. This was done using a Eurostat concordance and the matching is given in detail in Annex 4.
(2) Aggregating data for the appropriate 2-digit SITC codes to match the DETI SIC codes.
(3) Aggregating quarterly data to match the financial year coverage of the DETI data.

As the HMRC data is already published in nominal Sterling no currency conversion was necessary with this data. DETI manufacturing exports data are given in Table A4.1. Comparable HMRC data are given in Tables A4.2 and A4.3.

Constructing data series from the CSO data to match the DETI exports data involved the following steps:

(1) Matching each of the 4-digit SITC codes published by CSO to the DETI SIC codes. This was done using a Eurostat concordance and the matching is given in detail in Annex 4.
(2) Aggregating data for the appropriate 4-digit SITC codes to match the DETI SIC codes.
(3) Aggregating quarterly data to match the financial year coverage of the DETI data.
(4) Translation of Euro values into Sterling. This was done using a Sterling-Euro market rate deflator (THAP) published by National Statistics and calculated to give an average value over each financial year (see Table A5.5).

CSO data comparable with the DETI manufacturing exports data are given in Tables A4.4 and A4.5.

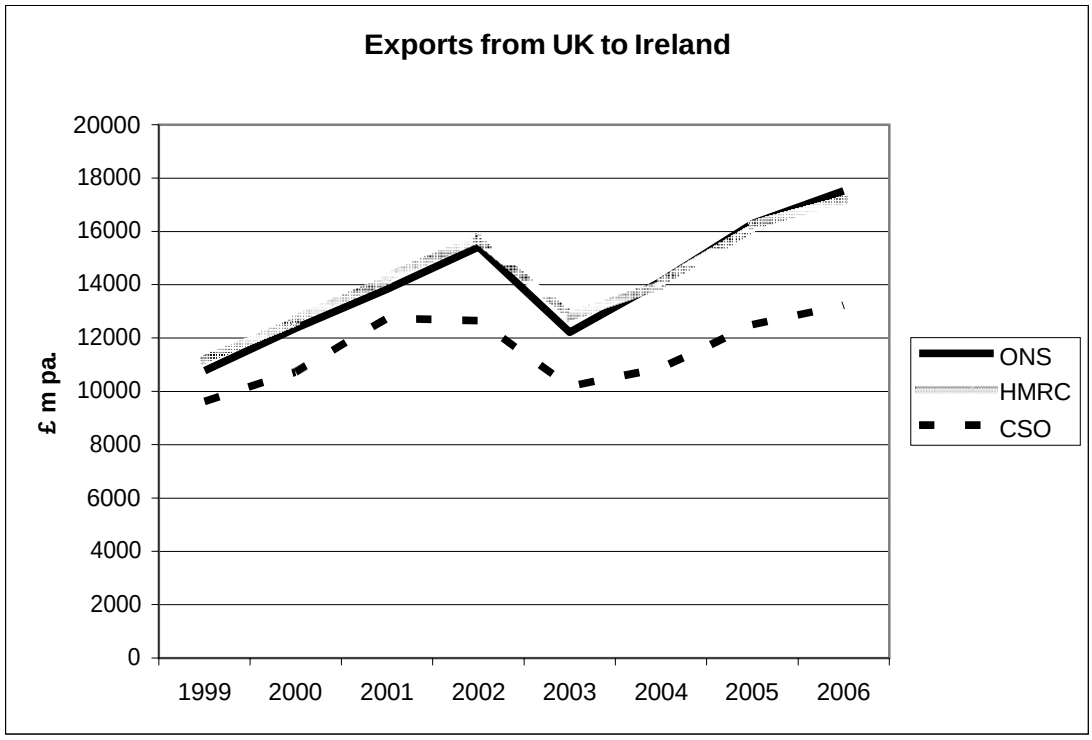
2.3 National Comparisons

A useful starting point before comparing the series for North/South trade is to examine some national comparisons. This might help to identify or rule out certain sources of misalignment between the different North/South trade statistics. For example, if the misalignment of the different North/South trade statistics is solely due to a headquarter problem (i.e. a problem of allocation between UK regions) one would expect the national flows, that is the total flows between the UK (including Northern Ireland) and Ireland to line up well. If, on the other hand, this is not the case then one would conclude that other factors are also likely to be playing a part in any discrepancies in North/South trade estimates.

Figures 2.1 and 2.2 below show a comparison of data on national trade flows between the UK and Ireland. In each figure we report CSO data along with two UK sources, HMRC and national figures from the Office of National Statistics (ONS)[5].

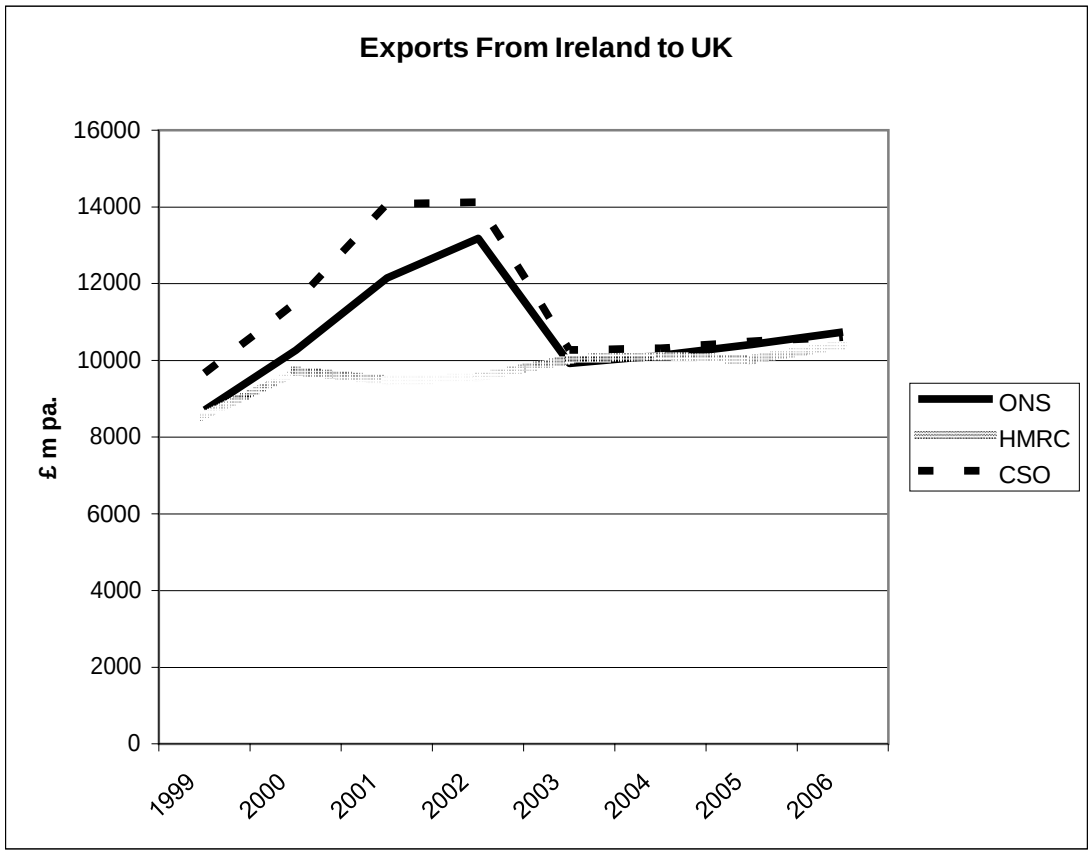
[5] ONS figures for UK trade are produced consistent with the UK national accounts. A major motivation of the methodological changes to the HMRC statistics in 2003 was to ensure consistency between the HMRC figures and those being produced by ONS.

Figure 2.1: Comparison of Exports from the UK and Ireland



Sources: CSO *Trade Statistics*; HMRC Regional Trade Statistics; ONS, *External Trade Statistics*

Figure 2.2: Comparison of Imports into the UK from Ireland



Sources: CSO *Trade Statistics*; HMRC Regional Trade Statistics; ONS, *External Trade Statistics*

In terms of exports from the UK to Ireland we see a good correspondence between series provided by the two UK sources - ONS and HMRC (Figure 2.1). These are both substantially larger, however, than the level of imports recorded from the UK by the CSO. This difference was relatively stable until 2003, after which it increased to approximately 30 per cent of the trade volume. For exports from Ireland to the UK a somewhat different picture emerges in that the differences between the CSO and ONS data are not very large, while for 2001 and 2002 the HMRC data records a substantially smaller flow. From 2003 onwards there is a high degree of concordance between the three series (Figure 2.2).

This suggests that even at national level there are marked contrasts between trade estimates from different national sources and that these differences are not symmetric. This suggests that CSO and, say, HMRC estimates of the trade balance between the UK and Ireland would differ substantially. In terms of the North/South trade comparison this suggests that a number of issues arise. First, there are clearly national differences in measured trade flows. If repeated in the North/South comparison this should lead to HMRC suggesting substantially larger trade flows from North to South than CSO but essentially similar flows from South to North. Second, there appear to be uncertainties in terms of the allocation of trade to individual regions where firms submit national rather than regional data.

2.4 Aggregate Comparisons of North/South Trade

Figure 2.3 below provides a comparison of the aggregate estimates for North to South and South to North trade published by DETI, CSO and HMRC. It is clear that there is almost no correspondence between these estimates either in scale, growth or time profile. In terms of North to South trade, for example:

- HMRC consistently estimate North to South trade volumes higher than those of DETI and, as expected from the national comparisons, CSO over the 1995-2006 period. The gap between the HMRC and DETI series (and between the DETI series and that from CSO) have increased sharply in recent years.

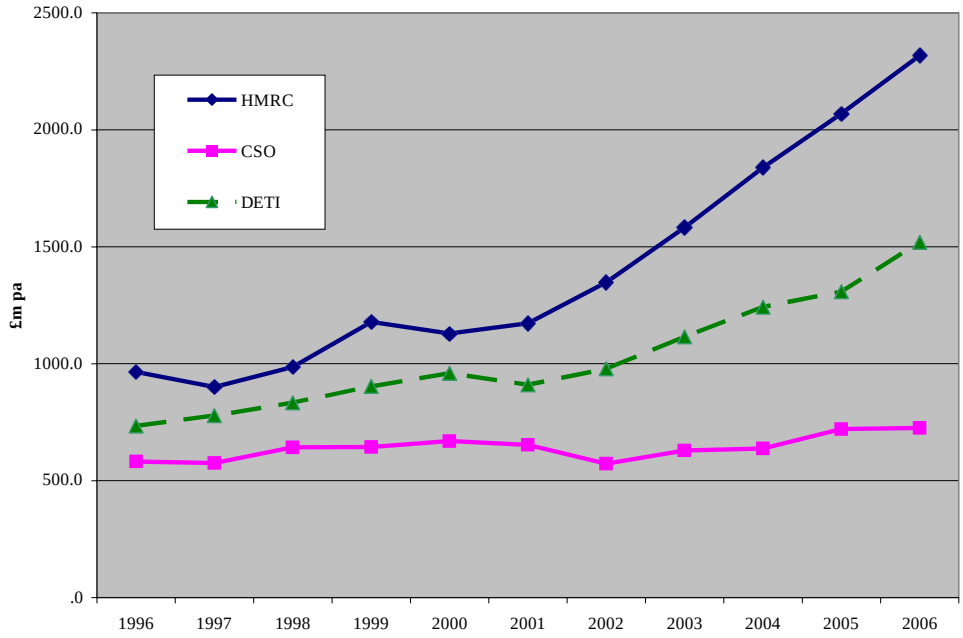
- While the CSO series suggests a stable picture with some fluctuation but little overall change in the scale over the 1995-2006 period both the DETI and HMRC figures suggest a doubling of trade volumes.

In terms of South to North trade the situation is little better with an apparent correspondence between the HMRC and CSO series over the 1996-99 period breaking down in more recent years. The HMRC figures in particular have increased sharply reaching almost twice the value of the CSO series by 2006. This contrasts sharply with the picture of consistency suggested between the national series on exports from Ireland to the UK (i.e. Figure 2.2).

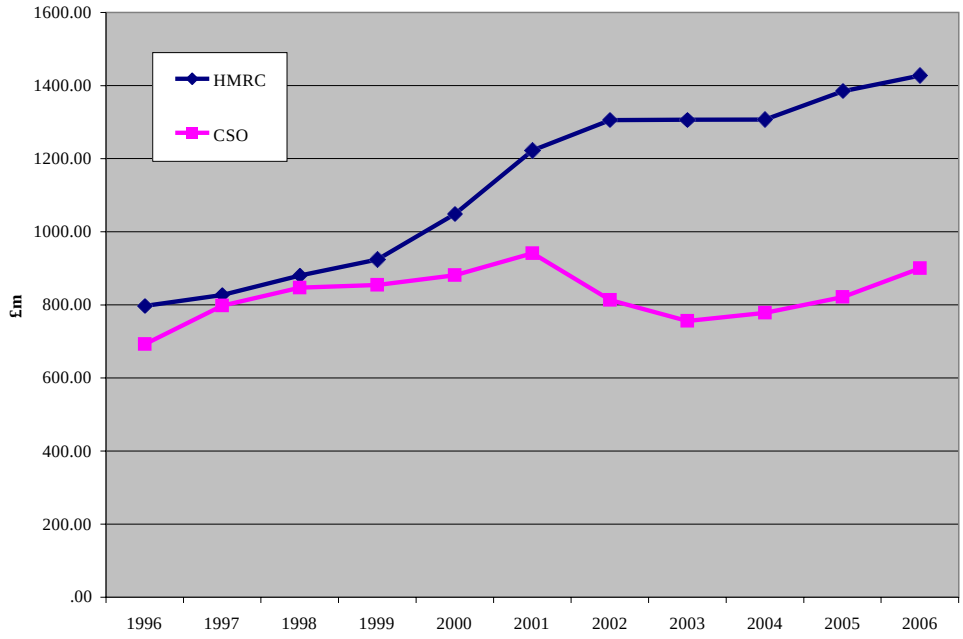
The suggestion is that the discrepancies between cross-border trade estimates compound discrepancies in national figures with the difficulties of clearly allocating UK trade (whether inbound or outbound) to Northern Ireland and other regions.

Figure 2.3: Aggregate Cross-border Trade Series

(a) North to South Trade Series



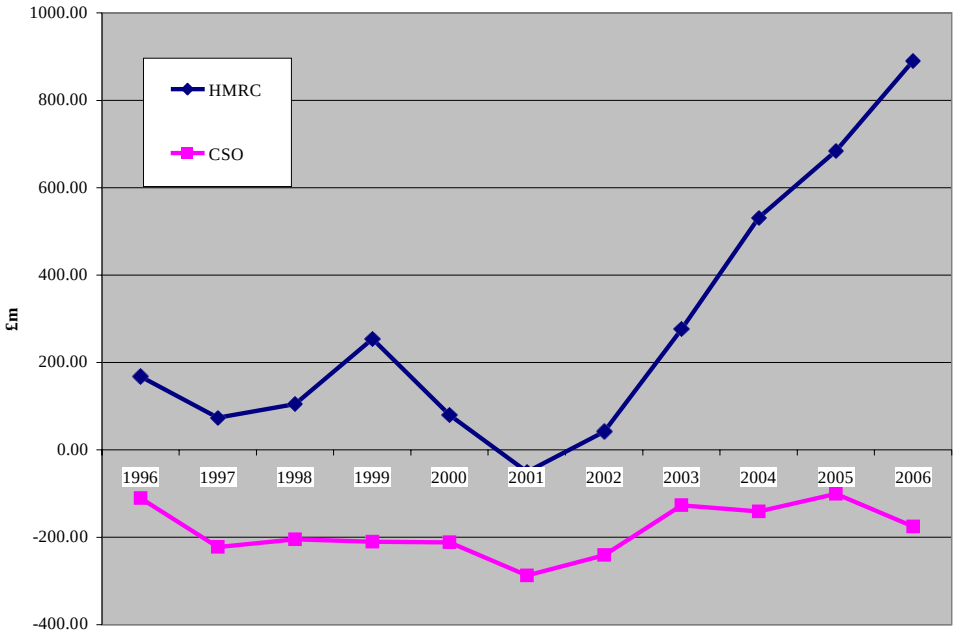
(b) South to North Trade Series



Source: Annex 5

Another way of looking at these aggregate trade flows is in terms of the trade balance. This is clearly not possible for the DETI series but Figure 2.4 gives the Northern Ireland cross-border trade balance suggested by the HMRC data and the CSO data. Clearly here there are again major discrepancies suggested with the CSO data suggesting a trade deficit averaging around £200m pa while the HMRC data points to a current trade surplus in excess of £800m pa. Interestingly, however there is some correspondence of turning points in the HMRC and CSO series in the period up to 2003, although this seems to break down subsequently (Figure 2.4).

Figure 2.4: Northern Ireland Cross-border Trade Balance



Source: Annex 5

To some extent these differentials in the aggregate series – particularly in terms of North to South trade - reflect those observed earlier in the national series (Figures 2.1 and 2.2). One possibility, however, is that these discrepancies may be concentrated in specific industrial sectors. The next section therefore compares data for each source for each of the twelve sectors identified in the DETI exports data. As indicated earlier Annex 5 reports a similar comparison at the SITC 2-digit level between HMRC and CSO sources.

2.5 Sectoral Comparisons

In Tables 2.1 and 2.2 we profile North to South and South to North trade respectively by sector. Part A of each table provides absolute (nominal) trade values and Part B expresses each sector as a proportion of total trade. In terms of North to South trade (Table 2.1) the following key points are evident:

- Of the three data sources, food drink and tobacco accounts for the smallest percentage of HMRC North to South data (24-27 per cent) but by far the largest absolute value. In 2006 HMRC estimate North to South trade in food, drink and tobacco at £558m, more than double the CSO estimate.

- Textiles clothing and leather North to South trade has halved as a percentage of the total in each set of statistics. Estimated absolute values in the HMRC (£120m) data are markedly different to those in the CSO (£30m) and DETI (£69m) data in 2006.

- Wood and wood products trade values for HMRC and DETI are broadly similar with CSO volumes well below both of the other sources. A broadly similar pattern is evident for paper and printing and non-metallic minerals.

- Chemicals and Rubber and Plastics North to South trade shows some contrasting trends, suggesting perhaps some issue of misclassification. Taking the two sectors together points to broadly similar trade volumes for HMRC and DETI but a much lower level for CSO.

- Basic metals trade and that in other machinery and equipment are notably higher in the HMRC data than in the DETI data and that for CSO as is the volume of transport equipment sales and unclassified manufacturing exports.

Similar patterns emerge in the comparison of the HMRC and CSO figures for South to North trade with HMRC trade values exceeding those estimated by CSO in all sectors with the exceptions of paper and printing, rubber and plastics and non-metallic mineral products. As with North to South trade some of the most noticeable differences between the sources occur in Food, Drink and Tobacco and Other Manufacturing sectors.

Table 2.1: Sectoral Profile of North to South Trade

		HMRC		DETI		CSO	
		£m	£m	£m	£m	£m	£m
	SIC Codes	1996	2006	1996	2006	1996	2006
A. Trade Value (£m pa)							
Food, Drink & Tobacco	15-16	260.4	557.1	218.0	414.0	204.2	252.0
Textiles, Clothing & Leather	17-19	124.6	119.7	94.0	68.0	85.7	29.6
Wood & Wood Products	20	26.4	151.6	36.0	151.0	13.7	50.5
Paper & Printing	21-22	56.2	78.3	81.0	106.0	56.6	37.8
Chemicals and man-made fibres	24	92.7	115.9	55.0	23.0	56.6	48.8
Rubber & Plastics	25	20.1	48.8	63.0	135.0	28.4	35.7
Other Non-Metallic Mineral	26	58.3	188.4	54.0	187.0	47.4	103.0
Basic Metals & Fabricated	27-28	47.5	216.9	35.0	147.0	9.6	29.0
Other Machinery & Equipment	29	65.8	197.5	24.0	86.0	38.3	51.3
Electrical & Optical Equipment	30-33	67.0	75.0	28.0	75.0	15.1	15.8
Transport Equipment	34-35	42.3	181.5	20.0	40.0	9.4	24.4
Other manufacturing not elsewhere	36-37 & 23	103.6	387.6	26.0	86.0	17.1	47.3
Total manufacturing	Total	964.9	2318.4	734.0	1519.0	582.1	725.2
B. Trade Value (% of total)							
Food, Drink & Tobacco	15-16	27.0	24.0	29.7	27.3	35.1	34.7
Textiles, Clothing & Leather	17-19	12.9	5.2	12.8	4.5	14.7	4.1
Wood & Wood Products	20	2.7	6.5	4.9	9.9	2.4	7.0
Paper & Printing	21-22	5.8	3.4	11.0	7.0	9.7	5.2
Chemicals and man-made fibres	24	9.6	5.0	7.5	1.5	9.7	6.7
Rubber & Plastics	25	2.1	2.1	8.6	8.9	4.9	4.9
Other Non-Metallic Mineral	26	6.0	8.1	7.4	12.3	8.1	14.2
Basic Metals & Fabricated	27-28	4.9	9.4	4.8	9.7	1.7	4.0
Other Machinery & Equipment	29	6.8	8.5	3.3	5.7	6.6	7.1
Electrical & Optical Equipment	30-33	6.9	3.2	3.8	4.9	2.6	2.2
Transport Equipment	34-35	4.4	7.8	2.7	2.6	1.6	3.4
Other manufacturing not elsewhere	36-37 & 23	10.7	16.7	3.5	5.7	2.9	6.5
Total manufacturing	Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: The 2006 data is provisional. Revised data has become available for 2006 since the research for this report was completed.

Sources: HMRC Regional Trade Statistics; DETI, *Manufacturing Sales and Exports Survey;* CSO *Trade Statistics*.

Table 2.2: Sectoral Profile of South to North Trade

		HMRC		CSO	
		£m	£m	£m	£m
	SIC Codes	1996	2006	1996	2006
A. Trade Value (£m pa)					
Food, Drink & Tobacco	15-16	288.2	543.7	263.9	324.9
Textiles, Clothing & Leather	17-19	114.6	86.6	55.9	14.9
Wood & Wood Products	20	27.2	50.8	20.8	39.4
Paper & Printing	21-22	19.8	17.2	50.6	28.0
Chemicals and man-made fibres	24	85.2	137.8	78.8	120.1
Rubber & Plastics	25	12.9	29.9	32.3	46.1
Other Non-Metallic Mineral	26	32.0	78.1	49.5	102.3
Basic Metals & Fabricated	27-28	40.2	118.8	11.6	26.9
Other Machinery & Equipment	29	43.6	104.7	51.5	85.3
Electrical & Optical Equipment	30-33	38.7	60.1	29.7	19.6
Transport Equipment	34-35	29.4	68.7	26.4	49.9
Other manufacturing not elsewhere	36-37 & 23	65.3	131.3	21.6	42.9
Total manufacturing	Total	797.1	1427.7	692.7	900.4
B. Trade Value (% of total)					
Food, Drink & Tobacco	15-16	36.2	38.1	38.1	36.1
Textiles, Clothing & Leather	17-19	14.4	6.1	8.1	1.7
Wood & Wood Products	20	3.4	3.6	3.0	4.4
Paper & Printing	21-22	2.5	1.2	7.3	3.1
Chemicals and man-made fibres	24	10.7	9.7	11.4	13.3
Rubber & Plastics	25	1.6	2.1	4.7	5.1
Other Non-Metallic Mineral	26	4.0	5.5	7.2	11.4
Basic Metals & Fabricated	27-28	5.0	8.3	1.7	3.0
Other Machinery & Equipment	29	5.5	7.3	7.4	9.5
Electrical & Optical Equipment	30-33	4.9	4.2	4.3	2.2
Transport Equipment	34-35	3.7	4.8	3.8	5.5
Other manufacturing not elsewhere	36-37 & 23	8.2	9.2	3.1	4.8
Total manufacturing		100.0	100.0	100.0	100.0

Note: The 2006 data is provisional. Revised data has become available for 2006 since the research for this report was completed.

Sources: HMRC Regional Trade Statistics; CSO *Trade Statistics*

To clarify the source of differences between the different sources we estimate in Tables 2.3 and 2.4 the contribution of each sector to the aggregate difference at the start and end of the data period. For example, in 1996 the HMRC estimate for North to South trade in Food, Drink and Tobacco was £42.4m greater than that of DETI. By 2006 this difference had growth to £143.1m, an increase in the discrepancy of £100.7m (Table 2.3). Overall, the increase in the discrepancy between the HMRC figures and the DETI figures between 1996 and 2006 was £568.5m, with the largest absolute contributions being made by Food etc. (£100.7m), Transport Equipment (£119.2m) and Other

Manufacturing (£224.0m) (Table 2.3). Notably, however, the discrepancies were not unique to these sectors with the HMRC estimates being significantly larger than the DETI trade estimates in most sectors.

Comparing the CSO and DETI estimates of North to South trade suggests a rather different picture, although again significant discrepancies occur across a range of sectors (Table 2.3). Here the largest sectoral discrepancies are in Food etc (£148.2m) and Basic Metals (£92.6m).

In terms of South to North trade we also see a growing discrepancy between HMRC and the CSO estimates over the 1996-2006 period – rising from £104.5m in 1996 to £527.3m in 2006. On a sectoral basis nearly half of this increase can be attributed to the Food sector (£218.8m), although HMRC trade estimates are also higher than those from the CSO over most other sectors.

Table 2.3: Decomposition of North to South Trade Differences (£m)

	HMRC-DETI 1996 (1)	HMRC-DETI 2006 (2)	HMRC-DETI 2006-96 (2)-(1)	CS0-DETI 1996 (1)	CS0-DETI 2006 (2)	CS0-DETI 2006-96 (2)-(1)
Food, Drink & Tobacco	42.4	143.1	100.7	-13.8	-162.0	-148.2
Textiles, Clothing & Leather	30.6	51.7	21.1	-8.3	-38.4	-30.0
Wood & Wood Products	-9.6	0.6	10.2	-22.3	-100.5	-78.2
Paper & Printing	-24.8	-27.7	-2.8	-24.4	-68.2	-43.9
Chemicals and man-made fibres	37.7	92.9	55.2	1.6	25.8	24.2
Rubber & Plastics	-42.9	-86.2	-43.3	-34.6	-99.3	-64.7
Other Non-Metallic Mineral	4.3	1.4	-2.9	-6.6	-84.0	-77.3
Basic Metals & Fabricated	12.5	69.9	57.5	-25.4	-118.0	-92.6
Other Machinery & Equipment	41.8	111.5	69.7	14.3	-34.7	-49.0
Electrical & Optical Equipment	39.0	0.0	-39.0	-12.9	-59.2	-46.3
Transport Equipment	22.3	141.5	119.2	-10.6	-15.6	-5.0
Other manufacturing not elsewhere	77.6	301.6	224.0	-8.9	-38.7	-29.8
Total manufacturing	230.9	799.4	568.5	-151.9	-793.8	-641.9

Note: The 2006 data is provisional. Revised data has become available for 2006 since the research for this report was completed.

Sources: HMRC Regional Trade Statistics; DETI, *Manufacturing Sales and Exports Survey;* CSO *Trade Statistics*

Table 2.4: Decomposition of South to North Trade Differences (£m)

	HMRC-CSO 1996 (1)	HMRC-CSO 2006 (2)	HMRC-CSO 2006-96 (2)-(1)
A. Trade Value (£m pa)			
Food, Drink & Tobacco	24.3	218.8	194.5
Textiles, Clothing & Leather	58.7	71.6	12.9
Wood & Wood Products	6.3	11.4	5.1
Paper & Printing	-30.7	-10.8	20.0
Chemicals and man-made fibres	6.4	17.7	11.3
Rubber & Plastics	-19.4	-16.2	3.2
Other Non-Metallic Mineral	-17.5	-24.2	-6.7
Basic Metals & Fabricated	28.6	91.9	63.2
Other Machinery & Equipment	-7.9	19.4	27.3
Electrical & Optical Equipment	9.0	40.5	31.5
Transport Equipment	3.0	18.8	15.8
Other manufacturing not elsewhere	43.7	88.4	44.7
Total manufacturing	104.5	527.3	422.8

Note: The 2006 data is provisional. Revised data has become available for 2006 since the research for this report was completed.

Sources: HMRC Regional Trade Statistics; CSO *Trade Statistics*

2.6 Comparing Origin and Despatch data for CSO

In the 2003 report the importance of the distinction between goods' point of origin and point of dispatch was highlighted. The primary concern in that report was the fact that HMRC applied a different definition to that used by the CSO. The HMRC data were constructed on the basis of country of consignment despatch while those of the CSO used the more common country of origin definition. Apart from the obvious benefit of using common definitions, an analysis of data from one source on the basis of both definitions might also point to other explanations for the observed differences.

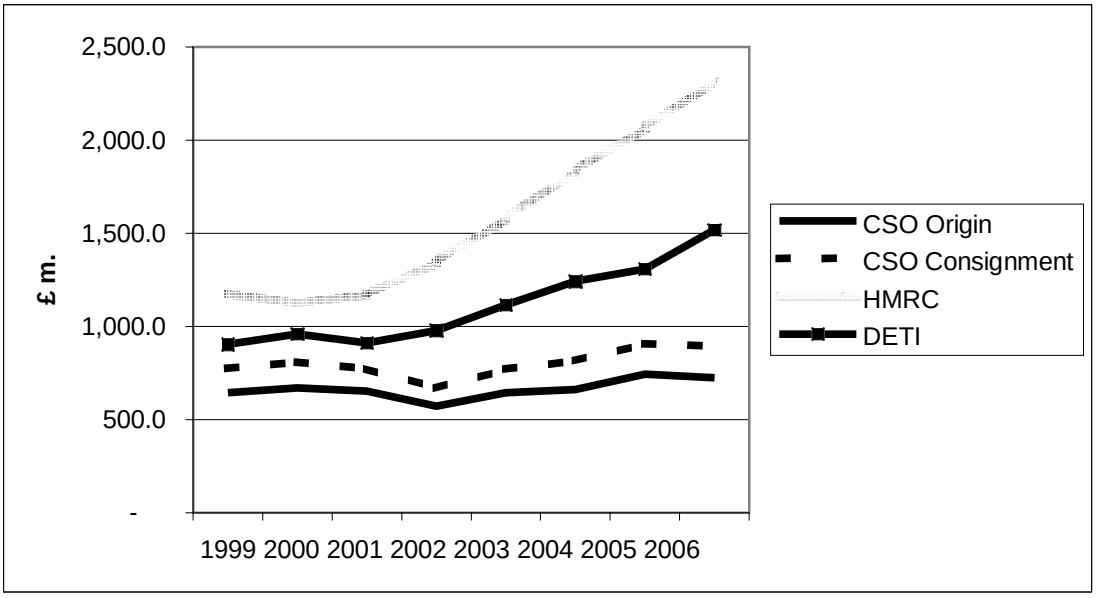
For the 2003 report this analysis was carried out for just three years. Here, the analysis can be extended to nine calendar years or eight financial years, using micro data on both definitions supplied by the CSO, for the period 1999 to 2007. As the CSO only records exports from Ireland that have actually originated in Ireland it is only meaningful to carry out the analysis for North to South trade.

Figure 2.5 shows a comparison between the two CSO aggregate manufacturing trade series using alternative definitions, on the basis of the origin of goods and their point of consignment. As would have been expected, this clearly shows that the series based on the point of consignment definition (rather than the standard CSO point of origin definition) is consistently larger. Indeed this difference is about 20 per cent. Or, put

another way that around a fifth of North to South trade in goods measured by CSO were consigned from Northern Ireland but were not manufactured in the region. Since both the DETI and HMRC series are both substantially larger than the published CSO series based on the country of origin definition, it is clear that the alternative definition reduces the overall differences although they remain at a slightly smaller scale. The gap between the HMRC and DETI series in 2006 is 159% and 70% respectively. In other words, using the alternative definition for the CSO data helps reduce the gap between series but does not account for it completely. Importantly, the divergence of the series post-2002 remains even after the alternative definition is applied.

One reason why the gap is reduced by the alternative definition might be related to headquarters issues. If a GB owned subsidiary in Northern Ireland exports to Ireland, the export may be attributed to the headquarters of the firm.

Figure 2.5: CSO North to South manufacturing trade applying alternative definitions



Source: Own Calculations using CSO micro-data.

The overall comparison of the trade series at the sectoral level (Section 2.6) suggests that the differences are likely to have systematic rather than sectoral explanations. Nevertheless, it is useful to consider whether the alternative definitions impact differently at the sectoral level. Table 2.5 compares the series for 2006. The table confirms the earlier analysis suggesting that sectoral issues are not the key driver of the differences. A mixed pattern emerges where, nevertheless, a number of sectors such as Electrical and Optical Equipment, Transport Equipment and Other Manufacturing show a somewhat more substantial reduction in differences than other sectors. In a few cases such as Chemicals and Man-made Fibres and Transport Equipment the CSO series exceeds that of DETI, in others such as Basic Metals the differences remain substantial.

Table 2.5: Comparison of North to South trade at the Sectoral Level using CSO data on the basis of alternative definitions, 2006.

	HMRC	DETI	CSO Origin	CSO Consignment	HMRC-CSO Consignment	DETI-CSO Consignment
Food, Drink & Tobacco	557.1	414.0	251.9	319.8	237.3	94.2
Textiles, Clothing & Leather	119.7	68.0	29.7	25.6	94.1	42.4
Wood & Wood Products	151.6	151.0	50.5	61.1	90.5	89.9
Paper & Printing	78.3	106.0	37.8	38.4	39.9	67.6
Chemicals and man-made fibres	115.9	23.0	48.6	49.9	66	-26.9
Rubber & Plastics	48.8	135.0	35.7	41.6	7.2	93.4
Other Non-Metallic Mineral	188.4	187.0	103.1	127.23	61.17	59.77
Basic Metals & Fabricated	216.9	147.0	29.0	32.7	184.2	114.3
Other Machinery & Equipment	197.5	86.0	51.2	61.3	136.2	24.7
Electrical & Optical Equipment	75.0	75.0	15.9	26.1	48.9	48.9
Transport Equipment	181.5	40.0	24.4	45.1	136.4	-5.1
Other manufacturing not elsewhere	387.6	86.0	47.7	66.9	320.7	19.1
Total manufacturing	2318.4	1519.0	725.8	895.8	1422.6	623.2

Sources: HMRC Regional Trade Statistics; DETI, *Manufacturing Sales and Exports Survey;* CSO *Trade Statistics*

2.7 Key Points

In aggregate, the HMRC, DETI and CSO series on cross-border trade series bear little resemblance in either absolute level, time profile or growth. In terms of North to South trade, in particular, the series have little in common suggesting either a stable picture (CSO), steady growth (DETI), or rapid growth (HMRC). This, in part, reflects the discrepancy between HMRC and CSO evident in national trade flows. It may also be complicated by regional allocation problems related to the location of firms' headquarters, etc.

In terms of South to North trade the national picture is more reassuring with broadly similar estimates of trade volumes from CSO and the UK sources. However, this relationship breaks down at the regional level with significant discrepancies again emerging between HMRC and the CSO data. This suggests the potential importance of regional allocation issues even where national trade estimates are aligned.

Comparisons both on the basis of SIC codes (Section 2.5) and more detailed SITC codes (Annex 5) suggest that discrepancies between the different sources occur in most sectors although some sectors do account for a particularly large proportion of the discrepancy. Food, transport equipment and other manufacturing are particularly important in terms of North to South trade with food also dominating the discrepancy between the HMRC and CSO estimates of South to North trade.

One issue discussed in detail in the 2003 report is the potential for distortion because of the different bases on which trade is classified in terms of point of origin and dispatch by

CSO and HMRC. Calculating series on both bases for CSO (see Table 2.5) suggests this distinction is responsible for only a relatively small proportion of the discrepancy between series and cannot help to explain the growing disparity in recent years.

CHAPTER 3: NEXT STEPS FOR INVESTIGATION

3.1 Introduction

Based on the aggregate and sectoral comparison undertaken earlier the objective of this chapter is to identify the key questions which might be addressed both at an aggregate level and in a firm level data comparison. We focus on four comparisons, i.e.:

(1) CSO estimates of cross-border trade with North to South trade data from DETI;

(2) HMRC data on North to South trade with that from DETI;

(3) CSO estimates of cross-border trade in both directions with those from HMRC; and

(4) CSO exports data to the UK with CSO exports data from the Census of Industrial Production.

3.2 CSO v DETI

This is a comparison of series based on trade returns and VAT returns relating to the sales of goods (CSO) with the DETI survey based data. The comparison is also made marginally more complex due to the need to convert € trade values (CSO) into Sterling to allow the comparison. The comparisons reported in Chapter 2 suggest two main issues here:

- First, the DETI estimates of North to South trade are consistently larger than those from CSO with the margin increasing through time (Table 2.3).

- Second, discrepancies exist in all sectors (Table 2.3) with the largest differences in absolute terms arising in food and basic metals.

It is helpful to be clear exactly what is happening here. In response to the DETI questionnaire Northern Ireland manufacturing firms are reporting an export value of goods to Ireland, but Irish firms are declaring a much smaller value of goods as imported from Northern Ireland. Also, the consistency of the sectoral pattern suggests that the source of the discrepancies between CSO and DETI figures are systematic rather than sectoral and are unlikely to be related to the ownership characteristics of firms, etc. This is also suggested by the underestimation by CSO of imports from the UK discussed in Section 2.3.

Issues could be arising on either side here. On the DETI survey it is possible, for example, that Northern Ireland manufacturing firms are systematically over-estimating (or over-reporting) the value of their sales to Ireland. It is difficult to see any clear motivation for this, however, and the consistency checks applied to individual responses in the DETI data collection procedure would probably highlight any issues here.

Perhaps more likely are either issues of declaration or attribution in the CSO data which tend to reduce the apparent volume of imports from Northern Ireland. A number of non-exclusive possibilities are evident here:

- First, Irish firms could for whatever reason simply be under-estimating or not-reporting purchases from Northern Ireland.

- Second, Irish firms could simply be classifying imports from Northern Ireland as 'UK'. This could simply be mis-reporting but might also arise, for example, where goods were actually shipped from Northern Ireland but the headquarters (and therefore the VAT address and billing) of the UK supplier was in Great Britain. This is another element of the 'headquarters' problem which arises in the comparison of HMRC data and the DETI numbers.

- Third, the allocation procedure used to assign countries to imports reported on VAT data (i.e. for companies below the INTRASTAT thresholds) might under-estimate the volume of trade from Northern Ireland. (This would be the case, for example, if North to South trade was undertaken primarily by smaller firms and the estimation procedure was based on larger firms with more extensive international trading networks).

Another possibility here is intra-company trade. Sales from Northern Ireland might well be considered as 'exports' by the Northern Ireland operation of a firm in the DETI statistics but might not be reported as a 'purchase' by the Irish operation if the transfer was within the firm.

Given the different data structures of the CSO and DETI data it seems likely that progress in terms of understanding the issues here will only be made by examining individual company level data. In particular it would be useful to compare information at company level by matching VAT numbers for NI firms selling in Ireland and compare their exports on the DETI survey to their imports as identified by the CSO INTRASTAT and VAT procedure.

3.3 DETI v HMRC

This comparison also involves the DETI survey based data and the HMRC data based on the INTRASTAT survey and VAT returns. Here the comparisons reported in Chapter 2 suggest two main issues:

- First, the HMRC data suggests a consistently larger North to South trade flow than the DETI data with the discrepancy rising from £230.9m in 1996 to £799.4m in 2006.

- Second, although the sectoral match is cruder here than in the case of the CSO data (due to the higher level of aggregation of the published HMRC data) the differences are again relatively systematic occurring across a range of different sectors including the 'other manufacturing nes' grouping (Table 2.3).

Here it is important to realise that the DETI statistics and the HMRC statistics on North to South trade are not necessarily inconsistent. Both could in fact be 'right'. The DETI figures relate solely to the exports to Ireland of Northern Ireland manufacturing firms – the survey covers only these firms. The HMRC data covers the sales of goods by ***all*** Northern Ireland firms to Ireland whether these are manufacturers or trading firms such as wholesalers or distributors. In this situation the DETI figures would validly represent the sales of goods manufactured in Northern Ireland to Ireland, while the HMRC data would represent the full sale of 'goods' from Northern Ireland to Ireland. Both would be 'right' given what they are trying to measure.

Other potential issues relate primarily to the ways in which firms report their sales to Ireland to DETI on the one hand and HMRC on the other. Five scenarios can be identified and each could usefully addressed by further investigation:

(1) In the case of an independent manufacturing firm with only one Northern Ireland site and above the INTRASTAT reporting thresholds, the figures should be similar for HMRC and DETI, with goods' destination clearly indicated on the INTRASTAT form. This could be addressed by matching VAT numbers from the DETI MSES and the HMRC database.

(2) An independent manufacturing firm which has only a Northern Ireland site and is below the INTRASTAT reporting thresholds would provide a VAT return only. This provides more limited information on exports by commodity and country so an element of estimation is necessary to make a commodity estimate. Total exports should be correctly reported to HMRC, however. This data could be made available by HMRC as part of a fuller account of the construction of the NI exports and imports data.

(3) A Northern Ireland based non-manufacturing firm selling goods to Ireland would be liable to provide a return to HMRC but would be excluded from the DETI data. The importance of this could be estimated by taking a sample of HMRC trading firms located in NI and identifying whether they are picked up in the DETI exports data.

(4) Single firms based in Northern Ireland not registered for VAT are excluded from the HMRC data but might be included in the DETI manufacturing survey. This is probably of minor importance.

(5) Companies registered in GB with a Northern Ireland operation would be likely to report exports locally to DETI (if manufacturing) and centrally – i.e. from headquarters to HMRC. HMRC would then allocate exports between the firms' regional operations on the basis of a sample of the largest UK exporters. This could be examined by looking at the size of the estimated element of Northern Ireland exports.

Two approaches are possible here. First, and perhaps less demanding in terms of resources, would be to get some more specific idea of how the Northern Ireland HMRC statistics are constructed. For example, to what extent do these depend on the 'Top Traders' survey? Second, each of the situations described above would be worth examining by comparing the DETI and HMRC firm-level data. Perhaps the key issues here, however, are (3) non-manufacturing firms based in Northern Ireland which are

exporting goods to Ireland, and (5) the headquarters issue. The issue of non-manufacturing firms should be relatively easy to explore, however, by identifying those reporting units in Northern Ireland which are significant exporters to Ireland according to the HMRC data but are excluded from the DETI survey. The headquarters issue is potentially more significant especially given the extent of GB and international ownership of manufacturing capacity in Northern Ireland. Ideally, here one would compare the imputed volumes of trade with those actually suggested by the DETI survey to identify any consistent bias.

3.4 CSO v HMRC

The context for this comparison is provided by the consistency of CSO and HMRC estimates of exports from Ireland to the UK but the higher level of HMRC estimates of UK exports to Ireland (Section 2.3). We are also aware that some work is already underway (the EDICOM project) between HMRC (ONS) and CSO which will address these national discrepancies and may also contribute to an understanding of the higher HMRC estimate of UK exports. Of particular interest here therefore is the discrepancy between the CSO and HMRC estimates of South to North trade in the context of the consistency of the national estimates of UK imports from Ireland. Our sectoral analyses (both SIC and SITC based) again suggest a relatively uniform pattern with HMRC suggesting a consistently higher level of Northern Ireland imports in the majority of sectors.

Two – mutually non-exclusive - possibilities are therefore evident here. First, it might be that CSO is underestimating the share of UK imports to Northern Ireland. Or, that HMRC are allocating a larger share of total UK imports to Northern Ireland than is justified. Hopefully the EDICOM project might shed some light on potential underestimation of UK imports by CSO. Other questions therefore relate to the HMRC data for Northern Ireland and similar questions arise to those posed previously:

(1) What share of the Northern Ireland imports data from Ireland is actually estimated or imputed rather than being the result of spatially specific data? How does this differ between sectors? How has this changed over the last few years?
(2) If this is significantly different between Northern Ireland and other UK regions what is the basis for this and can this basis be strengthened in some way?
(3) Could intra-company transfers be important here. These might be more significant between Northern Ireland and Ireland than between Ireland and other UK regions?

Other factors – changes in VAT thresholds for example – are unlikely to have a specific effect on Northern Ireland or to lead to the kind of over-estimation observed in the HMRC data relative to national imports from Ireland.

3.5 CSO Trade Statistics v CSO Census of Industrial Production

While the CSO Census of Industrial Production (CIP) does not contain any information regarding North/South trade, it does have details of the proportion of output of

manufacturing firms exported to the UK as a whole. In making this comparison it must be borne in mind that the methodologies and coverage employed are quite different. While the trade statistics are complied via the INTRASTAT survey of traders, supplemented by data from the VAT register and estimation of below threshold trade, the CIP is based on a census of manufacturing industrial local units with three or more persons engaged. The CIP contains detail on the value of output that is exported and the proportion of that output which is exported to the UK. It is therefore trivial to calculate the value of output that is exported to the UK. However, as some manufacturing businesses may also be engaged in some service activities their output may also include some services output which will also feed into the export figures, biasing them upwards. On the other hand since micro-enterprises with on or two employees are excluded the trade of these enterprises is not accounted for, which would bias the value of exports recorded in the CIP downwards.

Anyadike-Danes and Morgenroth (2003) also included this comparison in their report. Using the published exports of industrial products to the UK (Table 6 of the Trade Statistics) for the period 1991 to 2000, they found the largest annual deviation to be about 14% with the average difference of about 7%.

Over the period 2000 to 2006 the absolute difference averages 24%. However, if one excludes 2001 and 2002 the average difference is 14%. For the two years 2001 and 2002 the difference is 51% and 45% respectively, indicating that the trade statistics for those two years are unusually large. The fact that the deviation between the two series appears to be growing is somewhat worrying in that it suggests that either one or both series are subject to increasing measurement error.

Table 3.1: Exports of Manufactured Goods from the Republic of Ireland to the UK, 2000-2006.

Year	Census of Industrial Production (CIP) €m	Trade Statistics (TS) €m	Ratio (TS/CIP)
2000	13,860	16534	1.19
2001	13,097	19820	1.51
2002	13,743	19884	1.45
2003	13,120	12154	0.93
2004	13,732	12292	0.90
2005	14,637	12301	0.84
2006	14,909	12304	0.83

Notes: The data from the Census of Industrial Production refers to exports from all manufacturing local units. The data from the Trade Statistics refers to exports of Industrial Produce.

Sources: CSO, *Census of Industrial Production;* CSO, *Trade Statistics*

3.6 Key Points

Of the three data sources examined here perhaps the most transparent is the DETI survey of manufacturing sales and exports. In part this is due to its more specific focus – manufacturing firms' sales and exports – as well as being a specifically targeted data collection operation. Both of the other sources considered here take advantage of revenue data to generate export and import statistics in a framework which is governed

by more complex reporting limits, thresholds and reporting structures. This is likely to mean that both the CSO and HMRC data involve more imputation – and therefore more potential inaccuracy - than the DETI data. This problem is clearly more profound for HMRC with the requirement to generate regional export and import allocations. It seems most likely a priori that CSO are under-estimating and HMRC over-stating current trade flows. (This under-estimation of trade flows by the CSO is also suggested by the higher average levels of exports to the UK reported in the Census of Industrial Production).

Matching DETI and HMRC VAT numbers and export data might help to explain some of the discrepancy between the two data sources for firms which are included in both sources. It will also be necessary, however, to gauge the scale of imputation in the HMRC data for Northern Ireland and to examine whether the HMRC data includes other (non-manufacturing) firms excluded from the DETI survey. Both depend, however, on the willingness of HMRC to provide additional information on their Northern Ireland data.

CHAPTER 4: SUMMARY AND CONCLUSIONS

This report investigates the differences between North/South trade figures published by CSO, HMRC and DETI. In doing so this report updates and extends the earlier analysis by Anyadike-Danes and Morgenroth (2003)

Since the last comparison of North/South trade statistics in 2003 there have been relatively few changes in the methodology of either the DETI or CSO data series. The HMRC methodology has changed, however, with the top traders survey in particular focussing on one of the key issues identified in the 2003 report – the headquarters allocation problem. It is, however, not clear whether this change has had an impact on the volume of trade reported by headquarters that is allocated to Northern Ireland and whether this is playing any part in the sharp increase in Northern Ireland's exports to Ireland seen over this period in the HMRC figures. The extent to which the HMRC estimates of Northern Ireland trade are based on this type of regional allocation is also unclear. Neither of these issues could be adequately addressed with the level of response received by HMRC, and will thus have to be assessed in the future.

In aggregate, the HMRC, DETI and CSO series on cross-border trade series bear little resemblance in either absolute level, time profile or growth. In terms of North to South trade, in particular, the series have little in common suggesting either a stable picture (CSO), steady growth (DETI), or rapid growth (HMRC). This, in part, reflects the national discrepancy between HMRC and CSO evident in national trade flows but may also be complicated by regional allocation problems related to the location of firms' headquarters etc.

In terms of South to North trade the national trade flows picture is more reassuring with broadly similar estimates of trade volumes from CSO and the UK sources. This relationship breaks down at the regional level, however, with significant discrepancies again emerging between HMRC and the CSO data. This suggests the potential importance of regional allocation issues even where national trade estimates are aligned.

Comparisons both on the basis of SIC codes and more detailed SITC codes suggest that discrepancies between the different sources occur in most sectors although some sectors do account for a particularly large proportion of the discrepancy. Food, transport equipment and other manufacturing are particularly important in terms of North to South trade with food also dominating the discrepancy between the HMRC and CSO estimates of South to North trade.

The 2003 report indicated that a substantial proportion of the difference between the CSO and HMRC series could be accounted for by the classification regarding country of consignment or country of origin. Over the more recent period analysed in this report this distinction is found to be responsible for only a relatively small proportion of the discrepancy between series and cannot help to explain the growing disparity in recent years.

Of the three data sources examined in this report perhaps the most transparent is the DETI survey of manufacturing sales and exports. In part this is due to its more specific focus – manufacturing firms' sales and exports – as well as being a specifically targeted data collection operation. Both of the other sources considered here take advantage of

revenue data to generate export and import statistics in a framework which is governed by more complex reporting limits, thresholds and reporting structures. This is likely to mean that both the CSO and HMRC data involve more imputation – and therefore more potential inaccuracy - than the DETI data. This problem is clearly more profound for HMRC with the requirement to generate regional export and import allocations. It seems most likely a priori that CSO are under-estimating and HMRC over-stating current trade flows.

Actions that could clear up the confusion

1. Given these considerations it might be most appropriate for analysis to utilise the DETI export figures to the Republic of Ireland and the CSO exports to Northern Ireland in analysis. This type of approach is not uncommon internationally, where similar inconsistencies have been identified. From a practical point of view it is worth noting that in a cross country analysis of trade flows which included many country pairs, the results were unaffected by the choice of North/South trade statistics (see Morgenroth (2009)).

2. If the CSO also asked respondents to the Census of Industrial Production (CIP) to distinguish between Northern Ireland and Great Britain, rather than all of the UK, this source of data could also be used to cross-validate the trade statistics. Amending the survey form would not increase the burden on the respondents significantly and would not add any cost to the statistics office. Similarly, the surveys used to collect data on services trade should also make the distinction between Northern Ireland and Great Britain which would yield new data on North/South services trade which could not be covered in this report due to lack of data, but which will become increasingly important to the island's economies.

3. Matching DETI and HMRC VAT numbers and export data might help to explain some of the discrepancy between the two data sources for firms which are included in both sources. Similarly it is at least theoretically possible to cross-validate the DETI and CSO data using micro-data. Such an analysis would require close co-operation of between the CSO and DETI and raises legal issues regarding data access.

As indicated above, it will also be necessary to gauge the scale of imputation in the HMRC data for Northern Ireland and to examine whether the HMRC data includes other (non-manufacturing) firms excluded from the DETI survey. Both depend, however, on the willingness of HMRC to provide additional information on their Northern Ireland data.

Annex 1: DETI Northern Ireland Sales and Exports Survey

1. DATA SOURCE NAME

Department of Enterprise, Trade and Investment Manufacturing Exports Statistics

2. AGENCY OR DEPARTMENT RESPONSIBLE FOR COLLECTION

Statistics Branch of the Department of Enterprise, Trade and Investment

3. DESCRIPTIVE OVERVIEW OF DATA

This data was originally compiled by the Northern Ireland Economic Research Centre until 2000-01 and since 2001-02 has been compiled by the Department of Enterprise, Trade and Investment. It provides a profile of manufacturing exports from Northern Ireland firms. Data is compiled from an annual company survey, covers financial years and is published in SIC categories. A detailed breakdown of export destination is published identifying countries within the EU15 and North America and continental trade flows to other parts of the world. Figures are published both on a current and constant price basis. A breakdown by firm size is also available.

Interest centres on three main variables:

- Sales – defined as including the sales of goods of firms' own production as well as invoices raised during the period covered by the return including progress payments for work in progress. Information relates to goods manufactured in Northern Ireland only, includes sales of goods made for the firm from materials supplied by them by excludes VAT and any sales of fixed assets and grant payments. Figures are requested on a financial year basis although some firms supply calendar year figures. Figures include sales of services by manufacturing firms although these are relatively small.

- External sales – that proportion of sales made outside Northern Ireland.

- Export sales – that proportion of sales outside the UK. This is broken down by broad geographical region and detailed country.

4. LEGISLATIVE AND REGULATORY FRAMEWORK

4.1 Legal basis of survey

Prior to 2006/07 this data was compiled as a voluntary enquiry by DETI Statistics Branch and previously NIERC. In 2006/07 (survey conducted in Spring 2007) the survey was made statutory under Article 8 of the Statistics of Trade and Employment (Northern Ireland) Order 1988. Under this Order firms failing to respond to the survey are liable to prosecution.

5. DATA DEFINITIONS/SURVEY INSTRUMENT

5.1 Questionnaire overview

Two separate questionnaires are used covering the food and non-food sectors. Differences are relatively minor. The main areas covered by the questionnaire are:

- Main products manufactured and services provided
- Employment – total number of employees and other workers
- Sales in current year – see above for definition
- Export destination – by broad category and individual country (% of sales)
- Purchases of goods and materials for further processing
- Targeting of new business – new geographical markets over the next two years
- Export of services (total – not geographically distinguished)
- Barriers to trade

DETI are planning to extend the coverage of the measurement of manufacturing and service sector exports and imports to Ireland using the Annual Business Inquiry and the Exports survey.

6. DATA COVERAGE

6.1 Industrial coverage (basis e.g. SIC, SITC etc)

The survey covers manufacturing firms in NACE 15-37 only. See above for sampling approach.

6.2 Time period of availability

Data is available on a financial year basis from 1995/06 to 2007/08. The latest release of data for 2007/08 was published in December 2008.

6.3 Frequency of data collection, etc.

Annual.

7. DATA COLLECTION METHODOLOGY

7.1 Sampling frame (including thresholds, etc.)

Sampling frame for the survey is the Interdepartmental Business Register supplemented by information from Invest NI on new start-up firms and other client companies. Sampling structure was marginally different in the pre-2001/02 period when the survey was conducted by NIERC and more recent years when the survey has been conducted by DETI. Prior to 2001/02 forms were issued to all companies with 20 or more employees are selected and a sample of 500 companies with less than 20 employees. More recently forms are issued all manufacturing businesses
which employ 5 or more persons.

7.2 Response rates

The 2005/06 response rate was 75.4% based on actual returns. In 2006/07 this rose to 84.5 per cent as the survey moved onto a statutory basis.

7.3 Non-response methodology/checking/residuals

Individual estimates are made for non-respondents with 50 or more employees. Estimation is based on previous year returns, if available, by applying growth rates, calculated from changes over the year in similar businesses. If no previous year data is available, a sales value is derived from another comparable survey and destination information is estimated based on the returns of the industry to which the non-respondent belongs. If no data is available, an estimate is made based purely on the returns of similar businesses.

For firms with less than 50 employees responses are grossed up to the Census of Employment or Quarterly Employment Survey.

8. DATA PROCESSING

This is done within DETI Statistics Branch. Reference points for data verification are other data sources available to DETI staff (the Annual Business Inquiry, Census of Employment and IDBR turnover figures). In addition Companies House data is sometimes used to verify turnover data from larger firms.

9. REPORTING/PUBLICATIONS

The main annual publication is the DETI Manufacturing Sales and Exports report generally published in December and covering data to the previous April. The report generally covers:

- An overview of sales & export performance including current and constant price series on sales, external sales and exports.

- Analysis of exports by broad area of destination and detailed country of destination break-down.

- Analysis of sales and export by sector. Sectors covered are:
  - NACE 15-16 Food, Drink & Tobacco
  - NACE 17-19 Textiles, Clothing & Leather
  - NACE 20 Wood & Wood Products
  - NACE 21-22 Paper & Printing
  - NACE 24 Chemicals & Man-Made Fibres
  - NACE 25 Rubber & Plastics
  - NACE 26 Other Non-Metallic Mineral Products
  - NACE 27-28 Basic Metals & Fabricated Metal Products
  - NACE 29 Other Machinery & Equipment
  - NACE 30-33 Electrical & Optical Equipment
  - NACE 34-35 Transport Equipment

    - NACE 36-37 & 23 Other Manufacturing not elsewhere classified
    - NACE 15-37 Total

- Analysis by size of business with a particular focus on sales and exports by small, medium and larger firms.

- A historical analysis covering the period from 1995/96 to date.

Annex 2: HM Revenue and Customs Trade Statistics

1. DATA SOURCE NAME

HM Revenue and Customs Regional Trade Statistics

2. AGENCY OR DEPARTMENT RESPONSIBLE FOR COLLECTION

Knowledge Analysis and Intelligence (KAI) of HM Revenue and Customs

3. DESCRIPTIVE OVERVIEW OF DATA

UK data: Since 1993 the data have encompassed statistics of UK imports and exports to countries outside the EU, compiled from customs declarations, and statistics of UK arrivals and dispatches to other Member States of the EU, compiled from Intrastat returns. Prior to 1993 all export and import data were compiled from declarations. The data are classified according to the Harmonised System (HS) which enables National Customs authorities to compile their tariffs. For publication purposes the trade statistics are re-grouped under the headings of SITC (Rev.4).

Regional data: Regional data are available quarterly from 1 January 1996. They are available for the nine English Government Office Regions, Scotland, Wales and Northern Ireland. Detailed data expressing regional imports and exports, by significant markets at SITC Division (2 digit) level, are available free from www.uktradeinfo.com

4. LEGISLATIVE AND REGULATORY FRAMEWORK

The trade statistics are compiled in accordance with the 'general trade' system of recording from 'International Trade Statistics Concepts and Definitions' published by the UN.

Trade within the EU: The Intrastat system is linked to VAT. In the UK all VAT registered business must complete two additional boxes on their VAT returns showing the total value of exports (dispatches) and imports (arrivals) to other Member States, these are submitted quarterly. Traders whose annual value of arrivals / dispatches exceed thresholds (£260,000) must provide supplementary information on a monthly basis. Traders have a legal responsibility to provide Intrastat declarations and must do so by the last calendar day of the end of the following calendar month.

Trade with non-EU countries: Importers and Exporters must present a customs declaration before obtaining clearance.

4.1 Legal basis of survey

Statutory - EU regulations on Intrastat declarations.

5. DATA DEFINITIONS/SURVEY INSTRUMENT

Trade within EU: Survey Instrument is VAT return.
Trade outside EU: Survey Instrument is Customs declaration form.
Refer to Revenue & Customs forms for data items.

5.1 Questionnaire overview

No questionnaires as such but forms can be found in the Revenue & Customs Training Manual.

5.2 Listing of main data items

Refer to Revenue & Customs forms for data items.

6. DATA COVERAGE

Intrastat covers all UK VAT registered businesses. Traders not registered for VAT are not included in the trade statistics.

Trade with non-EU countries is recorded as that declared by importers and exporters for which documentation has been received and processed during the month.

The regional trade data refer to goods that have crossed the UK frontier. Revenue & Customs do not have any information on goods that have moved between regions of the UK.

6.1 Industrial coverage (basis e.g. SIC, SITC etc)

The Harmonised System (HS) is used to classify commodities, in its expanded form it is also known as the Combined Nomenclature (CN) within the EU. The 'Tariff', which is also used, is an integrated classification for both duty and statistical purposes and is based on the HS. The overseas trade statistics were based on SITC (REV.3) up until 2006. Since Jan 2007 the data are based on SITC (Rev. 4)

The monthly trade data published by the ONS are at a broader SITC section, i.e. some of the sections are combined. The regional trade data (RTS), which can be obtained online, are available at SITC Division (2 digit)

6.2 Time period of availability

HM Revenue & Customs have collected statistics for over 300 years. Since 1993 trade within the EU has been collected through the Intrastat system. Prior to this it was all through Customs declarations. This has resulted in some discontinuities in the geographical allocation of goods between 1992-1993. There were also some recording problems for December 1992 and January 1993 due to the switchover.

The Regional data are available quarterly from 1 January 1996. Data are available online and through ad-hoc enquiries.

Trade data are available monthly, quarterly and annually through the various publications which also have differing levels of detail regarding country / commodity breakdown.

6.3 Frequency of data collection, etc.

EU trade: VAT returns are submitted quarterly. Traders whose annual export/import values exceed the threshold must provide a supplementary declaration on a monthly basis. This is required by the last working day of the following calendar month.

Non-EU trade: Importers and exporters must present a Customs declaration before they can obtain Customs clearance and remove the goods. The majority of imports are cleared immediately through computer. The import figures thus tend to correspond closely to goods actually imported during the calendar month, however for exports traders can submit a simplified declaration to export the goods, followed by complete declaration within 14 days of shipment. The processing of these documents only begins 3 days before the end of the calendar month.

7. DATA COLLECTION METHODOLOGY

Since 1993 data have been collected through Intrastat returns (EU trade) and declarations made to Revenue & Customs (non-EU trade). Prior to this all trade data were collected only through declarations.

7.1 Sampling frame (including thresholds, etc.)

All UK VAT-registered businesses must complete additional boxes on their VAT returns regarding value of arrivals and dispatches to EU Member States. Traders not registered for VAT and private individuals who trade are excluded from the trade statistics.

Those traders whose annual value of arrivals or dispatches exceeds £260,000 must complete a supplementary declaration showing full details. Thresholds are reviewed annually.

All those trading with non-EU countries must submit declarations to Revenue & Customs to receive clearance.

7.2 Response rates

It is statutory to complete Intrastat returns and Revenue & Customs declarations so response rates are high. The detailed Intrastat returns (those over the threshold) cover approx. 97% of the value of UK trade within the EU.

7.3 Non-response methodology/checking/residuals

When traders fail to provide their Intrastat returns by the deadline, estimates are made by the KAI. These are based on the trade reported by these traders in a previous period and the growth rate, since that period, experienced by traders who have provided returns. Late declarations are subsequently incorporated into the month's figures to which they relate, alongside a re-assessment of initial estimates for non-response.

Detailed information on trade below the threshold value is not available but it has been established that the pattern of trade before Intrastat was introduced was similar to that of traders just above the thresholds so KAI make estimates of below threshold trade on this basis.

KAI carries out validation procedures which include auto-corrections, credibility checking and error analysis exercise.

8. DATA PROCESSING

The Operations branch of KAI Strategy & Production Statistics Unit is involved in the sorting, processing and production of the trade statistics, and work with KAI Products & Services to verify and validate the trade statistics. The Trade Analysis branch of KAI Products & Services is responsible for the production of trade statistics for the ONS for Balance of Payment purposes.

9. REPORTING/PUBLICATIONS

Data are provided on the HM Revenue & Customs website and ad-hoc enquiries are also carried out. The regional data are available at an aggregated level on the website with the more detailed data available through purchase.
Data are available through the following ONS publications on a Balance of Payments basis:
Trade First Release - monthly
Business Monitor MM24 - monthly, includes time-series
Balance of Payments - quarterly
National Accounts - quarterly
UK Economic Accounts - quarterly
Pink Book - annual
Blue Book - annual
Monthly Digest of Statistics - monthly
Economic Trends - monthly
Annual Abstract of Statistics - annual
Overseas trade statistics providing commodity level data and breakdowns by country and area are available through the following Stationary Office publications:
Overseas Trade Statistics of the UK with countries outside the EC - monthly
Overseas Trade Statistics of the UK with the World - monthly & annually
Overseas Trade Statistics of the UK with countries within the EC - quarterly
Trade in goods analysed by industry (SIC 92 basis) are available in:
Business Monitor MQ10 - quarterly
Sector Reviews - published by ONS
Product Sales and Trade - published by ONS

9.1 Current publication structure (timeliness, sectoral breakdowns, etc.)

Quarterly press release on most recent data along with ability to download actual data on Excel spreadsheet

9.2 Most recently published data

Regional Trade Statistics for Quarter 1, 2009 were published in June 2009.

10.1 Possible matching with other data sources

The Intrastat system should have made it easier to link the data across the EU (i.e. mirror imports and exports from one country to another) however various discrepancies were recorded in an evaluation of the Intrastat system:
- valuation differences: exports free on board (fob), imports cost, insurance freight to the point of entry (cif)
- differing exchange rates used

- timing differences in the reporting of goods
- different commodity classification by importer / exporter
- reporting concessions
- methodological differences
- reclassification of goods for confidentiality
- fraudulent declarations
- errors in data processing
- lack of consistency in implementing Intrastat systems across EU, e.g. no common approach to adjustments for non-response.

In addition, the UK uses the 'general trade' definition to produce trade statistics whereas Eurostat use the 'special trade' system to compile statistics of Community trade. These two systems have different approaches to the treatment of goods which enter free zones or Customs' warehouses.

Not able to link directly with IDBR / NIERC in terms of a common identifying number.

10.2 External benchmarks
Commodity classification system is harmonised.

11. BIBLIOGRAPHY

UK Regional Trade Statistics Methodology (v.3.0 January 2007)
http://www.uktradeinfo.com/

Annex 3: CSO Trade Statistics

1. DATA SOURCE NAME
Central Statistics Office, External Trade and Environment Section

2. AGENCY OR DEPARTMENT RESPONSIBLE FOR COLLECTION
Revenue Commissioners, VIMA Office.

3. DESCRIPTIVE OVERVIEW OF DATA
The trade statistics are the principal source of trade data for Ireland. Trade data of some sort has been collected since the foundation of the State. However, the current series starts in 1993 since significant changes were necessary due to the introduction of the Single European Market at the start of that year. The data is currently published monthly, although for 1994 this was quarterly and indeed, for 1993 only limited detailed data is available from the publications. However, the full detailed data is available from the CSO directly.
The data comes from three sources. Intra EU trade data is collected through the INTRASTAT survey and VAT returns, while extra EU trade data is collected from customs records. These are described in more detail below.

The current publication comprises 15 tables, which contain data as follows. Table 1 gives a summary of the trade data including total value of imports, exports, the trade surplus, as well as volume and price indices. These data are provided on an annual basis for years from 1971 and on a monthly basis for recent years (2000 and 2001). Table 2 provides seasonally adjusted monthly data on the value of imports, exports, the trade surplus and the volume indices. Table 3 give details of imports by use which are broken down into three main groups namely, capital goods, consumption goods and materials for further productions. Table 1, 2 and 3 do not distinguish trade by trade partner.

Table 4 gives imports classified by main use and area of origin. For area of origin, this table combines Great Britain and Northern Ireland into one area. Table 5 gives details of exports by broad industrial origin, which is not disaggregated by area of destination. Table 6 gives details of exports by industrial origin and area of destination, where Great Britain and Northern Ireland are again combined. Tables 7 and 8 break down imports and exports by origin and destination, with Table 8 containing details of the percentage shares accounted for by each trading partner. These tables do distinguish Northern Ireland. Table 9 contains details of total imports and exports by trading partner, on a monthly basis as well as a running total for the year. This table contains details for all trading partners and separate entries are available for Northern Ireland and Great Britain. Table 10 distinguishes trade by SITC section and division but not by country. Again the periodicity is monthly but a running total for the year is also included. Table 11 summarises trade for recent years and months.

More detailed data is available in tables 12 to 15. Table 12 gives details of exports by SITC division (2 digit) and country. However, country details are only provided for those countries for which exports exceed €1,142,764 for a given month or averages €761,843 per month for the year up to that month. The table also includes details for the Shannon Free Zone, Parcel Post and Statistical threshold Trade which is however, not distinguished by SITC code. Table 13 covers the same detail for imports, using the same

thresholds. Tables 14 and 15 cover the corresponding data at the SITC heading level (5 digit), again using the same thresholds.

4. LEGISLATIVE AND REGULATORY FRAMEWORK

4.1 Legal basis of survey

The INTRASTAT survey is governed by the Regulation 638/2004 and Regulation 1982/2004. VAT returns are required through the regulation governing VAT returns.

5. DATA DEFINITIONS/SURVEY INSTRUMENT

5.1 Questionnaire overview

The principal data collected covers:

Date,
Company Vat Number,
Type (import/export),
Commodity code (CN),
Invoice value,
Net mass and/ or supplementary units,
Country of destination/consignment for exports/imports respectively,
Country of origin for imports,
Statistical value,
Delivery terms,
Mode of transport,
Nature of transaction.

6. DATA COVERAGE

6.1 Industrial coverage (basis e.g. SIC, SITC etc)

The basic recording system used is that of 'general trade' which records trade at the time commodities cross borders. This implies that as soon as goods are brought to a Custom bonded warehouse they are considered trade, rather than when they leave which is the case for the 'special trade' system.

The statistics are collected using the 8-digit Combined Nomenclature (CN) however, the published data is recorded using the UN Standard Trade Classification system, SITC (Rev. 3). The latter contains 3,100 basic headings at the 5-digit level which are organised in 261 Groups at the 3-digit level, which in turn make up 67 Divisions (2-digit) and 10 sections (1-digit). SITC (Rev. 3) follows the same structure as the Harmonised Commodity Description and Coding System (HS) which is the nomenclature of the Customs Co-operation Council in that each category has direct match in a HS heading which also matches with a combination of CN headings.

Imports are valued on the *cif* basis (including cost, insurance and freight to the point of entry) which is typically the transaction value, while exports are valued on the *fob* basis (Free on board).

A certain set of goods is excluded from the statistics. These include, currency, monetary gold, emergency aid, diplomatic goods, items of temporary trade, and items which are not subject to a commercial transaction.

6.2 Time period of availability

Trade statistics are available in some form or another from the foundation of the State. However, the current series starts in 1993 with a methodology that was revised following the introduction of the Single European Market, which removed customs controls for trade within the EU and therefore removed customs records as a source of data for intra-EU trade. These changes also altered the classification of transactions. Detailed quarterly data is available from January 1994 and monthly data is available from March 1995. Total trade by country is available from the foundation of the State.

6.3 Frequency of data collection, etc.

The data is available on a monthly basis since 1973.

7. DATA COLLECTION METHODOLOGY

The data is collected though the INTRASTAT survey, VAT returns and customs records.

7.1 Sampling frame (including thresholds, etc.)

A threshold applies to the requirement to complete the INTRASTAT survey both for import and export reporting. Traders whose imports from EU countries amount to more than €190,000 in the previous year are required to make monthly returns of imports and exporters whose exports exceeded €635,000 in the previous year have to make monthly export returns. The companies, which are required to make returns are selected based on VAT returns and a list of these is maintained by the Revenue Commissioners (VIMA Office). VAT returns are also used to determine trade within the EU by companies that fall below the thresholds. However, this only covers consignment to and from companies that are registered for VAT.

The survey is mandatory for firms with trade in excess of the thresholds. This means that in theory the full population of firms above the thresholds is covered which removes the need for (random) sampling. For the remainder of traders information from the VAT register is used, but this does not allow for a commodity split and the country is allocated according to firms that are just above the threshold.

7.2 Response rates

Overall initial response rates for the Intrastat Survey is 89% of traders covering about 93% of Intra EU trade. Final results are based on a response rate of 97% covering 99% of intra EU trade.

7.3 Non-response methodology/checking/residuals

The data from the INTRASTAT survey is adjusted upwards by approximately 1.75% in order to take account of intra-EU trade that is difficult to capture with this survey. This adjustment appears in the 'Unclassified Estimates' category, which also includes miscellaneous adjustments. Traders below the thresholds are assigned a partner country according to the country profile established for traders who are just above the INTRASTAT threshold, but commodities are not assigned. For those traders who did not make an INTRASTAT return, but which are above the threshold, trade values are assigned to a partner country and commodity according to any previous returns that are available for the proceeding 12-month period. The trade of traders below the threshold appears in the 'Unclassified Estimates' Division.

8. DATA PROCESSING

Initial data processing is carried out by the VIMA Office of the Revenue Commissioners, but final processing of the data is carried out by the CSO External Trade and Environment Statistics Section. There is cross-referencing with previous months data in order to identify mistakes. Corrections to trade data arise from VIMA's edit checks, from verification visits to traders' premises by Revenue Commissioner staff, and from CSO queries. Corrections can also arise from queries from users of the statistics. Revisions are applied as they arise

9. REPORTING/PUBLICATIONS

Results are published monthly (External Trade Statistical Release) with a lag of about four months. This includes the sectoral breakdown and detailed country data for countries with which trade is significant (countries for which a trade flow is at least €1,300,000 for the month in question or above €900,000 on average per month for the year in question). While the Statistical Releases publish data on a monthly basis, the publication presenting December results report the annual information and changes over the year. The latest monthly release was for May 2009 and was published in July 2009. A more detailed report (Trade Statistics) is available from CSO. The most recent publication reporting 2007 and 2008 data was published in April 2009.

In general the larger publication contains information on:

Imports - value
Exports – value
Trade Surplus
Volume Index Imports
Volume Index Exports
Price Index Imports
Price Index Exports
Terms of Trade
The above series seasonally adjusted
Imports by main use
Imports by main use and origin
Exports by industrial origin
Exports by industrial origin and destination
Imports by area/ country
Exports by area/ country
Imports by SITC Section and Division
Exports by SITC Section and Division
Imports by SITC Heading and Country
Exports by SITC Heading and Country

Annex 4: Trade Time Series

Table A4.1: DETI Manufacturing Exports Data: North to South Trade

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Food, Drink & Tobacco	15-16	216.0	218.0	218.0	224.0	252.0	250.0	285.0	300.0	358.0	364.0	361.0	414.0
Textiles, Clothing & Leather	17-19	87.0	94.0	92.0	87.0	76.0	68.0	49.0	47.0	44.0	49.0	50.0	68.0
Wood & Wood Products	20	32.0	36.0	42.0	49.0	69.0	76.0	59.0	78.0	87.0	112.0	121.0	151.0
Paper & Printing	21-22	70.0	81.0	90.0	88.0	79.0	88.0	74.0	79.0	82.0	86.0	89.0	106.0
Chemicals and man-made fibres	24	65.0	55.0	48.0	52.0	36.0	39.0	22.0	26.0	25.0	24.0	19.0	23.0
Rubber & Plastics	25	54.0	63.0	67.0	75.0	70.0	73.0	74.0	70.0	74.0	81.0	102.0	135.0
Other Non-Metallic Mineral	26	47.0	54.0	56.0	67.0	78.0	72.0	80.0	103.0	123.0	146.0	178.0	187.0
Basic Metals & Fabricated	27-28	28.0	35.0	53.0	59.0	96.0	115.0	85.0	85.0	110.0	136.0	140.0	147.0
Other Machinery & Equipment	29	26.0	24.0	28.0	29.0	30.0	35.0	47.0	50.0	62.0	78.0	78.0	86.0
Electrical & Optical Equipment	30-33	19.0	28.0	38.0	42.0	48.0	61.0	70.0	60.0	61.0	68.0	68.0	75.0
Transport Equipment	34-35	15.0	20.0	19.0	28.0	37.0	41.0	35.0	45.0	42.0	31.0	34.0	40.0
Other manufacturing not elsewhere	36-37 & 23	20.0	26.0	28.0	33.0	32.0	43.0	30.0	36.0	46.0	68.0	69.0	86.0
Total manufacturing	Total	678.0	734.0	778.0	833.0	903.0	959.0	910.0	978.0	1115.0	1243.0	1308.0	1519.0

Sources: See Text

Table A4.2: HMRC Manufacturing Exports Data: North to South Trade

		1996 £m	1997 £m	1998 £m	1999 £m	2000 £m	2001 £m	2002 £m	2003 £m	2004 £m	2005 £m	2006 £m
Food, Drink & Tobacco	15-16	260.4	235.3	252.2	264.5	280.5	274.9	317.1	440.6	486.5	510.5	557.1
Textiles, Clothing & Leather	17-19	124.6	109.6	76.1	93.3	65.2	69.9	79.4	89.9	101.6	113.0	119.7
Wood & Wood Products	20	26.4	34.1	46.0	72.8	78.9	86.8	90.6	106.5	115.2	133.8	151.6
Paper & Printing	21-22	56.2	55.2	63.7	47.6	36.3	31.7	40.3	49.0	57.6	68.3	78.3
Chemicals and man-made fibres	24	92.7	82.4	77.0	79.1	66.0	78.0	79.9	78.8	96.9	111.4	115.9
Rubber & Plastics	25	20.1	17.6	18.0	22.5	21.2	25.7	26.9	29.3	34.3	44.3	48.8
Other Non-Metallic Mineral	26	58.3	58.0	71.0	82.2	68.9	68.6	95.9	113.1	126.6	142.3	188.4
Basic Metals & Fabricated	27-28	47.5	46.7	74.3	83.7	81.5	106.3	118.3	135.8	171.6	201.0	216.9
Other Machinery & Equipment	29	65.8	62.5	74.6	98.7	100.5	106.7	110.1	143.0	163.5	176.2	197.5
Electrical & Optical Equipment	30-33	67.0	73.0	79.7	78.9	81.0	62.6	67.5	66.6	51.1	65.2	75.0
Transport Equipment	34-35	42.3	36.6	34.7	62.3	56.9	48.3	77.7	95.4	132.9	152.4	181.5
Other manufacturing not elsewhere	36-37 & 23	103.6	89.5	118.0	193.1	191.8	212.8	243.9	234.8	301.1	350.3	387.6
Total manufacturing	Total	964.9	900.4	985.3	1178.7	1128.7	1172.5	1347.7	1582.8	1839.0	2068.6	2318.4

Sources: See Text

Table A4.3: HMRC Manufacturing Exports Data: South to North Data

		1996 £m	1997 £m	1998 £m	1999 £m	2000 £m	2001 £m	2002 £m	2003 £m	2004 £m	2005 £m	2006 £m
Food, Drink & Tobacco	15-16	288.2	266.7	259.2	228.6	263.7	325.7	436.4	524.5	564.5	567.2	543.7
Textiles, Clothing & Leather	17-19	114.6	121.1	156.0	150.9	148.7	153.2	136.2	118.6	98.5	88.8	86.6
Wood & Wood Products	20	27.2	22.0	23.7	31.0	30.6	32.5	39.1	41.0	43.0	48.1	50.8
Paper & Printing	21-22	19.8	20.7	22.3	14.5	14.3	16.1	26.3	24.4	20.3	18.6	17.2
Chemicals and man-made fibres	24	85.2	93.8	93.0	103.6	114.8	119.0	128.8	124.0	96.1	143.5	137.8
Rubber & Plastics	25	12.9	12.0	13.7	20.3	19.1	20.4	23.1	26.8	28.4	28.6	29.9
Other Non-Metallic Mineral	26	32.0	24.3	22.4	35.3	31.1	35.8	38.2	50.3	61.0	63.1	78.1
Basic Metals & Fabricated	27-28	40.2	43.0	42.3	53.4	55.9	66.9	71.0	78.6	81.9	93.6	118.8
Other Machinery & Equipment	29	43.6	44.4	44.0	44.8	51.2	61.1	65.7	58.9	66.8	84.8	104.7
Electrical & Optical Equipment	30-33	38.7	56.9	71.2	57.6	86.9	107.4	72.0	73.4	61.3	64.7	60.1
Transport Equipment	34-35	29.4	52.8	64.5	111.1	146.3	199.4	167.8	78.8	71.1	60.4	68.7
Other manufacturing not elsewhere	36-37 & 23	65.3	69.3	68.0	73.2	86.0	85.2	101.2	107.3	114.2	123.4	131.3
Total manufacturing	Total	797.1	826.9	880.3	924.3	1048.6	1222.7	1305.8	1306.6	1307.1	1384.5	1427.7

Sources: See Text

Table A4.4: CSO Manufacturing Exports Data: North to South Trade

		1995 £m	1996 £m	1997 £m	1998 £m	1999 £m	2000 £m	2001 £m	2002 £m	2003 £m	2004 £m	2005 £m	2006 £m
Food, Drink & Tobacco	15-16	237.0	204.2	199.0	214.0	210.0	201.8	229.2	214.9	232.3	214.3	249.4	252.0
Textiles, Clothing & Leather	17-19	125.3	85.7	86.1	78.3	63.8	62.6	52.5	48.4	51.6	58.7	51.3	29.6
Wood & Wood Products	20	13.9	13.7	13.9	16.9	19.1	22.9	24.3	28.7	32.8	39.2	45.1	50.5
Paper & Printing	21-22	62.6	56.6	51.5	57.8	43.1	34.4	32.0	29.7	27.8	33.5	42.0	37.8
Chemicals and man-made fibres	24	63.6	56.6	51.8	54.1	46.5	43.3	52.4	40.2	39.4	34.0	39.8	48.8
Rubber & Plastics	25	25.7	28.4	27.2	29.8	30.7	32.8	30.9	30.2	33.5	31.4	35.2	35.7
Other Non-Metallic Mineral	26	39.8	47.4	50.5	59.0	65.4	62.3	62.6	62.6	78.5	83.0	93.9	103.0
Basic Metals & Fabricated	27-28	5.8	9.6	7.6	7.8	7.1	8.5	6.5	6.1	8.6	14.7	20.9	29.0
Other Machinery & Equipment	29	36.8	38.3	31.9	41.1	58.9	48.1	46.1	46.0	60.3	58.7	51.1	51.3
Electrical & Optical Equipment	30-33	16.3	15.1	27.9	39.0	46.9	85.2	54.0	25.1	12.8	12.0	13.5	15.8
Transport Equipment	34-35	11.3	9.4	7.6	14.8	14.0	12.1	11.0	12.9	20.0	18.4	23.3	24.4
Other manufacturing not elsewhere	36-37 & 23	14.4	17.1	21.1	29.5	38.9	55.8	52.1	28.1	32.0	40.0	55.1	47.3
Total manufacturing	Total	652.5	582.1	575.9	642.3	644.5	669.7	653.6	572.9	629.6	637.7	720.7	725.2

Table A4.5: CSO Manufacturing Exports Data: South to North Trade

		1995 £m	1996 £m	1997 £m	1998 £m	1999 £m	2000 £m	2001 £m	2002 £m	2003 £m	2004 £m	2005 £m	2006
Food, Drink & Tobacco	15-16	296.6	263.9	243.6	245.4	232.5	233.0	258.4	243.3	238.8	266.7	291.0	324.9
Textiles, Clothing & Leather	17-19	57.3	55.9	69.1	89.5	78.0	59.7	57.2	19.1	18.4	16.7	13.8	14.9
Wood & Wood Products	20	22.2	20.8	17.6	19.7	19.1	16.2	20.2	23.1	30.2	26.9	28.3	39.4
Paper & Printing	21-22	54.4	50.6	52.9	51.4	51.6	51.0	53.4	45.9	36.9	39.1	33.8	28.0
Chemicals and man-made fibres	24	62.8	78.8	134.1	148.6	135.4	142.3	118.4	115.4	110.1	108.8	114.7	120.1
Rubber & Plastics	25	27.9	32.3	34.5	40.8	41.3	46.5	46.8	44.0	52.4	42.4	53.7	46.1
Other Non-Metallic Mineral	26	51.2	49.5	50.1	46.4	53.2	51.0	65.9	77.1	83.4	97.5	99.8	102.3
Basic Metals & Fabricated	27-28	12.1	11.6	12.2	9.1	11.3	11.0	13.4	9.8	10.9	15.5	22.1	26.9
Other Machinery & Equipment	29	53.0	51.5	50.0	44.3	31.0	31.1	43.5	45.8	51.8	61.7	69.8	85.3
Electrical & Optical Equipment	30-33	26.9	29.7	33.7	33.4	38.9	53.3	57.4	37.9	32.7	26.7	23.0	19.6
Transport Equipment	34-35	26.3	26.4	68.9	93.2	134.3	158.8	177.3	128.0	70.6	55.6	46.1	49.9
Other manufacturing not elsewhere	36-37 & 23	25.6	21.6	31.4	25.4	27.8	27.6	29.5	24.3	19.9	21.0	25.3	42.9
Total manufacturing		716.1	692.7	798.2	847.1	854.6	881.4	941.3	813.6	756.3	778.6	821.4	900.4
Memo Items:													
Deflator (THAP)		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
		1.18	1.26	1.49	1.47	1.56	1.63	1.62	1.56	1.45	1.47	1.46	1.47

Annex 5: Comparison of HMRC and CSO data by 2-digit SIC Sectors: 1996 and 2006

In this annex we compare HMRC data and CSO data for both North-to-South and South-to-North trade at the lowest level of aggregation permitted by the published data sources, i.e. 2-digit SITC sector. Even in this form, however, we are not able to directly compare published sources due to currency differences. CSO data are therefore converted into Sterling using a market exchange rate indictor (see Table A4.5). Note also that to maintain consistency with the earlier analyses we aggregate quarterly data into financial years. Comparisons reported here also include both manufacturing and non-manufacturing trade in goods and are therefore not directly comparable with the comparisons in the main text which relate to manufacturing only to match the DETI exports data. Three main differences are evident between the comparisons in the main text and those reported here. First, we here include trade relating to live animals, basic (i.e. non-manufactured) agricultural products and electrical current. Second, in the comparisons in the main text the mapping between commodities (i.e. SITC) and SIC based sectors is based on different levels of aggregation for the CSO and HMRC data. Third we here include commodities not elsewhere classified which are substantial in some years.

Table A5.1 reports the base data for the comparison – trade flows from each source for 1996 and 2006 in Sterling and for both North-to South and South-to-North trade. Table A5.2 compares these data sources. Here we see that HMRC estimates of North to South trade exceeded those from the CSO by £325m in 1996, a figure which had risen to £1431m by 2006. For South to North trade the differences are less marked with very similar figures in 1996 rising to a £297m difference in 2006. In other words the growth in HMRC data suggested for Northern Ireland exports to Ireland is markedly sharper than that suggested by CSO. This reflects the textual results for manufacturing.

In terms of North-South trade, HMRC suggests larger trade volumes than CSO in the vast majority of individual sectors. A number of sectors stand out, however, as contributing to the rapid growth in the differential between the two sources. These are:

- Dairy products and birds eggs
- Beverages
- Petroleum, and petroleum products
- Paper, board etc
- Non-metallic minerals etc.
- Metals nes
- Machinery
- Road vehicles
- Furniture

In terms of South to North trade the number of extreme examples are more limited reflecting the smaller aggregate disparity between the two sources. Here the beverages section accounts for around half of the increased disparity with the remainder split

between sectors. Notably, however, the lack of any classification for significant volumes of South to North trade in the CSO data disturbs this comparison somewhat.

In general terms this more detailed comparison reinforces the picture suggested by the SIC based comparison reported in the main text. That is, HMRC data tends to suggest larger trade flows – particularly regional exports from Northern Ireland – than the CSO data and this is spread relatively uniformly across sectors. This suggests a systematic rather than sectoral bias in the figures linked perhaps to methodology or approach rather than any particular sectoral effects.

Table A5.1: HMRC and CSO Comparison by 2-Digit SITC Sectors

	HMRC Data				CSO data			
	North to South		South to North		North to South		South to North	
	1996 £m	2006 £m	1996 £m	2006 £m	1996 £m	2006 £m	1996 £m	2006 £m
00 Live Animals Other Than Animals Of Division 03	11.3	9.3	30.7	13.7	7.7	18.4	16.0	49.0
01 Meat & Meat Preparations	49.0	60.0	29.5	133.0	34.8	32.5	50.1	102.9
02 Dairy Products & Birds Eggs	35.2	149.0	64.4	55.3	72.6	75.2	52.4	42.5
03 Fish, Crustaceans, Molluscs & Aq. Inverts & Preps Thereof	4.0	11.7	2.7	6.5	3.0	3.6	4.6	8.2
04 Cereals & Cereal Preparations	14.8	37.5	27.2	47.6	16.7	25.5	23.9	20.8
05 Vegetables & Fruit	24.9	51.2	22.5	30.6	9.4	11.4	14.1	34.1
06 Sugar, Sugar Preparations & Honey	3.6	6.7	23.8	13.2	1.6	2.8	20.9	20.6
07 Coffee, Tea, Cocoa, Spices & Manufactures Thereof	6.8	8.7	2.2	3.0	0.6	1.5	0.9	6.2
08 Feeding Stuff For Animals (Not Inc. Unmilled Cereals)	54.9	50.0	20.7	20.8	28.0	23.3	22.1	24.9
09 Miscellaneous Edible Products & Preparations	6.7	16.7	29.2	11.4	3.3	4.8	20.4	5.8
11 Beverages	51.6	154.2	56.7	209.6	40.3	81.2	66.7	79.3
12 Tobacco & Tobacco Manufactures	0.1	9.1	0.0	0.0	0.5	0.0	0.0	0.0
21 Hides, Skins & Furskins, Raw	7.3	0.9	8.1	9.1	3.5	0.4	5.5	0.5
22 Oil Seeds & Oleaginous Fruits	1.5	1.7	1.2	3.6	1.7	2.2	0.0	1.2
23 Crude Rubber (Including Synthetic & Reclaimed)	0.0	0.3	0.1	0.6	0.1	0.1	0.2	0.3
24 Cork & Wood	11.5	76.6	20.8	29.6	5.3	25.8	23.8	30.6
25 Pulp & Waste Paper	0.5	0.0	0.1	0.1	0.3	0.0	1.7	0.0
26 Textile Fibres Not Manufactured & Their Waste Etc	3.1	0.3	3.4	2.2	2.7	0.2	2.9	0.2
27 Crude Fertilizers & Crude Minerals (Exc Fuels Etc)	21.0	35.0	4.9	15.7	8.0	45.8	10.2	9.2
28 Metalliferous Ores & Metal Scrap	4.9	1.2	0.0	3.0	0.8	3.8	0.7	1.1
29 Crude Animal & Vegetable Materials N.E.S.	5.2	10.5	2.0	2.5	1.0	1.6	1.6	1.7
32 Coal, Coke & Briquettes	31.5	25.3	4.6	5.4	2.3	7.7	0.9	2.9
33 Petroleum, Petroleum Products & Related Materials	6.8	127.8	1.6	4.8	6.5	22.5	2.5	2.0
34 Gas, Natural & Manufactured	0.4	1.8	0.7	1.7	0.6	1.4	2.2	1.7
35 Electric Current	0.9	0.0	2.7	0.0	0.5	0.4	2.5	11.6
41 Animal Oils & Fats	0.1	0.3	1.7	0.1	0.5	0.4	1.1	0.3
42 Fixed Vegetable Fats & Oils, Crude, Refined, Fractionated	2.8	4.6	0.9	4.2	1.9	3.0	2.2	0.4

43 Animal Or Vegetable Fats & Oils, Processed, & Waxes	4.6	1.1	0.2	0.5	1.3	0.6	0.2	0.5
51 Organic Chemicals	0.8	0.8	1.8	2.9	1.0	1.5	1.3	2.5
52 Inorganic Chemicals	1.5	1.6	14.6	4.9	3.0	1.7	13.4	10.1
53 Dyeing, Tanning & Colouring Materials	2.2	2.5	5.7	8.1	2.5	0.8	4.7	10.5
54 Medicinal & Pharmaceutical Products	4.8	12.5	8.6	12.9	4.3	7.8	7.3	10.9
55 Essential Oils & Perfume Materials; Toilet Preps Etc	5.1	16.2	10.2	31.4	1.0	2.5	16.6	35.6
56 Fertilizers (Other Than Those Of Group 272)	32.7	7.7	22.2	5.4	32.9	2.8	14.8	0.3
57 Plastics In Primary Forms	4.6	7.5	3.7	14.0	1.8	1.8	3.7	16.6
58 Plastics In Non-Primary Forms	9.0	25.9	6.7	21.2	9.7	23.7	6.7	13.0
59 Chemical Materials & Products N.E.S.	7.6	15.7	10.2	34.9	3.0	6.2	16.4	32.0
61 Leather, Leather Manufactures N.E.S & Dressed Furskins	0.1	0.4	0.0	0.4	0.7	0.1	0.0	0.1
62 Rubber Manufactures N.E.S.	11.1	23.0	6.2	8.7	4.3	4.9	6.4	4.0
63 Cork & Wood Manufactures (Excluding Furniture)	14.9	75.0	6.3	21.2	9.2	28.3	5.4	16.1
64 Paper, Paperboard & Manufactures Thereof	55.7	78.3	19.7	17.1	49.9	20.1	27.8	12.3
65 Textile Yarn, Fabrics, Made Up Articles Etc	69.8	48.4	29.0	19.3	54.9	18.0	19.3	6.4
66 Non-Metallic Mineral Manufactures N.E.S.	58.3	188.4	32.0	78.1	31.6	66.8	25.8	69.4
67 Iron & Steel	7.8	34.5	10.5	41.1	7.8	28.3	9.8	22.9
68 Non-Ferrous Metals	2.8	5.5	3.2	8.0	1.9	0.6	1.8	4.0
69 Manufactures Of Metal N.E.S.	24.3	117.2	20.1	46.2	12.3	25.9	22.8	31.3
71 Power Generating Machinery & Equipment	6.0	19.3	1.5	4.3	4.6	8.9	1.1	0.7
72 Machinery Specialized For Particular Industries	45.9	132.3	29.2	63.1	23.0	29.0	25.3	31.2
73 Metalworking Machinery	0.3	1.2	0.6	1.3	0.5	0.5	0.1	0.8
74 General Industrial Machinery & Eqp. & Machine Pt. N.E.S.	13.6	44.7	12.3	36.0	8.0	15.1	10.0	25.7
75 Office Machines & Adp Machines	20.5	6.1	6.6	11.7	3.9	0.6	15.6	6.0
76 Telecoms & Sound Recording & Reproducing App. & Eqp.	10.6	17.2	1.3	10.2	0.7	0.8	2.5	3.6
77 Ele Machinery, App & Appliances & Ele Pt Thereof N.E.S.	30.0	36.8	29.1	30.2	8.2	7.2	12.6	13.1
78 Road Vehicles (Including Air Cushion Vehicles)	42.1	178.9	29.3	67.3	8.9	23.4	26.2	48.6
79 Other Transport Equipment	0.2	2.6	0.0	1.4	0.2	0.6	0.2	1.0
81 P/Fab Buildings; Sanit., Plumbing, Heating & Lighting Fixt.	7.7	58.4	6.4	20.5	5.9	12.4	9.4	7.0
82 Furniture & Parts Thereof; Bedding, Mattresses Etc	18.3	84.0	10.7	15.7	4.6	17.4	7.4	7.6
83 Travel Goods, Handbags & Similar Containers	0.5	1.5	1.4	1.8	0.0	0.1	0.7	0.2
84 Articles Of Apparel & Clothing Accessories	48.4	62.4	73.5	53.0	30.4	11.5	34.3	7.7

85 Footwear	2.5	6.4	5.7	9.6	0.1	0.2	1.0	0.4
87 Professional, Scientific & Controlling Ins & App N.E.S.	4.2	13.4	1.4	7.4	1.7	1.8	1.1	4.4
88 Photographic & Optical Goods, N.E.S.; Watches & Clocks	1.8	1.5	0.4	0.8	0.2	0.5	0.9	0.6
89 Miscellaneous Manufactured Articles N.E.S.	45.0	143.1	47.1	101.4	28.4	49.2	47.6	72.1
9 Commodities not classified elsewhere;	1.6	5.5	0.7	2.2	34.6	79.6	89.9	157.1
Total all trade	977.2	2327.7	830.5	1441.3	651.2	896.6	840.5	1143.9

Notes and Sources: See text

Table A5.2: Comparison of HMRC and CSO Trade Estimates by 2-digit sector

	North to South			South to North		
	HMRC-CSO £m	HMRC-CSO £m	HMRC-CSO £m	HMRC-CSO £m	HMRC-CSO £m	HMRC-CSO £m
	1996	2006	1996-2006	1996	2006	1996-2006
00 Live Animals Other Than Animals Of Division 03	3.7	-9.1	-12.8	14.7	-35.3	-50.0
01 Meat & Meat Preparations	14.2	27.5	13.3	-20.6	30.1	50.7
02 Dairy Products & Birds Eggs	-37.3	73.8	111.1	12.0	12.8	0.8
03 Fish,Crustaceans,Molluscs & Aq.Inverts & Preps Thereof	1.0	8.0	7.0	-1.9	-1.7	0.2
04 Cereals & Cereal Preparations	-1.9	12.0	13.9	3.3	26.8	23.6
05 Vegetables & Fruit	15.5	39.8	24.3	8.4	-3.5	-11.8
06 Sugar, Sugar Preparations & Honey	2.0	3.8	1.9	2.8	-7.4	-10.2
07 Coffee, Tea, Cocoa, Spices & Manufactures Thereof	6.3	7.2	0.9	1.3	-3.2	-4.4
08 Feeding Stuff For Animals (Not Inc.Unmilled Cereals)	26.9	26.7	-0.2	-1.4	-4.1	-2.7
09 Miscellaneous Edible Products & Preparations	3.4	11.9	8.4	8.7	5.5	-3.2
11 Beverages	11.3	73.0	61.6	-10.0	130.4	140.3
12 Tobacco & Tobacco Manufactures	-0.4	9.1	9.5	0.0	0.0	0.0
21 Hides, Skins & Furskins, Raw	3.8	0.5	-3.3	2.6	8.6	6.0
22 Oil Seeds & Oleaginous Fruits	-0.2	-0.5	-0.3	1.1	2.4	1.2
23 Crude Rubber (Including Synthetic & Reclaimed)	0.0	0.2	0.2	-0.1	0.3	0.4
24 Cork & Wood	6.2	50.8	44.6	-3.0	-1.0	2.0
25 Pulp & Waste Paper	0.1	0.0	-0.2	-1.6	0.1	1.7
26 Textile Fibres Not Manufactured & Their Waste Etc	0.3	0.1	-0.2	0.6	2.0	1.5
27 Crude Fertilizers & Crude Minerals (Exc Fuels Etc)	13.0	-10.8	-23.8	-5.4	6.4	11.8
28 Metalliferous Ores & Metal Scrap	4.1	-2.5	-6.6	-0.7	1.9	2.5
29 Crude Animal & Vegetable Materials N.E.S.	4.2	8.9	4.7	0.4	0.7	0.3
32 Coal, Coke & Briquettes	29.2	17.7	-11.5	3.6	2.5	-1.1
33 Petroleum, Petroleum Products & Related Materials	0.3	105.3	105.0	-0.9	2.8	3.7
34 Gas, Natural & Manufactured	-0.2	0.3	0.5	-1.5	0.0	1.5

35 Electric Current	0.4	-0.4	-0.8	0.1	-11.6	-11.7
41 Animal Oils & Fats	-0.4	0.0	0.4	0.6	-0.2	-0.8
42 Fixed Vegetable Fats & Oils, Crude,Refined,Fractionated	0.9	1.5	0.6	-1.3	3.7	5.1
43 Animal Or Vegetable Fats & Oils, Processed, & Waxes	3.3	0.5	-2.8	0.1	-0.1	-0.2
51 Organic Chemicals	-0.2	-0.7	-0.5	0.5	0.4	-0.1
52 Inorganic Chemicals	-1.5	-0.1	1.4	1.2	-5.2	-6.4
53 Dyeing, Tanning & Colouring Materials	-0.4	1.7	2.1	1.0	-2.3	-3.3
54 Medicinal & Pharmaceutical Products	0.4	4.7	4.3	1.3	2.0	0.6
55 Essential Oils & Perfume Materials; Toilet Preps Etc	4.1	13.7	9.6	-6.4	-4.2	2.2
56 Fertilizers (Other Than Those Of Group 272)	-0.2	4.9	5.2	7.4	5.1	-2.3
57 Plastics In Primary Forms	2.8	5.7	2.9	0.0	-2.6	-2.6
58 Plastics In Non-Primary Forms	-0.7	2.2	2.9	0.0	8.2	8.2
59 Chemical Materials & Products N.E.S.	4.6	9.5	4.9	-6.2	2.9	9.1
61 Leather, Leather Manufactures N.E.S & Dressed Furskins	-0.6	0.3	0.9	0.0	0.3	0.3
62 Rubber Manufactures N.E.S.	6.8	18.0	11.3	-0.2	4.7	4.9
63 Cork & Wood Manufactures (Excluding Furniture)	5.7	46.7	41.0	0.9	5.1	4.2
64 Paper, Paperboard & Manufactures Thereof	5.8	58.2	52.5	-8.1	4.8	13.0
65 Textile Yarn, Fabrics, Made Up Articles Etc	14.9	30.4	15.5	9.6	12.9	3.2
66 Non-Metallic Mineral Manufactures N.E.S.	26.7	121.6	94.9	6.3	8.7	2.5
67 Iron & Steel	0.0	6.2	6.2	0.7	18.3	17.6
68 Non-Ferrous Metals	0.9	4.9	4.0	1.4	4.0	2.6
69 Manufactures Of Metal N.E.S.	11.9	91.4	79.4	-2.7	14.9	17.6
71 Power Generating Machinery & Equipment	1.4	10.3	8.9	0.5	3.6	3.1
72 Machinery Specialized For Particular Industries	23.0	103.3	80.3	3.8	31.9	28.1
73 Metalworking Machinery	-0.2	0.7	0.9	0.5	0.4	0.0
74 General Industrial Machinery & Eqp. & Machine Pt.N.E.S.	5.5	29.6	24.1	2.3	10.3	8.1
75 Office Machines & Adp Machines	16.6	5.5	-11.1	-9.0	5.6	14.6
76 Telecomms & Sound Recording & Reproducing App. & Eqp.	9.9	16.5	6.6	-1.2	6.6	7.8
77 Ele Machinery, App & Appliances & Ele Pt Thereof N.E.S.	21.8	29.6	7.8	16.5	17.1	0.6
78 Road Vehicles (Including Air Cushion Vehicles)	33.3	155.5	122.3	3.2	18.7	15.5
79 Other Transport Equipment	0.0	2.0	2.0	-0.2	0.4	0.6

81 P/Fab Buildings;Sanit.,Plumbing,Heating &Lighting Fixt.	1.8	46.0	44.2	-3.0	13.5	16.6
82 Furniture & Parts Thereof; Bedding, Mattresses Etc	13.7	66.7	52.9	3.3	8.1	4.8
83 Travel Goods, Handbags & Similar Containers	0.5	1.3	0.8	0.7	1.6	0.9
84 Articles Of Apparel & Clothing Accessories	18.0	50.9	32.9	39.1	45.4	6.3
85 Footwear	2.4	6.2	3.8	4.6	9.3	4.6
87 Professional, Scientific & Controlling Ins & App N.E.S.	2.5	11.6	9.1	0.3	3.0	2.8
88 Photographic & Optical Goods, N.E.S.; Watches & Clocks	1.6	1.0	-0.6	-0.5	0.2	0.7
89 Miscellaneous Manufactured Articles N.E.S.	16.6	94.0	77.4	-0.5	29.4	29.8
9 Commodities not classified elsewhere;	-33.1	-74.1	-41.1	-89.2	-154.9	-65.7
				0.0	0.0	0.0
All Trade	325.9	1431.1	1105.2	-10.0	297.4	307.5

Notes and Sources: See Text