

Enterprise

The image features a solid blue background. In the lower half, there are two overlapping, translucent blue cylinders. The cylinder on the left is slightly behind and to the left of the one on the right, creating a sense of depth. The word "Enterprise" is written in white, sans-serif font in the upper left quadrant of the image.

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Article 8: Giant Steps - Tourism in the Northern Ireland Economy

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OVERVIEW

This article outlines recent findings regarding the economic role of tourism in the NI economy. In particular it estimates the economic impact of tourism in terms of its wider contribution to the economy in 2003, using methods of measurement that are consistent with best international practice. The report from which it draws is intended to be of use both to those with an interest in and concern for the economy of NI and to those engaged in the development of tourism. The paper demonstrates that tourism suffered as a result of the 'Troubles' and concludes that Giant Steps must be taken for NI to regain its position in the global tourism market. Maximising these opportunities will develop both the visitor experience and the quality of life of NI's residents.

INTRODUCTION

Total tourism spending in NI in 2003 was estimated to be worth £1,278m and more than half of this consisted of £712m worth of tourism day visits by NI residents within NI. The remaining part was split between £258m spent by NI residents and £308m spent by incoming tourists (see Figure 1).

Directly, this spending generated £423m worth of Gross Value Added (GVA), 1.9 per cent of the NI total, and 24,200 jobs. Supply-chain and induced expenditure effects increase these totals to £783m GVA and 36,700 jobs, 3.5 and 4.8 per cent respectively of the NI totals.

In going behind these figures this article addresses three major frontiers of the interaction between tourism and wider economic society.

Firstly, it outlines the new international standard measurement system for tourism, the 'Tourism Satellite Account', (TSA). While other industries are

defined in terms of what processes the supplier is engaged in, the tourism industry is defined in terms of the circumstances of the customers: are they inside or outside their normal environment? The measurement system is tied to the system of national accounts and its development required the creation of a set of Social Accounts and Input-Output tables for NI, described in Article 12 in this bulletin.

Secondly it highlights the very rapid growth of international tourism, measuring and illustrating how NI's share was devastated at the start of the Troubles. It suggests, through comparison with other destinations, the great potential for restoration and growth that lies in attracting British holidaymakers and business visitors.

Thirdly, although the attraction of NI as a destination for domestic holidays has shown little growth, the importance of day trips has expanded massively. The £712m that it suggests for tourism related day trips is a majority of tourism expenditure in NI. Adding the £1bn generated from non-tourism related day trips (of less than three hours duration) gives a total of £1.7bn and would correspond to a tenth of all household spending.

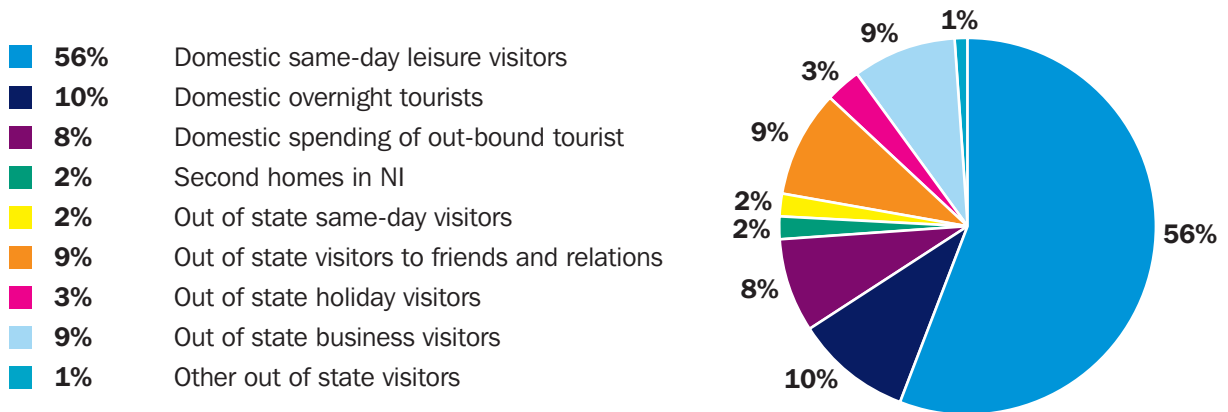
Any steps taken to orient tourism product development to this large market have important implications not just for the quality of experience for incoming visitors, but also for the quality of life of NI residents.

Finally the article briefly examines the economics of hospitality and other tourism industries that generate much of the wealth created by tourism.

The base year for the paper is 2003, because at the time the work was started that was the latest

Market Overview - Tourism spending of £1,278m - the overall picture

Figure 1



Source: NITSA

year for which detailed economic accounts were available for the UK. The article is based on a report (Cogentsi, 2007a) issued by NITB and DETI.

TOURISM SATELLITE ACCOUNTS

While other industries are defined in terms of what processes the supplier is engaged in, the tourism industry is defined in terms of the circumstances of the customers: where are they in relation to home?

That makes it difficult to measure, and measurement is important for both public and private sector investors. It is particularly important in NI because (shown in Figure 4) tourism has been particularly hard-hit by the impact of civil disruption over 40 years, and because there are other ways in which market mechanisms fail to operate normally. It needs investment, and well-founded economic statistics can go some way to providing the messages about business opportunity that the market is as yet too weak to supply.

Years of negotiation between different national governments, Eurostat, the United Nations and

commercial operators finally came up with a measurement system. The new system is called Tourism Satellite Accounts because it revolves around the national/regional accounts the way the moon revolves around the earth. It starts crucially from a definition.

A tourist is now defined as someone ‘outside her or his normal environment’. To be included in the international statistics there is no requirement to cross boundaries, stay away a certain time, travel a certain distance, or to impose a uniform definition of ‘normal’ on all people or places. This approach is necessary to come up with a perspective that is comparable across different continents, cultures, and economic and geographic circumstances.

The TSAs then add up all expenditure that takes place or is connected with being ‘outside the normal environment’. They show how, because of the diversity of spending, the tourism industry is a collection of parts of other industries.

We have seen that in 2003 £1,278m was spent on

tourism related goods and services. Most of these goods purchased by tourists (as, indeed, most goods purchased by anybody in NI) are imported, but most services are produced here. After deducting £170m for VAT and excise duty, and £253m for imports, total purchases of the products of NI industries are £855m.

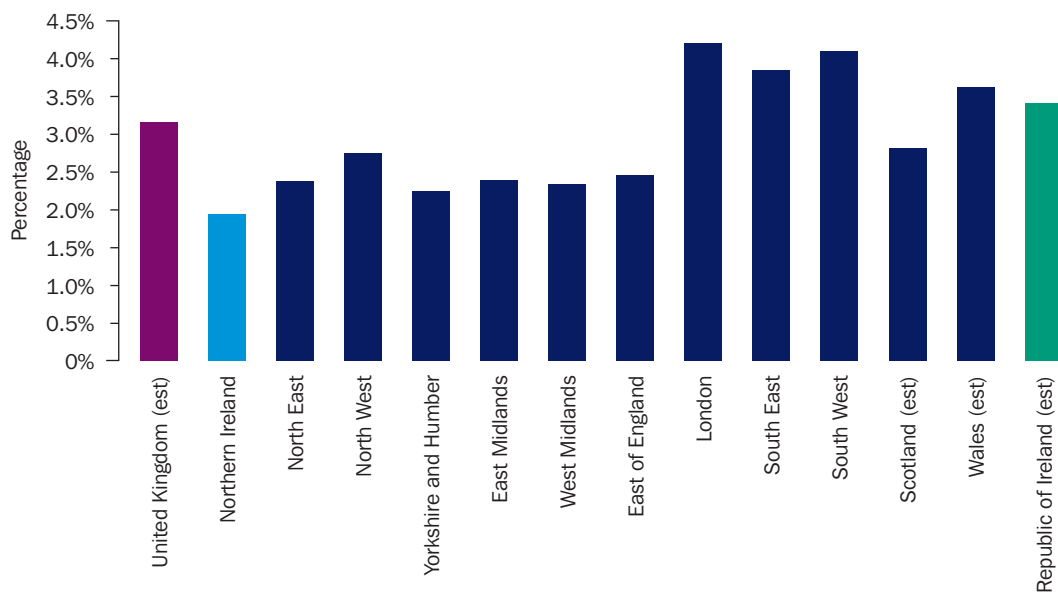
For the first time we have estimates of the sales of every industry (from the Social Accounts and Input-Output tables) and so we can see that Tourism contributes, for example, about 39 per cent of the total sales income of the accommodation (hotels etc) industry and about 36 per cent of restaurants and bars. These numbers are obtained by carefully balancing supply and demand in the Tourism Satellite Accounts. Tourism also contributes in NI about 23 per cent of sales of the passenger transport industry and 3 per cent of gross margins of the retail industry.

One main purpose of the Tourism Satellite Accounts is to draw all these parts of industries together in a consistent framework so that tourism can be looked at alongside other industries such as aerospace or banking. We can look not just at sales but at value added, employment, wage bills and profits, even down to the gender and skill levels employed. In particular using the fine industrial detail of the NI Social Accounts and Input-Output tables we can estimate the value added generated by these sales and the employment (and self employment) supported.

Direct value added in 2003 was £423m, about 1.9 per cent of the NI total (see Figure 2). This is the lowest percentage in the UK and significantly lower than the Republic of Ireland (RoI). The number of direct jobs supported by tourism was 24,200 (employee jobs and self employed).

Tourism GVA as percentage of total GVA

Figure 2



Source: Estimates and updating based on First Steps projects

We can also use the Social Accounts and Input-Output tables to allow for indirect jobs (the supply chain) and induced jobs (resulting when wages and salaries earned in the industry are spent). The total is 3.5 per cent of total NI GVA.

INCOMING VISITORS, MARKET SHARE AND THE TROUBLES

Adopting a standard international measurement system encourages calculation of market shares and enables benchmarking against other places. The number of tourists travelling the world has grown 30-fold since 1950, and most of the growth has been in Europe, in terms of holiday tourism to Mediterranean countries and business visits to commercial capitals. As the real spending of each tourist increased by half, the real value of global tourism grew 50-fold, according to the UN World

Tourism Organisation. This was despite suffering setbacks as a result of conflicts and energy price rises in the early 1980s and from the late 1990s into the present century.

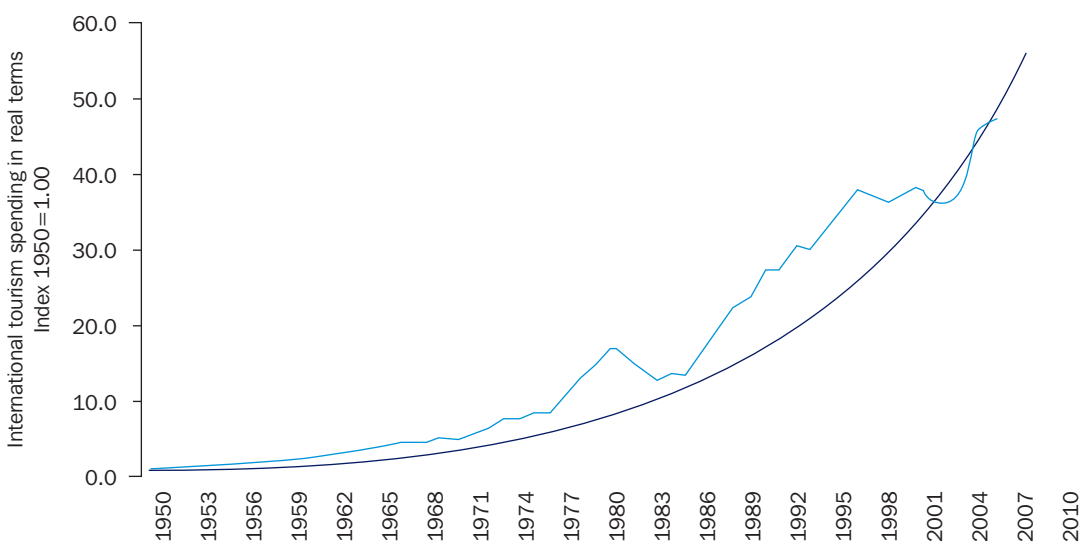
If we look back to 1972 we see that NI has largely partaken of this growth, with the amount spent by incoming visitors growing at 5.6 per cent per year in real terms. But if we look further back we see that tourism was dramatically hit by the conflict at the beginning of the 1970s. Figure 4 shows that NI lost about three quarters of its global market share at the start of the Troubles.

When we look at the pattern of visitors today we find that there are fewer business visitors, and far fewer holiday visitors, than comparable destinations (See Table 1).

Index of international tourism spending 1950-2005

Figure 3

- 7.3% annual growth
- International tourism expenditure in real terms

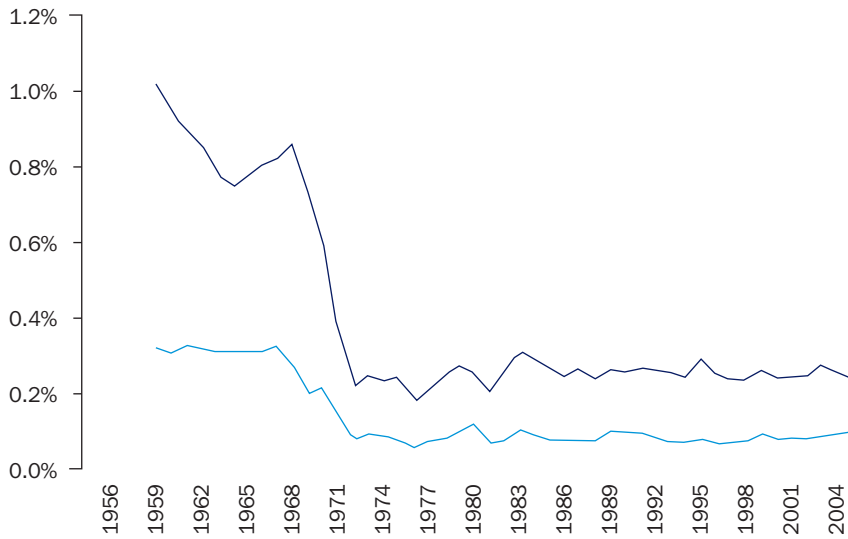


Source: UN World Tourism Organisation, Budget of the USA, Cogentsi calculations

NI share of global international tourism 1959-2005

Figure 4

- Out of state visitor arrivals in ratio to global international tourism arrivals
- Out of state visitor tourism expenditure in ratio to global international tourism receipts



Source NITB, UN World Tourism Organisation, ONS, Cogentsi calculations

Incoming visitor spending in relation to GVA of the destination economy

Table 1

SPENDING BY	HOLIDAY	BUSINESS	VFR AND OTHER
International visitors to UK	0.6%	0.5%	0.6%
UK visitors within UK	1.7%	0.6%	0.3%
Total to UK	2.3%	1.1%	0.9%
UK visitors in Scotland from rest of UK	1.7%	0.5%	0.2%
International visitors to Scotland	0.4%	0.2%	0.4%
Total to Scotland	2.1%	0.7%	0.6%
Out of state visitors to NI	0.2%	0.5%	0.6%

Source: UK and Scottish TSAs

Elsewhere spend generated by holidaymakers at least equals or significantly exceeds that spent by those visiting friends or relatives (VFR), while in NI, it represents only one third. Business visitors also outnumber VFR visitors, except in the case of NI.

These figures and additional calculations, such as the fact that NI's share of island-of-Ireland visitors was 37 per cent in the late 1960s and is now barely over 20 per cent, lead to the conclusion that tourism could grow substantially. Perceptions of NI need to change, and word of mouth and perhaps more coordinated information dissemination will be needed to spread reports of successful and enjoyable visitor experiences. A previous edition of this Bulletin presented 2003 survey results suggesting that visitors had safety and security concerns before they came, but these were largely unconfirmed in the reality of the trip (Wilson, Pamela and Houston, Norman NI Tourism Strategy and Performance, Northern Ireland Economic Bulletin 2005, pp 70-75).

It is hard to escape the conclusion that, with appropriate private and public investment in marketing and development initiatives, and some patience while the GB and global community learns to appreciate the new normality, incoming tourism could potentially approach double present levels. The impact model suggests that this would generate about 9,000 new jobs and £190m per year in GVA - that is wages or profits - for people and businesses.

DAY VISITORS

Now that it is possible to fly from London to Los Angeles and back in a day, such day trips are in principle fully counted as a valid part of tourism.

Day trips within NI (of 3 or more hours) are also an important part of tourism activity. In the absence of data on internal tourism day trips by NI residents, we built an econometric model of day-trip behaviour in the regions of England, Scotland and Wales to assess their economic value in NI.

The model was based on the GB Day Visits Survey, itself an imperfect statistical inquiry, but all we have. We fed into this model the demographic, ethnic, geographic and income circumstances of NI, to estimate the number and value of 'Leisure Day Visits' per head of population and of longer 'Tourism Day Visits' (see Figure 5).

These figures, and an income-based model of expenditure for each kind of trip, led to the £712m estimate for 2003.

SOURCES OF BUSINESS FOR THE HOSPITALITY SECTOR

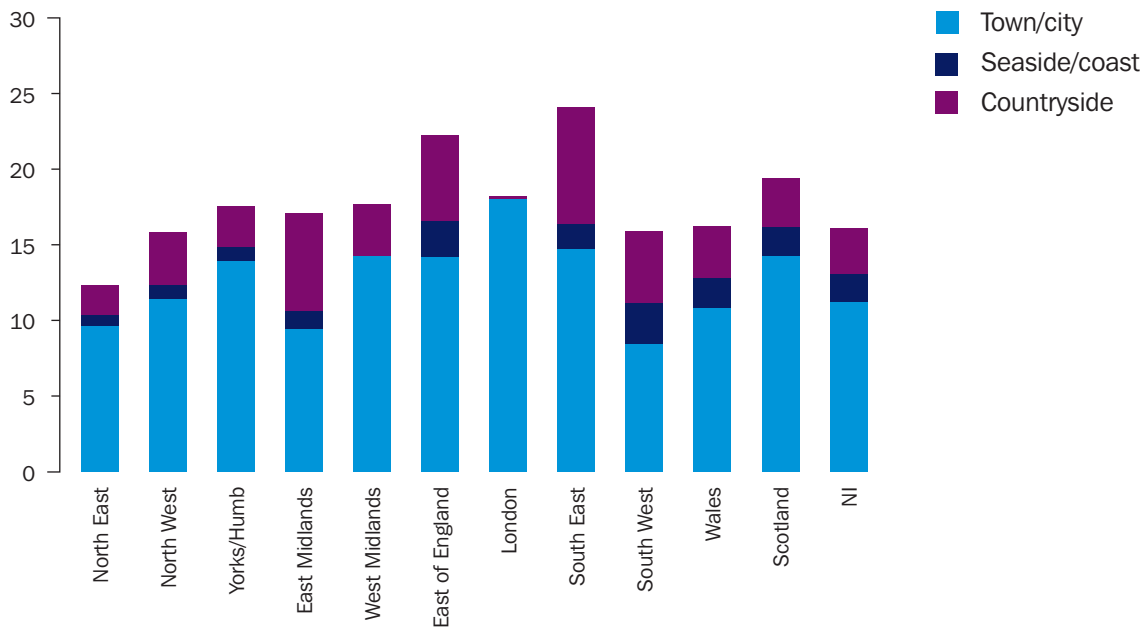
The new measurement methods significantly change the way in which the supply of tourism goods and services is analysed, notably the hospitality industries including accommodation, restaurants and bars, transport, the travel trade and attractions. In order to form a view of the structure, conduct and performance of the producers, we examined the importance of tourist as opposed to non-tourist demand for each of these segments.

The hospitality industries - hotels and other accommodation, restaurants, take-aways and pubs - are the main (but by no means the only) tourism industries. The TSA system is designed to bring together the role of tourism from both the demand and supply sides. This process identified that 39 per cent of the activity of the hotel industries is serving tourism, and 36 per cent in the case of bars and restaurants.

Measured and modelled day visits > 3 hours

Tourism day visits per resident

Figure 5

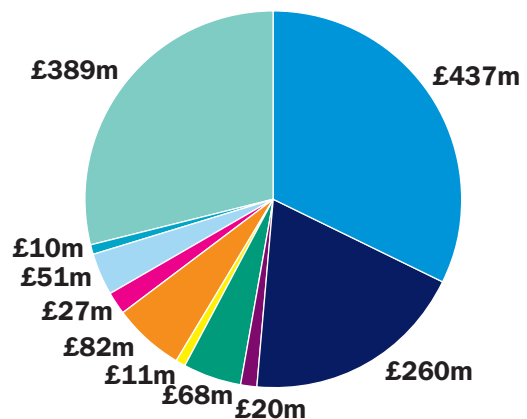


Source: GB Leisure Day Visit Survey 2002-3 and Cogentsi estimates

Sources of business for the hospitality sector

Figure 6

- **£437m** Leisure day visits less than 3 hours
- **£260m** Leisure 'tourism' day visits
- **£20m** Residents outbound
- **£68m** Overnight domestic tourists
- **£11m** Inbound other
- **£82m** Inbound business
- **£27m** Inbound holiday
- **£51m** Inbound VFR
- **£10m** Inbound same-day visitors
- **£389m** Other markets



Source: The Role of Tourism in the NI Economy, NITB and DETI

Hospitality as a whole receives £1.35bn in sales income, from the sources indicated in the pie chart (See Figure 6).

So of the total sales income of the sector, approximately 39 per cent is the subject of this article and the underlying report (Cogentsi 2007a), of which half is income derived from leisure tourism day visits and half from overnight or inbound visitors. One third is the shorter, non tourism related leisure day visits, and the remainder is other markets, such as routine use of restaurants and

bars and non-tourist use of hotels (eg weddings and meetings) and so on.

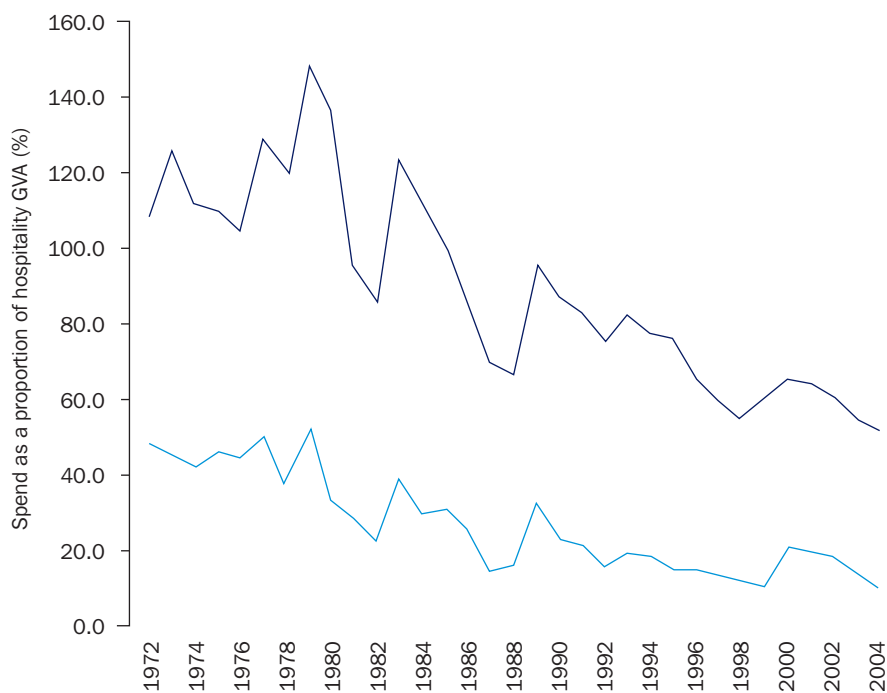
For many the idea that the hospitality sector, and especially accommodation, is not 'all' tourism may come as a surprise. This is partly because it is a new phenomenon, as there has been an increasing trend for the sector to capture business elsewhere. An idea of trends within the industry can be gained by examining the ratio of overnight visitor spend to the value added in the hospitality sector:

Ratio of total overnight visitor spend to hospitality GVA 1972-2004

Hospitality industries grow less dependent on the overnight visitor

Figure 7

- Out of state visitor spend, mainly overnight but including day trippers
- Domestic overnight visitor spend



Source: NITB and DREAM

An update to the study on the economic impact of tourism is currently underway and tourism's contribution to the economy in 2005 is looking even greater. First estimates indicate that there has been modest growth in employment in the hotel sector and significant growth in restaurants. Gross Value Added in Tourism related industries is likely to be up by about 6 per cent between 2003 and 2005, perhaps by as much as 8 per cent, and

the contribution of tourism to the economy will continue to increase as revenues from out of state visitors and day visitors within NI rise.

CONCLUSIONS

This examination of tourism economic trends using new measurement methods has demonstrated:

- That NI's tourism industry is significantly smaller than elsewhere

The Tourism Economy in a nutshell

Figure 8

DEMAND	
Incoming day visitors to Northern Ireland spend	£23m
and incoming overnight visitors	£284m
Leisure day visitors within Northern Ireland on long trips spent an estimated	£712m
and NI people staying away from home overnight within Northern Ireland spent	£133m
NI residents' second homes have an annual value of	£20m
and outward-bound 'tourism' expenditure in Northern Ireland is	£105m
Thus identifiable 'tourism' expenditure in Northern Ireland totals	£1,278m
SUPPLY	
VAT and duty of £170m is collected on this leaving net figure for purchases within NI of	£1,108m
Many goods and some services are imported	£253m
Leaving demand on NI producers of goods and services as	£855m
VALUE CHAIN	
The direct value added (GVA) in supplying these sales was	£423m
The direct number of jobs (employee-jobs and self employed) was	24,200
of which the full-time equivalent is	18,000
The indirect sales, value added and jobs arising in NI in the supply chain are £283m, £123m and 4,300 (3,800FTE)	
When people working directly and in the supply chain spend their income they induce sales, value added and employment of £470m, £236m and 8,200 (6,700FTE)	
GRAND TOTAL	
The grand total of economic activity supported by tourism is therefore	
£1,608m sales by NI producers	
£783m gross value added, or 3.5% of Northern Ireland's total GVA	
36,700 jobs, or 5.0% of the posts in Northern Ireland	

Figures may not sum due to rounding

- The Troubles were a major contributor to the shortfall, so in a peaceful situation the upward potential is huge, especially for holiday tourism
- Day trips are now the biggest component of tourism revenues. They therefore underpin the economics, and help define the quality, of the complete tourism offer.

Many other insights are contained in the full report, available from NITB and DETI. Some key accounting numbers are summarised in Figure 8.

References

Cogentsi 2007(a) The role of tourism in the NI economy, NI Tourist Board and Department of Enterprise, Trade and Investment
Cogentsi 2007(b) Measuring the role of tourism in the NI economy, NI Tourist Board and Department of Enterprise, Trade and Investment
Cogentsi 2007(c) Social accounts and Input-Output tables for NI, Department of Enterprise, Trade and Investment and NI Statistics and Research Agency
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Article 9: Going for Growth: Evidence from the Annual Small Business Survey 2005

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INTRODUCTION

There is much evidence from recent research to show that it is increasingly new and small firms, which are the major providers of new jobs¹. New firm formation and the activities of the Small and Medium-sized Enterprise (SME)² sector contribute towards job creation and economic growth, through accelerating innovation and promoting the use of human, financial and other resources.

To better understand the needs of the SME sector in NI and to inform policy development in this area, Invest NI with the support of DETI, contributed to the 2005 Annual Small Business Survey (ASBS). The survey is managed by the Department of Trade and Industry's Small Business Service (SBS) with input from the devolved administrations of the UK.

This article represents an initial review of the survey results for NI and focuses on two areas: building the capacity for business growth and allied to this, improving access to finance. It examines the growth ambitions of NI SMEs vis-à-vis the rest of the UK regions and the way in which businesses here plan to grow. Obstacles to business success are addressed along with the experience of NI SMEs in financing their businesses.

BACKGROUND TO THE SURVEY

The main purpose of the ASBS is to monitor the needs of SMEs, assess their main concerns and identify the barriers which prevent them from fulfilling their potential. It also acts as a sounding board for possible government actions to help SMEs and records SME's expectations of government business support. The first survey was commissioned by the SBS in 2003. The most recent for 2005 covers 8,640 UK SMEs³. A myriad of issues are addressed by the survey which have been developed around the themes contained in

the Government Action Plan for Small Business⁴, including enterprise, business support, regulation and disadvantaged communities.

Key findings are presented here for over 600 local businesses which are representative of the SME population of NI. The NI sample will be subject to more rigorous analysis in future research.

NI SMEs IN A UK CONTEXT

The SBS estimates that there were 4.3 million businesses in the UK at the start of 2005. For each region and country in the UK, no more than 0.2 per cent of enterprises are large (250 or more employees), and at least 99 per cent of enterprises are small (0 to 49 employees). The proportions of enterprises that are medium-sized (50 to 249 employees) range from 0.5 per cent (in the East of England, South East and South West) to 0.8 per cent (in the North East and NI).

In the UK as a whole, SMEs account for over half of employment (58.7 per cent). This is also true for each region and country in the UK except London, where SMEs only account for 47 per cent. NI has the highest concentration of SMEs accounting for 81 per cent of employment.

The number of business enterprises in NI at the start of 2005 was estimated by the SBS to be just under 115,000, with an associated employment of 495,000. Summary information relating to the size and employment structure of these businesses is presented in Table 1 and comparisons with the other regions of the UK are shown in Figure 1.

Number of enterprises and employment in the private sector by size of enterprise, NI 2005

Table 1

	ENTERPRISES		EMPLOYMENT	
	NUMBER	% OF TOTAL	'000s	% OF TOTAL
All enterprises	114,940	100%	495	100%
With no employee*	79,600	69%	88	18%
With employees, of which;	35,340	31%	407	82%
1-9	28,720	25%	118	23.9%
10-49	5,625	4.9%	111	22.5%
50-249	885	0.8%	83	16.8%
250+	110	0.1%	94	19.0%

Figures subject to rounding

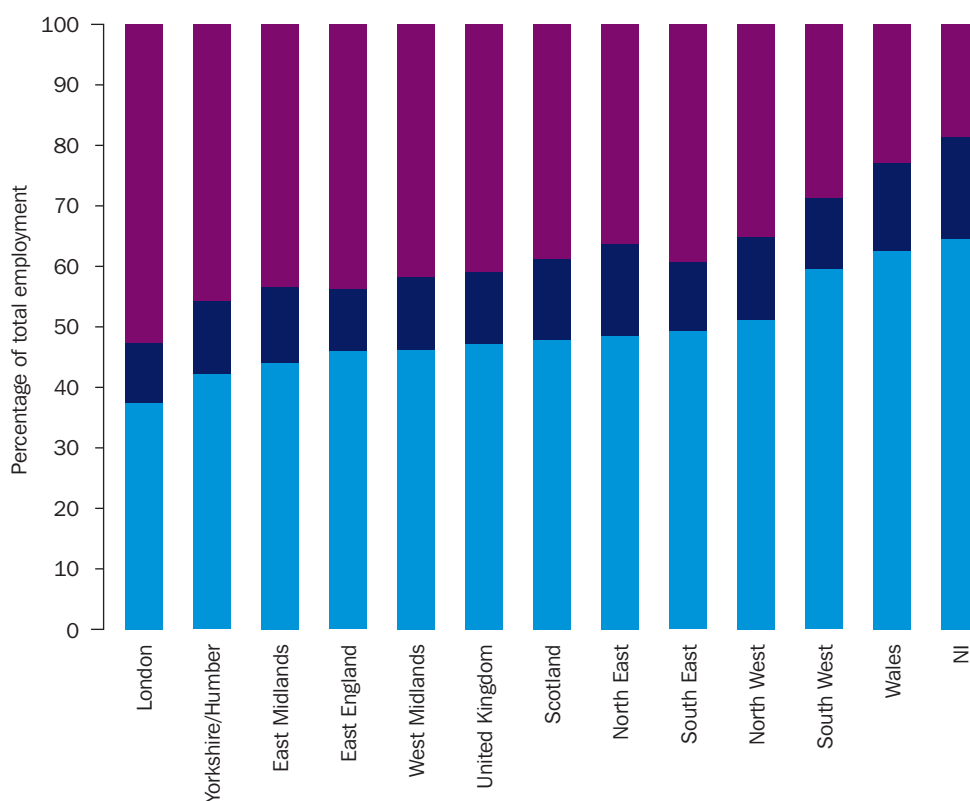
Source: Small Business Service (SBS) Analytical Unit

*“With no employees” comprises sole proprietorships and partnerships comprising only the self-employed owner-manager(s), and companies comprising only an employee director.

Employment by Size of Business, UK Regional Comparison, 2005

Figure 1

- Small (0-49 employees)
- Medium (50-249 employees)
- Large (250+ employees)



Source: Small Business Service (SBS) Analytical Unit

The differences in employment patterns between regions can be explained partly by differing industry compositions. London has 33 per cent of businesses in Financial Intermediation and Business Services, the highest proportion of all regions, but less than 1 per cent of businesses in Agriculture, the lowest of all regions. NI conversely has the lowest proportion of businesses in Financial Intermediation and Business Services (14%) and the highest proportion of businesses in Agriculture (16%).

RESULTS FROM THE ANNUAL SMALL BUSINESS SURVEY

KEY CHARACTERISTICS OF NI SMEs

The following section reviews some of the structural characteristics of SMEs which reflect the socio-economic composition of the regions and devolved administrations. The analysis focuses on those businesses with employees only.

The Service sector dominates business in NI. The share of businesses in Services is higher in NI (77%) compared to all other regions of the UK (72%) with the exception of London (80%).

NI has a significantly higher proportion of businesses which export (27%) compared to the average for the UK and particularly in relation to Scotland (14%) and Wales (12%). This should reflect the proximity of the ROI as a key export market for NI businesses.

Around 2 in every 3 businesses in NI are family-owned, defined as one which is majority owned by members of the same family. A significant proportion of businesses across each region of the UK are family-owned, in most instances accounting for two-thirds or more of SMEs. Family business ownership is lowest in London (52%).

‘Structural’ Characteristics of the sample by government regions and devolved administrations

Table 2

	BUSINESSES WITH EMPLOYEES ONLY						
	BASE	MICRO FIRMS	SERVICE SECTOR	EXPORTERS	FAMILY OWNED	WOMEN LED	NEW START-UPS
London	885	81%	80%	33%	52%	13%	9%
South East	850	85%	73%	24%	63%	12%	10%
South West	834	85%	72%	19%	68%	15%	13%
East Midlands	341	83%	64%	24%	74%	10%	12%
West Midlands	425	85%	63%	22%	68%	10%	10%
Yorkshire/Humber	365	85%	68%	14%	66%	11%	16%
North East	312	76%	74%	18%	70%	12%	8%
North West	468	86%	71%	20%	71%	12%	8%
East of England	550	85%	69%	26%	70%	11%	13%
England	5,030	84%	71%	24%	65%	12%	11%
Wales	843	86%	71%	12%	71%	15%	11%
Scotland	835	83%	75%	14%	64%	14%	12%
NI	502	81%	77%	27%	67%	18%	11%
UK	7,210	84%	72%	22%	65%	12%	11%

Base: All businesses with employees, weighted data; unweighted N=7,210

Source: SBS ASBS 2005

Almost one in every five businesses in NI (18%) are “women-led” in that women constitute more than 50 per cent of the owners, partners or directors. This compares to 12 per cent across the UK as a whole.

ASPIRATIONS FOR BUSINESS GROWTH

Any economy must have businesses with the vision and capacity to grow in order to prosper. This dynamism provides the stimulus for greater competition and innovation leading to new and improved products and services. The ASBS indicates that many businesses in NI have aspirations to grow. In 2005, around 3 in every 5 local businesses (59%) stated that they intended

to expand their business over the next two to three years, the highest of the devolved administrations and higher than the UK average of 56 per cent. Expectations of growth were strongest in the London and West Midlands regions.

These positive aspirations were further reinforced by the fact that 17 per cent of NI businesses expect to take on more employees in a year’s time while, for those with growth aspirations, just over half anticipate moving into a new market (52%) and 70 per cent intend to introduce new products to grow. Across all of these growth measures, NI businesses are on a par, and in many instances exceed, expectations for growth across the average for the

Growth in small businesses; businesses with employees only; variation by English, regions and devolved administrations

Table 3

	BUSINESSES WITH EMPLOYEES ONLY						
	BASE	% WITH MORE EMPLOYEES THAN A YEAR AGO	% EXPECT MORE EMPLOYEES IN A YEAR'S TIME	% INTEND TO GROW THE BUSINESS	% WILL MOVE INTO NEW MARKET (WHERE INTENDING TO GROW)	% WILL INTRODUCE NEW PRODUCTS (WHERE INTENDING TO GROW)	% LOOKING TO CLOSE OR RETIRE (WHERE NOT INTENDING TO GROW)
London	885	17%	18%	61%	56%	67%	19%
South East	850	17%	15%	58%	52%	72%	20%
South West	834	19%	14%	55%	48%	63%	16%
East Midlands	341	18%	12%	44%	52%	60%	18%
West Midlands	425	23%	21%	60%	62%	71%	23%
Yorkshire/Humber	365	17%	14%	54%	48%	64%	19%
North East	312	24%	16%	57%	56%	68%	20%
North West	468	19%	16%	59%	47%	62%	17%
East of England	550	18%	14%	51%	53%	63%	17%
England	5,030	19%	16%	56%	53%	66%	19%
Wales	843	19%	18%	54%	58%	71%	22%
Scotland	835	17%	16%	52%	53%	69%	20%
NI	502	19%	17%	59%	52%	70%	24%
UK	7,210	19%	16%	56%	53%	67%	19%

Base: All businesses with employees, weighted data; unweighted N=7,210

Source: SBS ASBS 2005

UK. A summary of the NI position compared to the other regions of the UK is presented in Table 3.

A greater proportion of larger businesses, younger businesses, those in production or services and limited companies (as compared to partnerships or sole traders) plan to grow their business.

Local businesses, as with businesses across the UK generally, are most likely to believe that growing the business will most likely lead to increased levels of staffing and investment in more capital equipment.

Around two-fifths (38%) are likely to seek external funding to finance growth compared to an average of 35 per cent for the UK. In fact, 17 per cent of NI businesses with growth aspirations intend to finance growth through external sources alone. This is higher than any other region of the UK.

Many businesses in NI are simply happy with the size they currently are and this is the main reason why they have no aspirations for growth. This is also the case across the UK as a whole. However, businesses here are more likely to cite retirement or closure plans as a key reason for not pursuing growth. This is an issue for roughly one in every four of businesses with no growth aspirations, significantly higher than the average for the UK at 19 per cent.

OBSTACLES TO BUSINESS SUCCESS

Evidence would suggest that while many businesses want to grow, not all appear to achieve any growth or grow fast enough to make the contribution to productivity levels for which they have the capability. There are a number of market failures and associated barriers to growth that prevent SMEs from maximising their potential. The ASBS addresses a wide range of issues in relation to the obstacles or difficulties which businesses here

might face that impact on their ability to achieve business objectives.

The key obstacles to business success locally are, in general, not dissimilar to the UK as a whole.

Competition is the most frequently cited obstacle to business success. In NI, competition is a key barrier for 26 per cent of businesses, higher than the UK average (22%) but similar to London and the North West. The majority of businesses here consider competition to be fair. While around 17 per cent feel particularly threatened by overseas competition, this is similar to that experienced by the wider UK business population.

However, taxation (including VAT, PAYE, National Insurance and business rates) stands out as a particular obstacle for NI business. In fact, the proportion of businesses which cite this as a main barrier to business success is, at 13 per cent, almost twice as high as the average for the UK (7%). VAT is a particular issue for local businesses. Around one third of those businesses with taxation issues cite this as problematic compared to 23 per cent of businesses in the UK. Other forms of taxation which are challenging to local business include income tax and business rates. Corporation tax is a more substantive issue for the larger businesses surveyed as part of the NI boosted sample.

A number of key issues emerge in relation to why taxation is an obstacle to SMEs. These include difficulties in keeping up with changes in detailed rules/regulation, difficulty in understanding the regime and the burden of administration/record keeping. However, the main issue which NI businesses have with taxation is with the level of payments they are required to make.

Main obstacle to business success; businesses with employees; variation by English regions and devolved administrations

Table 4

	BUSINESSES WITH EMPLOYEES ONLY							
	BASE	THE ECONOMY	CASH FLOW	TAX	RECRUITMENT	TRANSPORT	COMPETITION	REGULATION
London	885	16%	6%	6%	6%	2%	27%	10%
South East	850	16%	8%	6%	5%	1%	22%	16%
South West	834	17%	6%	6%	6%	2%	17%	19%
East Midlands	341	16%	7%	10%	3%	4%	19%	10%
West Midlands	425	15%	6%	7%	5%	3%	23%	13%
Yorkshire/Humber	365	15%	4%	7%	5%	2%	20%	12%
North East	312	15%	9%	7%	4%	1%	23%	14%
North West	468	11%	5%	2%	5%	3%	26%	15%
East of England	550	15%	8%	5%	6%	3%	21%	13%
England	5,030	15%	7%	6%	5%	2%	22%	13%
Wales	843	13%	4%	6%	5%	3%	20%	18%
Scotland	835	12%	5%	6%	6%	3%	21%	19%
NI	502	10%	7%	13%	7%	*	26%	10%
UK	7,210	15%	7%	7%	5%	2%	22%	14%

Note: * = less than 0.5%

Base: All businesses with employees, weighted data; unweighted N=7,210

Source: SBS ASBS 2005

The “economy” is considered to be the main obstacle to business success for just one in every ten local businesses, considerably lower than the average for the UK. A similar proportion of businesses cite Regulation as a main obstacle to business success and again this is lower than the UK as a whole. Regulation issues include tax and health and safety.

FINANCING THE BUSINESS

Access to capital through well functioning capital markets is essential for businesses to operate efficiently and to grow. This facilitates business start-ups, the investment plans of existing business, innovativeness and the allocation of resources in the economy in the most efficient way. However,

some businesses face difficulties in accessing finance and this represents a lost opportunity in terms of the contribution to economic growth which they might otherwise make. The survey covers extensively the experiences of respondents in financing their business. The following presents some of the key results from that analysis.

In terms of the propensity for businesses to seek external finance, there is very little variation between the regions (Table 5). In NI, 18 per cent of businesses had recently sought external finance. Interestingly, businesses in London were least likely to seek it.

Similarly, although some small regional differences

Use of external finance by small businesses; businesses with employees only; variation by English regions and devolved administrations

Table 5

	BUSINESSES WITH EMPLOYEES ONLY						
	BASE	SOUGHT FINANCE IN LAST YEAR	BASE	FOR CAPITAL/ CASH FLOW	FOR LAND/ BUILDINGS	FOR EQUIPMENT/ VEHICLES	OBTAINED WITHOUT DIFFICULTY
London	885	15%	164	39%	12%	17%	70%
South East	850	16%	181	39%	11%	26%	78%
South West	834	19%	193	46%	13%	21%	80%
East Midlands	341	17%	67	42%	5%	37%	85%
West Midlands	425	18%	89	39%	7%	27%	85%
Yorkshire/Humber	365	17%	73	39%	7%	37%	76%
North East	312	23%	81	44%	17%	18%	76%
North West	468	16%	80	42%	17%	26%	85%
East of England	550	17%	98	34%	11%	29%	78%
England	5,030	17%	1,026	40%	11%	26%	79%
Wales	843	19%	215	30%	13%	31%	83%
Scotland	835	17%	170	47%	13%	24%	80%
NI	502	18%	105	39%	9%	33%	81%
UK	7,210	17%	1,516	40%	11%	26%	79%

Base: All businesses with employees, weighted data; unweighted N=7,210

Source: SBS ASBS 2005

are evident, seeking funding for capital/cash flow reasons is dominant across the regions. In terms of local business, 39 per cent who sought funding did so for capital/cash flow purposes, 33 per cent for the purchase of equipment/vehicles and 9 per cent for land/buildings. For the majority of these businesses, this took the form of a loan/overdraft.

NI businesses tend to seek lower amounts of funding than the average for the UK. In NI, a higher proportion of businesses (55%) sought less than £50,000 funding compared to the UK (48%). None of the businesses locally had sought funding in excess of £250,000. This compares to 10 per cent across the UK, driven largely by London, the South East and East of England.

In general, obtaining finance does not appear to cause difficulty for the majority of businesses. In NI, 81 per cent of businesses had no difficulty securing finance against a UK average of 79 per cent. Obtaining finance appeared much more difficult for businesses in London compared to all other regions of the UK.

The use of equity to finance long term investment and growth is low generally across the UK but particularly in NI. Just over 1 per cent of local businesses had used this type of investment, lower than any other region of the UK. Around one in every three businesses locally has some awareness of venture capital providers operating in NI.

CONCLUSIONS AND FUTURE RESEARCH

This preliminary analysis of the Small Business Survey data has demonstrated some very positive aspects to SME growth and development in NI. A significant proportion of NI businesses have aspirations to grow. In fact, across all measures of growth, NI businesses are on a par, and in many instances exceed, expectations for growth across the UK average.

Fewer businesses here view the “economy” as an obstacle to business success compared to the wider UK business population. Regulation is also not as significant an issue.

Obtaining finance does not appear to cause difficulty for the majority of business locally. In addition, similar proportions of businesses in NI compared to the rest of the UK regions have recently sought external finance.

However, there are areas for concern which merit further investigation. There is a small but significant core of businesses which are simply happy with the size they are but may have significant potential for growth and development. In addition, NI has a higher than average share of businesses which are seeking to close down for retirement or other reasons. This raises issues of succession and potential business transfer.

Competition is considered to be the main obstacle to business success locally. A greater proportion of businesses here consider it to be the most important issue affecting their business compared to the other devolved administrations of the UK. Taxation stands out as a particular obstacle for NI businesses. However, this may simply reflect the recent high profile public debate regarding issues such as business rates and corporation tax in NI.

NI businesses seek lower amounts of external finance for business growth and development. The use of equity investment in particular is very low in NI and is in fact, lowest of any region of the UK. This may indicate a concern relating to the undercapitalisation of businesses.

It is the case that a range of characteristics of the SME populations of the various regions - including sector structures, ‘age’ structures, ownership patterns and the varying size structures of their SMEs - are implicated in complex ways in these observed differences (and, of course, sample variation due to chance may play a part). Further research is therefore merited to understand the complexity of these relationships in determining the growth and performance of the SME population both locally and nationally. The availability of information from an additional 400 Invest NI client companies not included in this analysis will provide even more depth to our understanding of the issues faced by NI SMEs. On-going research from the ASBS is forthcoming.

Notes

- ¹ ‘Entrepreneurship: A survey of the literature’, David B. Audretsch, October 2002.
- ² Defined as any business with zero to 250 employees.
- ³ A detailed report on the survey can be accessed at www.dti.gov.uk/files/file38247.pdf
- ⁴ Government Action Plan for Small Business - DTI, Small Business Service, January 2004

Article 10: Jobs Promoted Through Inward Investment Supported by Invest NI 2002/03 - 2005/06

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INTRODUCTION

The purpose of this paper is to present an initial review of the quality of jobs promoted through recent inward-investment activity supported by Invest NI. The wages and salaries expected to be paid to employees in these businesses is compared with the Northern Ireland Private Sector Median (PSM) wage¹. This provides an indication of the level of job quality in supported projects compared to the private sector as a whole. The analysis is based on those projects offered assistance during the four years 2002/03 to 2005/06, and is presented by industry sector and at sub-regional level within Northern Ireland. Whilst the paper provides evidence that the salaries of jobs promoted and maintained through Invest NI supported projects are overall higher than the NI PSM, there is considerable variation in this indicator of job quality.

BACKGROUND

Supporting internationally-mobile investment to locate and develop businesses in Northern Ireland is a key component of Invest NI's economic development strategy. Foreign Direct Investment (FDI), defined as an investment made to acquire a lasting interest in an enterprise operating outside the economy of the investor², is one part of this. Another important dimension includes in-flows from other parts of the nation state - in the case of Northern Ireland this relates to investments from Great Britain. For the purpose of this paper both FDI and investment from other parts of the UK will be referred to as inward investment. The externally-owned businesses, which are created as a result of this investment, provide an important mechanism for growing the private sector in Northern Ireland. This is not only because of job and wealth creation, but also because these businesses contribute to the development

process by providing capital, technology (including managerial and marketing skills), and export market access. Inward investment has an important role in stimulating domestic investment and innovation as the expansion of high-productivity businesses helps strengthen competition within the economy.

THE IMPORTANCE OF INWARD INVESTMENT

In 2005, 138 Invest NI clients were owned by parent companies located outside Northern Ireland. These clients, which are the product of inward investment, make a vital contribution to the NI economy. They are mostly larger businesses and account for 47% of employment, 54% of sales, 63% of external sales and 69% of exports generated by the Invest NI client portfolio. In addition, externally-owned businesses play an important role in financing Research and Development (R&D) activities within Northern Ireland, amounting to £68.4 million in 2004, representing 55% of total Business Expenditure on R&D.

Additional evidence of the importance of inward investment to the economy is provided through results from the Northern Ireland Annual Business Inquiry (ABI), produced by Department of Enterprise, Trade and Investment (DETI). This contains data on gross value added (GVA) and employment costs³ per employee within surveyed businesses. Table 1 presents a summary of information from ABI 2006 relating to Invest NI clients. It shows that the rates of GVA and employment costs per head are higher for externally-owned clients than those which are locally-owned. GVA per head reported by externally-owned clients was almost twice that recorded by locally-owned clients, and employment costs per head almost one third higher in externally-owned clients.

Invest NI GVA and Employment Costs

Table 1

	GVA Per Head (£)	Employment Costs per head (£)
External	63,018	26,658
Local	31,890	20,189
Total	45,654	23,050

Source: DETI Northern Ireland Annual Business Inquiry (ABI) 2006

Inward Investment Projects Offered Assistance by Invest NI (2002/03 - 2005/06)

Table 2

FINANCIAL YEAR	NUMBER OF PROJECTS	JOBS PROMOTED	JOBS SAFEGUARDED	TOTAL ASSISTANCE OFFERED (£M)	PLANNED INVESTMENT (£M)
2002/03	19	1,033	3,015	28.1	166.7
2003/04	36	2,153	2,670	33.5	149.4
2004/05	51	3,467	1,312	46.4	209.7
2005/06	31	3,100	3,281	71.4	362.2
Total	137	9,753	10,278	179.5	888.0

Source: Invest NI

This information highlights the importance of inward investment and its influence on Northern Ireland's ability to achieve its economic vision.

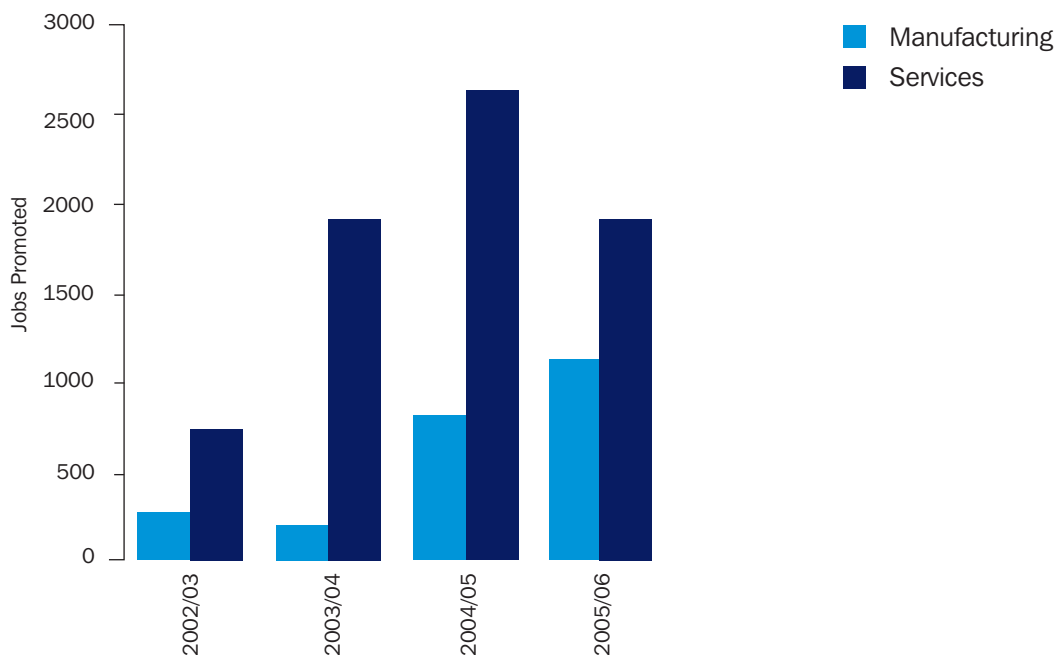
RECENT TRENDS IN INWARD INVESTMENT ACTIVITY 2002/03 - 2005/06

During the four year period 2002/03 to 2005/06 a total of 137 inward-investment projects planning to invest a total of £888m within the NI economy, were offered £179.5m of financial assistance by Invest NI. This represented a 20% contribution towards funding costs by Invest NI. These projects expected to create 9,753 new jobs and safeguard a further 10,278 existing jobs (see Table 2).

The inward-investment market has become more competitive in recent years as large capital and manufacturing flows have moved increasingly to low-wage economies in China, India and Eastern Europe. This issue is highlighted in Figure 1, which provides a broad sectoral pattern of those jobs promoted through Invest NI supported inward investment projects during the four year period. Almost 7,300 new inward-investment jobs, accounting for almost 75% of the total promoted by Invest NI, were within the service sector, which reflects Northern Ireland's strengthened proposition as an area capable of attracting this type of mobile international investment.

New Jobs Promoted by Inward Investment Projects - Manufacturing v Services (2002/03 - 2005/06)

Figure 1



Source: Invest NI

Invest NI continues to target sectors such as Financial Services, Software, Telecoms, Life Sciences and Business Services. These sectors present our greatest opportunity to attract quality, sustainable investment that will offer high-value job opportunities, though clearly we need to rise to the challenge of making available sufficient skilled personnel.

ASSESSING JOB QUALITY - METHODOLOGY

As indicated above, GVA per head and employment costs per head provide an indication of the relative quality of jobs within externally-owned businesses compared to those that are indigenous. However, these indicators are not available when the project is being assessed. As a proxy the level of wages and salaries likely to be paid to employees of the

businesses should provide a reasonable indication of job quality. The average salary level has two key attributes - it is measurable and the information is relatively easy to obtain from Invest NI records.

This analysis was conducted on those inward-investment projects, which were offered assistance between 2002/03 and 2005/06, and for which the required employment and salary data was available. 111 projects satisfied these criteria, and for these businesses data on expected salaries was collated from internal casework papers. From this information the median salary was calculated. It is recognised that since the data reflects anticipated wages and salaries, this may differ from salaries paid once jobs are actually created.

Comparison with NI PSM (2002 - 2006)

Table 3

YEAR	NI PSM (FULL TIME BASIC WEEKLY PAY)	INVEST NI WEEKLY MEDIAN FIGURES	INVEST NI % DIFFERENCE TO NI PSM
2003	282.5	317.3	12%
2004	299.5	346.2	16%
2005	308.0	274.0	-11%
2006	326.9	467.7	43%

Source: DETI - Northern Ireland Annual Survey of Hours and Earnings (ASHE) 2003 - 2006, and Invest NI

The results were compared to the Private Sector Median (PSM) Wage for Northern Ireland, based on the results of the Northern Ireland Annual Survey of Hours and Earnings (ASHE) between 2003 and 2006. The NI PSM figure used was based on basic weekly earnings for full-time employees. This includes pay before deductions for PAYE, National Insurance, pension schemes and voluntary deductions but does not take account of travel and subsistence expenses or any overtime, shift premium, bonus or incentive pay. Invest NI results are also based on basic pay. The median salary was accepted in this case as the best measure of central tendency, as a small number of very high salaries may skew the mean.

ANNUAL COMPARISONS

Table 3 presents weekly pay data for both Invest NI supported inward-investment projects and the NI PSM for each respective year. The difference between the two is expressed as a proportion of the NI PSM. This indicates some volatility in job quality, reflecting the nature of those projects supported on an annual basis. The exception to the generally higher levels of wages and salaries within inward-investment projects occurred

in 2005, when a number of lower-wage projects were offered assistance.

In 2006 inward-investment projects supported employment opportunities which expect to pay 43% more than the NI PSM. This increase in job quality was driven largely by re-investment projects such as Seagate Technology, FG Wilson and BE Aerospace.

INDUSTRY SECTOR COMPARISONS

Table 4 presents the job quality results for the period 2002/03 to 2005/06, and distinguishes between new and safeguarded jobs by industry sector⁴.

The analysis highlights that new jobs are generally less well paid than those which are being safeguarded. For the 4 years under review 54% of these were above the PSM compared with 84% of safeguarded jobs. The data relating to safeguarded jobs is dominated by manufacturing clients. One factor contributing to this differential is that jobs promoted by new inward-investment projects will tend to be filled by employees starting at the lower end of salary scales. Conversely, safeguarded jobs are more likely to be established jobs where employees are on higher levels of the pay scale.

Job Quality Analysis Using PSM Benchmark by Sector (2002/03 - 2005/06)

Table 4

SECTOR	NO. OF PROJECTS	NEW JOBS	SAFE GUARDED JOBS	% ABOVE PSM		
				NEW	SAFE	TOTAL
Manufacturing						
Paper products, Printing & Publishing	2	146	17	100	100	100
Transport Equipment	3	16	369	100	100	100
Electrical, Electronic & Optical Equipment	14	849	3,349	94	99	98
Other Manufacturing	3	153	362	86	100	96
Glass, Ceramic & Concrete Products	2		252	0	85	85
Rubber & Plastic Products	6	73	888	100	84	85
Clothing & Textiles	4	121	1,307	22	89	84
Non-Electrical Machinery	10	371	970	64	85	79
Chemicals & Pharmaceuticals	3	226	117	64	100	76
Fabricated Metal Products & Metal Finishing	4	349		46	0	46
Food, Drink & Tobacco	15	156	1,354	31	31	31
Manufacturing Total	66	2,460	8,985	72	84	81
Services						
Other Services	1	50	117	100	100	100
Computer Services	26	2,190	60	83	100	83
Business & Financial Services	18	4,934		31	0	31
Services Total	45	7,174	177	47	100	49
Overall Total	111	9,634	9,162	54	84	69

Source: Invest NI

Industry sector influences are also important. The analysis highlights the difference in job quality between manufacturing and service-based projects. Within the manufacturing sector 81% of all jobs promoted or safeguarded were above the PSM, whereas fewer than half of the services jobs were above the benchmark. This is a result of a large number of contact centre projects, contained within the Business & Financial Services category. However, the service sector also included the promotion of high-value jobs within the Computer Services sector, 83% of which were above the NI PSM.

INCREASING ACCESS TO ECONOMIC OPPORTUNITY

Of the 52 first-time inward-investment projects offered assistance during the four years, 73% had locations within areas of economic disadvantage, New Targeting Social Needs (NTSN) areas, representing 77% of assistance offered to all inward-investment projects. Whilst we recognise that not all employees will be recruited from within economically disadvantaged areas, there is evidence that to overcome recruitment difficulties some contact centres have developed more innovative recruitment practices to successfully recruit from the economically inactive and the unemployment labour pools. Research carried out on the Halifax Call Centre⁵, which has created more jobs than any other single inward-investment project, reported how this call centre met the challenge of recruiting 1,500 staff in Belfast in a sector with no traditional labour pool. By providing options for flexible working patterns, through removing a requirement for minimum qualifications and through liaising with local community groups, partnership boards and job centres, Halifax successfully managed to actively engage labour returners, many with few or no qualifications and the unemployed.

Shuttleworth and Green⁶ have recently carried out research on the levels of previously economically inactive or unemployed people who took up jobs in projects assisted by the Industrial Development Board (the agency responsible for inward investment prior to Invest NI). Data relates to the period 1998-2001 and includes three contact centres employing 739 people. Of the workers employed within these operations, 20% were previously classified as economically inactive or unemployed. Two software companies employing 582 people were also included in the analysis, with 16% of employees formerly recorded as jobless.

HOW DO THE NI REGIONS COMPARE?

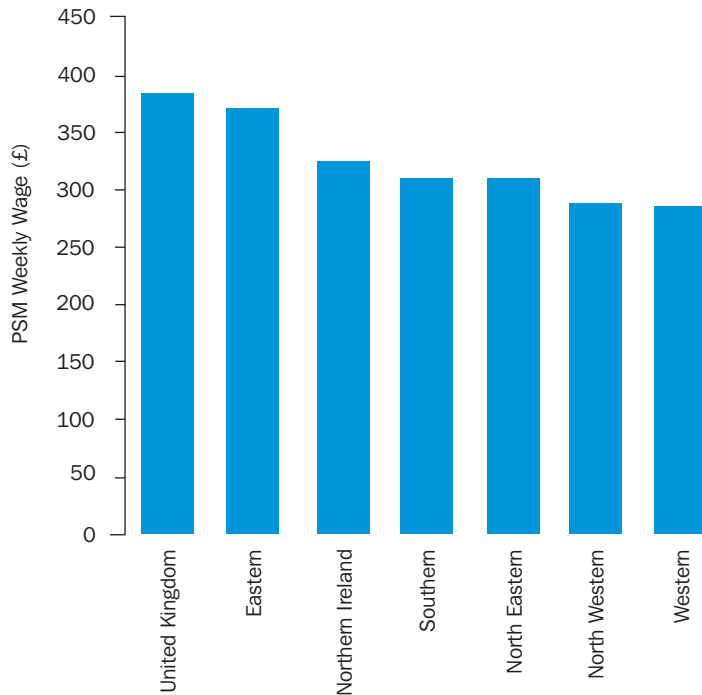
Whilst the NI PSM for 2006 was £326.9, there is variation across each of the five Invest NI regions. This is shown in Figure 2, which for comparison also includes the UK PSM.

Figure 3 presents a graphical summary of the percentage of inward-investment jobs above the respective regional PSM. This shows that projects locating in the North East had a higher overall proportion of jobs above the regional PSM than the other sub-regions. Three large manufacturing clients - Caterpillar/FG Wilson Engineering, Schrader Electronics and Michelin Tyres - account for just over 75% of the jobs analysed in the North East and 86% of the jobs above the regional PSM. The North East is followed by the North West, where Seagate was a major influence on the proportion of jobs above the benchmark.

The West has the next highest proportion with only 24% of jobs below the regional PSM. Over the four years the Southern and Eastern regions attracted the lowest proportion of overseas jobs above the benchmark, with 43% and 47% of all jobs promoted or safeguarded in these areas below their respective PSM.

Basic Weekly PSM in Northern Ireland Regions and the UK (2006)

Figure 2



Source: ONS & DETI - Northern Ireland Annual Survey of Hours and Earnings (ASHE) 2003 - 2006

When interpreting these results, consideration should be given to the overall number of jobs promoted or safeguarded in each region. For instance, the proportion of jobs above the benchmark is much greater in the North East than in the East. However, there are almost four times as many jobs analysed in the East than in the North East (see Table 5). The inclusion of 50 high quality jobs in the North East region will cause the percentage of jobs above the benchmark to increase more dramatically than in the East.

CONCLUSION

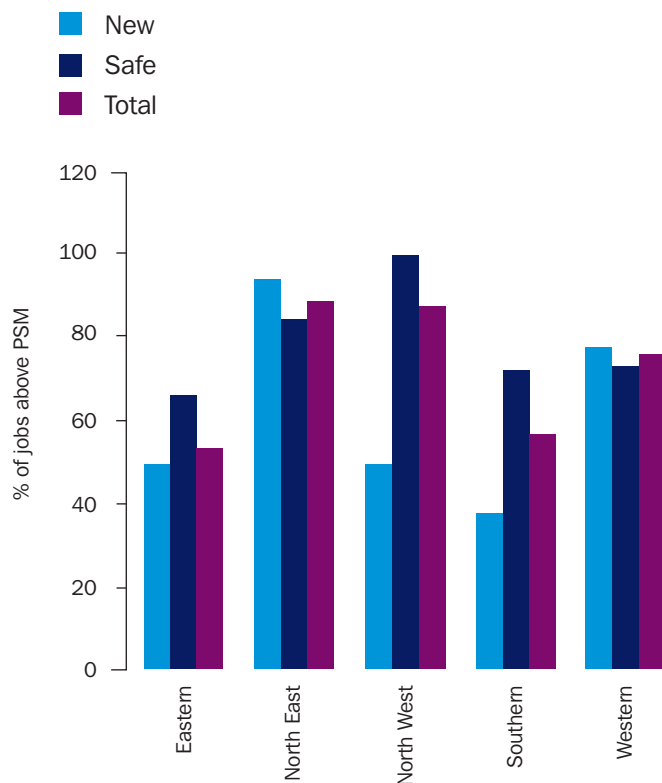
This paper, whilst focusing on the quality of jobs promoted by inward investment, confirms the vital role of inward investment to the development of

the Northern Ireland economy. Overall, 69% of jobs supported by Invest NI during the four-year period under review were above the NI PSM. Contributing towards this were new and safeguarded jobs of which 54% and 84%, respectively, were above the NI PSM. Projects supported during the most recent year, 2005-06, are overall expected to pay weekly salaries over £140 greater than the regional average; 39% of these jobs had salaries between £21-30K and almost 6% had salaries greater than £30K. This presents a marked improvement in job quality, with 80% of jobs having salaries over the PSM in 2005/06 compared to 41% the previous year.

Over 50% of new jobs promoted during the four years were within the Business and Financial

Percentage of Inward Investment Jobs above PSM by Region (2002/03 - 2005/06)

Figure 3



Source: Invest NI

Services sector, mostly within contact centre operations. Whilst these jobs were generally at the lower end of the salary range, many are increasing access to economic opportunity in less well off areas and to the unemployed or economically inactive.

In contrast, at the higher end of the salary scale were new jobs supported by investments in Computer Services. These projects, whilst generally smaller in scale, have yielded considerable numbers of jobs with average salaries greater than the Northern Ireland private sector median. The challenge for economic development in Northern

Ireland is to create the supply-side conditions required to attract and retain more of these higher value-added operations. Northern Ireland is an economy in transition, with a developing service-sector skills base. Therefore, we will continue to seek to shift the balance towards attracting more high value added jobs while being open to service-sector inward investment which matches the skills available in Northern Ireland. There is clearly a continuing need to work with the private sector and the Department for Employment and Learning (DEL) to further develop the skills base.

There are of course other indicators of the quality

Number and Percentage of Inward Investment Jobs above PSM by Region (2002/03 - 2005/06)

Table 5

REGION	NO. OF PROJECTS	NEW JOBS	SAFE GUARDED JOBS	% ABOVE REGIONAL PSM		
				NEW	SAFE	TOTAL
Eastern	52	5,286	1,486	49	66	53
North Eastern	10	744	1,047	94	85	88
North Western	17	1,365	4,379	49	100	88
Southern	16	1,367	1,815	38	72	57
Western	16	872	435	78	73	76

Source: Invest NI

of inward investment and further research will be undertaken to examine company specific data from the Northern Ireland Annual Business Inquiry to better understand the extent of the relationship between expected salary data and actual employment costs and gross value added.

Notes

- ¹ Sourced from the Northern Ireland Annual Survey of Hours and Earnings (ASHE).
- ² Balance of Payments Manual Fifth Edition: (BPM5) Washington DC IMF 1993.
- ³ Employment costs represent amounts paid during the year to employees without any deduction for income tax or employee's national insurance contributions etc.
- ⁴ All sectors have been benchmarked against the overall NI PSM. Industry sector medians could be obtained for future research.
- ⁵ The Halifax Call Centre: Employer Recruitment Practices & Employability, Darren McKinstry & Ian Shuttleworth, Labour Market Bulletin, 2002
- ⁶ Large-Scale Recruitment Study from an unpublished paper by Shuttleworth, I., and Green, A., (2007) entitled Spatial Mobility, Workers and Jobs: Perspectives from the Northern Ireland Experience, School of Geography, Archaeology and Paleoecology, QUB

Article 11: Developing an Integrated Model of the Northern Ireland Economy: Social Accounts and Input-Output tables

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INTRODUCTION

This article provides some background to the development of a prototype set of Social Accounts and Input-Output tables for NI - the first for some thirty years. The 'Tables' set out to describe in detail the incomes, spending and outputs of the entire local economy in 2003. They help describe the inter-relationships between industries and the role of local and external demand for NI goods and services. The article also provides a range of examples of how a final set of tables might be used in practice to inform economic analysis and policy development. The approach employed in the construction of the Tables is described in the next article in this Bulletin.

BACKGROUND

The development of the NI economy is one of the key challenges facing the new devolved Assembly. As the analysis provided by the Preparation for Government Committee on the Economic Challenges Facing NI has made clear, a single-issue approach will not transform economic prospects in the longer term. An integrated approach is required and the existing DETI commissioned NI Policy Simulation (NIPS) model¹, developed by Regional Forecasts Ltd, provides one example of the type of evidence framework needed to inform such approaches. NIPS's linkage of a range of 'policy' variables (such as skills level, R&D spend) to the wider economy allows a quantified assessment of how effective existing policies are likely to be, in reaching key objectives such as increased Gross Value Added (GVA) per person, one index of a prosperous society.

The current project undertaken on behalf of DETI by Cogent is separate from the supply-side oriented NIPS model, but complements its analysis by

emphasising the demand characteristics of the NI economy. Input-Output (I-O) tables are based on the premise that changes in demand for business output whether from consumers, government, other local businesses or export customers affect not only businesses producing the output, but businesses that supply those producers (ie because they provide the inputs). The comprehensive cross-sectional analysis of income and expenditure by industry (123 sectors), households and government provided by the new NI Social Accounts (NISA) model, an extension of the I-O table, allows a detailed examination of such structural relationships within the NI economy.

By additionally incorporating estimates of exports and imports, NISA also critically allows our interface with the rest of the world to be analysed. The model can be used for a wide range of policy related purposes including estimates of the wider impacts of change in one sector of the economy on inter-related sectors (see Article 8 which illustrates how the model was used to provide an assessment of the economic impact of Tourism in NI).

Most of the difficulties of compilation arise because of the volume and complexity of the regional industrial data required to populate the model, which would place an unacceptable burden on businesses. The recent Allsopp² review of regional economic statistics commissioned by the Treasury stopped short of recommending the creation of social accounts, and in particular expenditure accounts, below the UK level. There have, as a result of the review, been improvements in the timeliness and quality of the Office for National Statistics (ONS) regional accounts, which offer a 30-industry breakdown of Gross Value Added and on occasion estimates of household income and investment for regions.

However, these do not offer the detail (123 industry) or the inter-sectoral linkages available through Input-Output tables. In order to provide a more accurate assessment of the role of Tourism in NI, DETI took the opportunity to develop the requisite I-O tables, with a view to their subsequent further development. Where local data sources have been unavailable, Cogentsi have provided estimates derived from the UK Input-Output tables.

Two key principles were followed in preparing the Social Accounts:

- to be fit for purpose in a policy context, they had to be consistent with the Office for National Statistics UK national and regional accounts
- subject to the above, they should make the maximum practical use of the statistical surveys, inquiries and other data sources available in NI.

The structure of this paper is first of all to provide some high level results, examine some possible policy uses of the tables and then to outline how they were constructed.

SOCIAL ACCOUNTS MODEL

At the heart of the Social Accounts is an “Input-Output” table, which uses a matrix representation (123 x 123 industries) to depict how the output of one industry goes to another industry where it serves as an input. One industry is therefore dependent on another, both as a customer of output and as supplier of inputs. Table 1 provides a very simplified 3-industry version of the results for NI (with the I-O table in the upper left quadrant) in 2003 for illustrative purposes.

Each row of the 3 x 3 Input-Output matrix reports the monetary value of an industry’s inputs and each column represents the value of an industry’s outputs. Thus in Table 1, row 1 reports the value

Northern Ireland Summary Table (2003)

Table 1

SUMMARY (£BN)	INDUSTRIES INTERMEDIATE DEMAND				DOMESTIC FINAL CONSUMPTION			TRADE	
	AGRICULTURE +	PRODUCTION	SERVICES	TOTAL	HOUSEHOLDS +	GOVERNMENT	INVESTMENT	EXPORTS	IMPORTS
Agriculture +	0.1	0.8	0.1	1.0	0.3	0.0	0.1	0.4	- 0.3
Production	0.6	8.7	7.1	16.4	8.9	0.0	4.6	9.1	- 12.4
Services	0.1	1.8	8.9	10.8	8.6	9.5	0.6	1.8	- 8.9
Total	0.8	11.4	16.0	28.2	17.8	9.5	5.3	11.3	- 21.6
Wages	0.1	3.1	9.9	13.1	-	-	-	-	-
Gross margins	0.5	3.0	5.6	9.1	-	-	-	-	-
Total GVA	0.6	6.1	15.5	22.2	-	-	-	-	-
Total Output	1.4	17.5	31.5	50.3	-	-	-	-	-

Source: Cogentsi Ltd

of inputs to Agriculture from other Agricultural businesses (£0.1bn), from the Production Industries (£0.8bn), and from the Service sector (£0.1bn). Rows 2 and 3 do the same for those industries. Column 1 reports the value of outputs from Agriculture to the Agriculture, Production and Service Sectors in Rows 1, 2 and 3 respectively. Columns 2 and 3 do the same for the other sectors.

While the Input-Output matrix reports only the intermediate goods and services that are exchanged among industries, column vectors in the upper right quadrant record the disposition of finished goods and services to consumers, government, and external buyers and the 'imports' (goods and services from outside Northern Ireland) used. So for example if demand for NI external sales fell from £9.1bn (Column 8, Row 2) perhaps because of falling global demand or a loss of competitiveness, we would be able to estimate the knock-on effects on their suppliers, in Agriculture, other Production industries and in the Service Sector (Row 2, Columns 1, 2 and 3) and ultimately to the NI economy.

The tables are comprehensive of the whole economy and even in very summarised form present information, which has not been shown before. Of particular note is how important local consumers are to NI industry with households consuming some £17.8bn of local output. It is also of interest to note that NI total external sales are estimated to be worth some £11.3bn, far short of the value of 'imports' (£21.6bn) thereby providing an estimate of the NI trade deficit and illustrating the distance which would have to be travelled to reach a self sustaining economy.

The potential user community for social accounts is large. It should include policymakers and advisors, economic development executives, environmentalists, economists, as well as business people and planners and others whose contribution creates wealth. Some illustrative examples of their use are provided below.

ECONOMIC ANALYSIS TO SUPPORT ECONOMIC POLICY AND THE POLICY DEBATE

The level of detail in the Tables makes them suitable for a wide range of policy analyses. The fact that they cover all economic activity in NI means that they have something to say about very many policy issues although not necessarily the last word. The following examples are hypothetical and are designed to encourage others to think of what detailed economic evidence could do to help them think about policy options.

PRODUCTIVITY

Addressing NI's productivity gap with the rest of the UK is a key policy issue. GVA per head of population in NI in 2003 was only 80 per cent of the UK average. If it was to equal the UK level then NI GVA would need to be some £6bn higher. The tables help us break this 'gap' figure down into various components:

A smaller proportion of the population works in NI, 45 per cent versus 50 per cent. (partly for structural reasons as set out by Iparraguirre³ in last year's Bulletin). If NI reflected the UK average participation the gap would be about half the size.

NI's industry mix is different from the UK's: NI tends to lack the high productivity capital-intensive manufacturing industries and a high value-added service sector. If it had the same industry mix as the UK then the gap would be about £1 bn smaller.

The remaining gap is due to industry-specific productivity differences: if industrial efficiency matched across all industries, an average rise of about 8 per cent, the gap would be closed.

This breakdown is helpful in a policy context, because different policy instruments and economic development measures can be used to address each part of the gap. The first might be addressed through trying to change attitudes and improve labour market access. The second can be approached through promoting inward investment and business development policies. The third should respond to improved education and productivity-enhancing management initiatives, such as lean manufacturing. The Tables can take us even further in targeting initiatives, for example by indicating which industries contribute most to part two and part three of the gap. The method was used by Gudgin and others⁴ in *The Northern Ireland Economic Bulletin 2006* at a broad sectoral level, but the Tables allow it to be applied to 77 individual manufacturing industries, rather than to 'Manufacturing' as a whole.

INDIRECT TAXES

For example, policymakers might wish to review changes in expenditure-based taxes or subsidies paid or received by people in NI, in context. These might be domestic rates, agricultural subsidies, or road pricing to cite three topical examples.

For this type of analysis the Tables essentially serve as a data repository, in which some pre-calculation and reconciliation has been done. They show that Household Expenditure was £17.1 bn and that non-profit institutions spent a further £0.7bn. The product tax rates in the Tables show the taxes collected on this were about £2.9bn, of which the great majority - nearly three-quarters - were tobacco, alcohol and petrol duties rather than VAT.

ENERGY DEPENDENCE

Another important policy consideration might be the use of energy by different industries and by final consumers in NI. The aim might be to review the focus of energy/carbon-saving policies, or the effect of energy price changes. This can be calculated by adding up purchases of solid fuels, gas, oil and electricity. The two are brought together in Figure 1, where all 123 industrial sectors are shown, but only the larger ones are labelled.

As well as giving a good indication of the absolute importance of energy to different industries, as summarised in the pie chart, the Tables can indicate the relative importance of energy. For example we can read off the industries where energy costs are most important in relation to Gross Value Added (other than the energy industries themselves and very small industries). The 11 industries where energy amounts to more than 20 per cent are:

- Fertilisers
- Water transport
- Organic chemicals
- Bricks
- Pulp, paper and paperboard
- Dairy products
- Mining and quarrying
- Road transport
- Plastics & synthetic resins etc
- Cement, lime and plaster
- Textile fibres

MEASURING ECONOMIC IMPACT

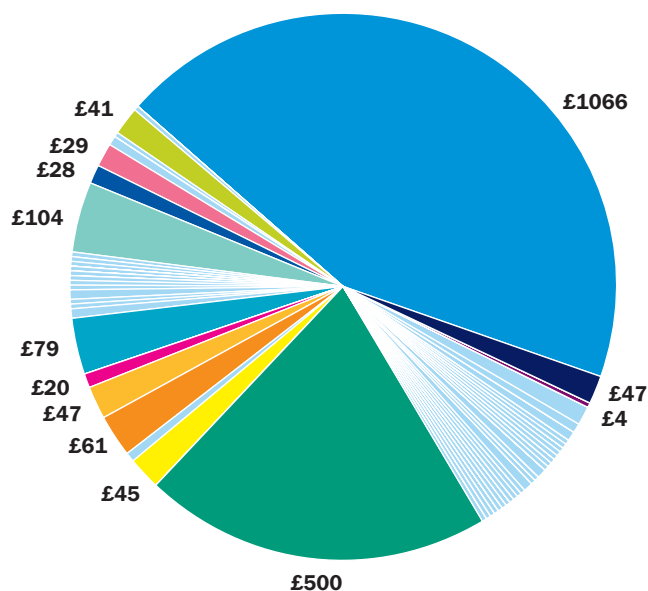
A classic use of Input-Output tables is to trace the economic impact of spending or activity through the supply chain. This gives rise to 'multipliers', setting out the ratio of the total supply effect to the initial stimulus: multipliers may refer to employment, or income, or output.

Energy purchases by user

Figure 1

Amounts shown £m

£1066m	Households
£47m	Agriculture
£4m	Solid Fuel
£500m	Electricity production & distribution
£45m	Construction
£61m	Wholesale distribution
£47m	Retail distribution
£20m	Hotel Catering, Pubs etc
£79m	Road Transport
£104m	Public Administration & Defence
£28m	Education
£29m	Health and Veterinary Services
£41m	Recreational Services



Source NI Social Accounts Input-Output Tables

For example, in a hypothetical study of the likely consequences of conference delegate expenditure it was proposed that an initial injection of £7.4m would lead the businesses themselves that actually supplied the delegates to purchase £2m worth of inputs. The businesses that furnished those inputs would themselves purchase £0.7m, and so on. At the end of the process the series £7.4m + £2.1m + £0.7m would eventually reach £10.2m, and so an output multiplier of £10.2/£7.4 or 1.4 could be calculated. The employment multiplier was 1.2.

It is possible to calculate a 'standard' set of multipliers for each industry in the economy, using the whole table, but the authors consider it is better to trace the supply chain through its successive stages rather than rely on matrix algebra to produce a set of coefficients. By this means the project promoters can actually analyse the business to business process, even down to the

likely companies involved. They therefore assess how indirect economic effects can be maximised in reality, rather than just on paper.

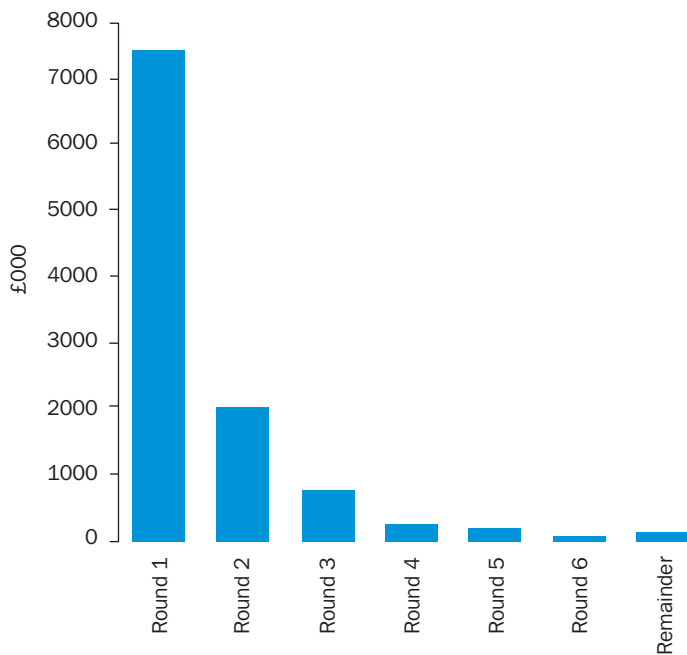
DEVELOPING THE NI STATISTICAL SYSTEM

The next article describes several contributions which the act of constructing the tables has already made, either by highlighting a lack of primary data, or by indicating where one source of data challenges another through the cross-checking process.

In addition the very comprehensiveness of the system can indicate where additional statistical inquiries may be helpful: for example the development of Tourism Satellite Accounts from the Tables has highlighted the value of a better understanding of leisure in general and day trips in particular.

The multiplier process - Supply chain for delegate expenditure

Figure 2



Source DREAM® Impact model based on NI Social Accounts & Input Output Tables

The Tables can also be a tool in constructing new statistics: for example if it was desired to construct a chain-linked index of GVA/GDP growth for NI, for comparison with the UK or other countries, the Tables would provide both a checking framework and a weighting framework.

DEVELOPING ENVIRONMENTAL ACCOUNTS

The Tables are compiled as amounts of money, but they can be reduced to Input-Output coefficients that essentially describe the inputs necessary to produce £1 worth of output. Mathematically, an equivalent calculation is to determine how much each £ worth of economic activity - production or consumption - contributes to environmental degradation. We can develop a coefficient for, say, landfill waste or CO₂ or NO_x emissions.

This method already plays a valuable role in UK-level environmental accounting, being used to calculate the UK's compliance with Kyoto targets and as a major input to the Stern Commission. It has been done successfully in Scotland and Wales.

SATELLITE ACCOUNTS

Environmental accounts are just one form of 'Satellite Account' where a national accounting framework is slightly recast and its detail enhanced to cast light on a particular issue. Another example, globally perhaps the most common, is the Tourism Satellite Account which forms the basis of article 8 'Giant Steps - Tourism in the NI Economy' in this Bulletin.

Satellite accounts have also been developed for transport, to illuminate the importance of mode choice, of own-account haulage, and the role of transport costs in remote locations (Messinger⁵ 2002). For example, the present Tables suggest that there is about £67m own-account haulage performed by NI industries - an estimate based on UK corporate behaviour. It would be interesting, and possibly useful, to confirm by direct enquiry.

Another example is a Household Satellite Account (HSA), constructed on an experimental basis for the UK by ONS⁶ for the year 2000. Many of us know the value of our work because we get paid for it, but what about the unpaid work we do - like cooking, cleaning, DIY and childcare? The HSAs measure and value the unpaid outputs produced by households in the UK. This allows housing, transport, nutrition, clothing and laundry services, childcare, adult care, voluntary activity, intermediate consumption, household capital, time/labour all to be brought in to a common framework, and so lets us compare these activities with other activities in the economy.

CROSS-BORDER COMPARISONS

In 1955 Roy Geary, first Director of the Central Statistics Office of the RoI, responded to Charles Carter's paper⁷ on NI national income (see Article 12). Geary envisaged the Republic developing quite a detailed system of national accounts that would 'look like a well-integrated Input-Output system'. He went on 'It seems to me that such detail is necessary for the principal purpose for which these statistics are required, namely economic policy-making.' However, as can happen in Input-Output work, things took the square of the time available and only two tables were prepared in almost 50 years.

All EU tables are based on the NACE industrial classification, so it is therefore possible to condense the NI tables to the same classification as is used in the RoI Tables or, more speculatively, to expand the RoI tables to the NI and UK classification. This allows a more-or-less direct comparison between the economic structure of the two jurisdictions and could eventually allow an island-of-Ireland economic model to be built.

RELATING NI TO ITS WIDER ECONOMIC (AND SOCIAL, ENVIRONMENTAL AND POLITICAL) CIRCUMSTANCES

The Tables contain substantial information about NI's relationship to the outside world.

For example, there are estimates of imports and exports which divide that outside world into four segments:

This is one part of the Tables where there is a considerable amount of estimation and modelling, and where the Tables have sought to reconcile various sources of information which conflict with each other. Except for the far right column, and in particular the bottom right hand corner, the summary figures below must be considered educated guesses. As such they can, and should, be challenged, but any successful challenge must be able to indicate not only where one of them is probably wrong, but what can be done to put it right. What additional information is available? Which assumption must be revised? Which other figures must also be adjusted? What further consequences are there for our view of the NI economy? This is also the subject of further DETI research.

Another example, also concerned with balancing items, is public finance. There is increasing

Estimates of Imports and Exports

Table 2

TRADE	RUK	ROI	REU	ROW	TOTAL (£BN)
Exports	3.4	0.9	3.8	3.1	11.3
Imports	5.9	1.6	6.5	7.5	21.6
Balance	- 2.5	- 0.7	- 2.7	- 4.4	- 10.3

Source: Cogentsi Ltd

comment on the size of the public sector in NI and its financial implications, whether for NI or other regions. The Independent newspaper recently quoted Oxford Economics, a forecasting consultancy: 'London is bankrolling less affluent regions of the country ... each NI resident enjoys about £3,700 more in public spending than he or she pays in taxes'. The Tables provide a detailed framework within which such claims can be properly evaluated. Their Scottish equivalents already fulfil this role in a publication 'Government Expenditure and Revenues in Scotland', which is now in its seventh edition.

MEASURING TRENDS

The present work focuses on a single year (2003), and a true time series for the NI economy can only be built up through a succession of Tables. However, by projecting backwards and forward using surrogate indicators (such as NI employment multiplied by measured UK productivity trends), and constraining the results to the regional accounts, we can add useful detail to NI economic trends. For example, a really long perspective on industrial restructuring can be achieved (see Figure 3).

AS A RESEARCH RESOURCE

Social Accounting Matrices are also sometimes used to develop other models of an economy. For example 'computable general equilibrium' or CGE

models are used to examine dramatic changes in economic structure; capital stock/growth accounting models look at the role of investment in physical and human capital; industrial clustering models, look at the flow of information in innovation systems, or assessments of the distinctiveness of particular trading links. The Tables are a source and a starting point for many such developments.

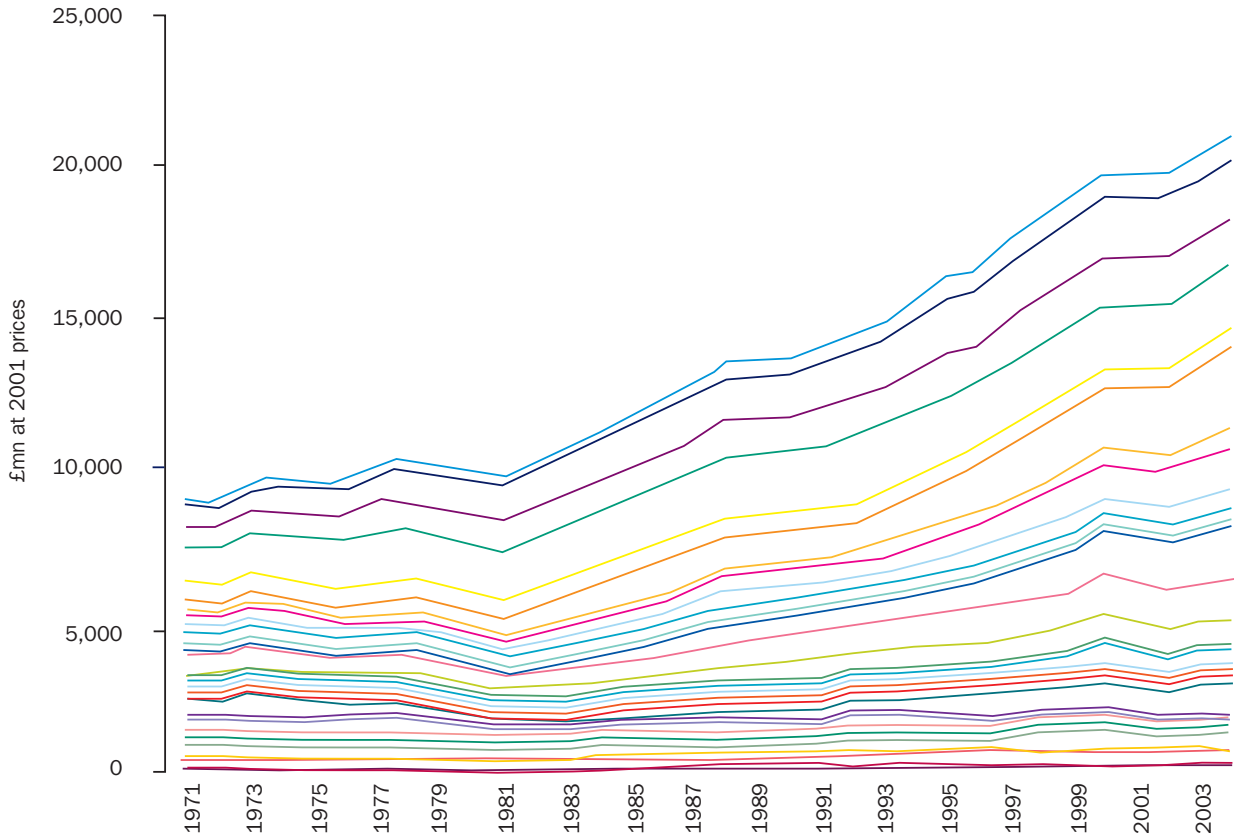
CONCLUSIONS

The exciting thing about social accounts is that they set out with great ambition to be all things to all men: in principle they can and should cover everything economic within society. Nowadays, even where there are things that escape conventional economic accounting, like pollution or work within the household, the Social Accounting Matrix provides a firm framework for satellite accounts to explore, measure and manage the issues. Because of the timeliness of data, the appropriateness of some of the modelling assumptions (e.g. using UK wide product mixes for NI industries) and indeed their potential for misuse, it is important to be cautious about their potential value.

However, the range of examples given in this article, while speculative, illustrate the scope of possible contributions that comprehensive and consistent social accounts can provide. The present Tables were developed for the purposes of informing the

GVA by industry 1971-2003

Figure 3



Source DREAM® TM time track based on Annual Business Inquiry and Compensation of Employees and Predecessors

- | | |
|--------------------------|----------------------------|
| Other Services | Machinery |
| Health | Metals |
| Education | Minerals |
| Government | Rubber & Plastics |
| Business Services | Chemicals |
| Finance | Fuels |
| Transport & Comm | Paper |
| Hotels & Catering | Wood |
| Retail & Wholesale | Leather |
| Construction | Textiles |
| Electricity, Gas & Water | Food, Drink, Tobacco |
| Other Manufacture | Other Mining and Quarrying |
| Vehicles | Energy Extractive |
| Electrical | Fishing |
| | Agriculture |

economic impact of Tourism in NI and are fit for this purpose.

The wider use of the Tables must be approached with caution at this stage, pending further detailed validation at the 123 industry level. DETI has commissioned further research to consider the costs and benefits of fully developing such Tables, and this will also consider the most appropriate methodology for any future development. Work is also ongoing on I-O tables related to Agriculture in the Agri-Food and Bio-sciences Institute and researchers in the Office of the First Minister and deputy First Minister (OFMDFM)

are interested in Social Accounts to inform the NI anti-poverty strategy. If it is appropriate to develop comprehensive social accounts, it will be important to ensure a co-ordinated approach across Government and research organisations. The current work provides a starting point to inform this debate, and value has been demonstrated in outlining in greater detail than ever before the role of tourism in the NI economy. The authors welcome comments from those with an interest in developing such Tables⁸.

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- ⁸ The authors can be contacted directly at hervey.gibson@cogentsi.com or james.gillan@detini.gov.uk

Article 12: Put it in the Tables! - Constructing Northern Ireland Social Accounts and Input-Output tables

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INTRODUCTION

This article describes the construction of the Social Accounts and Input-Output tables referred to in Article 11 of this Bulletin. They have been constructed on a pilot basis, drawing on a wide range of statistical sources from within NI and outside. Where primary data has been unavailable, geographic and economic models have been used in their place. The Tables are available as an exposure draft for researchers and comments to the authors are welcome to inform their future development.

BACKGROUND

During the Second World War it was essential to understand what the capacity of the British economy was to produce, and how much it needed to rely on supplies from outside. Richard Stone's ingenious Social Accounting Matrix (SAM) grew out of this effort and had at its core the industrial

Input-Output table developed by Leontief. This was adopted as the basis of the United Nations system of accounts from 1968 and is now (via the UN) the basis of the European System of Accounts (ESA95).

But producing National Accounts is one thing, sub-national quite another. Charles Carter, a collaborator of Stone, as Professor of Applied Economics at Queens University Belfast in 1954, produced the first set of estimates of NI 'national' income. He remarked¹ to the Statistical and Social Inquiry Society of Ireland, "it is well known there are grave difficulties in computing national income statistics for areas which are not independent states". This caution was amply borne out in that there have emerged relatively few such systematic descriptions² of the whole economy structure in NI over the last fifty years.

Northern Ireland Summary Table (2003)

SUMMARY (£BN)	INDUSTRIES INTERMEDIATE DEMAND				DOMESTIC FINAL CONSUMPTION			TRADE	
	AGRICULTURE +	PRODUCTION	SERVICES	TOTAL	HOUSEHOLDS +	GOVERNMENT	INVESTMENT	EXPORTS	IMPORTS
Agriculture +	0.1	0.8	0.1	1.0	0.3	0.0	0.1	0.4	- 0.3
Production	0.6	8.7	7.1	16.4	8.9	0.0	4.6	9.1	- 12.4
Services	0.1	1.8	8.9	10.8	8.6	9.5	0.6	1.8	- 8.9
Total	0.8	11.4	16.0	28.2	17.8	9.5	5.3	11.3	- 21.6
Wages	0.1	3.1	9.9	13.1	-	-	-	-	-
Gross margins	0.5	3.0	5.6	9.1	-	-	-	-	-
Total GVA	0.6	6.1	15.5	22.2	-	-	-	-	-
Total Output	1.4	17.5	31.5	50.3	-	-	-	-	-

Source: Cogentisi Ltd

Subnational accounts have been produced elsewhere. In Scotland such accounts were first produced as a private initiative³ in 1973, became the subject of sporadic official estimates until 1992, and have been produced regularly by the Scottish Office and Scottish Executive ever since. Input-Output tables for Wales⁴ for 1994, 1995 and 2000 have been compiled by the University of Wales, and estimates for 2005 are in progress. Tables for South West England are produced by the University of Portsmouth. The main economic forecasting groups have summary tables built into

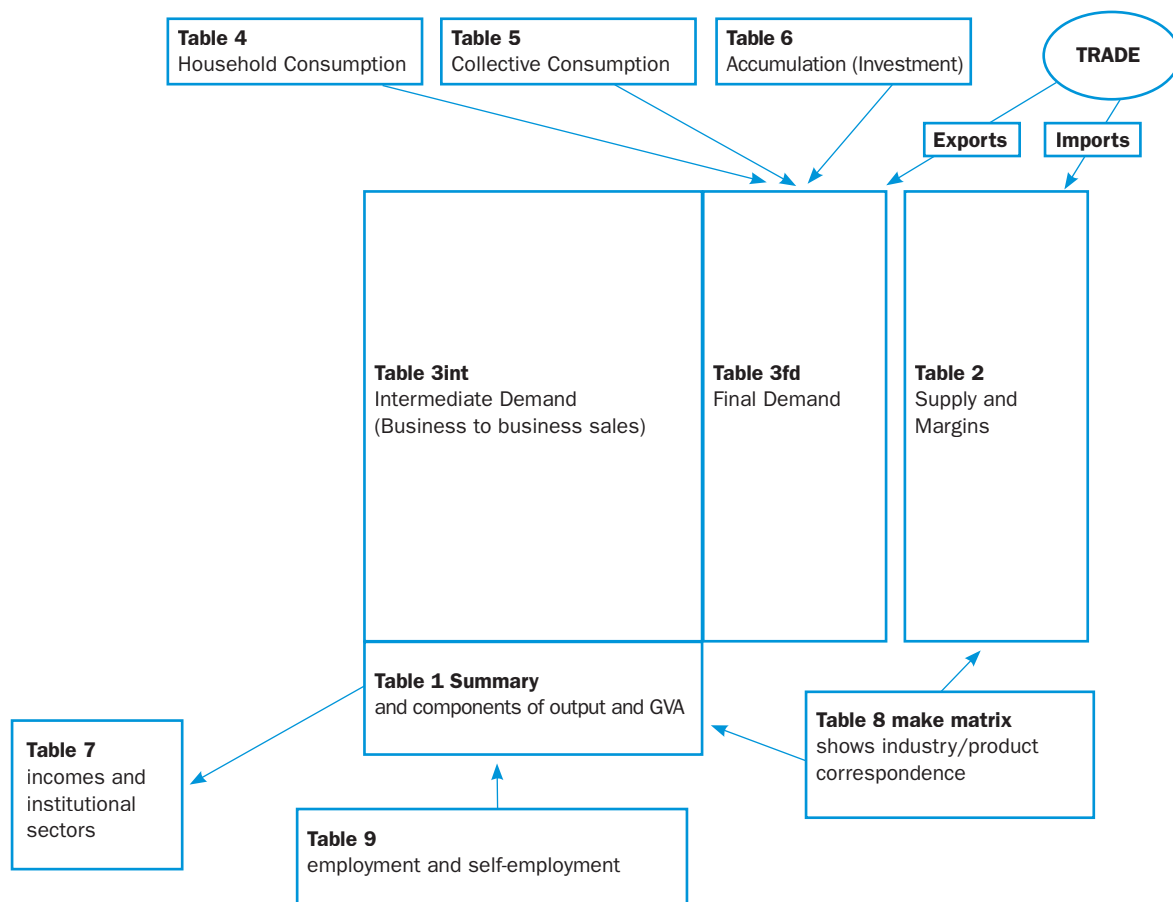
their models, and CogentSI Ltd, a consultancy company, disaggregates the full UK tables to regional and sub-regional level in its DREAM® Detailed Regional Economic Accounting Model.

USES

The tables are comprehensive of the whole economy, and even in very summarised form present information which has not been shown before (see Article 11).

Table structure

Figure 1



Source: CogentSI Ltd

THE TABLES AND THEIR CONSTRUCTION

Overall the format of the tables is based on the annual Office for National Statistics (ONS) electronic publication⁵ 'United Kingdom Input-Output Analyses', which are part of the UK National Accounts. In some places this structure has been developed or extended.

The Tables themselves exist in considerable detail, covering in most cases 123 industries or products. Few general users will require such detail, and in some cases it cannot be released on grounds of confidentiality. We have therefore prepared summary tables showing in most cases thirty industries, and these can be accessed on request from DETI for comment by researchers. In this article we use 'micro tables' covering three or five sectors. In addition tables exist at the level for which Eurostat requires national administrations to submit data covering their countries, and in the rather larger format on which Input-Output tables for the ROI were recently prepared.

Figure 1 shows the nine main tables in the accounts, related to each other in a structure of relationships based on Stone's Social Accounting Matrix.

Table 1

SUMMARY £BN	OUTPUT	GVA	COMPENSATION OF EMPLOYEES
Agriculture +	1.4	0.6	0.1
Production	17.5	6.0	3.1
Services	31.5	15.6	10.0
Total	50.3	22.2	13.1

Source: Cogentsi Ltd

TABLE DESCRIPTIONS AND SOURCING

Table 1 is a summary table that sets out the broad structure of the economy in terms of the products produced and consumed, the activities and industries that produce them, and the incomes earned in those industries. In particular it shows industry and product Output, Gross Value Added, Compensation of Employees and the Operating Surpluses of businesses.

The key variable in Table 1 is GVA, which is the main measure of the size and prosperity of a national or regional economy, and of an industry's contribution to it.

Except for very minor adjustments, what was previously known as Gross Domestic product, or GDP (at factor cost) is now known as Gross Value Added or GVA (at basic prices). This conforms to the concept of value added which has been used in business for many years, most familiarly (but only approximately) as the base for 'value added tax'.

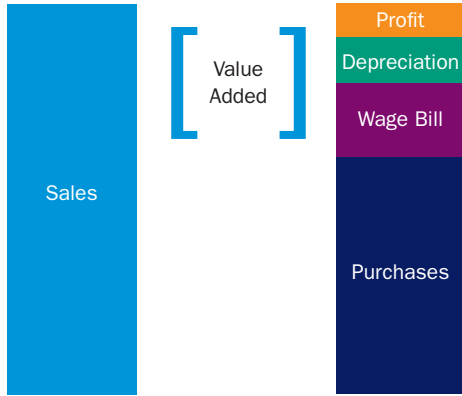
Figure 2 shows the make up of gross value added in conventional business terms.

GVA on a 123-industry basis was calculated by an iterative process using the Annual Business Inquiry for NI and the UK Regional Accounts, and reconciling differences between them. For consistency the calculations are done for the entire UK, at the NUTS3 territorial level (See Figure 3).

Table 2 shows the supply of products from domestic (ie NI) production and imports from various sources. It also shows how taxes and margins bridge the gap between basic prices received by producers and market prices paid by users. Output estimates are prepared as expressed in Table 8 and imports under the heading 'Trade' below.

Origin and Distribution of GVA

Figure 2



Source: Cogentsi Ltd

Estimation Sequence for Gross Value Added

Figure 3

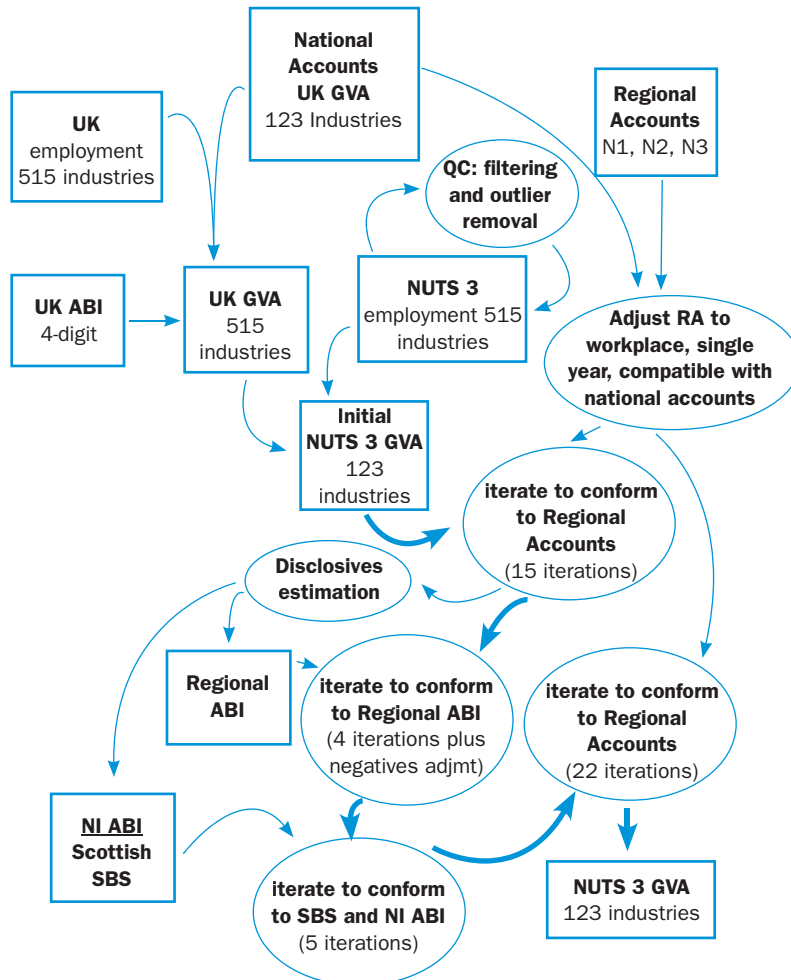


Table 2

SUPPLY £BN	OUTPUT	IMPORTS				DISTN MARGINS	TAXES	TOTAL SUPPLY
	NI	RUK	ROI	REU	ROW			
Agriculture +	1.4	0.0	0.1	0.0	0.1	0.1	- 0.1	1.7
Production	17.5	3.0	0.5	4.7	4.1	5.7	5.2	40.7
Services	31.5	2.9	1.0	1.7	3.3	- 5.8	1.1	35.7
Total	50.3	5.9	1.6	6.5	7.5	0.0	6.2	78.0

Tables may not sum due to rounding

Source: Cogentsi Ltd

Table 3_int

£BN	INTERMEDIATE DEMAND			
	AGRICULTURE +	PRODUCTION	SERVICES	TOTAL
Agriculture +	0.1	0.8	0.1	1.0
Production	0.6	8.7	7.1	16.4
Services	0.1	1.8	8.9	10.8
Total Purchases	0.8	11.4	16.0	28.2
Comp Employees	0.1	3.1	9.9	13.1
Coy Margins +	0.5	3.0	5.6	9.1
Total GVA	0.6	6.1	15.5	22.2
Total Output	1.4	17.5	31.5	50.3

Tables may not sum due to rounding

Source: Cogentsi Ltd

Table 3 is a crucial table that comes in two main parts and shows the uses of products. Table 3_int is the Input-Output table proper, showing each industry's inputs in terms of purchased goods and materials and basic factor requirements - 'intermediate demands'.

The bottom of this table is calculated as described in Table 1. In NI, the Annual Business Inquiry provides a three category breakdown of purchases, and this has been applied in all industries where

there are no reconciliation difficulties between ABI and the National Accounts, with finer detail added from UK sources. Gross Output is then estimated by adding up GVA and purchased inputs. This does produce a significantly different table from the UK, and for some industries which we have been able to examine, suggests that the NI input pattern may be somewhat similar to the RoI pattern. Three special submodels have been used in preparing Table 3_int, to cater for industries and products where the structure of business and the technology

Table 3fd

£BN	DOMESTIC					EXPORTS				
	HHOLDS	NPISH	GOVT	CAPITAL	TOTAL	RUK	ROI	REU	ROW	TOTAL
Agriculture +	0.3	0.0	0.0	0.1	0.4	0.1	0.0	0.2	0.1	0.4
Production	8.9	0.0	0.0	4.6	13.5	2.9	0.5	3.4	2.2	9.1
Services	7.9	0.7	9.5	0.6	18.7	0.4	0.3	0.3	0.8	1.8
Total Purchases	17.1	0.7	9.5	5.3	32.6	3.4	0.9	3.8	3.1	11.3

Source: Cogentsi Ltd

Table 4

HOUSEHOLDS £BN	FOOD, DRINK, TOB	CLOTHING ETC	HOUSING ETC	SERVICES ETC	TOTAL
Agriculture +	0.3	0.0	0.0	0.1	0.3
Production	2.4	1.4	1.9	3.2	8.9
Services	0.0	0.0	1.8	6.1	7.9
Total	2.7	1.4	3.7	9.3	17.1

Source: Cogentsi Ltd

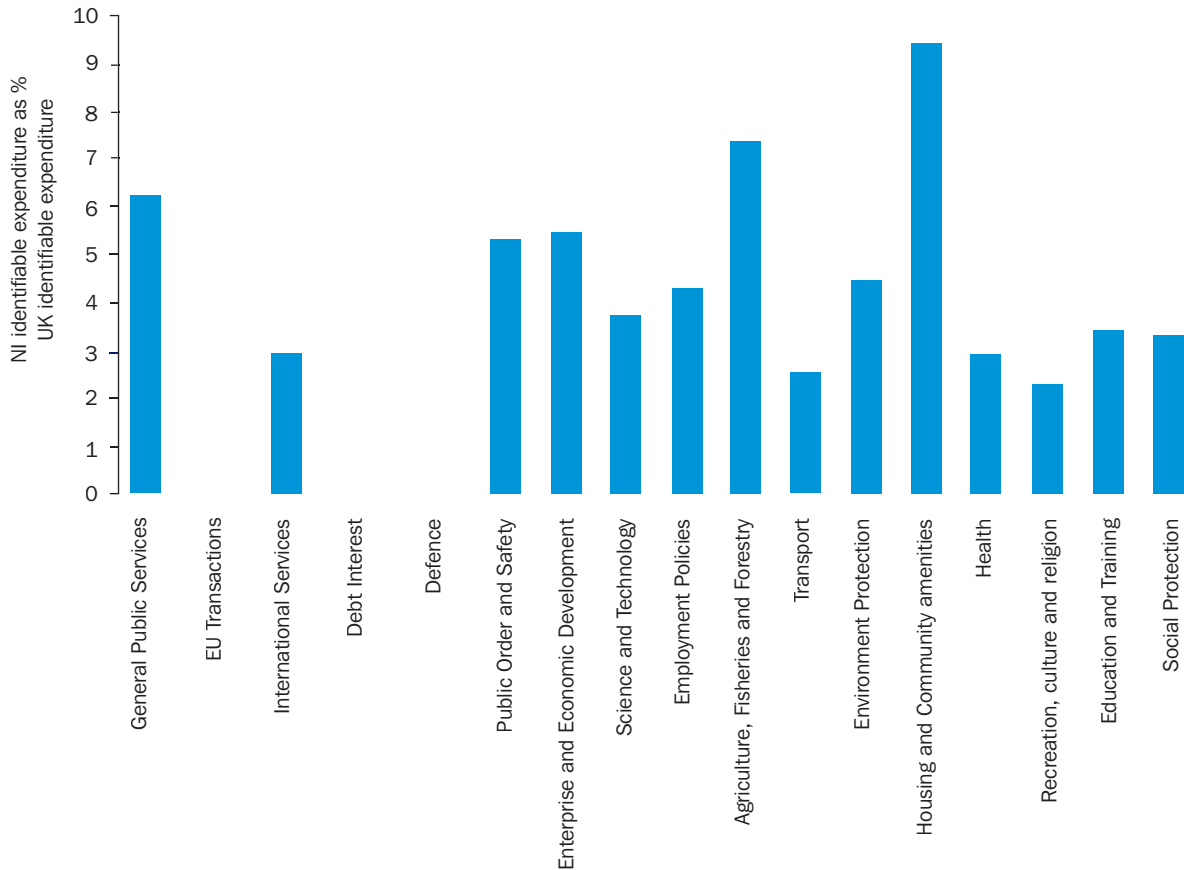
in use is significantly different in NI from the UK average. These cover agriculture, energy and the hospitality industries. In the case of agriculture and the hospitality industries the construction of the tables highlighted differences in presentation and definition at both NI and UK levels, suggesting ways in which both industry-specific inquiries and the Annual Business Inquiry could be developed to harmonise better with national and regional accounts. In the case of energy, an important, distinctive and increasingly cross-border industry, the relative sparsity of statistical information in the public domain was highlighted and the estimates should be interpreted with caution because of this. Table 3_fd draws together final demand,

for household and collective (government) consumption, for accumulation (investment), and for export, and the derivation of these elements is described under Tables 4, 5 and 6 (the latter table is not reported in this article).

Table 4 provides expanded detail on household consumption, to show it by purpose according to the UN Classification. Forty-one different purposes are distinguished in the full table, which was derived by reconciling the UK equivalent table with the NI Expenditure and Food Survey. One possible satellite account which would be highly relevant to NI would be a Food Satellite Account.

NI public spending as share of UK

Figure 4



Source: HM Treasury PESA 2006 Tab 7.8a

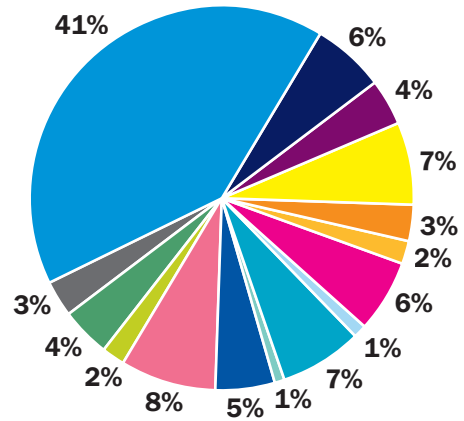
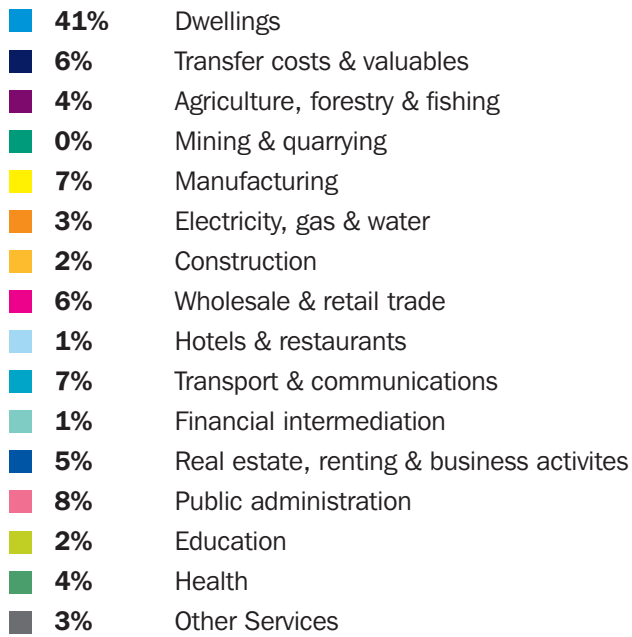
Table 5, collective and public consumption (not summarised here), is significantly different from the table in UK Input-Output Analyses. Its aim is to show who benefits from public expenditure, rather than where it is incurred. The data is derived from the 'National Accounts and Public Expenditure Statistical Analysis', a Treasury publication (PESA). Current spending on goods and services makes up, at UK level, just over half of Total Managed Expenditure, the remainder consisting of social benefits, subsidies and grants, and capital and capital-related spending (Figure 4).

Table 6 in the social accounts shows Gross Capital Formation and has been estimated by combining rather dated figures from the UK regional accounts with industrial investment estimates from the NI Annual Business Inquiry and a specially-constructed model linking housing investment to housing starts and completions and to house prices (Figure 5).

Table 7 in the national accounts is concerned with the flow of funds between institutional sectors and a NI version has not been prepared because we do not yet know enough about cross-ownership between Great Britain and NI.

Fixed investment - Investment in Northern Ireland 2003 £5.2bn

Figure 5



Source: NI Social Accounts & Input-Output Tables

Table 9

EMPLOYMENT 000s	MALE FT	MALE PT	FEMALE FT	FEMALE PT	TOTAL EMPLOYEES	SELF EMPLOYED	TOTAL	FTE
Agriculture +	0.5	0.0	0.1	0.1	0.6	15.1	15.7	15.7
Production	102.2	3.4	21.3	5.8	132.7	31.4	164.1	159.5
Services	162.7	46.4	154.1	162.3	525.5	52.0	577.6	473.2
Total	265.3	49.9	175.5	168.2	658.8	98.6	757.4	648.4

Note: FT = Full-Time, PT = Part-Time

Source: Cogentsi Ltd

Table 8 (not reported here) shows the 'make' matrix, or the correspondence between 'industries' and products. Formally, an industry is defined by what an establishment does, ie by the process, while a product is defined on the characteristics of the output. However, establishments classified to one industry often produce the principal products associated with another - for example NI farmers put up about £25m worth of fences and barns, and lay roads and dig ditches, all of which are properly the products of the building industry. This table has been estimated by applying UK-wide 'diversification' estimates to NI industrial outputs.

That completes the tables that correspond to UK Supply and Use Tables (SUTs). Other tables are specially prepared.

Table 9 is a summary of employment by industry, based on the NI Census of Employment (2003), and showing industrial employment by hours (full or part-time) and gender. Self employment (defined in accordance with the Census of Population) is also included, and calculations of 'full time equivalents'(FTE).

Table 10 is a demographic and social table. Table 11 shows various performance indicators, such as productivity comparisons, global market shares, the balance of trade and revealed comparative advantage, a measure of global competitiveness.

Table 12 provides a framework for updated estimates, for example permitting GVA for 2005 to be included.

Table 13 shows summary information at sub-regional level, covering the five NUTS3 territories.

TRADE

Trade was by far the most problematic element in constructing the Tables. Six different sources of information had to be juggled, and the emerging views had to be made as consistent as possible. The sources were:

- The output and consumption estimates developed elsewhere in the tables, broken down to NUTS3 geographical scale;
- The NI Manufacturing Sales and Exports Survey;
- The Supply and Use Tables for the UK;
- HM Revenue and Customs estimates of imports and exports originating in or destined to the regions of the UK (based on VAT registration);
- The Central Statistics Office's estimates of trade between RoI and NI and GB;
- Cogentsi's DREAM@trade model which uses a gravity approach to estimate intra-UK trade.

The sources did not agree, and even where considerable effort had previously been put into reconciling them developments appeared to have shifted trade away from the reconciled position.

As a statistic the net balance of trade is considerably more secure an estimate than the gross flows that surround it. Since it is strongly negative, it points to an imperative of economic policy for NI, and one that is likely to be a concern for many years.

By far the largest negative component, it is estimated, is the consumption of a range of business services, from property dealing to R&D, advertising and computer services. NI businesses appear to rely to a considerable extent on importing services from Great Britain, the EU and the rest of the world. This 'purchase' includes the use of 'head office' services by branch plants or offices located

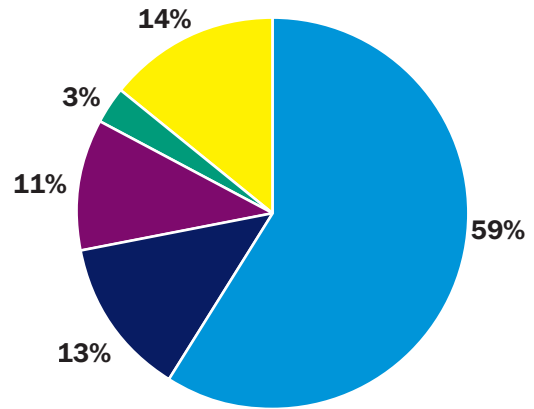
Purchase origins - Origins of goods and services consumed in NI

Figure 6

- **59%** Northern Ireland
- **13%** Rest of World
- **11%** Rest of European Union
- **3%** Republic of Ireland
- **14%** Great Britain

Total = £59,330m

Source: NI SAIOT



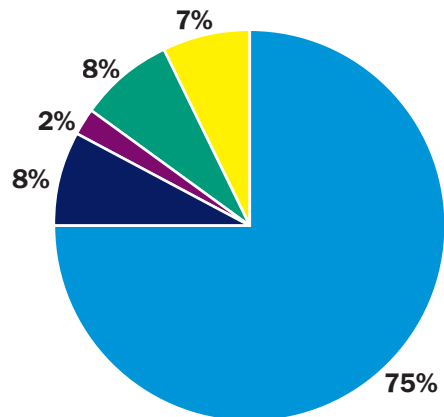
Sales destinations - Destinations of goods and services produced in NI

Figure 7

- **75%** Northern Ireland
- **8%** Great Britain
- **2%** Republic of Ireland
- **8%** Rest of European Union
- **7%** Rest of World

Total = £46,380m

Source: NI SAIOT



in NI. The estimates are intriguing, and potentially important, but must be qualified by the fact that they are based on limited sources: there is no direct measurement of service imports, and although service exports are now the subject of a statistical inquiry this does not dramatically impact on the balance.

As presented the tables distinguish the supply and demand for goods by five geographic sources, and added up across all products the pattern of origins and destinations is as shown in Figures 6 and 7.

CONCLUSIONS

As is usual when constructing Social Accounting and Input-Output tables a number of issues have emerged concerning the consistency of different statistical sources. This process has helped to resolve some of the discrepancies. Such cross validation only serves to improve the underlying data series and is a focus of attention of future work. It has also pointed up some aspects of the UK system which were not widely appreciated.

It has not been possible to fully validate the 123 industry sector detail in the tables, outside of the tourism related industries, which was the area for which the I-O tables were primarily intended. The

purpose of bringing such a prototype model to a wider audience is both to inform the debate and to engage with the wider research community with a view to strengthening any future development of Social Accounts in NI. Exposure versions of the 30 sector tables can be provided to researchers by the second author to inform this process.

We therefore conclude by continuing the 1954 quotation from Charles Carter and Mary Robson with which we began. With only the slightest paraphrase it exactly represents the position of these first Social Accounts and Input-Output tables for NI:

Many of the figures for NI that we present, and even some of those for other areas, are rough estimates. Yet - looking back on our work - we are impressed by the amount of statistical information that we have managed to press into service. We believe that our statistics can only be improved by publishing them, in all their naked crudity, and encouraging people to look for howlers and inconsistencies in them. Thus they may gradually be improved and form an annual series which we believe will be of real value in assessing the state of the NI economy.

Notes

¹ Carter, Charles F and Mary Robson, 1955. A Comparison of the National Incomes and Social Accounts of Northern Ireland, the Republic of Ireland and the United Kingdom Dublin: Journal of the Statistical and Social Inquiry Society of Ireland, Vol. XXIX, Part III, 1954/1955, pp62-87

² e.g. William Moffett: PhD 1975, Input-Out Tables for NI and Paul Caskie PhD 1995 Agriculture Input-Output tables.

³ Scottish Council Development and Industry, Fraser of Allander Institute, IBM UK 1978 Input output Tables for Scotland 1973 Scottish Academic Press

⁴ Bryan, Jane, Calvin Jones, Max Munday and Annette Roberts, 2004. Welsh Input-Output Tables for 2000, Welsh Economy Research Unit, Cardiff. ISBN 090281009X

⁵ Mahajan, Sanjiv (ed) 2006 and earlier years United Kingdom Input Output Analyses Office for National Statistics ISSN 1741-7155