

MANUFACTURING PERFORMANCE IN TYNE & WEAR AND THE CITY REGION

2001-2005

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TYNE & WEAR RESEARCH AND INFORMATION

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PREFACE

This report, on manufacturing, provides powerful insights into the performance of the manufacturing sector in Tyne & Wear City Region (TWCR), by comparison with the UK and Leeds CR (in Part A). In Part B, Tyne & Wear (TW)'s performance is contrasted with that of the Rest of the City Region (RoCR).

The analysis has been extended to Leeds CR, partly to meet the suggestion by the OECD's Territorial Review¹ that City Region research should provide a view which places changes in the local economy within the context of activities in other areas. This builds on the Tyne & Wear Partnership (TWP) Annual Monitoring Reports², which have routinely compared TW's economic performance with West Yorkshire.

In TWCR, Manufacturing covers about 16%³ of the economy (producing output worth £3.9bn)⁴.

The analysis has started with data which had not previously been acquired from ONS in that it covers TWCR. It is a major advance to have extended the analysis beyond TW.

TWRI's analysis has systematically identified Tyne & Wear's four competitive big major manufacturing industries – on the basis of local concentration and above-UK profitability. They also benefit from large scale ('establishment size'), and display relatively high productivity.

This is one of a pair of major TWRI reports on the economy of TWCR. The other, 'Market Services Performance in Tyne & Wear and the City Region 2001-05', covers the much larger element of the private sector economy –which produces over twice as much output as manufacturing (over 40%), and employs over three times as many people.

Both reports can be read in conjunction with other TWRI annual reports which have been extended to cover TWCR. In particular, that on 'Businesses Registered for VAT' shows how the RoCR complements TW, with a higher number of businesses in relation to population.

TWRI hopes that this analysis helps policy-makers, within Local Government and beyond⁵, to increase the economic competitiveness of the Tyne & Wear and its City Region.

TWRI

June 2008

Whilst every effort has been taken to ensure the accuracy and reliability of the information presented in this report, TWRI does not accept responsibility for any errors in either the data or its analysis, howsoever they may have been caused.

¹ 'Building a Competitive City Region: The Case of Newcastle in The North East', Organisation for Economic Development and Co-Operation, 29-30 June 2006 (GOV/TDPC(2006)10)

² Produced by TWRI.

TWRI estimates the following: the £3.9bn of GVA covered by the report is equal to 16% of Tyne & Wear City Region's estimated £24.7bn GVA in 2005; the £2.9bn of GVA covered in Tyne & Wear is equal to 16% of its estimated £17.9bn GVA in 2005; and the £1.0bn covered in the Rest of the City Region is equal to 14% of its estimated £6.8bn GVA in 2005. [Estimated GVA calculated using ONS Regional GVA figures apportioned on the basis of population]

This includes an estimated 16%¹ of the economy in Tyne & Wear (TW) itself and an estimated 14% of the economy in the Rest of the City Region¹ (RoCR i.e. that part of TWCR beyond the boundaries of TW).

⁵ Also other Public Sector agencies such as the RDA, the Northern Way and the TW City Region Executive Team.

MAIN POINTS ON MANUFACTURING PERFORMANCE

In manufacturing, Tyne & Wear (TW) was the **top performer** (under-lined in table, below) on all four key performance indicators, against all four comparator areas.

		UK	Leeds City Region	Tyne & Wear City Region	Tyne & Wear	Rest of the City Region
Output 2005	£m	146,487	7,252	3,905	2,926	978
Change in Output 2001-2005		-9.9%	-10.7%	-3.6%	<u>5.0%</u>	-22.5%
Average pa		-2.5%	-2.7%	-0.9%	<u>1.25%</u>	-5.6%
Productivity 2005	£	45,128	42,467	43,435	48,396	31766
Change in Productivity 2001-2005		10.2%	12.8%	7.8%	<u>16.4%</u>	-17.8%
Average pa		2.5%	3.2%	2.0%	<u>4.1%</u>	-4.4%
Operating Profit 2005	£m	61,634	3,055	1612	1285	327
Change in real Operating Profit 2001-2005		-4.5%	-4.0%	-1.9%	<u>14.5%</u>	-37.3%
Operating Profit Margins 2005		42.1%	42.1%	41.3%	43.9%	33.4%
Operating Profit Margins 2001-2005 (pp)		2.4	2.9	0.7	<u>3.7</u>	-7.9
Purchasing of Services 2005	£m	9,034	316	152	105	46
Purchasing of Services 2005 (excluding Advertising)	£m	3,108	113	59	44	15

This report identifies the four most competitive big manufacturing industries in Tyne & Wear

They have been identified on the basis that they have both a large presence (above UK average 'Output Location Quotient' and also have higher profit margins than their UK comparators (in 2005).

	Output Location Quotient	Profit Margins v UK	Employment growth 2001-05	Establishment Size v UK	Comments
Transport Equipment	1.93	1.45	-15%	2.12	Job losses from component suppliers and Offshore yards.
Machinery & Equipment	1.61	1.32	-3%	1.65	Very mixed (see Box 11.1)
Basic Metals	0.96	1.00	+6%	1.23	Smelter and foundries
Rubber & Plastics	1.56	1.29	+11%	1.02	Presumably incl. Wellstream (see §9.2)

Competitiveness in TW correlates with large establishment size (relative to the UK), but this is not a feature of RoCR.

Also, in TWCR, there is some evidence that Electrical & Optical and Chemicals are close to competitiveness.

In the RoCR, the above industries do not generally display competitiveness; except Basic Metals which has relatively high profits. Chemicals is the biggest industry and Food & Drink also had high profit margins.

Output:

- **Output in TWCR** was **£3,905m** in 2005, 2.7% of total UK manufacturing output (£146bn) and equal to 54% of output in Leeds CR (£7,252m).
- Output in TWCR is **markedly less diverse** (i.e. showing *more specialisation*) than Leeds CR: four top ten industries⁶ were over-represented in TWCR compared to the UK, two less than Leeds CR.
- TWCR's manufacturing **output is much larger in TW than RoCR**. In 2005, TW contributed three-quarters (£2,926m) of total TWCR manufacturing output. RoCR adds one-third (£978m) to the value of TW.
- Manufacturing output is **more diverse⁷ in RoCR than TW**: five top ten industries were over-represented in RoCR, two more than TW.
- Output in TWCR **fell 4%** in 2001-2005, **but the decline was less than half as fast as both comparators** (UK fell 10%, Leeds CR fell 11%). The fall in TWCR was due to a - 23% fall in RoCR, which was partially offset by a 5% rise in output in TW.

Employment:

- **Employment** in TWCR was **86,000** in 2005, 2.7% of total UK manufacturing employment (3,246,000) and equal to 50.3% of total Leeds CR manufacturing employment (171,000). TWCR manufacturing **employment is much larger in TW (60,000) than RoCR**, but the RoCR adds 43% (26,000) to TW.
- TWCR employment **fell 14%** in 2001-2005, **also slower than in both comparators** (UK fell 18%, Leeds CR fell 21%). Employment also fell in TW and RoCR but the **decline was more rapid in RoCR (- 21%) than TW (- 11%)**.

Productivity:

- **Productivity** in TWCR was **£43,400** in 2005, 4% below the UK (£45,100) but 2% above Leeds CR (£42,500). Productivity in TW (£48,400) is much higher than RoCR (£31,800). [Productivity is defined as GVA⁸ per employed person]
- Productivity **growth in TWCR was significantly slower than both comparators**: productivity **rose 8%** in TWCR (2.0% pa), lower than growth in the UK (10%, 2.5% pa) and, especially, Leeds CR (13%, 3.2% pa). (Productivity in TWCR rose in just four of the top ten industries, only half as many as the Leeds CR).
- TWCR's slow productivity growth was largely due to a - 18% fall in RoCR, as productivity in TW *rose* 16%, faster than all comparators.

Profits:

- **Operating profits** in TWCR were **£1,612m** in 2005, 2.6% of total UK manufacturing operating profits (£62bn) and equal to just over half operating profits in Leeds CR (£3,055m). Operating profits were **nearly four times as large in TW (£1,285m) as RoCR (£327m)**.

⁶ The top ten Tyne & Wear City Region industries by output were Transport Equipment, Machinery & Equipment, Basic Metals, Chemicals, Food & Drink, Electrical & Optical, Rubber & Plastics, Paper & Printing, Other Manufacturing and Non Metals.

⁷ Diversity is here defined in terms of the number of manufacturing industries which were over-represented relative to their share of Manufacturing output in the UK.

⁸ GVA is Gross Value Added. See box in §2 for the meaning of value-added.

- Operating profits in real terms⁹ **rose strongly in TW, but fell in all comparators**. Operating profits *rose* 4.5% in TW in 2001-2005 but *fell* in TWCR (- 2%), Leeds CR (- 4%) and the UK (- 4.5%). TW largely offset a - 38% fall in RoCR.
- Operating **profit margins** in TWCR (**41%**) in 2005 were a very slight **0.8pp below both comparators** (both 42%). TWCR's **lower profit margins were due to RoCR** (34%) as operating profit margins in **TW (44%) were higher than all comparators**.
- **Growth in profit margins** in 2001-2005 in TWCR (+ 0.7pp) was **around only a quarter of both comparators** (UK rose 3pp, Leeds CR rose 2pp). TWCR's **slow growth was again attributable to RoCR** (down - 8%) rather than TW (up 4%, faster than all comparators).

Establishment Size:

- **Average establishment size** in TWCR in 2005 was **26 employees, 25-30% bigger than both comparators** (UK 21, Leeds CR 20). TW's average establishment size (27) was larger than RoCR (24) although both were above the UK.
- Average establishment size **fell in all three areas** in 2001-2005; TWCR (-3 employees), the UK (-3) and Leeds CR (-4).

Purchasing of Key Services:

- TWCR spent **£152m** (equal to **3.9%** of its manufacturing output) on purchasing Advertising, Computer and Telecommunications (ACT) services in 2005, 49.0% that of Leeds CR (£310m, 4.4% of output). Expenditure on **Advertising services** was the largest item purchased by manufacturers in both CRs.

⁹ *The same GVA price deflator has been used here as in the rest of the report. It is not usual to express profits in real terms, but are reported here to be consistent with the rest of the report.*

1.0 INTRODUCTION

This report presents TWRI’s major analysis of the performance of the manufacturing sector between 2001 and 2005 (the latest available). It reports, for each of the ten biggest manufacturing industries, the output, employment, productivity, operating profit, net investment, establishment size and purchasing of key services. Importantly, this has enabled TWRI to identify Tyne & Wear’s four competitive major manufacturing industries.

Data from ONS’ Annual Business Inquiry (ABI) have been analysed by TWRI to produce information and significant knowledge (i.e. ascending the information hierarchy, shown below). Some understanding of the possible drivers of performance was also obtained.

The Information Hierarchy applied to Manufacturing Performance, showing some selected outputs of the analysis:

Data	Information	Knowledge	Understanding
ABI/2	By comparing with the UK and Leeds CR	From combined features (OLQ ¹⁰ and margins)	Some possible drivers (causes), especially scale, examined
	TW manufacturing output has grown, whilst the UK and Leeds shrank. RoCR very weak (dropping nearly a quarter).	Competitive industries identified in TW (largely engineering-based but also plastics). The also have high productivity (relative to UK). Leeds CR’s structure very different – led by Food & Drink and Printing.	Scale is shown to be a significant driver in TW, but not in RoCR. Other ideas need additional research to test: Main agglomeration effects might be through shared labour market (esp. engineering skills) and supplier base.

There are eight earlier reports in this series produced by TWRI, covering manufacturing in TW for the period since 1979.

The previous report, published in 2004, was the first also to cover market services and the construction industry. These are reported in the separate report ‘Market Services Performance in Tyne & Wear City Region 2001-05’. TWRI has divided the series following the significant additions to the geographical scope of the analysis, to TWCR, RoCR and Leeds CR.

SOURCES AND RELIABILITY

TWRI acquired the TW and TWCR datasets for this report (the ‘county table’) specifically from ONS¹¹.

Caution has to be attached to the reliability of the figures at county-level. Data is particularly volatile at the level of the Rest of the City Region (RoCR) as these figures are much smaller. Three outstanding discrepancies are highlighted in the text. Readers may find more. For further details, please read the Data Quality Statement included in this report.

This report continues to use data from the ABI, aggregated (by ONS) from district level, acquired by special purchase. The quality of data on manufacturing is generally good. For a fuller Data Quality Statement, see Appendix 1.1.

¹⁰ An OLQ is an ‘Output Location Quotient’ (see sections on Output for definition).

¹¹ Data for RoCR was calculated by TWRI rather than acquired from ONS.

COMPARISONS ACROSS SPACE AND TIME

Comparisons are largely made for 2001-2005 for TWCR, Leeds CR, TW and RoCR. They are made for 1979-2005 for TW and the UK (where appropriate). Spatial comparisons are primarily drawn between a) TWCR, Leeds CR and the UK, b) TW and the UK and c) RoCR and the UK.

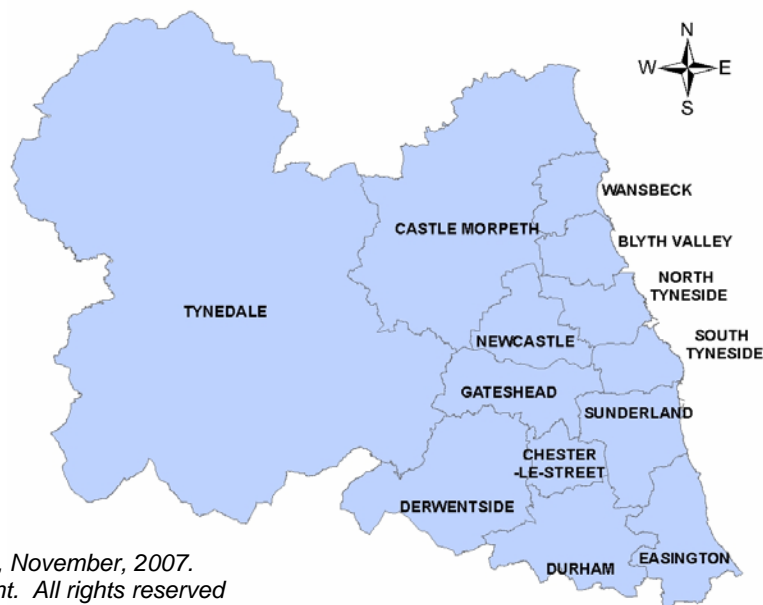
To trace changes in real terms, where temporal comparisons have been made, the financial data presented in this paper have been adjusted to constant 2003 prices¹². Current (2005) prices have been used where (spatial) comparisons have been made that do not track change over time. The GVA deflators used in this report are those for the economy as a whole. While deflators are available for individual sectors, those for the entire economy have been used to provide consistent series, comparable with previous reports¹³ (See Appendix 8.1 for more on this).

GEOGRAPHICAL COVERAGE

The four reported areas are the Tyne & Wear City Region (TWCR), Tyne & Wear (TW) and the Rest of the City Region (RoCR) and the UK. This is one of two reports by TWRI which are the first to be extended to cover TWCR. TWCR includes the five TW Local Authority Districts (LADs) of Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland, with the addition of Blyth Valley, Castle Morpeth, Chester-le-Street, Derwentside, Durham, Easington, Tynedale and Wansbeck (which form RoCR).

This is also the first report to give a Leeds City Region (Leeds CR) comparison. This has been introduced to provide suitable context for the TWCR data. Leeds CR¹⁴ includes the Local Authority Districts of Bradford, Calderdale, Kirklees, Leeds and Wakefield (effectively West Yorkshire) plus five additional districts of Craven, Harrogate, Selby and York in North Yorkshire and Barnsley in South Yorkshire.

THE TYNE & WEAR CITY REGION



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¹² 2003 is the present base year in the ONS main economic series.

¹³ On the basis of providing a comparable series, the figures used in UK analysis are the average over the year rather than a point in time. This may differ from previous reports in the series, but has been chosen to provide the most accurate analysis at the City Region level.

¹⁴ TWRI's series of Annual Monitoring Reports for Tyne Wear Partnership have, hitherto, benchmarked Tyne & Wear with West Yorkshire.

TWCR has a population of approximately 1.7 million, of whom around 1 million are of working age¹⁵. The population in TWCR is equivalent to 58% of Leeds CR, which has a total population of 2.9 million. Around 1.7 million of these are of working age, meaning that the population of working age in TWCR is equivalent to around 59% of that in Leeds City Region. [TWCR's manufacturing output is only 54% of Leeds CR's –which is an important reason for lower incomes.]

Within TWCR, nearly two-thirds (65%) of the population are located in TW, 19% are in the four Durham districts and the remaining 15% in the four Northumberland districts (Table 1.1).

Table 1.1 Distribution of Population within Tyne & Wear City Region, 2005			
Tyne & Wear	65.4% Durham (4)	19.5% Northumberland (4)	15.2%
Gateshead	11.5% Chester-le-Street	3.2% Blyth Valley	4.9%
Newcastle-upon-Tyne	16.2% Derwentside	5.2% Castle Morpeth	3.0%
North Tyneside	11.7% Durham	5.4% Tynedale	3.6%
South Tyneside	9.1% Easington	5.6% Wansbeck	3.7%
Sunderland	16.9%		

Source: ONS Mid-Year Population Estimates, 2005

TWCR's population during the period covered by this report was stable, rising by a very marginal 0.2% in 2001-2005. Population growth in Leeds CR was more than ten times larger than TWCR, but was still a fairly small increase of 2.9% over four years.

¹⁵ Population figures taken from ONS Mid-Year Population Estimates for 2005. Working-Age Population figures taken from ONS Annual Population Survey for the year to end-Dec 2005.

PART A: MANUFACTURING IN TYNE & WEAR CITY REGION

2. MANUFACTURING OUTPUT

- In 2005, manufacturing output in TWCR was £3.9bn, 3% of UK output (£146bn) and equal to 54% of output in Leeds CR (£7.3bn).
- TWCR is most dependent on output from Transport Equipment, which produced 19% of its total manufacturing output in 2005.
- TWCR's manufacturing industry is less diverse than Leeds CR: four top ten manufacturing industries were over-represented in TWCR, two fewer than Leeds CR.
- In 2001-2005, output fell 4% in TWCR, slower than Leeds CR (- 11%) and the UK (- 10%). Output in TWCR *rose* in four top ten industries, more than both comparators.

'Output' in this report uses 'Gross Value Added' (or GVA).

The meaning of value-added:

The value of output less the value of intermediate consumption, i.e. the *difference* between the *value of goods* produced and the *cost of raw materials* and other inputs (such as ACT¹⁶ services) used up in production.

An example:

If a car producer makes 400,000 cars in a year and sells them for an average of £10,000 each, its total revenue is £4,000m. If the components for the cars cost the manufacturer (for example) an average of £9,000 per car then the value added averages £1,000 per car. The value added of the company's operation in that year [its GVA] in this case would thus be £400m (£1,000 x 400,000).

Note: If 85% of the cars were exported these would be recorded in trade statistics as £3,400m of exports (85% of total sales of £4,000m). Thus it is [very] misleading to quote exports (at full price) as a ratio to GVA.

2.1. STRUCTURE OF OUTPUT

The top ten (or 'major') industries in TWCR accounted for 96% of its manufacturing output (Table 2.1). The analysis throughout this report (both Part A and Part B) focuses on these top ten industries.

The top ten industries in Leeds CR were slightly different¹⁷ to TWCR. As the primary purpose of including Leeds CR was to provide comparisons to TWCR, analysis of Leeds CR is presented in terms of the top ten industries in TWCR.

In 2005 the value of manufacturing output (GVA) from Tyne & Wear City Region (TWCR) was £3,905m, 2.7% of the UK total. TWCR's manufacturing output was equal to just over half that of Leeds City Region (Leeds CR), which was £7,252m, 5% of the UK (current prices¹⁸).

TWCR is markedly more dependent on output from its top five industries (by output) than either of its comparators. Transport Equipment, Machinery & Equipment, Basic Metals, Chemicals and Food &

¹⁶ ACT is used in this report to mean Advertising, Computing and Telecoms.

¹⁷ The top ten industries in Leeds City Region were (in order of output) Food & Drink, Paper & Printing, Basic Metals, Machinery & Equipment, Chemicals, Textiles, Other Manufacturing, Electrical & Optical, Non Metals and Rubber & Plastics. Importantly, this excluded Transport Equipment but included Textiles and Clothing.

¹⁸ 'Current prices' refers to the prices actually prevailing in this period.

Drink produce 62% of total manufacturing output in TWCR, compared to 51% in Leeds CR and 57% in the UK.

This higher dependency is most obvious in Transport Equipment and shows little sign of decreasing. In 2005, Transport Equipment produced the largest share of total TWCR manufacturing output, at 19% (£744m). This was more than 6 times the share of manufacturing output in Leeds CR (3%, £247m), and more than 1½ times the share in the UK (12%). The size of Transport Equipment in TWCR (relative to both Leeds CR and the UK) may be attributed mainly to the Nissan plant in Sunderland, but includes shipbuilding as well as motor parts and accessories.

Transport Equipment's share of output was stable in TWCR and the UK in 2001-2005, but fell in Leeds CR. Share of output in TWCR remained at 19% despite rising to 21% in 2003. Similarly, share of output in the UK remained at 12% in 2001 and 2005, although it fell to 11% in 2003. In contrast, share of output in Leeds CR fell [slightly] in both periods, from 5% in 2001 and 4% in 2003.

Table 2.1: Output (GVA) of Top Ten Manufacturing Industries in Tyne & Wear City Region , with Leeds City Region and UK Comparison, 2005

SIC (02)	2001 Rank	Industry	Output (Gross Value Added)					
			Tyne & Wear City Region		Leeds City Region		UK	
			(£m)	% of total output	(£m)	% of total output	(£m)	% of total output
DM	1	Transport Equipment	744	19%	247	3%	17,074	12%
DK	3	Machinery & Equipment	478	12%	687	9%	12,206	8%
DJ	4	Basic Metals	436	11%	745	10%	15,375	10%
DG	7	Chemicals	386	10%	566	8%	16,582	11%
DA	6	Food & Drink	380	10%	1470	20%	22,766	16%
DL	5	Electrical & Optical	366	9%	446	6%	15,057	10%
DH	8	Rubber & Plastics	352	9%	392	5%	7,821	5%
DE	2	Paper, Printing	322	8%	1106	15%	18,612	13%
DN	3	Manufacture nec	151	4%	467	6%	6,520	4%
DI	11	Other Non-Metals	115	3%	396	5%	5,244	4%
		Total	3,730	96%	6,521	90%	137,257	94%
		All Manufacturing	3,905		7,252		146,487	

Totals may not sum due to rounding

TWCR is also more dependent on Machinery & Equipment (the second-largest manufacturing industry by output), but to a lesser extent. The industry produced 12% (£478m) of manufacturing output in TWCR in 2005, one-third more than the share in Leeds CR (9%, £687m) and a half more than in the UK (8%).

Machinery & Equipment's share of output in TWCR rose [slightly] in 2001-2005, up 1pp from 11% in 2001. The growth trajectory in TWCR was again more positive than Leeds CR but was broadly similar to the UK, as share of output in Leeds CR fell 1pp from 10% in 2001 but rose [marginally] in the UK (less than 1pp).

TWCR is much less dependent on Food & Drink output (10%, £380m) than its comparators, only *half* the share of output in Leeds CR (20%, £1,470m) and 6pp below the UK (where it is the largest of all manufacturing industries). Food & Drink's share of output fell in TWCR 2001-2005 (albeit marginally, less than 1pp) but rose 3pp in Leeds CR and 2pp in the UK (see caution below).

Each industry's share of total manufacturing output in an area can be compared to the corresponding industry in the UK by using the 'output location quotient' (Table 2.2). This divides the local share of manufacturing output by the corresponding UK share to give a measure of the local concentration of each industry.

Four manufacturing industries were over-represented in TWCR in 2005 compared to the UK (Table 2.2): Rubber & Plastics (1.69), Transport Equipment (1.63), Machinery & Equipment (1.47) and Basic Metals (slightly over-represented at 1.06).

The remaining six top ten manufacturing industries in TWCR were slightly under-represented relative to their share of output in the UK. This was greatest in Food & Drink, whose output was less than two-thirds of the industry’s share of UK output (0.63). [Caution: Low TWCR Food & Drink GVA could be distorted down-ward if multi-nationals use transfer pricing or royalties etc to transfer profits to lower tax states such as Switzerland –Ed.]

Table 2.2: Output Location Quotient of Top Ten Manufacturing Industries in Tyne & Wear City Region and Leeds City Region, 2005

SIC (02)	Industry	Output Location Quotient	
		Tyne & Wear City Region	Leeds City Region
DM	Transport Equipment	1.63	0.29
DK	Machinery & Equipment	1.47	1.14
DJ	Basic Metals	1.06	0.98
DG	Chemicals	0.87	0.69
DA	Food & Drink	0.63	1.30
DL	Electrical & Optical	0.91	0.60
DH	Rubber & Plastics	1.69	1.01
DE	Paper, Printing	0.65	1.20
DN	Manufacture nec	0.87	1.45
DI	Other Non-Metals	0.83	1.53

TWCR’s manufacturing industries are markedly less diverse than Leeds CR; the outputs of *four* top ten industries were stronger in TWCR than the UK (i.e. had an output location quotient above 1.0), compared to six in Leeds CR (Machinery & Equipment, Food & Drink, Rubber & Plastics, Paper & Printing, Other Manufacturing and Non-Metals).

Both CR’s are over-represented in Machinery & Equipment and Rubber & Plastics, but differ in their remaining sources of large shares of output (relative to the UK). In particular, Transport Equipment, which was very over-represented in TWCR (1.63), was very under-represented in Leeds CR, at less than one third of the UK share (0.29).

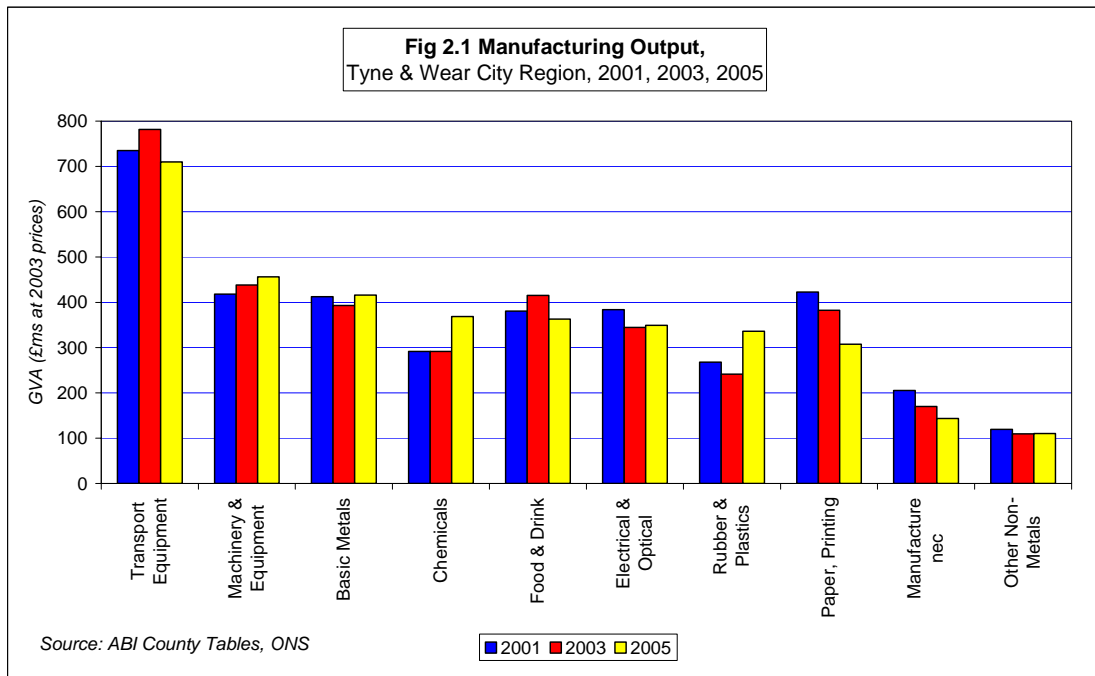
Box 2.1 Manufacturing Competitive Industries in Tyne & Wear City Region, 2005

Industry	Output Location Quotient	Productivity (relative to the UK)	Profit Margins (relative to the UK)	Output Growth (2001-2005)	Employment Growth
Rubber & Plastics	1.69	0.92	1.18	26%	-6%
Transport Equipment	1.63	1.26	1.28	-3%	-12%
Machinery & Equipment	1.47	1.00	1.18	9%	-8%
Basic Metals	1.06	0.97	1.02	1%	-6%
Nearly Competitive					
Electrical & Optical	0.91	0.90	1.09	-9%	-17%
Chemicals	0.87	0.60	0.72	26%	0%

TWRI has identified industries as ‘competitive’ locally if they display both an OLQ above 1.0 *and* profit margins (relative to the UK) above 1.0. They also tend to have high productivity and (in TW, rather than TWCR) output growth (§9.2).

2.2. CHANGE IN OUTPUT

In 2001-2005, manufacturing output in TWCR fell -4% (-£138m) from £3,864m in 2001 to £3,726m in 2005 (2003 prices). The decline in TWCR was slower than both comparators; 7pp slower than Leeds CR (-11%, - £831m, to £6,919m in 2005) and 6pp slower than the UK (-10%, -£15bn, to £140bn in 2005)¹⁹.



Note: The 2001-2005 time series data are given in Appendix 2.1.

Output grew in four of the top ten industries in TWCR in 2001-2005 (Fig 2.1):

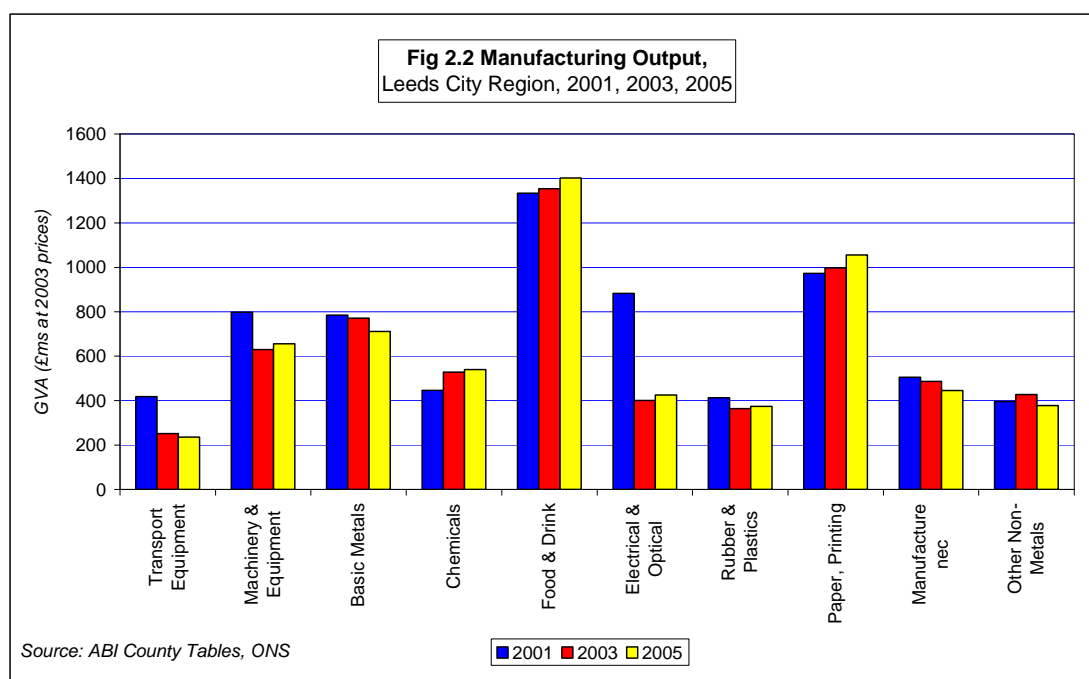
- Chemicals (up 26%)
- Rubber & Plastics (also up 26%)
- Machinery & Equipment (up 9%)
- Basic Metals (up just 1%).

Manufacturing output in TWCR fell in the remaining six top ten industries: markedly (over 25%) in Other Manufacturing (-30%) and Paper & Printing (-27%) and less (under 10%) in Electrical & Optical (-9%), Non-Metals (-8%), Food & Drink (-5%) and Transport Equipment (-3%).

Nevertheless, changes in six of the top ten industries were more favourable in TWCR than in both Leeds CR and the UK (Fig 2.2).

Manufacturing output in Leeds CR grew in just three top ten industries in 2001-2005 (Food & Drink, Paper & Printing and Chemicals). UK manufacturing output did not grow in any of the top ten industries in 2001-2005.

¹⁹ The fastest falls took place in 2001-2003 in all three areas, although the decline in this earlier period was still slower in TWCR than its comparators. Output in TWCR fell -3% (-£121m) in 2001-2003, compared to -0.5% in the later period (2003-2005). Similarly, output in Leeds CR fell -11% in 2001-2003 and by a tiny - 0.1% (- £6m) in 2003-2005. UK manufacturing output fell -8% in 2001-2003 which was followed by a further decline of -2% in 2003-2005.



Chemicals output in TWCR grew 26%, from £292m in 2001 to £368m in 2005 (2003 prices). This all occurred in 2003-2005, as output from the industry fell marginally (-0.1%) in 2001-2003. The growth in TWCR was almost one-quarter faster than in Leeds CR, where growth was also strong (up 21% in 2001-2005). The rises in TWCR and Leeds CR were in sharp contrast to the UK, where output fell -6% to £15,823m in 2005. UK output fell -7% in 2001-2003 and rose only 1% in 2003-2005.

Plastics output in TWCR also grew 26% from £268m in 2001 to £336m in 2005²⁰. The performance in TWCR was in sharp contrast to Leeds CR and the UK, where in 2001-2005 output fell -10%.

TWCR lost competitiveness sharply in Other Manufacturing and Paper & Printing in 2001-2005.

The sharpest fall in TWCR was in Other Manufacturing, down -30% (from £205m in 2001 to £144m in 2005), almost three times as fast as in Leeds CR (-12%) and the UK (-10%). The decline in TWCR was fairly steady, down -17% in 2001-2003 and -15% in 2003-2005.

Output in TWCR in Paper & Printing fell -27% in 2001-2005 (from £423m in 2001 to £307m in 2005). TWCR's performance was much weaker than Leeds CR (up 9%) and twice as weak as the UK, (down -14%). This may have reflected difficulties at firms such as De la Rue plc and Applied Optical Technologies [holographics], as well as at Trinity Mirror plc [The Journal and Evening Chronicle].

The decline in output in two industries was much slower in TWCR than Leeds CR;

Electrical & Optical	TWCR output fell -9%	Leeds CR -52%
Transport Equipment	TWCR output fell -3%	Leeds CR -44%

In contrast, the decline in Non Metals was slower in Leeds CR (-5%) than TWCR (-8%).

The fall in Food & Drink (-5%) output in TWCR was markedly different to the industry's performance in Leeds CR, where output rose 5%. This may well reflect a lower dependence on low-growth products (such as bakery) and declining ones (such as dairy).

²⁰ Output fell -10% in 2001-2003 but more than recovered in 2003-2005, rising by a massive 39%.

3. MANUFACTURING EMPLOYMENT

- In 2005, manufacturing employment was over 86,000 in TWCR. This is 3% of total UK manufacturing employment (3,246,000) and equal to 50% of manufacturing employment in Leeds CR (171,900).
- In 2001-2005 manufacturing employment fell in all areas. The -14% fall in TWCR was slower than both Leeds CR (- 21%) and the UK (- 18%).

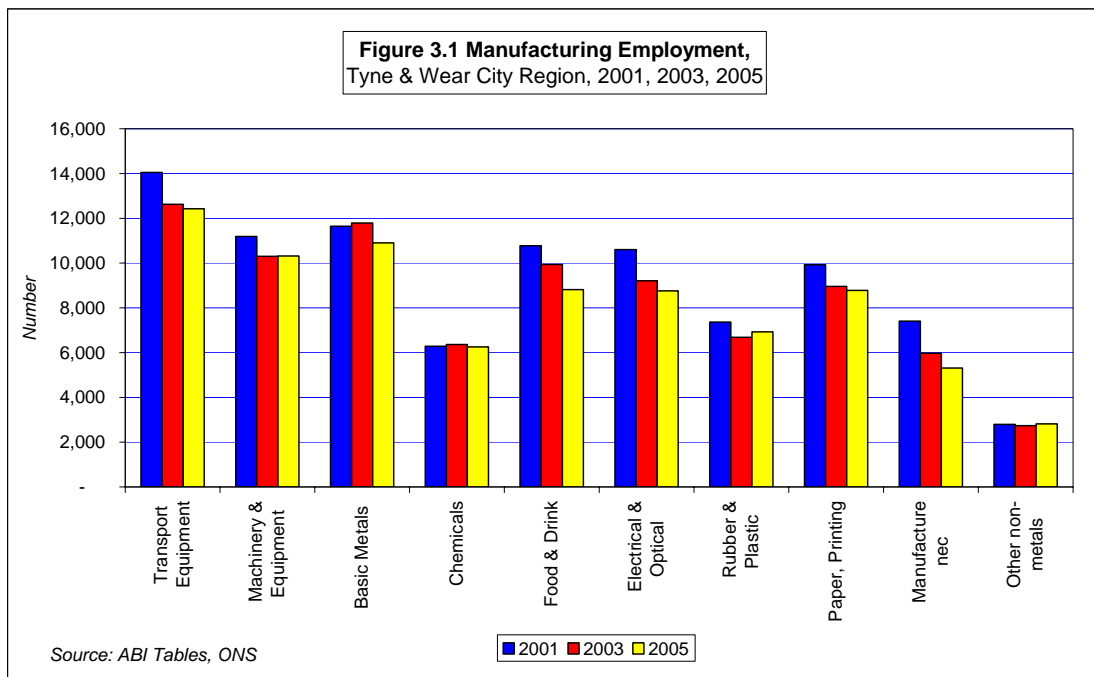
In 2001, manufacturing employment in TWCR was 100,500, less than 3% of total UK employment in the industry (3,969,000) and equal to 47% of total manufacturing employment in Leeds CR (215,800).

In 2001-2005, manufacturing employment in TWCR fell -14% (-14,300)²¹. The greatest jobs loss was in 2001-2003, down almost -11% (-10,900). Employment fell - 4% (-3,400) in 2003-2005.

Manufacturing employment declined at a slower rate in TWCR than both comparators; manufacturing employment fell -21pp (-45,000) in Leeds CR and -18% (723,000) in the UK.

In 2005, manufacturing employment in TWCR was 86,200, 3% of total UK manufacturing employment (3,246,000) and equal to 50% of total manufacturing employment in Leeds CR (171,800).

In 2001, manufacturing employment in TWCR was over 10,000 in five of the top ten industries (Fig 3.1); Transport Equipment (14,000), Basic Metals (11,600), Machinery & Equipment (11,200), Food & Drink (10,800) and Electrical & Optical (10,600).



In 2001-2005, employment fell in nine of the major industries in TWCR. The greatest declines were in four industries struggling to compete, and in Transport Equipment; Other Manufacturing (-28%, -2,100), Food & Drink (-2,000, -18%), Electrical & Optical (-1,850, -17%), Transport Equipment (-1,600, -12%) and Paper & Printing (-1,100, -11%). The falls in the remaining top ten manufacturing industries were slower, at less than - 8%.

²¹ Tyne & Wear City Region's manufacturing employment loss average of nearly 4,000 pa, or 4% pa.

Box 3.1 The Clothing Industry’s Employment Collapse

Clothing, alone, accounted for another 24% of net employment losses from TWCR manufacturing, TWCR’s largest numeric fall. The industry shed 3,400 jobs to 2005 in TWCR, 58% of its workforce in 2001. It had dropped out of the top ten manufacturing industries in TW in 1998-2000 for the first time in over 20 years, an intense two-year period of closures of many clothing factories.

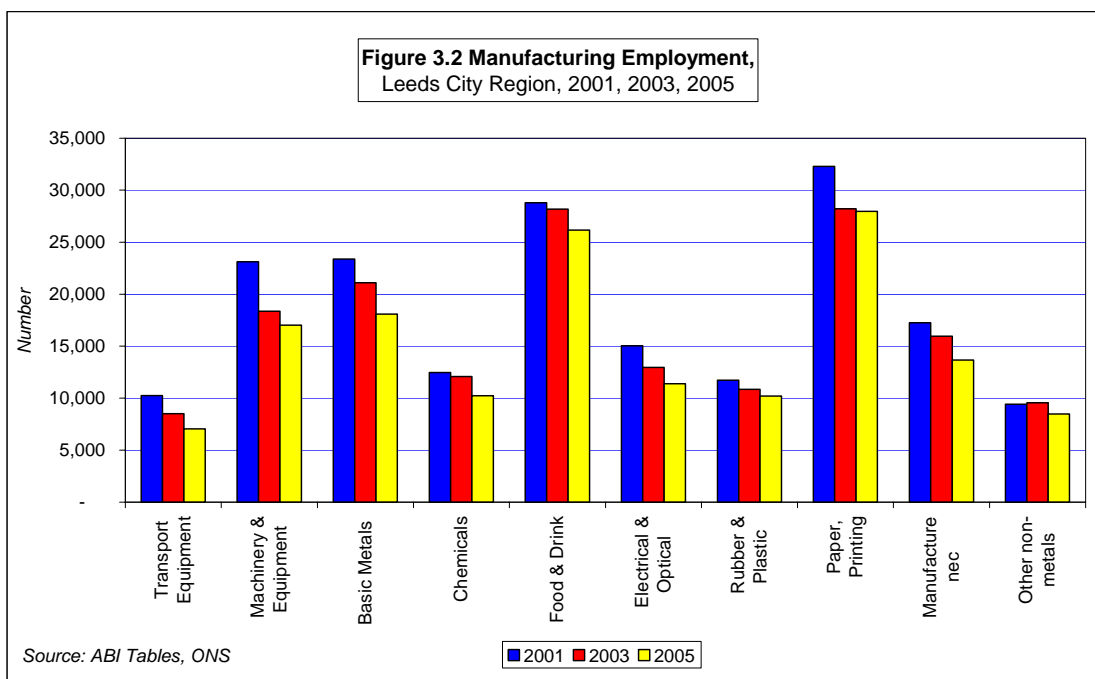
This appears to have continued into 2001-2005 and affected TWCR. In 2005, Clothing output was £81.9m (current prices) meaning it remains outside the top ten. However, Clothing continued to employ 2,500 in TWCR in 2005.

Similarly, the Clothing industry in Leeds CR shed 10,100 jobs in 2001-2005 [three times as many as in TWCR], its largest numeric fall and 40% of its workforce in 2001. Leeds CR continued to employ about 15,000 in Clothing, about six times TWCR’s level.

Employment in Chemicals matched that in 2001 (greatly helped by the doubling of TWCR’s Chemicals output). [Caution: there is particular doubt about the credibility of data on Chemicals – Ed.]

There was only one (very modest) rise in employment in the top ten manufacturing industries in TWCR; Non-Metals (+ 50, 1%). [This may well reflect a rise in brick products, linked to greatly expanded construction activity –Ed.]

In Leeds CR in 2001 employment was highest in Paper & Printing (32,300) and Food & Drink (28,800) (Fig 3.2). Employment in these industries was three times larger in Leeds CR than TWCR; this suggests they were supported (more than in TWCR) by demand outside the CR. An example was the regional newspaper²² and the chocolate industry in York²³. There would need to have been other examples to account for the roughly 5,000 ‘extra jobs’ in Leeds CR, relative to TWCR. The industry with the highest employment levels in TWCR, Transport Equipment, employed a relatively low 10,300 in Leeds CR, just 5% of total manufacturing employment in Leeds CR in 2001.



Note: Other Manufacturing is shown as ‘Manufacture nec’.

Employment fell more slowly in TWCR than the UK in eight top ten industries. This was most evident in Non-Metals, where employment in TWCR rose 1% in 2001-2005 but fell 16% in the UK.

²² The Yorkshire Post group

²³ Nestlé mainly (known as Rowntree up to 1988), but also Terrys etc.

Employment also fell significantly more slowly in TWCR than the UK in;

- Chemicals (a decline of 14pp slower in TWCR than the UK)
- Electrical & Optical (14pp slower)
- Machinery & Equipment (12pp slower)
- Basic Metals (11pp slower).

Conversely, employment levels fell more quickly in TWCR than the UK in just two industries: Other Manufacturing (a decline of 11pp faster in TWCR than the UK) and in Food & Drink (10pp faster).

In 2005, manufacturing employment in TWCR remained highest in Transport Equipment (12,400), Basic Metals (10,900) and Machinery & Equipment (10,300).

The relative positions of the employment levels of the top ten industries remained fairly constant between 2001 and 2005 (movement of one position at most). The one [odd] exception was Other Manufacturing, which fell 2 positions to 9th place, below Rubber & Plastics and Chemicals.

In Leeds CR, employment levels remained highest in Paper & Printing (28,000) and Food & Drink (26,200).

Productivity in TWCR was lower than Leeds CR in the remaining six top ten industries. This was greatest in Non-Metals and Food & Drink, where productivity in TWCR was 17% (- £7,700) and 16% (- £9,100) less than Leeds CR in 2005 respectively.

TWCR's productivity was higher than the UK in only two of the top ten industries; Transport Equipment and Machinery & Equipment (the top two industries by output). Transport Equipment's productivity in TWCR (£62,900) was over 26% higher than the UK (£49,800). Machinery & Equipment's productivity exceeded the UK (£42,200) by a marginal 0.4%.

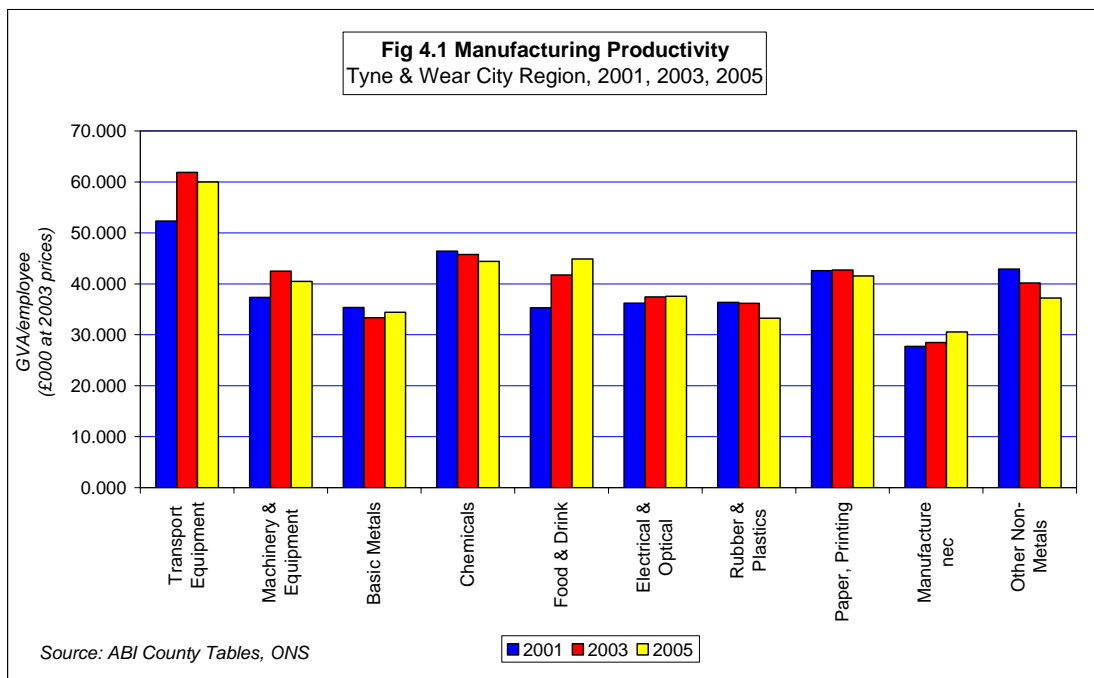
The productivity levels in all remaining eight top ten industries in TWCR were below the UK in 2005. Chemicals productivity in TWCR (£46,500) was less than two-thirds (60%) the productivity for the industry in the UK (£77,500) [Although this is probably an unfair comparison, reflecting of its mix of fine chemicals, rather than bulk, capital-intensive chemical manufacture].

The Clothing industry, which dropped out of the top ten industries in TW in 1998-2000, was the only other manufacturing industry in TWCR (£45,800) to exceed the industry productivity in the UK (£29,700), by a dramatic + 54%. [This could be a reflection of high-value output, like Barbour]

4.2. PRODUCTIVITY GROWTH

In 2001-2005 manufacturing productivity in TWCR grew 8%, from £38,400 in 2001 to £41,400 in 2005, an average of 2% per annum (2003 prices)²⁴. Growth in TWCR was slower than both Leeds CR (13%) and the UK (10%).

Productivity grew in five of the top ten industries in TWCR in 2001-2005 (Fig 4.1): rapidly in Food & Drink (27%) and Transport Equipment (15%) but modestly in Other Manufacturing (10%), Machinery & Equipment (8%) and, especially, Electrical & Optical (4%).



Note: The 2001-2005 time series data are given in Appendix 4.1.

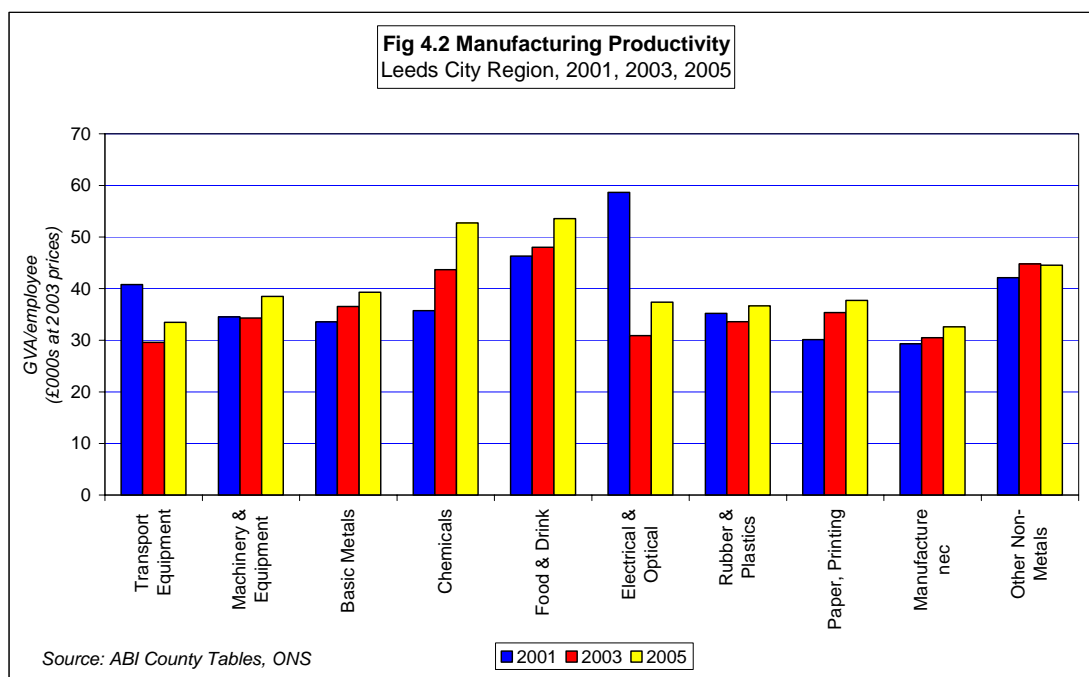
²⁴ The rise took place in 2001-2003, when productivity rose 9% (to £41,800 in 2003) but subsequently fell slightly in 2003-2005 (-0.8%).

Productivity growth in TWCR was more narrowly-focused than in Leeds CR, where productivity grew in eight of the top ten industries²⁵ (all except Transport Equipment and Electrical & Optical) [this broadness significantly contributed to faster growth in Leeds CR –Ed] (Fig 4.2). Leeds CR more closely approximated the UK, where productivity rose in seven of the top ten industries.

Box 4.2 Productivity Trajectories: Early Productivity Growth in TWCR

Productivity rose fastest in 2001-2003 in both TWCR and the UK, but in 2003-2005 in Leeds CR. In 2001-2003, productivity rose 9% in TWCR and 12% in the UK, but just 1% in Leeds CR. In contrast, productivity in 2003-2005 fell slightly (-0.8%) in TWCR but rose 4% in the UK and 11% in Leeds CR [this helps to explain the lower productivity in TWCR relative to its comparators].

Although manufacturing productivity in TWCR remained higher than Leeds CR in 2001-2005, slower growth suggests that TWCR may not be able to maintain this position.



Rapid productivity growth in TWCR in Food & Drink and Transport Equipment was not matched in Leeds CR. Productivity in Food & Drink in TWCR grew 12pp faster than in Leeds CR (16%) [although productivity remained higher in Leeds CR in 2005]. The differential in Transport Equipment productivity growth between TWCR and Leeds CR was a dramatic 33pp, as productivity fell -18% in Leeds CR.

Productivity fell in all five remaining top ten manufacturing industries in TWCR in 2001-2005: Non-Metals (-13%), Rubber & Plastics (-9%), Chemicals (-4%), Basic Metals (-3%) and Paper & Printing (-2%).

Productivity in Non-Metals in 2001-2005, where the fall in TWCR was fastest [perhaps indicating the difficulty of raising output of bricks etc. or new investment], rose 6% in Leeds CR.

Conversely, productivity in Electrical & Optical, which rose 4% in TWCR, was the fastest faller in Leeds CR, down a severe - 36% [perhaps reflecting difficulties at electronics firms like Filtronics].

²⁵ The top ten manufacturing industries are those in Tyne & Wear City Region by output.

[Oddly] Chemicals' productivity in TWCR fell -4% to £44,400 [perhaps indicating a declining ability to produce high-value products such as patented pharmaceuticals]. In contrast, Chemicals productivity grew in Leeds CR by 48% to £52,700. Productivity in 2001-2005 in TWCR also fell in Paper & Printing (- 3%, to £41,600 in 2005), but grew rapidly in Leeds CR (+ 25%, to £37,700).

5. MANUFACTURING OPERATING PROFIT

In this section, operating profits are considered in terms of both levels and, in particular, margins. In a healthy economy, in the long-run, profit levels will grow as output grows. However, profits tend to be sharply cyclical –falling and rising in particular years within the business cycle.

Important: *Changes* in profits are given in real terms (2003 prices).

- TWCR operating profits were £1,612m in 2005²⁶.
- Operating profits in TWCR dipped 2% in 2001-2005, slower than Leeds CR (-4%) and the UK (-5%).
- In 2005, operating profit margins averaged 41% in TWCR, 1pp less than both Leeds CR and the UK. In 2001-2005, profit margins in TWCR rose less than 1pp, slower than Leeds CR (3pp) and the UK (2pp).

The meaning of operating profit:

One measure of profitability is operating profitability: the reward to capital from value added. An indication of operating profits can be obtained from the ABI data. Since, in principle, value-added is split between labour and capital, and rewards to labour are known, the rewards to capital can be calculated. ABI produce 'Total Employment Costs' data and so operating profits can be calculated directly by subtracting the 'Total Employment Costs' from the 'Gross Value Added'.

Operating profit provides a good guide to financial health. It is not affected by differences in capital structure of a company (debt, equity [or share] capital). It is a wider concept than pre-tax profit. To obtain pre-tax profit, interest payments and depreciation would have to be subtracted.

5.1. OPERATING PROFIT LEVELS

In 2005 manufacturing operating profits in TWCR were £1,612m, 3% of the UK total (£62bn) and equal to 53% of operating profits in Leeds CR (£3,055m) (current prices) (Table 5.1).

²⁶ 3% of the UK and equal to 53% of operating profits in Leeds CR (£3,055m).

Table 5.1: Manufacturing Industries' Operating Profits in Tyne & Wear City Region, with Leeds City Region and UK Comparison, 2005

SIC	Industry	Tyne & Wear City Region £m	Leeds City Region £m	UK £m
DM	Transport Equipment	317	57	5,665
DK	Machinery & Equipment	190	200	4,129
DJ	Basic Metals	164	277	5,651
DG	Chemicals	142	242	8,457
DA	Food & Drink	189	792	11,736
DL	Electrical & Optical	157	155	5,945
DH	Rubber & Plastics	157	160	2,973
DE	Paper & Printing	112	494	7,731
DN	Manufacture nec	59	192	2,878
DI	Other Non-Metals	47	162	2,363
	All Manufacturing	1,612	3,055	61,634

Note: The 2001-2005 time series data are given in Appendix 5.1.

Box 5.1 Trajectories of Operating Profits

In 2001-2005, real operating profits in TWCR fell -2%²⁷, a slower fall than both Leeds CR (-4%) and the UK (-5%). Operating profits in TWCR rose 2% in 2003-2005²⁸ but failed to recover fully from a -4% fall in 2001-2003. Operating profits also grew in Leeds CR (13%) and the UK (2%) in 2003-2005, but failed to fully recover from larger falls in 2001-2005 (Leeds CR -15%, UK -7%).

5.2. OPERATING PROFIT MARGINS

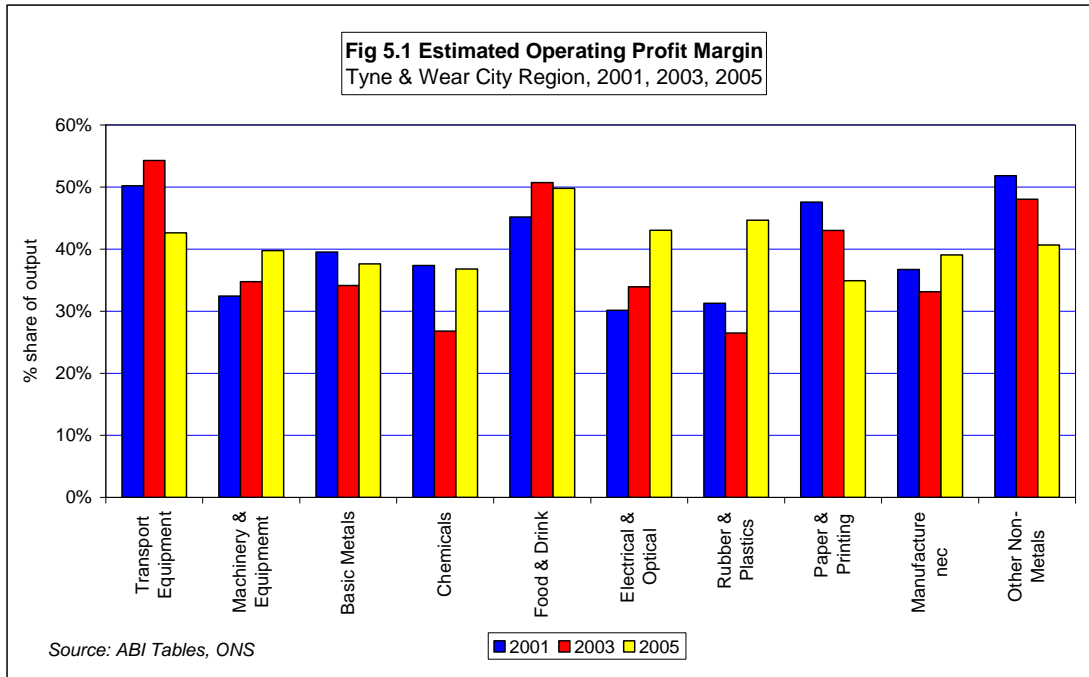
In 2005, profit margins in TWCR averaged 41%, very slightly below both comparators (42%). Although overall profit margins in TWCR were broadly similar to its comparators, profit margins at industry-level varied substantially.

Table 5.2: Manufacturing Industries' Operating Profit Margins in Tyne & Wear City Region, with Leeds City Region and UK Comparison, 2005

SIC	Industry	Tyne & Wear City Region	Leeds City Region	UK
DM	Transport Equipment	43%	23%	33%
DK	Machinery & Equipment	40%	29%	34%
DJ	Basic Metals	38%	37%	37%
DG	Chemicals	37%	43%	51%
DA	Food & Drink	50%	54%	52%
DL	Electrical & Optical	43%	35%	39%
DH	Rubber & Plastics	45%	41%	38%
DE	Paper & Printing	35%	45%	42%
DN	Manufacture nec	39%	41%	44%
DI	Other Non-Metals	41%	41%	45%
	All Manufacturing	41%	42%	42%

²⁷ From £1,568m to £1,538m in 2005 (2003 prices).

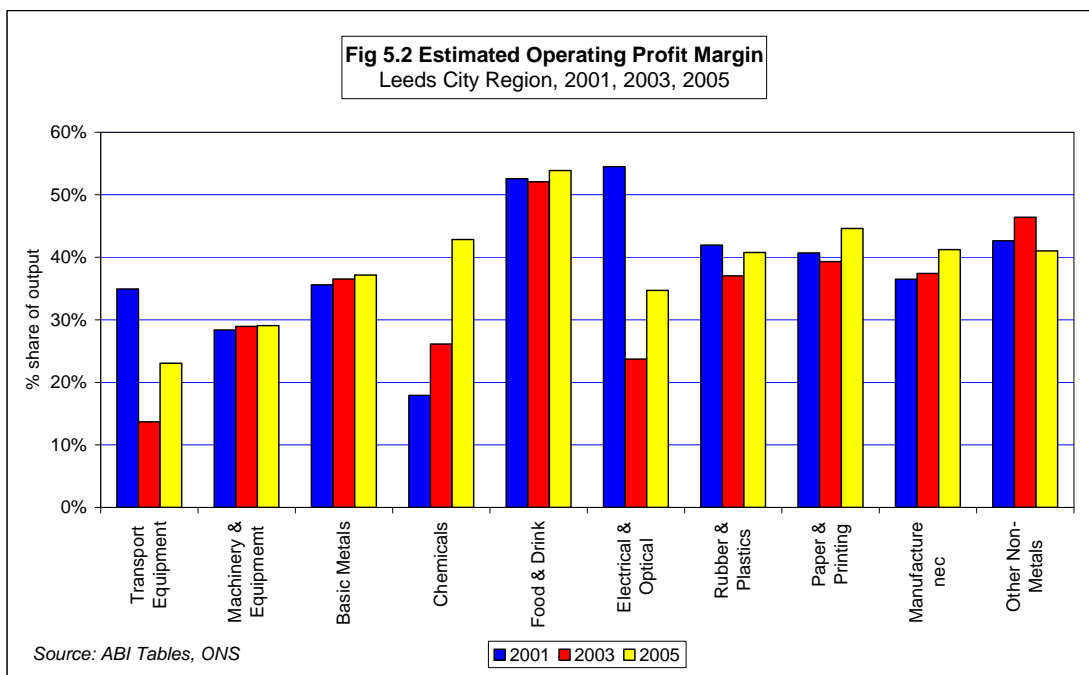
²⁸ From £1,512m in 2003.



In TWCR, profit margins grew faster than Leeds CR in five of the top ten manufacturing industries (Fig 5.2). Margin growth in Electrical & Optical in TWCR (where profit margins were lowest in 2001) was a huge 33pp faster than Leeds CR (where profit margins were highest in 2001), which fell 20pp.

Margin growth in TWCR was also faster than Leeds CR in Plastics, Machinery & Equipment and Food & Drink. Operating profit margins in Transport Equipment fell in TWCR, but this was a slower decline than in Leeds CR.

Operating profit margins in TWCR grew more slowly than Leeds CR in the remaining five industries; Chemicals, Paper & Printing, Non-Metals, Basic Metals and Other Manufacturing. This was greatest in Chemicals, where operating profit in TWCR fell 0.5pp but rose 25pp in Leeds CR (Operating profit margins rose fastest Chemicals in Leeds CR, where profit margins had been lowest in 2001).



6. MANUFACTURING INVESTMENT

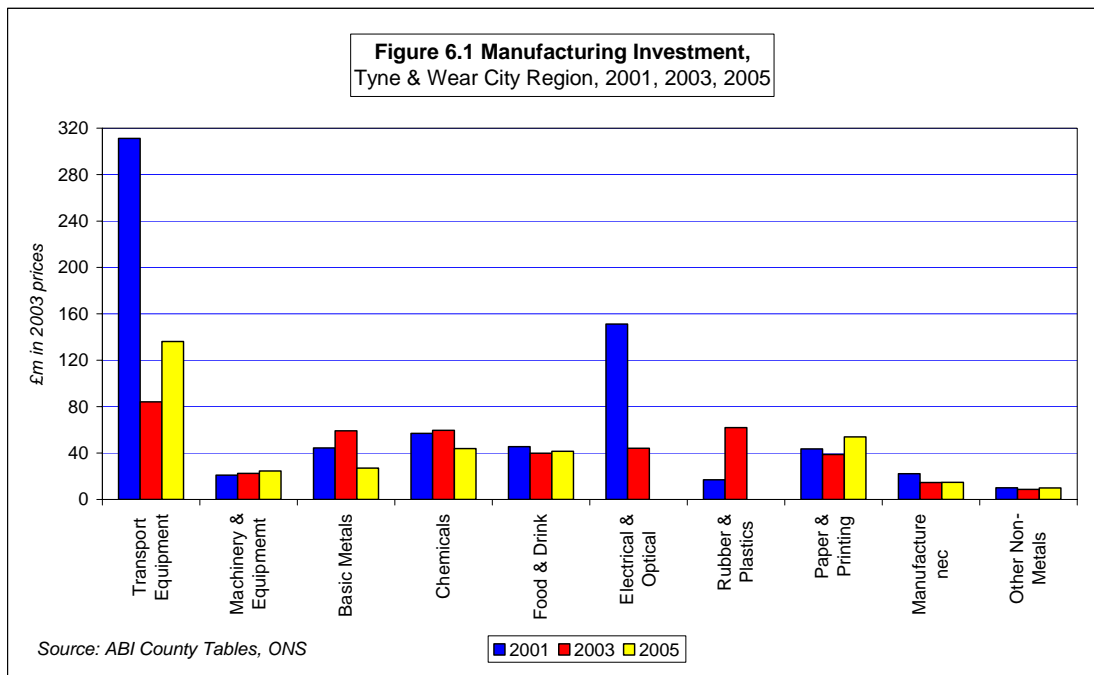
The definition of investment is wide. In the ABI, investment is referred to as ‘net capital expenditure’ which includes expenditure on plant & machinery and on buildings and vehicles. It is ‘net’ of the disposal of these assets, but no reduction is made for depreciation.

Investment figures give a strong (but volatile) indication of the direction in which the manufacturing sector is developing. It is both a physical and psychological sign of where growth is expected (by management). In practice, investment tends to follow previous profitability –as the major source of investment capital is retained profit.

Cautions:

- a) From ONS; The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status.
- b) From TWRI; It can be dangerous to try and draw conclusions from investment data and patterns. Single years do not give a firm basis and sampling from the ABI can distort investment figures. The investment figures within this section are included in order to give a *broad indication only* of trends within TWCR and its comparators. Figures for TW and RoCR have been omitted as data is particularly volatile at this level. Additional information may be found in Appendix 6.1.

Net investment by manufacturing industries in Tyne & Wear City Region (TWCR) was £380m in 2005, 3.5% of UK (£10,886m) and equal to 55% of net investment in Leeds City Region (Leeds CR) (£689m) (current prices).



The figures for Investment in Electrical & Optical and Rubber & Plastics were suppressed for 2005.
Note: The 2001-2005 time series data for Net Investment are given in Appendix 6.1.

In 2001-2005, net investment fell in TWCR and both its comparators. ‘Headline’ Net investment in TWCR halved (-51%) from £739m in 2001 to £363m in 2005³⁴ (2003 prices). Excluding the two industries for which ONS suppressed the data in 2005 (Electrical & Optical and Rubber & Plastics), net investment still fell by over one-third (-36%). Net investment in the UK also fell steeply, down -40% from £17.4bn in 2001 to £10.4bn in 2005. The decline in Leeds CR was much slower, falling -15% (from £777m in 2001 to £657m in 2005).

In 2005, net investment in TWCR was highest in Transport Equipment (£136m) –over one-third of all investment in manufacturing.

Net investment in TWCR fell in six of the major industries (excluding Electrical & Optical and Rubber and Plastics) (Fig. 6.1). The fastest fall was in Transport Equipment, where net investment fell by a massive 56% from £311m in 2001 to £136m in 2005. This fall accounts for about 90% of TWCR manufacturing’s £20m fall in investment from 2001 to 2003. There were also sharp falls in Basic Metals (- 39%, from £44m to £27m), Other Manufacturing (- 33%, from £22m to £15m) and Chemicals (- 23%, from £57m to £44m).

Net investment rose in the remaining two top ten manufacturing industries for which figures were available; [oddly] Paper & Printing (up 24%) [perhaps in Paper rather than Printing] and Machinery & Equipment (up 17%).

Net investment per employee³⁵ in TWCR was higher than both comparators in 2005, but its decline was also faster (Table 6.1). Net investment per employee was £5,200 in 2005, much greater than both the UK (£3,500) and Leeds CR (£4,000) (2003 prices).

Table 6.1: Net Investment in top ten Tyne & Wear City Region Manufacturing Industries, with Leeds City Region & UK comparison, 2001, 2003, 2005 (excluding Electrical & Optical and Rubber & Plastics)

	Net Investment (£m at 2003 prices)			Net Investment per employee (£ at 2003 prices)		
	Tyne & Wear City Region	Leeds City Region	UK	Tyne & Wear City Region	Leeds City Region	UK
2001	571	691	13,586	6,920	3,655	4,501
2003	336	623	11,154	4,555	3,746	3,811
2005	363	593	9,447	5,150	3,975	3,508

" The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status."

Net investment per employee in TWCR fell 26% in 2001-2005, from £6,920 in 2001 (2003 prices). Net investment per employee also fell in the UK, but by a smaller 22% from £4,500 in 2001. Conversely, net investment per employee in Leeds CR (where investment per employee was lowest in 2001) rose 9% from £3,700, the lowest net investment per employee in 2001.

[Note: The Appendices give further details on Net Investment.

Appendix 6.1 gives a Net Investment *time series* for TWCR, Leeds CR and the UK.

Appendix 6.2 gives Net Investment *per employee*, in detail, for TWCR, Leeds CR and the UK.

Appendix 6.3 gives a Net Investment *time series* for TW, RoCR and the UK.

Appendix 6.4 gives Net Investment *per employee*, for TW and RoCR.

Fig 6.2 shows Leeds CR in the format of Fig 6.1, above.

Fig 6.3 shows TW as above.

Fig 6.4 shows RoCR as above.]

³⁴ The actual fall in TWCR was slower, as figures for Electrical & Optical and Rubber & Plastics were excluded in 2005. If these industries were also excluded in 2001 and 2003, the fall in investment in TWCR was 36%, from £571m in 2001. This would make the decline in TWCR slower than the UK but it would remain faster than Leeds CR.

³⁵ All investment per employee figures exclude investment and employment data from Electrical & Optical and Rubber & Plastics, for which investment figures for TWCR were suppressed by ONS in 2005.

7. MANUFACTURING ESTABLISHMENT SIZE

Establishment size matters because it can be a driver of competitiveness through ‘economies of scale’.

- The average establishment size in TWCR was 26 [employees] in 2005, 30% larger than Leeds CR (20) and 24 % larger than in the UK (21).
- Establishment size had fallen 3 employees in TWCR and the UK in 2001-2005, but rose in Leeds CR.

All four most competitive manufacturing industries have larger establishments than in the UK.

In 2005 the average manufacturing establishment in Tyne & Wear City Region (TWCR) had 26 employees, *larger than all comparators*. The average establishment size in TWCR was 6 employees (30%) greater than the average in Leeds City Region (Leeds CR) (20) and 5 employees (24%) greater than the UK (21).

In 2001-2005, average establishment size in TWCR fell 3 employees, which matched the numeric decline in the UK (-3). In contrast, establishment size in Leeds CR *rose* 3 employees³⁶.

Table 7.1: Establishment Size* in Manufacturing Industries in Tyne & Wear City Region, with Leeds City Region & UK comparison, 2005

SIC	Industry	Tyne & Wear City Region	Leeds City Region	UK	TWCR/ UK	LCR/ UK
DM	Transport Equipment	117.3	34.2	59.6	1.97	0.57
DK	Machinery & Equipment	32.5	20.6	22.4	1.45	0.92
DJ	Basic Metals	17.2	11.4	14.0	1.22	0.81
DG	Chemicals	55.9	40.3	56.8	0.98	0.71
DA	Food & Drink	36.7	54.6	67.1	0.55	0.81
DL	Electrical & Optical	26.9	16.8	22.4	1.20	0.75
DH	Rubber & Plastics	32.4	22.9	29.4	1.10	0.78
DE	Paper, Printing	18.9	20.6	13.7	1.38	1.50
DN	Manufacture nec	13.5	12.5	10.3	1.31	1.21
DI	Other Non-Metals	18.4	23.9	23.1	0.80	1.03
	All Manufacturing	26.2	20.0	21.2	1.24	0.94

* = Employees per business

Box 7.1 Large Establishment and Competitiveness

Average establishment size in TWCR was significantly larger (at least +10%) than the UK in;

- Machinery & Equipment (1.45)
- Paper & Printing (1.38)
- Other Manufacturing (1.31)
- Basic Metals (1.22)
- Electrical & Optical (1.20)
- Rubber & Plastics (1.10).

Competitiveness may have been driven by size (through economies of scale) leading to higher profits and output in TWCR; alternatively, both size and profitability could be driven by another variable (eg. FDI).

Average establishment size in TWCR was *smaller* than the UK in Chemicals (0.98) [actually quite high, given the absence of petro-chemicals], Non-Metals (0.80) and Food & Drink (0.55). [Small establishment size, and hence poor economies of scale, might be one important reason for TWCR’s Food & Drink small output relative to comparators.]

³⁶ Thus by 2010 Leeds CR’s establishment size could match TWCR.

Transport Equipment in TWCR, at 117 employees, was more than 3 times as large as the average in Leeds CR (34) and almost double (1.97) the UK average (60). This made a huge contribution to the higher overall average in TWCR in 2005 relative to its comparators. However, TWCR large establishment size is not solely attributable to Transport Equipment [which TWRI believes was due, in large part, to high levels of foreign-ownership, FDI³⁷].

Average establishment size was significantly larger (by more than 10 employees) in TWCR than Leeds CR in Chemicals, Machinery & Equipment and Electrical & Optical.

The average establishment size in TWCR was smaller than Leeds CR in three industries; Paper & Printing (-2 employees), Other Non-Metals (-6) and [especially] Food & Drink (-18). [Leeds CR's Printing output and Food & Drink output is very much greater than in TWCR, and their larger average establishment size reflect this to some extent.]

Both CRs have a larger average establishment size than the UK in Paper & Printing (TWCR 1.38. Leeds CR 1.50) but a smaller size than the UK in Food & Drink (TWCR 0.55, Leeds CR 0.81).

³⁷ *FDI is Foreign Direct Investment.*

8. MANUFACTURING'S PURCHASING OF KEY SERVICES

In all cases, purchases of services relates to purchases from external sources (i.e. outside the manufacturing firm).

- In 2005, TWCR manufacturers purchased Advertising, Computer and Telecommunications (ACT) services to the value of £152m, equal to 48% of the purchases made by Leeds CR manufacturers (£316m).
- In 2005, purchasing of services by the City Region as a proportion of output (4%) was one-third lower than in the UK (6%). [This low spend on these business-related services might indicate low sophistication of TWCR's manufacturing firms. Conversely, low ACT spend relative to GVA is one potential economy of scale].
- This low spend on ACT services saves over 2% of GVA and in effect maintains higher profit margins.

Road Transport Purchases Excluded

Purchasing patterns by the main market services in the previous report were assembled from their expenditure on the four major services. These were Road Transport, plus Advertising, Computer-related services and Telecoms (ACT). Data was no longer available for purchases of Road Transport services for 2001-2005 and so it has not been possible to include purchases of Road Transport services in this section.

8.1. PURCHASING OF KEY SERVICES

In 2005, TWCR manufacturers purchased Advertising, Computer and Telecommunications (ACT) services to the value of almost £152m (current prices) (Table 8.1). Purchases came particularly from Food & Drink (£27m), Chemicals (£24m) and Machinery & Equipment (£20m). Non-Metals (£2m) spent the least on services of all top ten manufacturing industries.

Table 8.1: Purchasing of Key Services by Manufacturing Industries in Tyne & Wear City Region, with Leeds City Region and UK comparison, 2005

SIC	Industry	Service Purchases (£m)								
		Tyne & Wear City Region			Leeds City Region			UK		
		Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services
DM	Transport Equipment	3.0	7.4	2.0	2.3	3.5	1.9	578	384	88
DK	Machinery & Equipment	11.3	6.0	3.2	9.8	6.9	7.8	254	167	125
DJ	Basic Metals	4.4	2.4	2.6	8.7	5.1	5.2	143	138	105
DG	Chemicals	16.7	4.1	3.6	18.1 *	5.5	5.2	1,069	253	147
DA	Food & Drink	22.8	2.4	1.5	99.4	13.0	6.2	2,041	290	127
DL	Electrical & Optical	4.9	4.2	2.5	7.5	4.6	4.9	260	223	157
DH	Rubber & Plastics	8.1	2.5	2.1	11.9	2.7	3.4	185	61	59
DE	Paper, Printing	7.9	3.6	2.2	14.0	7.8	7.5	936	282	184
DN	Manufacture nec	3.6	1.2	1.1	11.2	3.6	3.6	177	47	54
DI	Other Non-Metals	1.0	0.6	0.8	6.6	2.7	2.9	80	38	36
	Total	83.8	34.3	21.6	189.6	55.5	48.6	5,723	1,883	1,082
	All Manufacturing	92.7	36.0	22.9	202.1	59.7	53.8	5,926	1,961	1,147

* This Figure has been estimated by TWRI
Totals may not sum due to rounding

The manufacturing sector in Leeds CR in 2005 purchased ACT services valued at almost £316m (current prices) which predominantly (38%) came from the Food & Drink (£119m) industry (Table 8.2). The lowest purchase value in Leeds CR of the top ten TWCR manufacturing industries came from Transport Equipment (£8m).

Expenditure on Advertising services accounted for 60% of the ACT services purchased by the top ten manufacturing industries in TWCR, at almost £84m³⁸. Food & Drink spent the most [over a quarter of all top 10 manufacturing industries] on Advertising services in 2005 (£23m). Purchasing of Advertising services by TWCR was also high (more than £10m) in Chemicals (£17m) and Machinery & Equipment (£11m).

Expenditure on Computer-related services accounted for one-quarter of the ACT services purchased by the top ten manufacturing industries in TWCR, at more than £24m³⁹. Spending in the top ten manufacturing industries was highest in Transport Equipment (£7m) and Machinery & Equipment (£6m) and lowest in Non-Metals (less than £1m).

Expenditure on Telecoms services in TWCR was the smallest item purchased by the top ten manufacturing industries, less than £22m⁴⁰.

Expenditure on services by each manufacturing industry – as a share of that by the manufacturing sector - is, of course, partly a result of the size of the industry locally (Table 8.2). Food & Drink in Leeds CR is a particularly high spender on services.

Table 8.2: Spend on Key Services by Manufacturing Industries in Tyne & Wear City Region, with Leeds City Region and UK comparison, 2005

SIC	Industry	Service Purchases (% of total spent on the three major services attributed to each industry)					
		Tyne & Wear City Region	Leeds City Region	UK	TWCR-UK	LCR-UK	TWCR-LCR
DM	Transport Equipment	8.2%	2.4%	11.6%	-3.4	-9.2	5.8
DK	Machinery & Equipment	13.5%	7.8%	6.0%	7.5	1.7	5.8
DJ	Basic Metals	6.2%	6.0%	4.3%	2.0	1.8	0.2
DG	Chemicals	16.1%	9.1%	16.3%	-0.1	-7.1	7.0
DA	Food & Drink	17.6%	37.6%	27.2%	-9.6	10.4	-20.0
DL	Electrical & Optical	7.7%	5.4%	7.1%	0.6	-1.7	2.3
DH	Rubber & Plastics	8.3%	5.7%	3.4%	5.0	2.3	2.7
DE	Paper, Printing	9.0%	9.3%	15.5%	-6.5	-6.2	-0.3
DN	Manufacture nec	3.9%	5.9%	3.1%	0.9	2.8	-1.9
DI	Other Non-Metals	1.5%	3.9%	1.7%	-0.2	2.2	-2.4
	Total	92.2%	93.1%	96.2%	-4.0	-3.1	-0.9
	All Manufacturing	100.0%	100.0%	100.0%			

Totals may not sum due to rounding

³⁸ £93m spent by all manufacturing industries.

³⁹ £36m spent by all manufacturing industries.

⁴⁰ £23m spent by all manufacturing industries.

RATIO OF SPEND ON SERVICES TO OUTPUT (GVA)

In TWCR the top ten manufacturing industries spent marginally less (- 0.9 pp) on the three major services in 2005 than Leeds CR, as a proportion of GVA (Table 8.3).

Table 8.3: Manufacturing Industry's Expenditure on Advertising, Computer and Telecommunications Services as a Proportion of Output in Tyne & Wear City Region with Leeds City Region and UK comparison, 2005

SIC	Industry	Tyne & Wear City Region			Leeds City Region			UK		
		Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services
DM	Transport Equipment	0.4%	1.0%	0.3%	0.9%	1.4%	0.8%	3.4%	2.2%	0.5%
DK	Machinery & Equipment	2.4%	1.2%	0.7%	1.4%	1.0%	1.1%	2.1%	1.4%	1.0%
DJ	Basic Metals	1.0%	0.6%	0.6%	1.2%	0.7%	0.7%	0.9%	0.9%	0.7%
DG	Chemicals	4.3%	1.1%	0.9%	3.2%	1.0%	0.9%	6.4%	1.5%	0.9%
DA	Food & Drink	6.0%	0.6%	0.4%	6.8%	0.9%	0.4%	9.0%	1.3%	0.6%
DL	Electrical & Optical	1.3%	1.2%	0.7%	1.7%	1.0%	1.1%	1.7%	1.5%	1.0%
DH	Rubber & Plastics	2.3%	0.7%	0.6%	3.0%	0.7%	0.9%	2.4%	0.8%	0.8%
DE	Paper, Printing	2.4%	1.1%	0.7%	1.3%	0.7%	0.7%	5.0%	1.5%	1.0%
DN	Manufacture nec	2.4%	0.8%	0.8%	2.4%	0.8%	0.8%	2.7%	0.7%	0.8%
DI	Other Non-Metals	0.8%	0.5%	0.7%	1.7%	0.7%	0.7%	1.5%	0.7%	0.7%
	Total	2.2%	0.9%	0.6%	2.9%	0.9%	0.7%	4.2%	1.4%	0.8%
	All Manufacturing	2.4%	0.9%	0.6%	2.8%	0.8%	0.7%	4.0%	1.3%	0.8%

Totals may not sum due to rounding

TWCR's low spend to ACT services (by about 2% of GVA) has helped to keep TWCR's output (GVA) about 2% higher than comparators and contribute to TWCR's (2pp) higher profit margins [at least in the short-term].

In particular, spend on Advertising is about 40% lower than in the UK and saves around 2% of GVA (around £80m annually). The low spend is partly due to extraordinarily low spend in Transport Equipment (just 0.4% of GVA, compared with 3.4% in the UK).

Leeds CR spend slightly more on Telecoms (0.7% of GVA; 0.1pp above TWCR); this might be due to larger firm size in TWCR giving some economies of scale in acquiring Telecoms services.

In 2005, TWCR's manufacturing sector spent the equivalent of 3.9% of its output on purchasing ACT services. This is marginally less than Leeds City Region (Leeds CR) (4.3%) but more than 2pp less than the UK (6%) (Table 8.3).

TWCR spent 2% of its manufacturing output on Advertising services in 2005. Food & Drink spent the highest proportion of the top ten industries at 6% of its output. Chemicals spent 5% of its output on Advertising in the same year. Transport Equipment spent the smallest proportion on Advertising in 2005, at just 0.4% of its manufacturing output. The proportion spent by Non-Metals was also relatively low at 0.8% of total output.

The overall proportion of output spent on Advertising services in TWCR was marginally less (- 0.4pp) than Leeds CR, which spent nearly 3% of its manufacturing output in 2005. The overall proportion of output spent on Advertising services in TWCR was only just over half (52%) the proportion spent in the UK (4%). The low spend on Advertising was partly due to very low spend by Transport Equipment.

In 2005, TWCR spent 0.9% of its manufacturing output on purchasing Computer Services, marginally more (0.1pp) than that spent on Telecoms. The proportion spent on Computer services was joint highest in Machinery & Equipment and Electrical & Optical (1%) and smallest in Non-Metals (0.5%).

The proportions of its manufacturing output spent by TWCR on Computer Services was marginally (0.1pp) higher than Leeds CR, which spent 0.8%. TWCR, however, spent 0.5pp less on Computer services than the UK in 2005 as a proportion of manufacturing output.

TWCR spent 0.6% of its manufacturing output on purchasing Telecoms in 2005. The proportions of output spent by individual industries were fairly evenly spread, ranging just 0.6pp from 0.9% in Chemicals to 0.3% in Transport Equipment.

The proportion of manufacturing output spent on Telecommunications in 2005 by TWCR was very marginally (0.1pp) less than Leeds CR, which spent 0.7% of its output. The proportion of manufacturing output spent by TWCR was also marginally smaller (- 0.2pp) than the UK (0.8%). [Large establishment size in TWCR might account for some of these lower costs on Computing and Telecoms in relation to output, relative to Leeds CR and the UK. Conversely, they might reflect less use of sophisticated services under these headings.]

PART B: MANUFACTURING INDUSTRIES IN TYNE & WEAR AND THE REST OF THE CITY REGION

In TW, four manufacturing industries emerge as **competitive**, with both a high ‘output location quotient’ (OLQ) and higher profit margins than in the UK. These four competitive industries are the three largest in TW (Transport Equipment, Machinery and Basic Metals) plus Plastics.

9. MANUFACTURING OUTPUT

- Output in TW (measured by Gross Value Added) was nearly £3bn in 2005, 75% of TWCR output. RoCR adds one-third (nearly £1bn) to the value of TW output.
- Modest growth of 5% in TW was wholly negated by RoCR’s -23% fall (in 2001-2005).
- RoCR’s manufacturing sector shows more diversity than TW – which may well be a weakness: five top ten manufacturing industries were over-represented in RoCR⁴¹, two more than TW.

The meaning of value-added:

The value of output less the value of intermediate consumption, i.e. the *difference* between the *value of goods* produced and the *cost of raw materials* and other inputs used up in production.

An example:

If a car producer makes 400,000 cars and sells them for an average of £10,000 each, its total revenue is £4,000m. If the components for the cars cost the manufacturer (for example) an average of £9,000 per car then the value added averages £1,000 per car. The value added of the company’s operation in this case would thus be £400m (£1,000 x 400,000).

Note: If 85% of the cars were exported these would be recorded in trade statistics as £3,400m (85% of total sales of £4,000m). Thus it is [very] misleading to quote exports (at full price) as a ratio to GVA.

Box 9.0 Caution: Apparent Error Affecting Output Growth in Chemicals and RoCR Manufacturing

Regrettably, the Chemicals data for TW appear to include a geographical error; reported extraordinarily rapid Chemicals output growth (a doubling, with growth of £117m) appears to be due to a re-coding of output from RoCR (in 2001) to TW (in 2005). This also appears to have depressed the estimate in RoCR for Chemicals, which declined -22% (-£41m).

Chemicals output includes paints (International Paints/Akzo in Gateshead), as well as fine chemicals (Rohm & Haas in South Tyneside) and pharmaceuticals (Shasun in North Tyneside and Sanofi-Synthelabo in Newcastle).

This suggests that the TW manufacturing’s total output might have risen by as much as £100m less than reported (2001-05). This is, however, not enough to over-turn the statement that TW manufacturing output grew in 2001-05 –although the growth rate would be more like 1% than 5% over the four years.

⁴¹ Relative to the industry’s share of Manufacturing output in the UK.

9.1. STRUCTURE OF OUTPUT

The top ten (or ‘major’) industries in TW accounted for 96% of its manufacturing output (Table 9.1). The analysis throughout this Part B (as in Part A) focuses on these top ten industries.

Table 9.1: Output (GVA) of Top Ten Manufacturing Industries in Tyne & Wear and the Rest of the City Region , with UK Comparison, 2005

SIC (02)	2001 Rank	Industry	Output (Gross Value Added)					
			Tyne & Wear		Rest of the City Region		UK	
			(£m)	% of total output	(£m)	% of total output	(£m)	% of total output
DM	1	Transport Equipment	657	22%	87	9%	17,074	12%
DK	3	Machinery & Equipment	392	13%	86	9%	12,206	8%
DJ	4	Basic Metals	295	10%	141	14%	15,375	10%
DG	7	Chemicals	239	8%	147	15%	16,582	11%
DA	6	Food & Drink	247	8%	133	14%	22,766	16%
DL	5	Electrical & Optical	270	9%	95	10%	15,057	10%
DH	8	Rubber & Plastics	244	8%	109	11%	7,821	5%
DE	2	Paper, Printing	283	10%	38	4%	18,612	13%
DN	3	Manufacture nec	99	3%	51	5%	6,520	4%
DI	11	Other Non-Metals	92	3%	23	2%	5,244	4%
		Total	2819	96%	911	93%	137,257	94%
		All Manufacturing	2926		978		146,487	

Totals may not sum due to rounding

Note: Sequence of industries (and 2001 ranks) is from TWCR. In TW, Printing is 5th, Electrical 6th, Food & Drink 7th and Plastics 8th.

TYNE & WEAR

In 2005, manufacturing output in Tyne & Wear (TW) was £2,926m, 2.0% of the UK total. TW produced 75% of TWCR’s manufacturing output and the shares held by each industry in TW were broadly similar to those in TWCR, although TW has a slightly higher concentration in the four most competitive industries (see box).

Box 9.1 Tyne & Wear’s Four Most Competitive Industries

TW’s four most competitive manufacturing industries are identified by TWRI on the basis that they have high OLQs (above 1.0) and higher profit margins than in the UK. These industries are;

- Transport Equipment
- Machinery & Equipment
- Basic Metals
- Rubber & Plastics

TW’s four most competitive manufacturing industries are essentially the same as in TWCR⁴². Together they account for 53% of TW’s manufacturing output, 2pp more than in TWCR (51%).

TW has much higher concentration than RoCR in Transport Equipment (22% share of TW output v 9% share of RoCR output) and in Machinery (13% v 9%). Conversely, RoCR’s concentrations are higher than TW in Basic Metals (14% v 10%) and in Plastics (11% v 8%).

Transport Equipment⁴³ remains easily the largest manufacturing industry in TW, with output of £657m in 2005 (22% of all manufacturing output). This is almost twice the UK’s share of manufacturing output (12%). This pre-eminence remains despite peaking in 2003 at 25% and being 23% in 2001.

⁴² Although, strictly speaking, Basic Metals has been allowed into this group in TW even though its OLQ is marginally less than 1.0 (at 0.96).

Other large manufacturing industries in TW (although all with lower OLQs than 1.0) are;

Printing	(10%, £283m)
Electrical & Optical	(9%, £270m)
Food & Drink	(8%, £247m)
Chemicals	(8%, £239m) [see box, below, for composition]

Three industries listed above have OLQs of around 0.75 or less (Table 9.2). One has an OLQ mid way between 0.75 and 1.0; Electrical & Optical (0.90) – which highlights its status [in 2005] as not showing clear local competitive advantage. Since then, of course, two major electronics firms have closed; Circatex (in South Tyneside) and Atmel (in North Tyneside).

Table 9.2: Output Location Quotient of Top Ten Manufacturing Industries in Tyne & Wear and the Rest of the City Region, 2005

SIC (02)	Industry	Output Location Quotient	
		Tyne & Wear	Rest of the City Region
DM	Transport Equipment	1.93	0.76
DK	Machinery & Equipment	1.61	1.06
DJ	Basic Metals	0.96	1.37
DG	Chemicals	0.72	1.33
DA	Food & Drink	0.54	0.87
DL	Electrical & Optical	0.90	0.95
DH	Rubber & Plastics	1.56	2.08
DE	Paper, Printing	0.76	0.31
DN	Manufacture nec	0.76	1.18
DI	Other Non-Metals	0.88	0.66

Box 9.2 Composition of Chemicals Manufacturing in Tyne & Wear

Pharmaceuticals makers:

Shasun (NT) [formerly Rhodia Pharma]

Sanofi-Synthalabo (Nc)

Other big chemicals firms;

Procter & Gamble (NT) [European Business HQ]

Akzo-Nobel International Coatings (Gd) [International Paint]

A range of smaller firms in fine chemicals such as Rohm & Haas (ST), and Chemson (NT).

The Food & Drink industry’s small presence in TW is particularly marked with an OLQ of only 0.54. This suggests that a disproportionately large share of the demand from TW [and/or export demand] for manufactured food products is being met from the rest of the country (see box below, on its composition in TW).

⁴³ Transport Equipment includes not only car manufacture, some of their suppliers, but also any ship-repair and most offshore engineering output.

Box 9.3 Composition of Food & Drink Manufacturing in Tyne & Wear

The big firms [presumably serving national and some export markets] are led by:

Nestlé (in Nc) confectionery makers [but not chocolate] and
Findus (in NT) – owned by private equity firm EQT

Four bakery firms [which will largely serve local markets];

British Bakeries (Gd)
Greggs bakery (Nc)
Warburtons (Nc)
Bakebest

Other big firms in TW include;

Arla dairy (Gateshead) [formerly ACC Dairies] and
Scottish & Newcastle brewery (in Gd by 2005)

REST OF THE CITY REGION

The value of the Rest of the City Region (RoCR) output in 2005 was almost £1bn (£978m). RoCR is over-represented in five manufacturing industries, of which three echo the competitive industries at TWCR-level; Machinery (OLQ of 1.06), Basic Metals (1.37) and, particularly, Plastics (2.08).

Chemicals is, however, the major competitive industry in RoCR (1.33) which does not appear in the competitive four in TWCR (and TW). Indeed, it is RoCR's biggest manufacturing industry (with 15% of total output; £147m). This is presumably mainly pharmaceutical firms (in Northumberland); Merck (at Cramlington), Pfizer (at Morpeth)⁴⁴, Bristol-Myers, Synpac etc. Chemicals' share of output is almost twice that of TW (8%), but its output is still worth only just over 60% that of TW (£239m).

Basic Metals is the second-largest manufacturing industry, accounting for 14% of RoCR's manufacturing output (£141m). This includes the aluminium smelter (Alcan, at Lynemouth) and a number of foundries etc.. [The BIRN foundry has since closed].

Electrical & Optical is RoCR's third-largest manufacturing industry (14%, £133m). This will include the major Philips factory (at Durham), which has since closed, and some smaller electronics and instrument firms [possibly including Welwyn Electronics⁴⁵ and some Taiwanese firms in Northumberland].

RoCR's manufacturing sector is slightly more diverse (less specialised) than TW with five industries over-represented versus the UK, compared with just three in TW. The RoCR over-represented industries (OLQ over 1.0) are the three TWCR competitive industries (4 paras. above) plus Chemicals and the (small) Other Manufacturing industry.

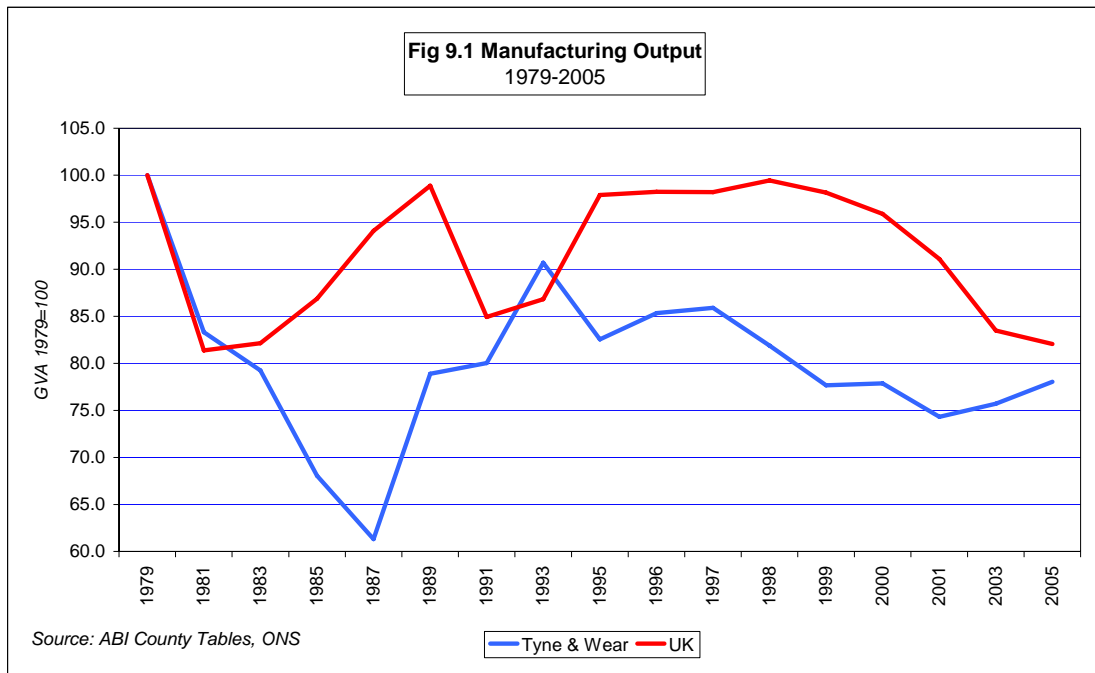
⁴⁴ The plant has since been acquired by Indian pharmaceutical company Nicholas Piramal Ltd (NIPL).

⁴⁵ TT Welwyn Systems in Northumberland, closed in 2006 with the loss of an estimated 134 jobs (source: Northumberland Information Network).

9.2 CHANGE IN OUTPUT

TYNE & WEAR: LONG TERM TRENDS (SINCE 1979)

Manufacturing output in Tyne & Wear (TW) fell hugely from 1979 (by over - 38%) until a nadir⁴⁶ of 61% of the 1979 level (in real terms) in 1987 (Fig. 9.1). It rose sharply to 1989 (up 29%) followed by a slight rise to 1991 and a further sharp rise to 1993. In 1993 manufacturing output was 91% of the 1979 level. It has remained below this level since 1993, with some fluctuation, remaining since 1998 at about 75-80% of the 1979 level.



Note: 1996, 1998 and 2000 are in addition to the 2-yearly intervals.

In the most recent period, 2001-2005, manufacturing output (as a percentage of the level in 1979) rose slightly from 74% in 2001 to 78% in 2005⁴⁷. This change in manufacturing output has been much stronger than in the UK, which continued to fall from 91% of the 1979 level in 2001 to 82% in 2005.

TYNE & WEAR: 2001-2005

Between 2001 and 2005, TW manufacturing output grew 5%⁴⁸ (+ £133m) from £2,659m in 2001 to £2,792m in 2005 (2003 prices). This was in sharp contrast to the UK, where output fell 10% overall. Furthermore, growth in TW was widely-based; six of the top ten manufacturing industries grew in 2001-2005, whereas in the UK, all ten fell.

The healthy growth of manufacturing in TW moderated TWCR's decline (to -4%, - £138m) in 2001-2005⁴⁹. The importance to manufacturing output in TWCR increased in this period [In 2001 TW produced 69% of TWCR's manufacturing output; by 2005 this had risen 6pp to 75%].

⁴⁶ i.e. low-point.

⁴⁷ After falling from 82% to 78% in 1998-2000.

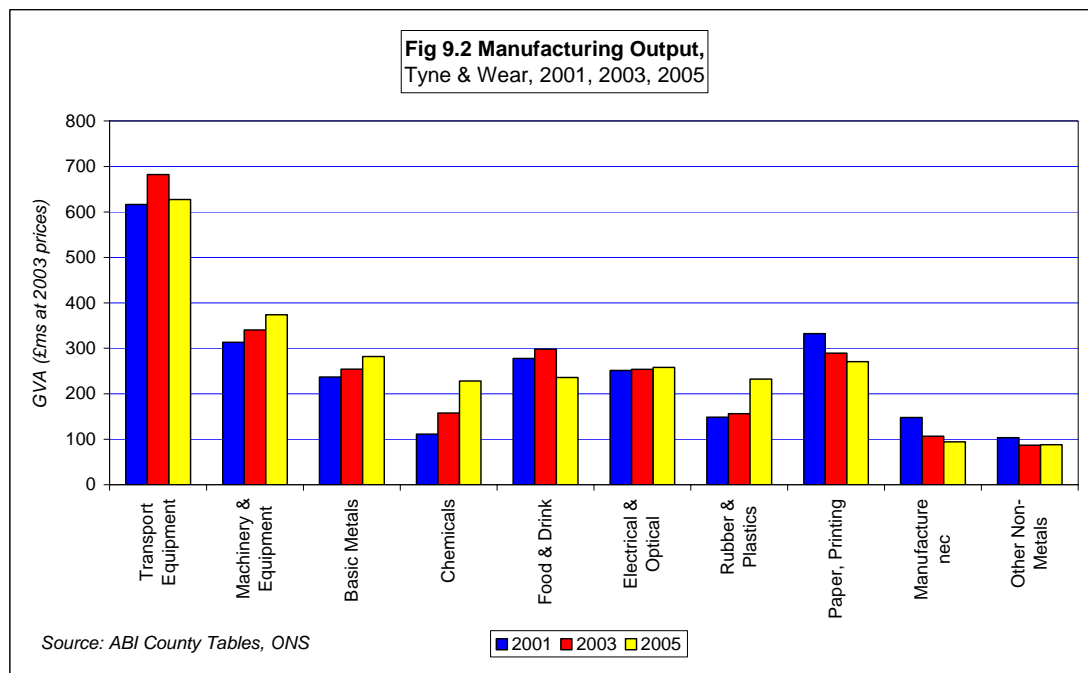
⁴⁸ TW's manufacturing output still rose by 1%, even if the Chemicals growth was a gross over-statement.

⁴⁹ Manufacturing output fell in all comparators.

TW's fastest growth was in three of its four most competitive industries (Fig. 9.2);

Plastics (up 57% to £232m) [could include Wellstream⁵⁰] [UK fell -10%],
 Machinery (up 19% to £374m) [UK fell -7%]
 and Basic Metals (also up 19% to £282m) [UK fell -10%].

Growth in Transport Equipment was quite weak, up just 2% to £627m (due to a fall in 2005, which may well have been just a dip).



Note: Industries are in TWCR size order, not Tyne & Wear order

The output of the other four major manufacturing industries in TW declined;

Paper & Printing -19% to £270m [perhaps from Trinity Mirror, De la Rue and Newsquest],
 Food & Drink -15% to £236m [including the closure of Ken Bell International⁵¹],
 Other Manufacturing -36% to £95m
 and Non-Metals -15% to £88m [presumably more from glass, due to international competition].

REST OF THE CITY REGION

The Rest of the City Region's (RoCR) manufacturing output dropped by an alarming -23% (down -£272m) in 2001-05. Even if RoCR Chemicals output was over-stated in 2001 by around £100m [as TWRI suspects] the fall in manufacturing output would still be around -15%, about 1½ times the UK rate of manufacturing decline.

In the four years 2001-05, RoCR manufacturing grew in just three industries (Fig. 9.3);

Chemicals [after discounting a presumed £100m over-count in 2001, this could imply growth of up to 70%].

⁵⁰ Wellstream makes flexible (plastic) piping for the Offshore industry.

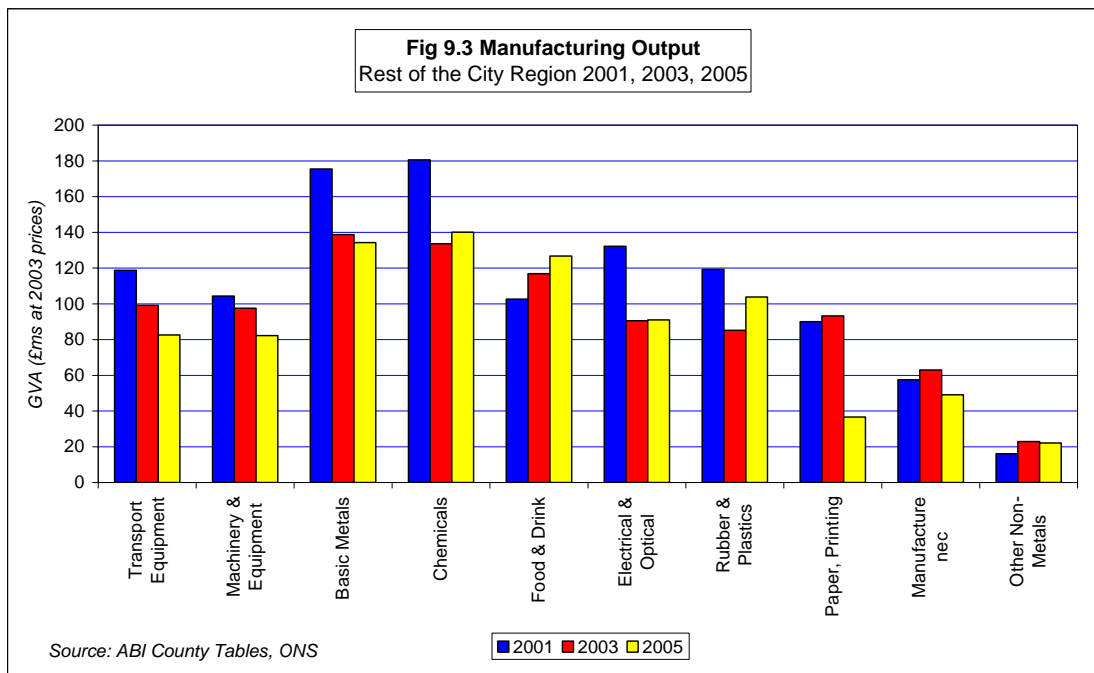
⁵¹ A sea-food (prawns) processor, which employed hundreds.

Food & Drink grew by a healthy 24% from £103m in 2001 to £127m in 2005. [Perhaps there were new factories in RoCR. Firms include Derwent Valley Foods.]
 and Non-Metals also grew strongly, up 37%, although just a £6m rise [presumably brick production associated with higher construction activity].

Some of the growth in these last two industries might be activity re-located from TW to RoCR (as these two industries shrank in TW).

Output from RoCR's seven other major industries was very weak; the largest declines were in;

- Paper & Printing (-59%),
 - Transport Equipment (-30%),
 - Basic Metals (-23%)
- and Electrical & Optical (-31%) [presumably including the closure of Philips at Durham].



The location benefits which appear to accrue to firms in the four most competitive industries in TW appear not to extend to the RoCR in half of these industries. Disturbingly, RoCR output fell in:

- Machinery (-21%)
- Plastics (-13%)

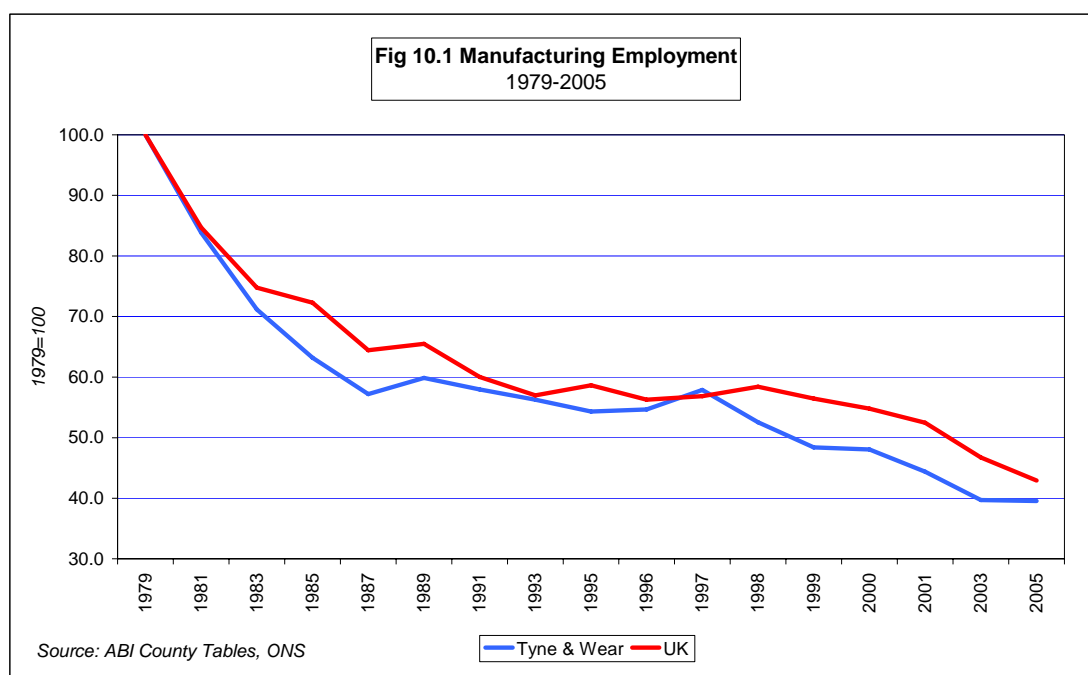
The contrasting performance of these two industries in TW and RoCR presumably indicates that they had importantly *different characteristics* –they do not appear to be ‘the same industries’ in the two areas. These differences might be *spatial-economic* such as inability to share the same (skilled/productive) labour pool and/or suppliers. Alternatively, the differences might be in terms of the industry; their products, markets, economies of scale and productivity etc..

10. MANUFACTURING EMPLOYMENT

- Manufacturing employment is much larger in TW (60,500) than RoCR (25,700). 70% of TWCR manufacturing employment was located in TW in 2005.
- Manufacturing employment fell almost twice as fast in RoCR (- 21%) as in TW (- 11%)⁵².

TYNE & WEAR: LONG TERM TRENDS (SINCE 1979)

Between 1979 and 2005, manufacturing employment more than halved in both Tyne & Wear (TW) and the UK (Fig. 10.1). In TW, manufacturing employment fell by an average of over -2% pa, to 40% of the 1979 level. Similarly, manufacturing employment in the UK fell to 43% of its 1979 level. The most dramatic fall in TW occurred between 1979 and 1987, when employment in TW fell 43% (or over -5%pa). Manufacturing employment fell more slowly in 1987-2005 (by an average of about -1%pa) but the decline was essentially all after 1997⁵³.



UK manufacturing employment fell slightly more slowly than TW, with less sign of stability between 1987-97; down almost 36% in 1979-1987 and continued to decline to 2005 (to be 57% below its 1979 level).

TW's competitiveness in manufacturing appears to have kept up employment since 2001, at least relative to the UK. In 2001-2005, manufacturing employment in TW declined 5pp⁵⁴, from 44% of the 1979 level in 2001, to 40% in 2005. From 2001, manufacturing employment in the UK fell twice as fast as TW, down 10pp (of 1979 levels) from 53% in 2001. The fall in TW occurred only in 2001-2003, as employment in 2005 matched the level in 2003 (40% of the 1979 level). In comparison, the UK fell 6pp in 2001-2003 and a further 4pp in 2003-2005.

⁵² The faster fall in employment in the rest of Tyne & Wear City Region is probably due to its weaker output, productivity and profit performance –TWRI.

⁵³ Manufacturing decline since 1997 in TW has included the Clothing industry's two-thirds collapse (see box at the end of this section). More broadly, the sterling exchange rate rose sharply in 1996-97, which will have rendered some firms uncompetitive.

⁵⁴ The original difference rounds to 5pp, not 4pp.

TYNE & WEAR: 2001-2005

In 2001, the TW manufacturing industry employed 67,800, more than two-thirds (67%) of total manufacturing employment in TWCR.

More than two-fifths (44%) of those employed in manufacturing were employed in the four most competitive industries, which were (in 2001);

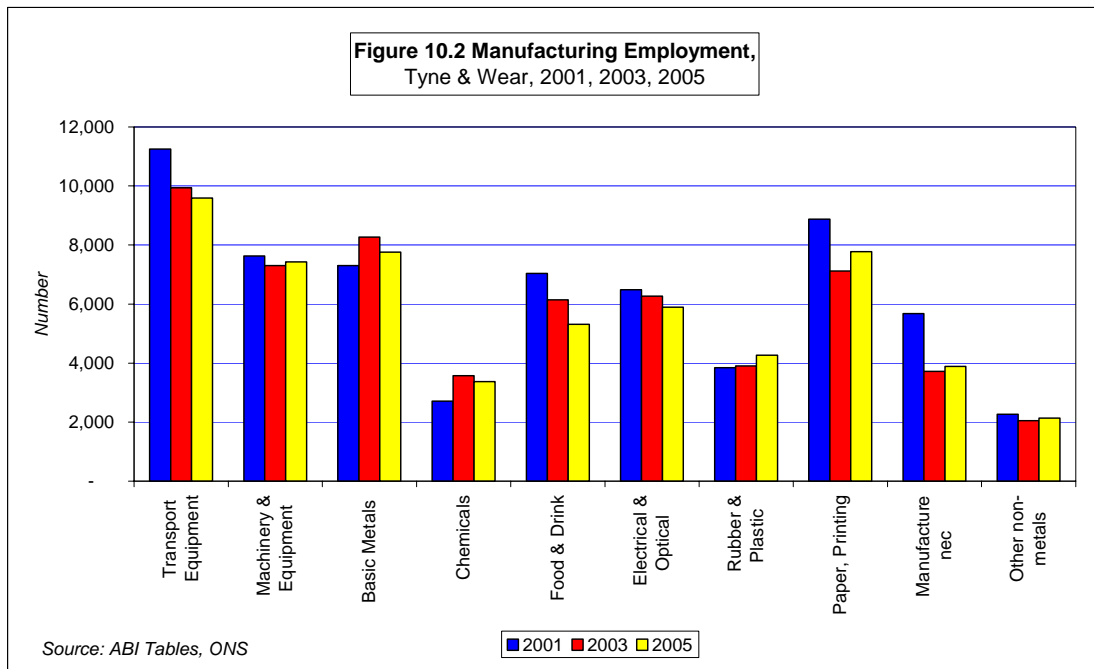
Transport Equipment	11,300
Machinery	7,600
Basic Metals	7,300
Plastics	3,900.

In 2001-2005, employment in TW fell -11% (to 60,500), an average annual decline of about 3% (or - 1,850 jobs), but its share of TWCR manufacturing employment rose to 70% (owing to a faster decline in RoCR and some growth in TW).

Employment rose in just three industries, two of which were competitive industries;

Chemicals	up 24% (700) [The scale, at least, of this is subject to some doubt due to the apparent re-coding of some previously RoCR activity to TW]
Rubber & Plastics	up 11% (400)
Basic Metals	up 6% (500)

This suggests that *competitiveness was positively associated with employment growth*; while overall, employment in the four competitive industries fell -3% (-1,000) in 2001-2005, this was 10pp slower than the decline in the remaining seven major industries (- 13%, -4,200). Thus by 2005, 48% of TW manufacturing jobs were in these four industries (a rise averaging about 1pp annually).



The largest losses of employment were in ;

Other Manufacturing	-1,800 (-32%)
Food & Drink	-1,700 (-24%)
[includes the closure of the Newcastle Brewery, and of Ken Bell International]	
Transport Equipment	-1,700 (-15%) [see box below]

Employment losses from all three industries were greater than in 1998-2000, which tends to suggest intensified competition, and loss of position.

Box 10.1 Job Losses in Tyne & Wear's Transport Equipment Industry

The Transport Equipment overall -1,700 job losses might^a be about a quarter explained by about -350 net losses reported from **Offshore Yards** (Table, below). The (complex) logic is as follows;

- i) job losses almost -1,200 but
 - ii) more gains (+1,660) were announced in the period (both figures exclude AMEC), and
 - iii) if Swan Hunter's gain of 800, reported late 2000, essentially was before the end of 2000, and
 - iv) the McNulty gains are discounted,
- then the net loss from these yards over the five years (2001-05 inclusive) could have been about -350.

Yard	2000	2001	2002	2003	2004	2005	Comments
Swan Hunter	+800	+660 -500			-100	-200	Closed after 2005
Cammell Laird		-400. ⁵⁵					In S. Tyneside
McNulty			+80		+100	+100	Assume net zero
AMEC ^b (but Mech. Eng)		+250 +450		-600	-600+		Closure in 2004

Source: TWRI's Job Change Database (from the Press).

Also, within Transport Equipment, the **Motor Industry** had about 750 reported job losses from [all in Sunderland]:

- 400 Federal-Mogul TP (car parts) [closure in 2002],
 - 180 David Brown Radicon [announced in 2000 to be over 18 months]
- And some small losses from Nissan -30, -60,-90.

There is, therefore, evidence of Transport Equipment's difficulty in raising its employment level, and, importantly, the evidence is that the *Motor industry (but not mainly Nissan) showed weakness in employment* in the period 2001-05. Nissan has faced intensified competition, particularly for small cars. Since about 2000, production of small cars has been virtually eliminated in the UK except by Nissan (the *Micra*)⁵⁶. The BMW production of the mini is the only other exception, which commands a price premium of about £3,000 per car (thus making it less vulnerable).

Moreover, since about 2005, competition from central Europe has been growing very rapidly – particularly from Slovakia, which now produces more cars per head than any other country in the EU⁵⁷. Indeed, in 2008, central Europe as a whole is expected to produce as many cars as the UK.⁵⁸

Notes: a. It is very difficult to track employment changes in the yards, even broadly accurately. This is partly because yards can announce substantial job gains which are only temporary and the subsequent losses might never be reported.
b. AMEC's yard should be technically classified as Mechanical Engineering/Machinery as its products ('topsides') were not floating and hence not marine engineering/Transport Equipment.

⁵⁵ At Hebburn, South Tyneside, Journal 31/7/01.

⁵⁶ Ford ceased UK production of the Fiesta around 2000. Vauxhall has closed its Luton plant. Peugeot has effectively transferred its small car production from Ryton (Coventry) since 2004 to a new plant in Slovakia (at Trnava).

⁵⁷ Source: The Economist Newspaper.

⁵⁸ Source: The Economist Newspaper, 2007.

The decline in Electrical & Optical employment experienced in 1998-2000, slowed in 2001-2005. Employment in TW in Electrical & Optical dropped 9% (- 600)⁵⁹, which was only about one fifth of the *rate* of loss (21% loss, -2,700) in the previous two years, 1998-2000. In 1998 the industry had the highest employment in TW, but suffered significant job losses after the closure of several key factories [Electronics is known to have lost -1,025 jobs with the closure of Viasystems (in South Tyneside) in 2001, which then partly re-opened +850 as Circatex. Also, LG Philips shed 290 jobs in Washington, Sunderland (-119 in 2003 and -170 in 2004)].

Box 10.2 The Clothing Industry's Collapse in Tyne & Wear

Outside the top ten manufacturing industries, TW's Clothing employment (1,700 in 2005) has fallen to less than a third of its level in 1998 (5,500). In 2001-2005, TW lost 1,500 jobs in Clothing, [just] 43% of those lost in TWCR. The majority of the loss was in 2001-2003, when employment in the TW industry fell 53% (- 1,700). In 2005, employment in Clothing was 1,700, after it *rose* 13% (200) in 2003-2005 [About a third of these 1,500 Clothing job losses can be identified as from Dewhirst in Sunderland; -390 in 2002 and -150 in 2004⁶⁰].

REST OF THE CITY REGION

In 2005, RoCR's manufacturing employment was 25,700, less than 30% of total manufacturing employment in TWCR. In 2001-2005 manufacturing employment fell -21%, almost double the rate of decline in TW.⁶¹ In 2001, RoCR had employed 32,700, just under one-third of total manufacturing employment in TWCR.

Cautions should be applied to RoCR employment estimates, due to sampling variability and 'lumpiness' of the actual data:

The ONS sample frame is by employment size band, which –given smaller firm size in RoCR –means less coverage by the sample, and thus less reliable results than in TW.

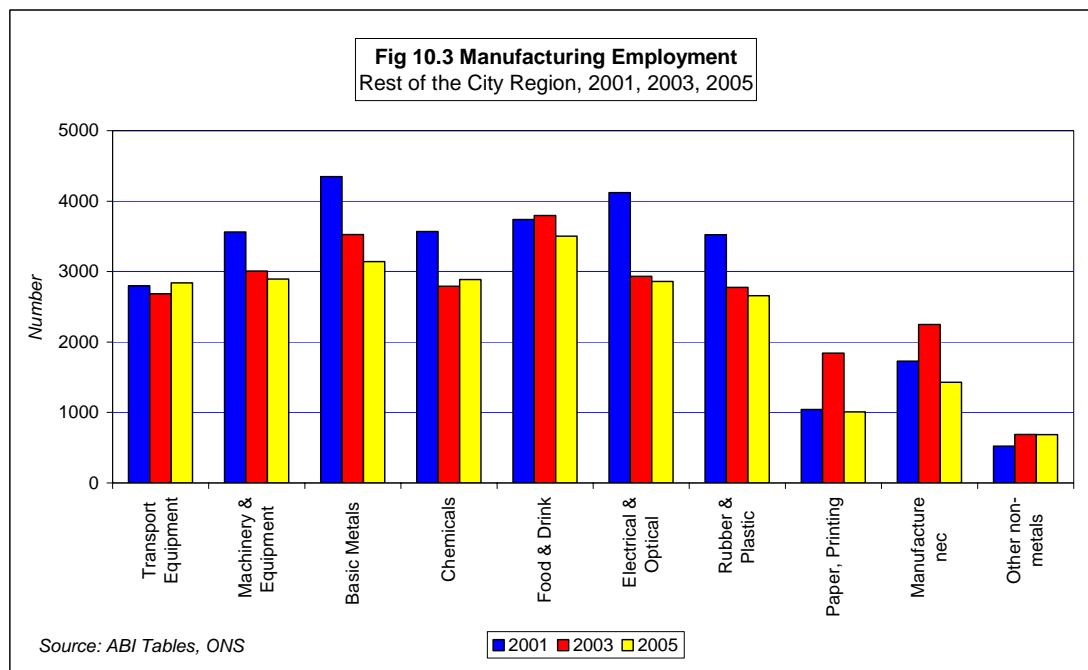
Secondly, the impact of a *single large change* or 'lumpiness' [notably closures] will generally be larger than in TW. For example the loss of 1,000 jobs from Electronics would have reduced RoCR employment by about 24% but TW's by about 16%.

⁵⁹ This does not include the closure of Circatex, which went into administration in January 2006. However, it does include the job cuts made by the firm in 2005, when it reduced its 211 workforce by 10%.

⁶⁰ The Journal, 9/2/02 and 22/5/04.

⁶¹ And 4pp faster than the decline in the UK (-18%).

In 2001, employment in RoCR had been highest in Basic Metals [including the Alcan aluminium smelter, at Lynemouth] (Fig. 10.3). Basic Metals employed 60% (4,300) of the TWCR total number employed by this industry.



Employment in RoCR in 2001 was also high in;

Electrical & Optical	(4,100, 40% of total industry employment in TWCR),
Food & Drink	(3,700, 35%),
Chemicals	(3,600, 57%)
[incl. pharmaceutical firms Pfizer and Merck Sharp & Dohme etc.],	
Machinery & Equipment	(3,600, 32%)
and Rubber & Plastics	(3,500, 48%).

In 2001-2005, manufacturing employment in RoCR fell by a large 21%, almost *double* the decline in TW. Moreover, employment in RoCR fell in all but two of the top ten manufacturing industries in this period. The only two RoCR industries to escape job losses were;

Transport Equipment	up 2% (less than 100) [possibly including 100 job gains announced at Tanfield in 2000, and the 300 gains reported at Smith Electric Vehicles, ⁶²]
and Non-Metals	up 31%, (200) [the smallest industry, presumably in higher brick production].

This pattern is *consistent with*, although not necessarily caused by, some positive “spill-over” effect from the biggest competitive industry in TW [Transport Equipment] to RoCR.

In RoCR, three of the four TWCR competitive industries shed jobs –the reverse of TW. This appears to suggest weaker proximity advantages [processes] for firms in RoCR [than in TW] or maybe just less proximity, in these industries. This might operate in the labour market where RoCR is not a coherent area.

⁶² At Stanley, Derwentside, reported quite late in 2005, J 6/10/05.

RoCR's biggest job losses were in Electrical & Optical and in Basic Metals;

Electrical & Optical shed 1,300 jobs (down a huge 31%) [reflecting mainly the closure of LG Philips at Durham which shed 760 jobs in 2005⁶³].

Basic Metals shed 1,200 jobs (down a big 28%) [including the closure of some foundries]. This was in contrast to TW where employment rose by 6%.

Employment change in Other Manufacturing, Food & Drink and Transport Equipment, where losses in TW were fastest, was slower in RoCR. Employment in Other Manufacturing fell 18% in RoCR, just over half the rate of decline in TW (-32%). Employment in Food & Drink fell by a relatively small -6% in RoCR, only a quarter the rate of the decline in TW (-25%).

Transport Equipment employment *rose* 2% in RoCR [possibly reflecting growth at Tanfield, the electric vehicle-maker] compared to a -15% fall in TW. The only other industry where employment in RoCR rose was Non-Metals [i.e. brickworks etc.], where employment grew 31% (+200) compared to a -6% fall in TW. This fast growth is presumably due to the rapid growth of construction.

It appears that Food & Drink is competitive in RoCR, unlike in TW. Food & Drink managed to limit job losses to -6% - only a quarter of the rate in TW. This appears to be due to the absence of big closures which occurred in TW (the Tyne Brewery and Ken Bell Int.). It is also possible that some of RoCR's less weak employment performance may be due to relocation of food processing to RoCR.

In 2005, less than 30% of TWCR's manufacturing employment was outside TW. Employment in RoCR was highest in Food & Drink (3,500) but dropped below 3,500 in all other industries. Of the top ten manufacturing industries, employment in RoCR remained lowest in Non-Metals (700).

⁶³ *Journal* 21/2/05.

11. MANUFACTURING PRODUCTIVITY

- Manufacturing productivity in TW was above the UK (by 7%). This is a return to the position in 1993 (before productivity deteriorated).
- Productivity growth in TW averaged a healthy 4%pa (up 16%). In RoCR, in contrast, productivity *fell* by -18%.
- Thus in 2005, TW's manufacturing productivity (£48,400 GVA per employed person) was over 50% higher than in RoCR (£31,800).

11.1. PRODUCTIVITY LEVELS

- a) Productivity levels are a measure of efficiency in the use of labour and provide a guide towards future output and employee performance. Productivity is defined as 'Gross Value Added per Employee' in this report.
- b) Productivity figures have been rounded to the nearest £100 in the text, but the un-rounded figures are retained in table 11.1 in order to allow readers to perform their own calculations or analyses should they wish to do so.

TYNE & WEAR

Relative to the UK, in 2005, manufacturing productivity in Tyne & Wear (TW) had risen to be 7% (£3,300) *higher* than the UK – a substantial improvement from around 10% below the UK in 2000. This has broadly returned TW to its position in 1993 (before productivity deteriorated) when it was 8% above the UK average⁶⁴.

The highest productivity industries in TW, relative to the UK, were the four previously identified as competitive in TWCR, plus the addition of Electrical & Optical (Table 11.1).

Table 11.1: Productivity (GVA/employee) Levels in Top Ten Manufacturing Industries in Tyne & Wear and the Rest of the City Region, with UK Comparison, 2005 (current prices)

SIC	Industry	Tyne & Wear £	TW as Index of UK (UK=100)	Rest of the City Region £	RoCR as Index of UK (UK=100)	UK £
DM	Transport Equipment	68,533	137.7	43,686	87.8	49,778
DK	Machinery & Equipment	52,739	124.9	15,958	37.8	42,235
DJ	Basic Metals	38,053	102.0	31,148	83.5	37,318
DG	Chemicals	70,893	91.5	18,100	23.4	77,486
DA	Food & Drink	46,520	95.8	47,879	98.6	48,542
DL	Electrical & Optical	45,848	105.4	25,988	59.7	43,517
DH	Rubber & Plastics	57,054	150.3	-797	-2.1	37,966
DE	Paper, Printing	36,454	80.3	98,414	216.8	45,395
DN	Manufacture nec	25,526	75.6	49,625	146.9	33,782
DI	Other Non-Metals	43,190	93.9	25,862	56.2	46,000
	All Manufacturing	48,396	107.2	31,766	70.4	45,128

Totals may not sum due to rounding

⁶⁴ The figures for previous years are available in the report 'Manufacturing & Market Services in Tyne & Wear 1998-2000', published by TWRI June 2004. Copies are available to download at www.twri.org.uk

Indeed, three of the four most competitive industries have *productivity 25% or more above the UK average*;

Transport Equipment	138% of UK
Machinery	125% of UK
Plastics	150% of UK [Perhaps partly reflecting suppliers to Nissan] ⁶⁵ . [but caution: may be over-stated given RoCR's implausible 'negative productivity']].

Productivity in the fourth competitive industry, Basic Metals, was 2% above the UK average. The only other industry where productivity was above the UK was Electrical & Optical (105%).

Box 11.1 The Mix of 'Machinery & Equipment' Makers in Tyne & Wear

'Machinery & Equipment': these are a mixed group of companies. Some major companies in TW:

Defence equipment:	BAE Systems Land Systems (in Newcastle) and its Ordnance factory in Gateshead.
Piping:	DUCO (flexible piping for the offshore industry) (Nc)
Pumps and Filters:	British Engine Ltd (Nc) Grundfos (Sd) Domnick Hunter (Gd), filters for the process industries.
Heating and Air-Conditioning:	Myson Radiators [became part of Baxi] Rite-Vent
Cranes:	Liebherr (Sd)
Aero-engines parts:	Rolls-Royce (Sd)

Other major companies making 'Machinery' include: Anson, Romec, Andaray Engineering and Continental Conveyor

Three industries' productivity was close to the UK (just 4-8% below);

Food & Drink	96%
Non-Metals	94%
Chemicals	92% [Chemicals had the highest TW productivity in 2005 at £70,900. Caution: this may be an over-statement as RoCR looks very oddly low at only 23% ⁶⁶].

The two other major manufacturing industries were well adrift, at least 20% below UK averages;

Printing	80%
Other Manufacturing	76% [where productivity was lowest, £25,500].

⁶⁵ But caution: the TW and the RoCR productivity estimates are very odd, with RoCR 'negative'. It could only be that some employment in TW, but not in its output, has been assigned by ONS to RoCR.

⁶⁶ Concurrent with the UK, the highest productivity level in Tyne & Wear was achieved outside the top ten Tyne & Wear manufacturing industries by output. Productivity in the Coke, Petroleum & Nuclear industry was £70,900 in 2005, 8% lower than the UK.

REST OF THE CITY REGION

In 2005 productivity in RoCR, was only £31,800, a massive 30% below the UK and 34% lower than TW.

Productivity was very high in Paper & Printing, at an outstanding 217% of the UK average at £98,400⁶⁷ [presumably mainly due to paper production in RoCR being a much higher productivity industry than printing in TW] and was also high in Other Manufacturing, an impressive 147% of the UK average at £49,600.

Paper & Printing and Other Manufacturing are both much more productive outside TW. Productivity in Paper & Printing in RoCR was [presumably mainly due to paper production in RoCR being a much higher productivity industry than printing in TW] more than double TW (£36,500) while productivity in Other Manufacturing in RoCR was £49,600, 15% above TW (£43,200).

Productivity in Food & Drink in RoCR closely approximated the UK, at 99%, £47,900 and was marginally (+ 3%) higher than TW (£46,500). [This might be due to production of higher-value products than in TW, by firms like Derwent Valley Foods- makers of snacks for adults.]

Productivity was poor (around 15% below the UK) in Transport Equipment (88%, £43,700) and Basic Metals (84%, £31,100). These are, ironically, two of the four industries which are competitive in TW.

RoCR's productivity was very poor (around half or less of UK, and well under £30,000) in four major industries:

Electrical & Optical	60%	(£26,000) [possibly due to impending closures]
Non-Metals	56%	(only £25,900) [possibly due to small sample size]
Machinery	38%	(just £16,000) [extra-ordinarily low]
Plastics	negative	[very odd, especially when TW scored 150%].

These levels are so low as to be very difficult to generate profits. Thus, these industries look particularly vulnerable.

Productivity was lowest in Chemicals (£18,000). This might be due to the impending change of ownership of the Pfizer plant [TWRI also has doubts about ONS' coding of Chemicals output to TW and RoCR].

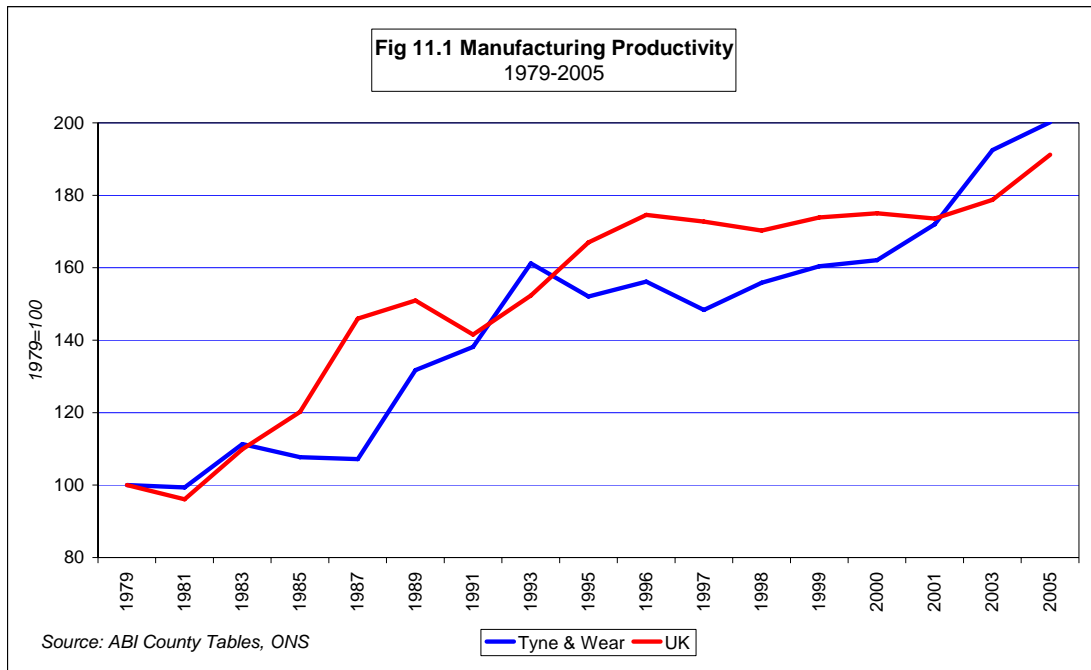
The very low productivity in RoCR was partly due to dramatic negative GVA per employee in Coke & Petroleum and Rubber & Plastics. [In 2005, Coke & Petroleum's output was estimated at - £4m and the industry had a tiny (although growing) workforce (under 100)]. Rubber & Plastics' output (GVA) was -£2m although its workforce was much larger (2,700).

⁶⁷ This will include SCA, local newspaper and other printers.

11.2. PRODUCTIVITY GROWTH

TYNE & WEAR: LONG TERM TRENDS (SINCE 1979)

Over the last quarter century or so, TW manufacturing productivity has been *above the UK* for three periods and been below the UK for two periods (1985-89 and 1995-2000) (Fig. 11.1).



Caution: The chart shows even years, 1996, 1998 and 2000, which tends to exaggerate the apparent duration of the low productivity period.

Between 1979 and 2005, TW matched the UK average manufacturing productivity growth rate of 4% per annum. This 4% pa average rate can be termed the long-run trend rate of manufacturing productivity growth. This means that manufacturing productivity more than doubled in TW (up 108%) and almost doubled in the UK (up 91%) relative to UK levels in 1979.

Between 1979 and 1983 productivity levels in TW closely followed the pattern set by the UK, but were constantly slightly *above* the UK. In 1983-1987, productivity in TW stagnated and was significantly below the UK, but then improved in 1987-1991 [partly due to an infusion of FDI⁶⁸].

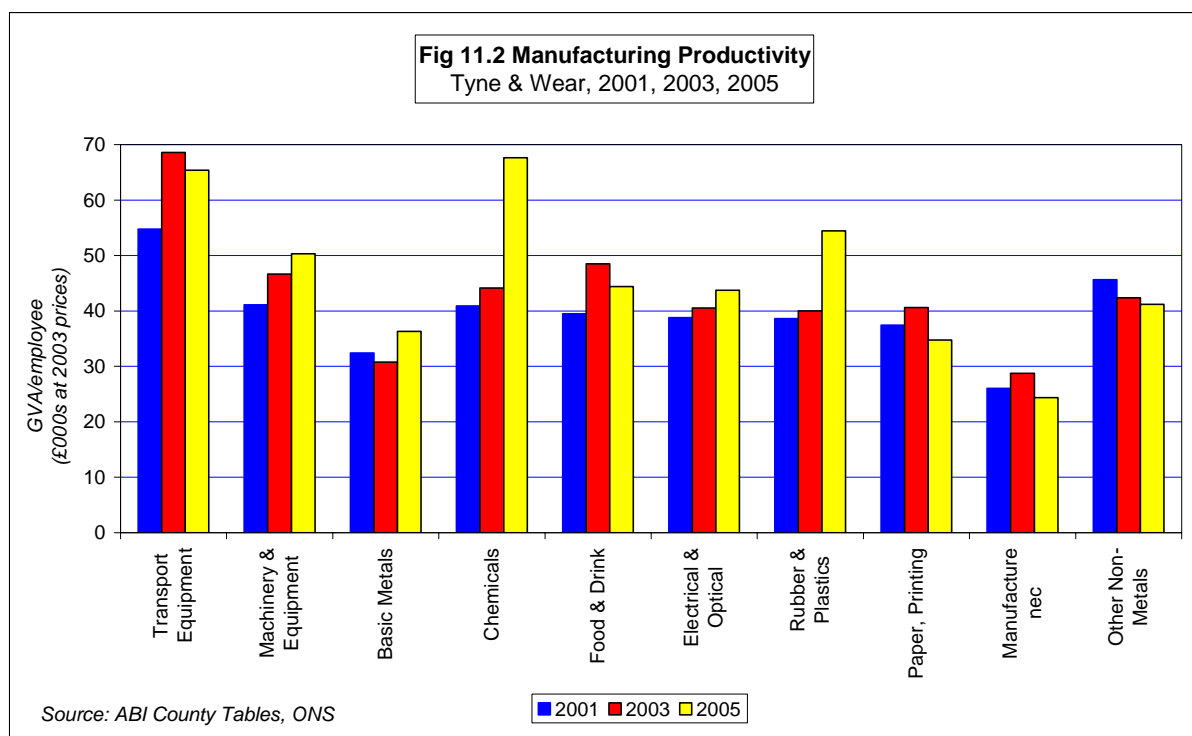
Between 1991 and 1995, productivity in TW was above the UK, but slipped below the UK after 1995. Productivity in TW remained below the UK until 2001.

TYNE & WEAR: 2001-2005

In 2001-2005, productivity levels in TW exceeded the UK, rising 29pp in TW and 17pp in the UK. However, there are signs that the higher than UK productivity levels in TW may not continue, as productivity growth in TW slowed in 2003-2005, while growth in the UK accelerated.

Productivity growth in 2001-2005 matched the UK long-run rate of 4% pa in 2001-2005. Productivity in TW manufacturing industries rose 16% overall in 2001-2005⁶⁹ (average of 4% per annum) to £46,800 in 2005, 6pp faster than the rise in the UK (+ 10% to £43,100 in the UK) (2003 prices).

⁶⁸ FDI is Foreign Direct Investment



TW's greatest rise was in 2001-2003 (the early stages of its output up-turn) when productivity rose 12% to £45,055. Productivity rose by a further 4% from 2003 to 2005. This is a very sharp acceleration from sluggish growth in 1998-2000, when productivity rose less than 3% in TW (1.5% pa).

Productivity in TW rose in seven of the top ten manufacturing industries in 2001-2005.

The fastest rises were in;

- Chemicals, which rose nearly two-thirds (65%) to £67,600 in 2005, from £40,900 in 2001⁷⁰.
- Rubber & Plastics (+ 41%, to £54,400) in TW in 2001-2005, after a similar decline of 16% in 1998-2000.
- Machinery & Equipment (+ 23%, to £50,300)
- Transport Equipment (+ 19%, to £65,400)

Productivity also rose, but less quickly than the 4% pa rate, in Electrical & Optical (+ 13%, to £43,700), Food & Drink (+ 12%, to £44,400) and Basic Metals (+ 12%, to £36,300).

Productivity *fell* in TW in the remaining three top ten manufacturing industries in 2001-2005; Non-Metals (- 10%, to £41,200), Paper & Printing (- 7%, to £34,800) [probably reflecting downward pressure on the newspaper industry, including Trinity Mirror, etc., but it could have reflected difficulties at De La Rue] and Other Manufacturing (- 6%, to £24,400).⁷¹

⁶⁹ Compared to levels in 2001.

⁷⁰ This huge increase in productivity made a small contribution to the overall fast (16%) growth in TW manufacturing productivity in 2001-2005. Excluding Chemicals, TW manufacturing productivity still rose 15% in 2001-2005. The Chemicals industry previously had a 15% fall in productivity levels in 1998-2000.

⁷¹ Productivity in Non-Metals and Paper & Printing fell in TWCR as a whole, but Other Manufacturing experienced significant growth, contrary to its performance in TW

Box 11.2 Tyne & Wear Productivity Growth Faster than in the UK

Productivity growth in TW in 2001-2005 was 6pp faster than the UK, where productivity rose 10% to £43,100⁷². Productivity growth accelerated to 7% in 2003-2005, faster than TW in this period. Productivity growth in TW almost quadrupled from 1998-2000, when (at +2.5%) it was just under 2pp slower than the UK (+ 4%).

Growth in TW was more favourable than the UK in six industries⁷³. This was most evident in;

- Chemicals [productivity in TW rose by 65%, almost 56pp faster than the UK (10%)]
- Rubber & Plastics (+34pp)
- Transport Equipment (+ 18pp).

Productivity growth was *less* favourable in TW than the UK in the remaining four industries; the three industries where productivity in TW fell (Paper & Printing, Other Manufacturing and Non-Metals) and in Electrical & Optical.

The change in productivity in Non-Metals in TW was 24pp less than the UK in 2001-2005. Non-Metals productivity in TW *fell* 10% but *rose* 14% in the UK [Perhaps reflecting the Cornings/Newells glass-making firm, which later closed].

Similarly;

- Productivity in Paper & Printing fell 7% in TW, but rose 0.4% in the UK (difference of 8pp)
- Productivity in Other Manufacturing fell 6% in TW but rose 9% in the UK (difference of 15pp)

Productivity in Electrical & Optical rose in both TW and the UK in 2001-2005, but at only about half the pace in TW (13%) as in than the UK (24%). [i.e. in Electronics etc. where Viasystems and its rump Circatex declined.]

REST OF THE CITY REGION

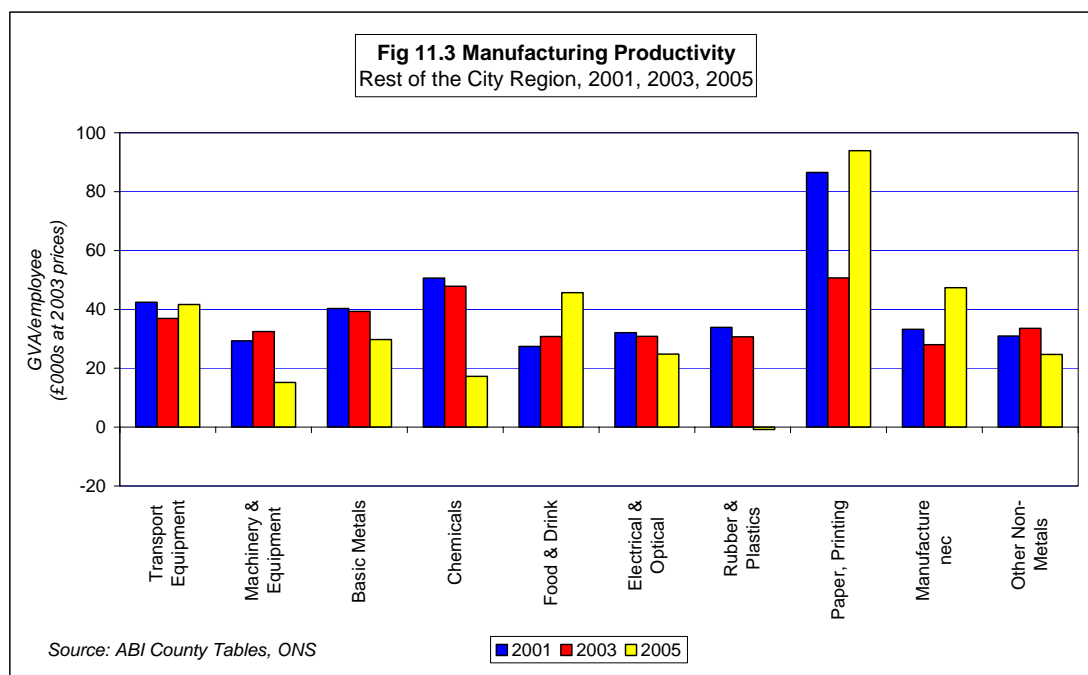
In 2001-2005, productivity in the Rest of the City Region (RoCR) *fell* 18% [a serious decline] from £36,900 in 2001 to £30,300 in 2005 (2003 prices). Productivity in RoCR fell - 3% in 2001-2003⁷⁴.

In 2001-2005, productivity in RoCR rose in just [a very low] three of the top ten manufacturing industries, four fewer than in TW and seven fewer than in the UK (Fig 11.3). Productivity growth in RoCR was, however, faster than TW in the three industries where productivity rose; Food & Drink (a huge 67%), Other Manufacturing (42%) and Paper & Printing (9%) [Productivity in TW rose just 12% in Food & Drink and fell in the other two industries].

⁷² Unlike TW, UK productivity rose only 3% from £39,100 in 2001 to £40,300 in 2003.

⁷³ Productivity rose in (only) seven of the top ten manufacturing industries in TW, but rose in all ten in the UK.

⁷⁴ and a further -15% fall in 2003-2005.



Productivity fell in the remaining seven major industries. The fastest fall was in Rubber & Plastics, down [an oddly massive] 102% owing to significant falls in output [This might reflect major problems in some plastics firms in 2005]. Productivity in Rubber & Plastics rose in TW in the same period. There were also huge falls in Chemicals (- 66%)⁷⁵ and Machinery & Equipment (- 48%).

⁷⁵ But TWRI judges the Chemicals data too extreme to be reliable.

12. MANUFACTURING OPERATING PROFIT

In this section, operating profits are considered in terms of both levels and, in particular, margins. In a healthy economy, in the long-run, profit levels will grow as output grows. However, profits tend to be sharply cyclical –falling and rising in particular years within the business cycle.

Important: *Changes* in profits are given in real terms (2003 prices).

- TW contributed 80% (£1,285m) of TWCR's operating profits. Operating profits in RoCR add 25% (£327m) to TW.
- Operating profits rose 15% in TW but fell by a serious -37% in RoCR.
- The lower profit margins in TWCR were largely due to RoCR (profit margin of 33%) rather than TW (profit margin of 44%)⁷⁶
- Profit margins growth in TWCR was held back by RoCR (- 8pp) as margins rose 4pp in TW, double the UK rise.

The meaning of operating profit:

One measure of profitability is operating profitability: the reward to capital from value added. An indication of operating profits can be obtained from the ABI data. Since, in principle, value-added is split between labour and capital, and rewards to labour are known, the rewards to capital can be calculated. ABI produce 'Total Employment Costs' data and so operating profits can be calculated directly by subtracting the 'Total Employment Costs' from the 'Gross Value Added'.

Operating profit provides a good guide to financial health. It is not affected by differences in capital structure of a company (debt, equity [or share] capital). It is a wider concept than pre-tax profit. To obtain pre-tax profit, interest payments and depreciation would have to be subtracted.

⁷⁶ Profit margins (to *Id.p*) in 2005 were 41.3% in TWCR, 43.9% in TW and 33.4% in RoCR

12.1. OPERATING PROFIT LEVELS

TYNE & WEAR

In Tyne & Wear (TW) in 2005, manufacturing operating profits were £1,285m, 2% of total manufacturing operating profits in the UK (current prices) (Table 12.1). TW contributed 80% of total operating profits in TWCR.

Table 12.1: Manufacturing Industries' Operating Profits in Tyne & Wear and the Rest of the City Region, with UK Comparison, 2005

SIC	Industry	Tyne & Wear £m	Rest of the City Region £m	UK £m
DM	Transport Equipment	313	4	5,665
DK	Machinery & Equipment	175	15	4,129
DJ	Basic Metals	110	54	5,651
DG	Chemicals	116	26	8,457
DA	Food & Drink	116	73	11,736
DL	Electrical & Optical	125	33	5,945
DH	Rubber & Plastics	118	39	2,973
DE	Paper & Printing	97	15	7,731
DN	Manufacture nec	34	25	2,878
DI	Other Non-Metals	39	8	2,363
	All Manufacturing	1,285	327	61,634

Operating profits in TW rose strongly (+ 15%) in 2001-2005 (from £1,070m in 2001 to £1,226m in 2005) which was in sharp contrast to TWCR and the UK (2003 prices). Moreover, the rise in TW was fairly steady, up 6% in 2001-2003 and 8% in 2003-2005.

REST OF THE CITY REGION

In the Rest of the City Region (RoCR) in 2005, manufacturing operating profit were £327m, just 0.5% of total UK manufacturing operating profits (current prices). RoCR contributed 20% of total operating profits in TWCR, and thus adds [only] one-quarter (25%) to the value of TW operating profits.

Operating profits in RoCR fell by more than one-third (37%) in 2001-2005, from £497m in 2001 to £312m in 2005 (2003 prices). In 2001-2003 operating profits in RoCR declined by almost one-quarter (- 24%) but this appeared to slow in 2003-2005, when operating profits fell 18%.

12.2. OPERATING PROFIT MARGINS

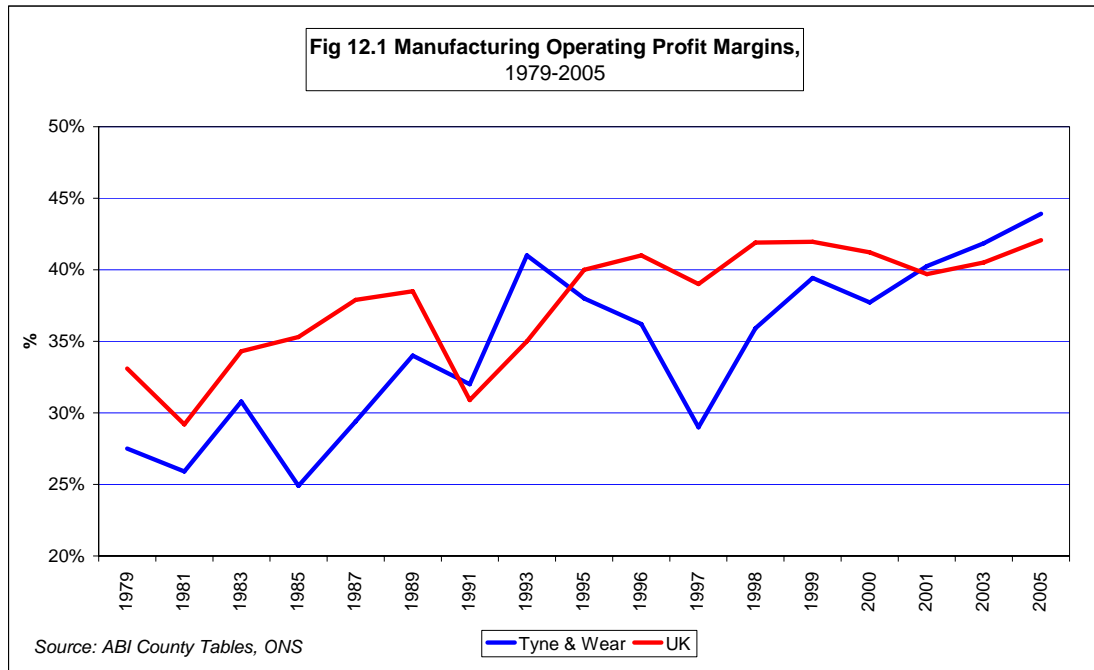
CONTEXT

Manufacturing's operating profit margins improved from the low levels of the early 1980s (under 35% in the UK, and under 30% in TW). In TW, operating profit margins rose steeply from 25% in 1985 to over 40% in 1993 [partly helped by new FDI, including Nissan, but this was more widely-based]. TW's manufacturing operating profit fell very sharply in 1996 and 1997, a period when the exchange rate value of sterling rose very sharply- by about 25%. This appears to have rendered part of TW manufacturing uncompetitive.

TYNE & WEAR

LONG TERM TRENDS (SINCE 1979)

Between 1979 and 2005, manufacturing operating profit margins in TW rose very substantially (x 1.6) up 16pp from 28% to 44% (Fig 12.1). Profit margins in the UK rose 9pp to 42% over the same period.



Prior to 2001, the only period when profit margins in TW were above the UK was in 1991-1993, when profits rose 9pp to 41% (5 pp more growth than in the UK). Profit margins in TW remained below this level (41%) until after 2001.

In 2001, profit margins in TW rose to 40%, and overtook UK profit margins by 0.6pp. Profit margins in TW remained above the UK in 2001-2005, reaching 44% in TW in 2005, 2pp above the UK.

TYNE & WEAR: 2001-2005

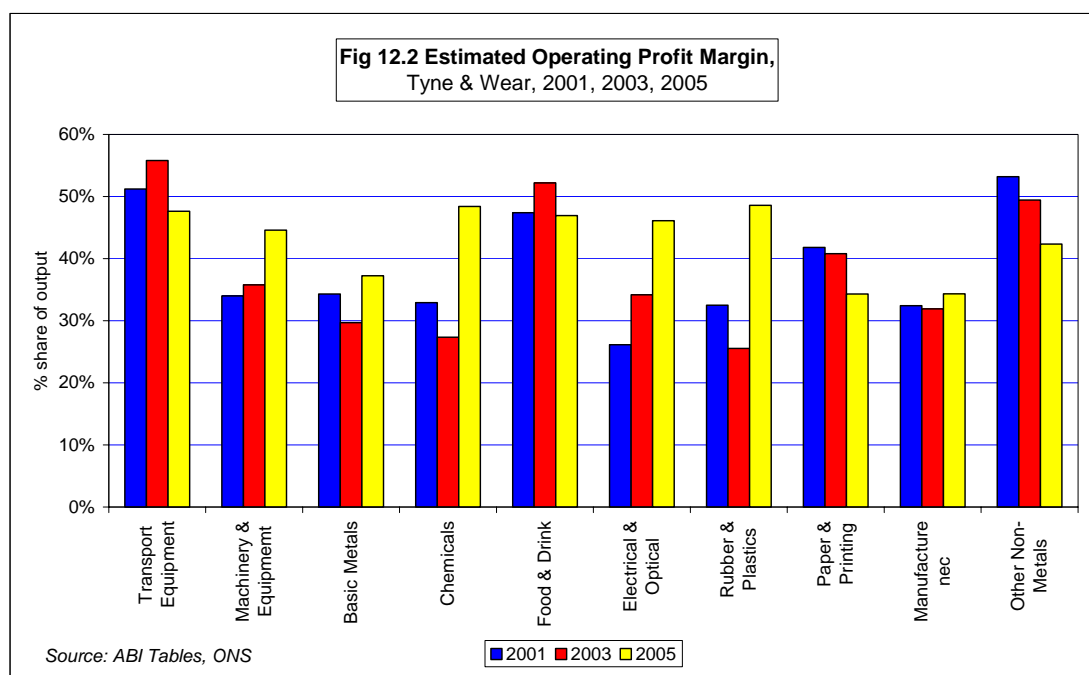
In 2005, profit margins in TW averaged 44%, higher than the UK and a huge one third higher than RoCR (therefore contributing to the higher average in TWCR) (Table 12.2).

Table 12.2: Manufacturing Industries' Operating Profit Margins in Tyne & Wear and the Rest of the City Region, with UK Comparison, 2005

SIC	Industry	Tyne & Wear	Rest of the City Region	UK
DM	Transport Equipment	48%	5%	33%
DK	Machinery & Equipment	45%	18%	34%
DJ	Basic Metals	37%	39%	37%
DG	Chemicals	48%	18%	51%
DA	Food & Drink	47%	55%	52%
DL	Electrical & Optical	46%	34%	39%
DH	Rubber & Plastics	49%	36%	38%
DE	Paper & Printing	34%	40%	42%
DN	Manufacture nec	34%	48%	44%
DI	Other Non-Metals	42%	34%	45%
	All Manufacturing	44%	33%	42%

Of the top ten manufacturing industries by output, profit margins in TW were highest in;

- Rubber & Plastics (49%)⁷⁷ (14pp higher than the UK)
- Chemicals (48%) (3pp lower than the UK)
- Transport Equipment (48%) (11pp higher than the UK)
- [reflecting high capital-intensity, at least in Chemicals and Transport Equipment (Fig 12.2)].



Profit margins were also higher in TW than in the UK in Machinery & Equipment (+ 11 pp at 45% in TW). Machinery & Equipment also had the largest rise in profit margins in 1998-2000 (rising 31pp overall after having fallen 3% in 1998).

In 2001-2005, profit margins rose in six of the top ten industries in TW, rising 4pp overall (Fig 12.2). The biggest rises [‘recoveries’] were in;

- Electrical & Optical (+ 22pp, to 46%)
- Rubber & Plastics (+ 16pp)

There is some suggestion, from profit margin changes in 2001-2005, of under-performance in;

- Non-Metals (bricks and glass) (-11 pp, to 42%, 3pp below the UK in 2005)
- Paper & Printing (-7.5 pp, to 34%, 7pp below the UK 2005)

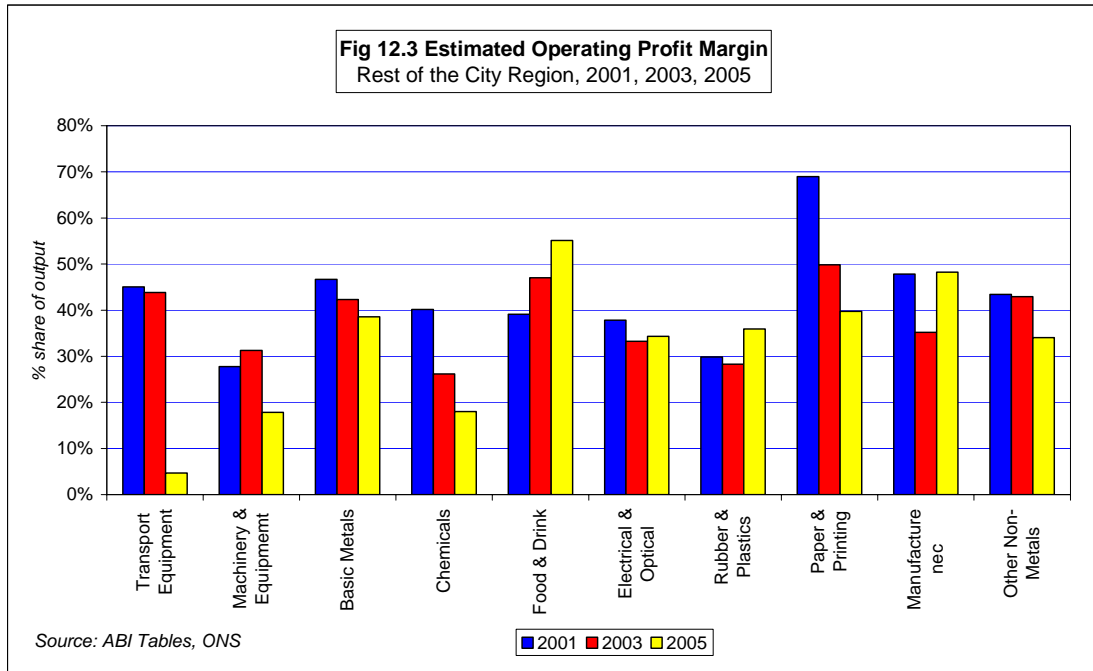
Non-Metals’ fall in profit margins was a substantial reversal of its 1998-2000 rise of nearly 15pp in TW. [This under-performance has been followed by the closure of Corning/Newells glass factory, in Sunderland.]

⁷⁷ Presumably boosted by Wellstream, makers of flexible (plastic) piping for the Offshore industry.

REST OF THE CITY REGION

In 2001, profit margins in the Rest of the City Region (RoCR) averaged 41%, slightly higher than its comparators. Profit margins in RoCR were 1pp more than the UK and TW (40%) and contributed to the slightly higher (than UK) profit margins in TWCR (41%).

Profit margins in RoCR in 2001 had been highest in Paper & Printing at 69% (Fig. 12.3). There were also healthy profit margins in Other Manufacturing (48%), Basic Metals (47%), Transport Equipment (45%) and Non-Metals (43%). Profit margins in 2001 were lowest in Machinery & Equipment (28%).



Box 12.2 The Rest of the City Region’s Competitive Manufacturing Industries

Compared with the UK, RoCR has only three manufacturing industries which have higher profit margins. They are;

- Basic Metals 39% margin (UK 37%)
- Food & Drink 55% margin (UK 52%)
- Other Manufacturing 48% margin (UK 44%)

In 2001-2005, profit margins in RoCR fell almost 8pp to 33% in 2005. The decline in RoCR was in sharp contrast to the UK and TW where profit margins both rose, and the slow growth in TWCR was attributable to this fall in RoCR.

In 2005, profit margins in the top ten manufacturing industries in RoCR were highest in Food & Drink, where growth had been fastest, rising 16pp from 39% in 2001 to 55% in 2005.

Profit margins rose in just two other industries, but growth was more modest (Rubber & Plastics, up 6pp to 36%; Other Manufacturing up just 0.4pp to 48%).

Profit margins in RoCR fell in all seven remaining top ten industries. The fastest fall was in Transport Equipment, where profit margins collapsed, falling 40pp to just 5% in 2005, the lowest profit margin in all manufacturing industries in RoCR in 2005. [This might reflect severe downward pressure on motor-component suppliers. It might also reflect temporary factors, such as extended tooling-up for new products – Ed.]

In both Paper & Printing and in Chemicals profit margin falls were both so large and consistently downward as to strongly suggest strong downward competitive pressure. The significant falls in profit margins were Paper & Printing (down -29pp, to 40%) and Chemicals (down -22pp, to 18%).

13. MANUFACTURING ESTABLISHMENT SIZE

Establishment size matters because it can be a driver of competitiveness through ‘economies of scale’.

- In 2005, the average establishment in TW (27) was 3 employees (14%) larger than in RoCR (24).
- The fall in TWCR was largely due to RoCR (- 4). Average establishment size fell just 2 employees in TW, slower than all comparators [presumably mainly due to TW’s much stronger output performance than in all comparators].

Box 13.1 Scale (Establishment Size) Correlates with Profit Margins

In TW, establishment Size (*relative to UK*) strongly, and positively, correlates with **profitability** (*relative to the UK*). Thus the four most competitive industries in TW all have establishment size larger than their UK average (by at least 20%).

Of the three other industries with establishment size above the UK average, two are industries on the cusp; Electrical & Optical (1.13) and Printing (1.63). [Other Manufacturing was the only major exception – with large establishments (1.53) but profit margins well *below* the UK average.]

Reasons and causation

There are three possible reasons for the observed association (in TW) -which will be difficult to disentangle:

- i) Economies of scale - presumably caused a substantial part of the positive association between size and profit margins (i.e. ‘size driving profits’), by driving down unit-costs.
- ii) FDI⁷⁸ [in those industries where it is substantial] is another cause of *both* –large size and higher profit margins.
- iii) Capital-intensity: the invested capital stock may well also be higher in TW (per employee) than in the UK; this requires higher profits to service the greater capital-employed.

It is striking that in RoCR, in contrast to TW, high margins (relative to the UK) –seen in only three industries -do *not* correlate with establishment size. Only Basic Metals shows this association (1.22; 2pp on margins).

⁷⁸ FDI is Foreign Direct Investment.

TYNE & WEAR

The average establishment size in Tyne & Wear (TW) was 29% (6 employees) larger than the UK (21) in 2005, but its size has fallen (Table 13.1). In 2005 the average manufacturing establishment in TW had 27 employees⁷⁹.

Large establishment size is widespread in TW, and a source of competitive advantage (see box above); in 2005, seven of the top ten manufacturing industries in TW had an average establishment size which matched, or was greater than, the UK industry average.

Average establishment size in Transport Equipment in TW was more than double (2.12) the UK. The large Nissan plant in Sunderland, which employs nearly 5,000 people, will have been the biggest contributor to the larger establishment size in TW.

Average establishment size was also higher in TW than the UK in Machinery & Equipment (1.65), Paper & Printing (1.63), Other Manufacturing (1.53) and Basic Metals (1.23).

The average establishment size in TW was *smaller* than the UK in Non-Metals (0.98), Chemicals (0.90) and Food & Drink (0.53) [Chemicals had been slightly larger than the UK in 2000 (1.03)].

Table 13.1: Establishment Size* in Manufacturing Industries in Tyne & Wear and the Rest of the City Region, with UK comparison, 2005

SIC	Industry	Tyne & Wear	Rest of the City Region	UK	TW/UK	RoCR/UK
DM	Transport Equipment	126.2	94.6	59.6	2.12	1.59
DK	Machinery & Equipment	37.1	24.5	22.4	1.65	1.09
DJ	Basic Metals	17.2	17.2	14.0	1.23	1.22
DG	Chemicals	51.1	62.8	56.8	0.90	1.11
DA	Food & Drink	35.7	38.5	67.1	0.53	0.57
DL	Electrical & Optical	25.3	30.7	22.4	1.13	1.37
DH	Rubber & Plastics	30.1	36.9	29.4	1.02	1.26
DE	Paper, Printing	22.3	8.8	13.7	1.63	0.64
DN	Manufacture nec	15.7	9.8	10.3	1.53	0.95
DI	Other Non-Metals	22.7	11.6	23.1	0.98	0.50
	All Manufacturing	27.3	24.0	21.2	1.29	1.13

* = Employees per business

REST OF THE CITY REGION

The average establishment size in the Rest of the City Region (RoCR) was 24 in 2005, although 3 employees smaller than Tyne & Wear (TW) (27), still 3 employees larger than the UK (21).

Despite RoCR's large establishment size, and potential economies of scale, its manufacturers performed poorly. In 2001-2005, average establishment size in RoCR fell rapidly [reflecting very weak output] down five employees from 29 in 2001, more than double the rate of decline in TW and almost double the rate in the UK.

In 2005, RoCR's largest manufacturing establishments were in Transport Equipment, whose average size was 95 employees. Chemicals had the second-largest establishments (63 employees). Transport Equipment in RoCR (1.59) was more than half as big again as the average establishment size for the industry in the UK (60), but was still one-quarter smaller than the average in TW (126).

⁷⁹ There are about 2,000 manufacturing establishments in TW. Establishment size in TW in 2005 was 2 employees less than 2001 and 7 employees less than in 1998. UK average establishment size in 2005 was 3 employees less than in 2001 (24), but matched the UK average in 1998 (21).

Box 13.2 In the Rest of the City Region, Scale is Not Associated with Competitiveness (Unlike in Tyne & Wear)

In 2005, average establishment size in RoCR was bigger than the UK in six of the top ten manufacturing industries; TW's competitive four, plus Chemicals and Electrical & Optical.

Industry	Establishment Size (relative to the UK)	Profit Margins (relative to the UK)	Output Growth (£m) 2001-05	Employment Growth (numerical) 2001-05
Transport Equipment	1.59	0.14	-36.2	0
Machinery & Equipment	1.09	0.53	-22.2	-700
Basic Metals	1.22	1.05	-41.2	-1200
Chemicals	1.11	0.35	-40.5	-700
Electrical & Optical	1.37	0.87	-41.1	-1300
Rubber & Plastics	1.26	0.95	-15.5	-900

Size was below the UK in the remaining four; Food & Drink, Paper & Printing, Non-Metals and Other Manufacturing.

14. MANUFACTURING PURCHASING OF KEY SERVICES

In all cases, purchases of services relates to purchases from external sources⁸⁰.

- More than two-thirds of the purchases in TWCR were made in TW. TW manufacturers purchased services to the value of £105m, while manufacturers in RoCR spent £47m on purchasing the three main services.
- TW spent less than 4% of its output on purchasing services, almost 3pp less than the UK. TW's saving on purchases of services may well be partly one of its economies of scale (helping to boost profit margins).
- RoCR's purchases of key services were 24% higher than by TW manufacturers in relation to GVA. [This seems to reflect more RoCR's low GVA, rather than high spend on services]. RoCR's spending on the three key services was higher (5% of GVA, just 1pp below the UK).

Road Transport Purchases Excluded

Purchasing patterns by the main market services in TW in the previous report were assembled from their expenditure on the four major services. These were Road Transport, plus what TWRI has dubbed the ACT services; Advertising, Computer-related services and Telecoms (ACT).

Data was no longer available for purchases of Road Transport services for 2001-2005 and so it has not been possible to include purchases of Road Transport services in this section.

This is a large omission [and therefore regrettable] as expenditure on Road Transport was the *largest* services item purchased by the top ten manufacturing industries in TW in 2000⁸¹.

⁸⁰ I.e. Outside the manufacturing firm.

⁸¹ It would be misleading to apply previous proportions in TW in 2000 to TW in 2005 (and certainly to have extended this to TWCR in 2005) and so it has not been possible to include purchases of Road Transport services in this section.

14.1 PURCHASING OF KEY SERVICES

TYNE & WEAR

In 2005, Tyne & Wear (TW) manufacturers purchased ACT⁸² services valued at over £105m (current prices) (Table 14.1). This was [very low at] just 1.0% of UK purchases, but more than two-thirds (69%) of total purchases in Tyne & Wear City Region (TWCR).

Table 14.1: Purchasing of Key Services by Manufacturing Industries in Tyne & Wear and the Rest of the City Region, with UK comparison, 2005

SIC	Industry	Service Purchases (£m)								
		Tyne & Wear			Rest of the City Region			UK		
		Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services
DM	Transport Equipment	1.4	6.5	1.4	1.6	0.9	0.6	578	384	88
DK	Machinery & Equipment	10.5	5.0	2.3	0.8	0.9	0.9	254	167	125
DJ	Basic Metals	3.0	1.7	1.9	1.4	0.7	0.7	143	138	105
DG	Chemicals	8.7 *	2.9	2.4	8.0	1.3	1.2	1,069	253	147
DA	Food & Drink	16.9	1.7	1.0	5.9	0.7	0.5	2,041	290	127
DL	Electrical & Optical	3.9	3.2	1.8	1.0	1.0	0.6	260	223	157
DH	Rubber & Plastics	6.7	1.7	1.4	1.4	0.8	0.7	185	61	59
DE	Paper, Printing	3.6	3.0	1.9	4.2	0.6	0.3	936	282	184
DN	Manufacture nec	2.9	0.9	0.8	0.7	0.3	0.3	177	47	54
DI	Other Non-Metals	0.8	0.5	0.6	0.2	0.1	0.2	80	38	36
	Total	58.4	27.0	15.4	25.4	7.4	6.2	5,723	1,883	1,082
	All Manufacturing	61.0	27.9	16.3	31.7	8.1	6.6	5,926	1,961	1,147

* This Figure has been estimated by TWRI

Totals may not sum due to rounding

Purchasing of ACT services came particularly from Food & Drink (£20m), Machinery & Equipment (£18m) and Chemicals (£14m). Non-Metals spent the least of the top ten manufacturing industries (£2m).

The shares of ACT spend on each of the three ACT services in TW were similar to those in TWCR. Advertising services was the largest services item purchased by the top ten manufacturing industries at over £58m⁸³, while Telecoms services was the smallest at £15m⁸⁴ (or 15% of ACT spend).

In TW in 2005 the top ten industries accounted for 96% of the total manufacturing sector spend on ACT services (Table 14.2). As observed in TWCR, the industries where spending was highest were Food & Drink (19%), Chemicals (13%) and Machinery & Equipment (17%).

⁸² ACT is the acronym for Advertising, Computing and Telecoms.

⁸³ £61m spent by all manufacturing industries.

⁸⁴ £16m spent by all manufacturing industries.

Table 14.2: Spend on Key Services by Manufacturing Industries in Tyne & Wear and the Rest of the City Region, with UK comparison, 2005

		% of total spent on the three major services attributed to each industry				
SIC	Industry	Tyne & Wear	Rest of the City Region	UK	TW-UK	RoCR-UK
DM	Transport Equipment	8.8%	6.8%	11.6%	-2.8	-4.85
DK	Machinery & Equipment	16.9%	5.8%	6.0%	10.9	-0.28
DJ	Basic Metals	6.2%	6.3%	4.3%	1.9	1.99
DG	Chemicals	13.3%	22.6%	16.3%	-3.0	6.34
DA	Food & Drink	18.6%	15.3%	27.2%	-8.6	-11.92
DL	Electrical & Optical	8.5%	5.9%	7.1%	1.4	-1.23
DH	Rubber & Plastics	9.3%	6.2%	3.4%	5.9	2.82
DE	Paper, Printing	8.1%	11.1%	15.5%	-7.4	-4.39
DN	Manufacture nec	4.4%	3.0%	3.1%	1.3	-0.10
DI	Other Non-Metals	1.7%	1.1%	1.7%	0.0	-0.61
	Total	95.8%	84.0%	96.2%	-0.4	-12.22
	All Manufacturing	100.0%	100.0%	100.0%		

Totals may not sum due to rounding

REST OF THE CITY REGION

In 2005, the Rest of the City Region's (RoCR) manufacturers purchased ACT services valued at £47m (current prices), less than one-third (31%) of total purchases in Tyne & Wear City Region (TWCR) (Table 14.1).

Purchases of these services came particularly from Chemicals (£10m) and Food & Drink (£7m). As observed in Tyne & Wear (TW), Non-Metals made the least purchases at £0.5m.

The proportions spent on each of the three major services in RoCR were similar to those in TW and TWCR. Advertising services was the largest services purchased by the top ten manufacturing industries at almost £32m (68% of ACT), while Telecoms services was the smallest at less than £7m.

14.2 RATIO OF SPEND ON SERVICES TO OUTPUT (GVA)

TYNE & WEAR

In 2005, Tyne & Wear (TW) spent the equivalent of less than 4% of its output (£105m) on purchasing services, a lot (almost 3pp) less than the UK (6%) (Table 14.3). TW spent its largest amount in relation to its output (58%) on Advertising services and the smallest amount (15%) on Telecoms, as observed in both Tyne & Wear City Region (TWCR) and the UK.

TW manufacturers' spend on Advertising was very low, compared with the UK. TW spent just 2% of its output on purchasing Advertising services in 2005; only just over half (53%) the proportion spent by the UK (4%). [Note: This very low spending on Advertising by TW manufacturing is one important reason for TW's under-representation in Advertising industry employment. See the comparison papers on Market Services.]

Table 14.3: Manufacturing Industry's Expenditure on Advertising, Computer and Telecommunications Services as a Proportion of Output in Tyne & Wear and the Rest of the City Region, with UK comparison, 2005

SIC	Industry	Tyne & Wear			Rest of the City Region			UK		
		Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services	Advertising Services	Computer Services	Telecoms Services
DM	Transport Equipment	0.2%	1.0%	0.2%	1.9%	1.0%	0.7%	3.4%	2.2%	0.5%
DK	Machinery & Equipment	2.7%	1.3%	0.6%	0.9%	1.1%	1.1%	2.1%	1.4%	1.0%
DJ	Basic Metals	1.0%	0.6%	0.6%	1.0%	0.5%	0.5%	0.9%	0.9%	0.7%
DG	Chemicals	3.6%	1.2%	1.0%	5.5%	0.9%	0.8%	6.4%	1.5%	0.9%
DA	Food & Drink	6.8%	0.7%	0.4%	4.4%	0.5%	0.4%	9.0%	1.3%	0.6%
DL	Electrical & Optical	1.4%	1.2%	0.7%	1.1%	1.1%	0.7%	1.7%	1.5%	1.0%
DH	Rubber & Plastics	2.7%	0.7%	0.6%	1.3%	0.7%	0.7%	2.4%	0.8%	0.8%
DE	Paper, Printing	1.3%	1.0%	0.7%	11.0%	1.6%	0.9%	5.0%	1.5%	1.0%
DN	Manufacture nec	2.9%	0.9%	0.8%	1.4%	0.6%	0.6%	2.7%	0.7%	0.8%
DI	Other Non-Metals	0.8%	0.5%	0.6%	0.8%	0.6%	0.8%	1.5%	0.7%	0.7%
	Total	2.1%	1.0%	0.5%	2.8%	0.8%	0.7%	4.2%	1.4%	0.8%
	All Manufacturing	2.1%	1.0%	0.6%	3.2%	0.8%	0.7%	4.0%	1.3%	0.8%

Totals may not sum due to rounding

The proportion of TW output spent on Advertising was highest in Food & Drink (7%) and [more surprisingly] Chemicals (4%) [although the UK averages were 2pp higher in each case]. TW spent the least on purchasing Advertising services (as a proportion of industry output) in Transport Equipment (0.2%) [in stark contrast to 3.4% in the UK] (see box, below, for reasons and consequences of this).

Box 14.1 Transport Equipment's Very Low Spend on Advertising

The very low Advertising spend by TW's Transport Equipment could reflect;

- i) the non-consumer element, Shipbuilding & Repair, for which Advertising would be low,
- ii) low advertising by motor component manufacturers, who tend to deal directly with car manufacturers,
- iii) low Advertising spend by Nissan and its suppliers; possibly reflecting high demand for their products, even without such promotional activity. This may be particularly affected by Nissan, whose Advertising spend is largely handled as a corporate activity located outside TW, and thus excluded for this technical reason.

If the TW Transport Equipment industry spent the equivalent of 3.4% of its output on Advertising (as in the UK), about 17 times the stated 0.2%, this would be an extra £20m or so, which would enlarge the entire TW manufacturing sector's Advertising spend by about a third (to around £80m).

TW's manufacturing sector spent 1% of its output on Computer services in 2005, almost one-quarter less than the UK (1.3%).

In 2005, spending on Telecoms by TW as a proportion of manufacturing output was 0.6%, one-quarter (0.2pp) smaller than the UK. TW's spending on Telecoms was highest in Chemicals (1%) and lowest in Transport Equipment (0.2%).

REST OF THE CITY REGION

In 2005, the Rest of the City Region (RoCR) spent the equivalent of almost 5% of its manufacturing output (£47m) on purchasing the ACT services, 1pp more than Tyne & Wear (TW) but 1pp less than the UK.

RoCR spent over 3% of its manufacturing output on Advertising services in 2005, more than the very low 2% in TW, but less than the 4% proportion spent by the UK.

[Oddly] Paper & Printing spent a massive 11% of output on Advertising services in RoCR [Over twice the UK average of 5%. This might reflect high Advertising spend on paper products].

RoCR's manufacturing sector spent 6% of its Chemicals output and 4% of Food & Drink output (also TW's spending in relation to output was highest in these industries).

In 2005, RoCR spent 0.8% of its manufacturing output on purchasing Computer Services, less (-0.3pp) than TW and little more than half that in the UK (1.3%).

RoCR spent just 0.7% of its manufacturing output on purchasing Telecoms in 2005, marginally more than TW (0.6%) but marginally less than the UK [RoCR's smaller establishment size than TW might account for higher spends on Telecoms].

APPENDICES

APPENDIX 1.1 DATA QUALITY STATEMENT

Key message: The data used for this Manufacturing report (ONS' ABI 2) should be treated as *largely good quality*. These are not, however, definitive data⁸⁵ and should not be regarded as 'facts', but as the best estimates currently available. The information derived gives both insight into particular industries and a broad overview of performance.

OVERALL RATING

The ONS' Annual Business Inquiry (ABI) yields two types of data, both of which are used in TWRI's reports on Market Services Performance and Manufacturing Performance:

- Employment estimates ('ABI/1')
- Financial estimates (known collectively as 'ABI/2') including GVA, labour costs, 'net investment' and purchases of key services.

TWRI's overall 'data quality rating'⁸⁶ on ABI/1 (employment estimates) is low and that it should be used only in conjunction with other data sources. Ideally, it would be TWRI's practice to try to corroborate such data by cross-checking other sources and this has been TWRI's general practice for a number of years.

ABI 2: STRENGTHS AND LIMITATIONS

The ABI/2 dataset has unknown quality – but great richness. It is in a spirit of *pragmatism* that TWRI has analysed ABI/2 for TWCR; it gives many *insights* into individual industries and a *broad overview*.

The **key strengths** of ABI/2 seem to be:

- Actual financial data were obtained from firms.
- A reasonable sample frame. Full coverage of large employers (those employing over 250 employees) [which should yield good data for much of manufacturing]. A substantial sample of medium and smaller firms.

The **key limitations** of ABI/2 seem to be:

- Modelling down. ONS has produced ABI/2 by modelling down financial data from enterprises (sometimes national), down to local establishments, and thus areas.
- Employment-related derived estimates (i.e. productivity) are subject to errors in the ABI employment estimates. The ABI's apparent over-estimate of employment in 2005 could have led to under-estimation of productivity (and productivity growth) by perhaps around 5%.
- A sampling frame which generally yields poorer coverage of Market Service firms than of Manufacturing.
- 'Net Investment' estimates are the most statistically un-reliable, because investment is so 'lumpy' (concentrated in a few firms). For this reason, ONS specifically cautions about the use of these data, which are not up to 'National Statistics' standard.⁸⁷

⁸⁵ This was the guidance given in the presentation to the TWRI Conference in November 2007.

⁸⁶ TWRI's quality rating on ABI 1 was under four out of ten, meaning it should only be used in conjunction with other sources.

⁸⁷ These cautions are specifically repeated in the section on Net Investment, as required by ONS.

APPENDIX 2.1 – CHAP. 2: TIME SERIES 2001-2005 MANUFACTURING OUTPUT

Appendix 2.1: Manufacturing Industry in Tyne & Wear City Region: Output (GVA), 2001-2005

SIC	Industry	Output at Current Prices			Output at 2003 Prices		
		GVA (£m)			GVA (£m)		
		2001	2003	2005	2001	2003	2005
DA	Food & Drink	356	415	380	380	415	363
DB	Textiles	133	114	82	142	114	78
DC	Leather	3	3	3	3	3	3
DD	Wood & Wood Products	72	54	79	77	54	76
DE	Paper, Printing	396	383	322	423	383	307
DF	Coke, Petroleum	6	5	11	6	5	10
DG	Chemicals	273	291	386	292	291	368
DH	Rubber & Plastics	251	241	352	268	241	336
DI	Other Non-Metals	112	110	115	120	110	110
DJ	Basic Metals	386	393	436	412	393	416
DK	Machinery & Equipment	391	438	478	418	438	456
DL	Electrical & Optical	359	345	366	384	345	349
DM	Transport Equipment	688	781	744	735	781	710
DN	Manufacture nec	192	170	151	205	170	144
	All Manufacturing	3,617	3,743	3,905	3,864	3,743	3,726

Totals may not sum due to rounding

APPENDIX 3.1 – CHAP. 4: TIME SERIES 2001-2005 MANUFACTURING PRODUCTIVITY

Appendix 3.1: Manufacturing Industry in Tyne & Wear City Region: Productivity (GVA/employee), 2001-2005

SIC	Industry	Productivity at Current Prices			Productivity at 2003 Prices		
		2001	2003	2005	2001	2003	2005
DA	Food & Drink	33,043	41,745	47,059	35,302	41,745	44,904
DB	Textiles	22,484	38,550	45,818	24,022	38,550	43,719
DC	Leather	22,541	24,540	27,469	24,082	24,540	26,211
DD	Wood & Wood Products	30,549	28,591	25,030	32,638	28,591	23,883
DE	Paper, Printing	39,887	42,696	43,562	42,614	42,696	41,567
DF	Coke, Petroleum *	59,566	58,048	46,057	63,639	58,048	43,947
DG	Chemicals	43,459	45,763	46,543	46,431	45,763	44,411
DH	Rubber & Plastics	34,035	36,146	34,855	36,362	36,146	33,259
DI	Other Non-Metals	40,149	40,156	38,981	42,894	40,156	37,196
DJ	Basic Metals	33,113	33,335	36,062	35,377	33,335	34,411
DK	Machinery & Equipment	34,955	42,494	42,422	37,345	42,494	40,479
DL	Electrical & Optical	33,872	37,436	39,361	36,188	37,436	37,558
DM	Transport Equipment	48,967	61,895	62,858	52,315	61,895	59,979
DN	Manufacture nec	25,950	28,482	32,000	27,724	28,482	30,534
	All Manufacturing	36,983	42,176	43,862	39,512	42,176	41,853

APPENDIX 4.1 – CHAP. 5: TIME SERIES 2001-2005 MANUFACTURING OPERATING PROFITS
Appendix 4.1: Manufacturing Industry in Tyne & Wear City Region: Operating Profits and Profit Margins, 2001-2005

SIC	Industry	Operating Profits (£m in 2003 prices)			Operating Profit Margins		
		2001	2003	2005	2001	2003	2005
DA	Food & Drink	172	211	181	45.2%	50.7%	49.8%
DB	Textiles	45	36	31	31.6%	31.2%	39.9%
DC	Leather	1	1	1	34.9%	40.9%	35.7%
DD	Wood & Wood Products	32	18	33	42.2%	33.9%	44.2%
DE	Paper, Printing	201	165	107	47.6%	43.0%	34.9%
DF	Coke, Petroleum	3	3	7	51.6%	60.8%	70.2%
DG	Chemicals	109	78	136	37.4%	26.8%	36.8%
DH	Rubber & Plastics	84	64	150	31.3%	26.5%	44.7%
DI	Other Non-Metals	62	53	45	51.9%	48.1%	40.7%
DJ	Basic Metals	163	134	157	39.6%	34.1%	37.6%
DK	Machinery & Equipment	135	152	181	32.4%	34.8%	39.8%
DL	Electrical & Optical	116	117	150	30.2%	33.9%	43.0%
DM	Transport Equipment	369	424	303	50.2%	54.3%	42.6%
DN	Manufacture nec	75	56	56	36.7%	33.1%	39.1%
	All Manufacturing	1,568	1,512	1,538	40.6%	40.4%	41.3%

* Indicates that a value is confidential and has been suppressed

APPENDIX 5.1 – CHAP. 6: TIME SERIES 2001-2005 MANUFACTURING NET INVESTMENT

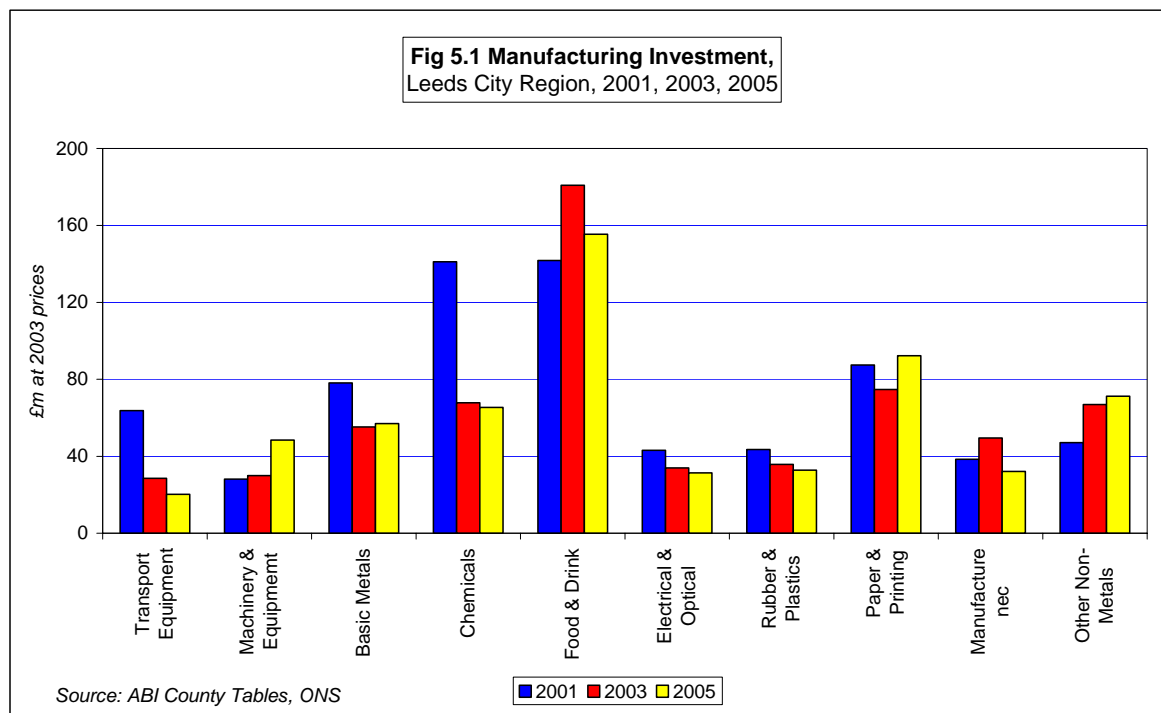
It must be stressed that the regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status. It would be very misleading to try and draw firm conclusions from the investment data and patterns shown below.

Appendix 5.1: Net Investment in Manufacturing Industries, Tyne & Wear City Region, with Leeds City Region & UK comparison, 2001, 2003, 2005

SIC	Industry	Net Investment (£m at 2003 prices)								
		Tyne & Wear City Region			Leeds City Region			UK		
		2001	2003	2005	2001	2003	2005	2001	2003	2005
DM	Transport Equipment	311	84	136	64	29	20	2,927	1,659	1,832
DK	Machinery & Equipment	21	22	24 *	28	30	48	846	644	497
DJ	Basic Metals	44	59	27	78	55	57	1,199	1,121	927
DG	Chemicals	57	60	44	141	68	65	2,642	1,926	1,061
DA	Food & Drink	46	40	41	142	181	155	2,818	2,364	2,002
DL	Electrical & Optical	151	44	*	43	34	31	2,083	773	532
DH	Rubber & Plastics	17	62	*	44	36	33	793	751	407
DE	Paper & Printing	44	39	54	87	75	92	1,770	1,338	1,676
DN	Manufacture nec	22	15	15	38	50	32	503	463	351
DI	Other Non-Metals	10	9	10	47	67	71	521	579	524
	All Manufacturing	739	442	363	777	693	657	17,391	12,677	10,387

Totals may not sum due to rounding * Indicates a value is confidential and has been suppressed

" The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status."



Appendix 5.2: Net Investment per Employee in Manufacturing Industries, Tyne & Wear City Region, with Leeds City Region & UK Comparison, 2005 (2003 prices)

SIC	Industry	Wear City £	City Region £	UK £	TWCR/UK	LCR/UK
DM	Transport Equipment	10,953	2,862	5,341	2.1	0.5
DK	Machinery & Equipment	2,372	2,845	1,720	1.4	1.7
DJ	Basic Metals	2,476	3,153	2,251	1.1	1.4
DG	Chemicals	6,994	6,390	4,958	1.4	1.3
DA	Food & Drink	4,700	5,938	4,268	1.1	1.4
DL	Electrical & Optical	*	2,758	1,539		1.8
DH	Rubber & Plastics	*	3,213	1,978		1.6
DE	Paper & Printing	6,141	3,298	4,087	1.5	0.8
DN	Manufacture nec	2,790	2,350	1,819	1.5	1.3
DI	Other Non-Metals	3,534	8,398	4,595	0.8	1.8
	All Manufacturing	4,213	3,848	3,200	1.3	1.2

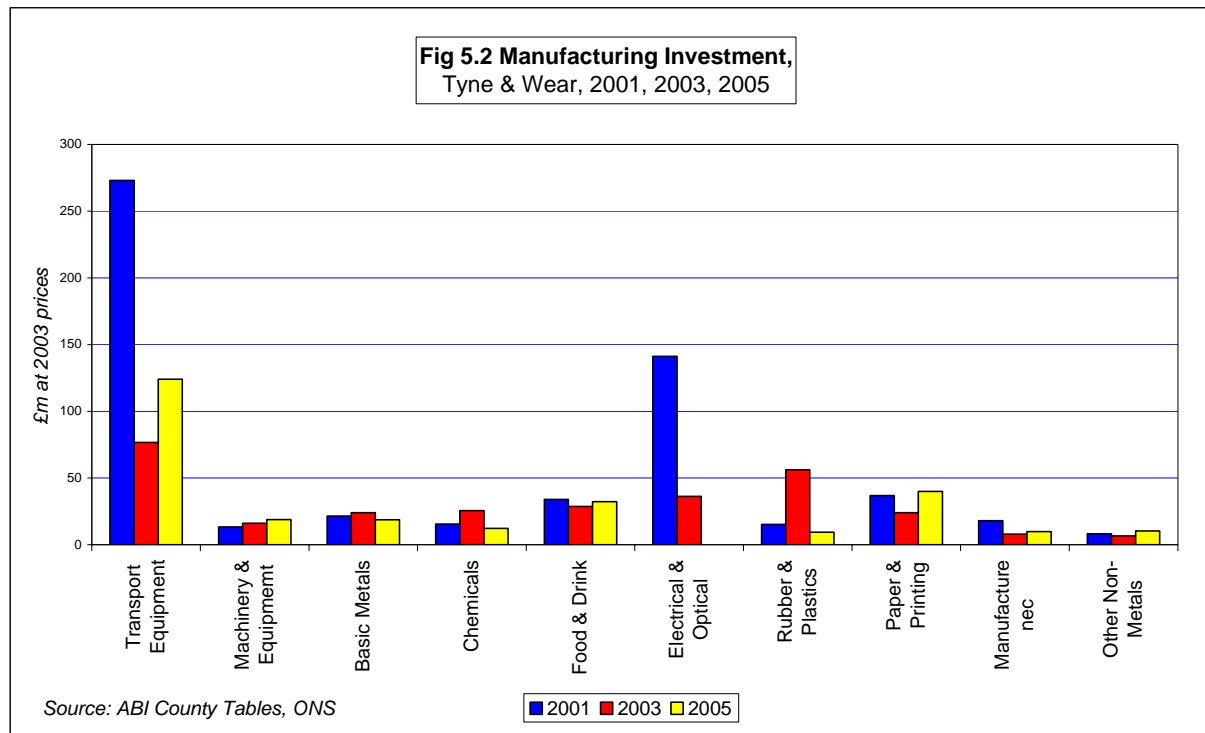
Totals may not sum due to rounding * Indicates a value is confidential and has been suppressed

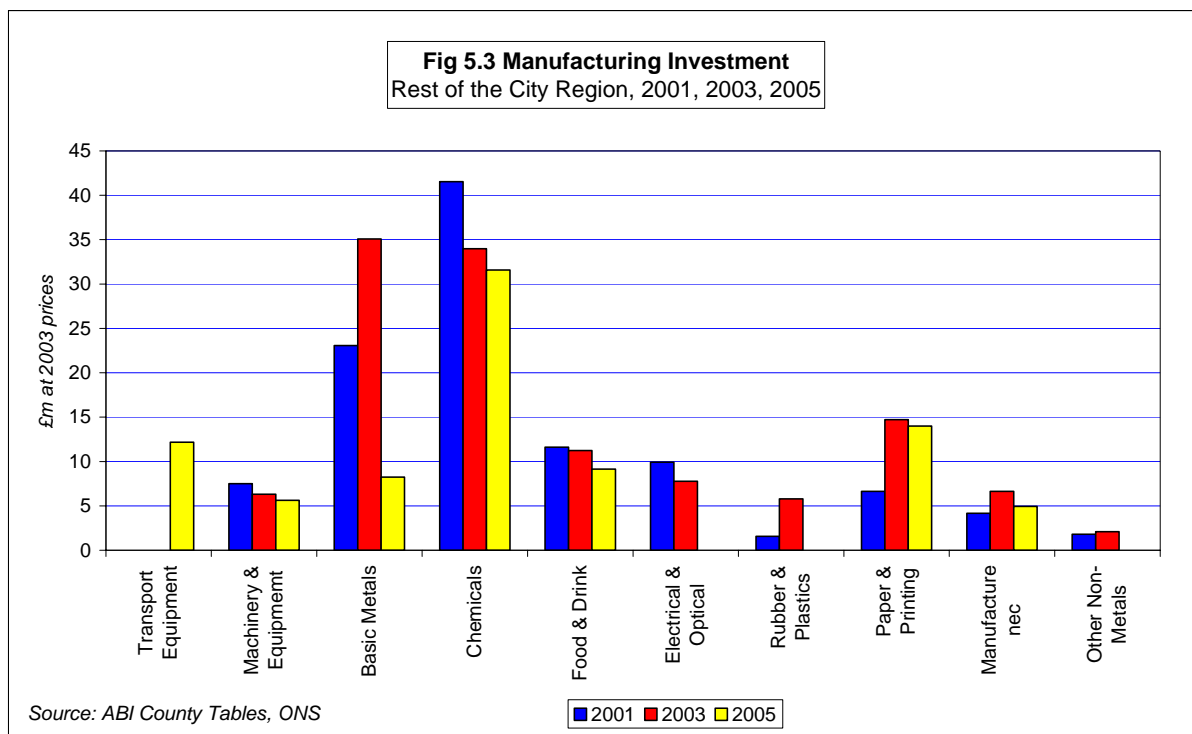
"The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status."

Appendix 5.3: Net Investment in Manufacturing Industries in Tyne & Wear and the Rest of the City Region, with UK comparison, 2001, 2003, 2005

SIC	Industry	Net Investment (£m at 2003 prices)								
		Tyne & Wear			Rest of the City Region			UK		
		2001	2003	2005	2001	2003	2005	2001	2003	2005
DM	Transport Equipment	*	*	124	*	*	12	2,927	1,659	1,832
DK	Machinery & Equipment	13	16	19	8	6	6	846	644	497
DJ	Basic Metals	21	24	19	23	35	8	1,199	1,121	927
DG	Chemicals	15	26	12	42	34	32	2,642	1,926	1,061
DA	Food & Drink	34	29	32	12	11	9	2,818	2,364	2,002
DL	Electrical & Optical	141	36	*	10	8	*	2,083	773	532
DH	Rubber & Plastics	*	56	9	*	6	*	793	751	407
DE	Paper & Printing	37	24	40	7	15	14	1,770	1,338	1,676
DN	Manufacture nec	18	8	10	4	7	5	503	463	351
DI	Other Non-Metals	8	7	10	2	2	0	521	579	524
	All Manufacturing	588	308	282	151	134	81	17,391	12,677	10,387

Totals may not sum due to rounding * Indicates a value is confidential and has been suppressed
 " The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status."





Caution: the scale for RoCR is over five times finer than for TW.

Appendix 5.4: Net Investment per Employee in Manufacturing Industries, Tyne & Wear and the Rest of the City Region, with UK Comparison, 2005 (2003 prices)

SIC	Industry	Tyne & Wear	Rest of the City Region	UK	TW/UK	RoCR/UK
DM	Transport Equipment	12,926	4,288	5,341	2.4	0.8
DK	Machinery & Equipment	2,539	1,945	1,720	1.5	1.1
DJ	Basic Metals	2,418	2,619	2,251	1.1	1.2
DG	Chemicals	3,620	10,935	4,958	0.7	2.2
DA	Food & Drink	6,075	2,613	4,268	1.4	0.6
DL	Electrical & Optical	*	*	1,539		
DH	Rubber & Plastics	2,194	*	1,978	1.1	
DE	Paper & Printing	5,136	13,895	4,087	1.3	3.4
DN	Manufacture nec	2,545	3,457	1,819	1.4	1.9
DI	Other Non-Metals	4,820	*	4,595	1.0	
	All Manufacturing	4,668	3,142	3,200	1.5	1.0

Totals may not sum due to rounding * Indicates a value is confidential and has been suppressed

" The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status."

APPENDIX 6.1 – CHAP. 7: TIME SERIES 2001-2005 MANUFACTURING ESTABLISHMENT SIZE

Appendix 6.1: Manufacturing Industry in Tyne & Wear City Region: Establishment Size, 2001-2005

SIC	Industry	Tyne & Wear City Region			UK		
		2001	2003	2005	2001	2003	2005
DA	Food & Drink	36.3	36.7	36.7	66.3	67.4	67.1
DB	Textiles	37.3	20.8	18.6	19.6	16.9	14.5
DC	Leather	13.2	10.3	10.1	21.7	15.5	12.9
DD	Wood & Wood Products	14.8	11.7	12.6	10.7	10.4	10.1
DE	Paper, Printing	21.4	19.1	18.9	14.8	14.0	13.7
DF	Coke, Petroleum	9.4	9.9	10.2	115.4	146.9	122.3
DG	Chemicals	58.2	57.9	55.9	64.9	63.1	56.8
DH	Rubber & Plastics	36.3	32.9	32.4	34.6	32.1	29.4
DI	Other Non-Metals	16.1	17.0	18.4	25.0	24.5	23.1
DJ	Basic Metals	17.6	19.0	17.2	15.7	14.9	14.0
DK	Machinery & Equipment	35.0	34.4	32.5	26.3	23.4	22.4
DL	Electrical & Optical	29.9	26.8	26.9	31.2	24.9	22.4
DM	Transport Equipment	130.1	130.1	117.3	69.9	66.5	59.6
DN	Manufacture nec	17.3	14.6	13.5	11.6	11.1	10.3
	All Manufacturing	29.1	27.1	26.2	24.1	22.4	21.2

APPENDIX 7.1: EFFECTS OF THE GVA DEFLATOR

The GVA deflator is one of the widest measures of inflation across the whole economy (including Manufacturing, Utilities, Construction, Market Services and Public Services).

TWRI acknowledges that price inflation is different in different sectors of the economy. In particular, prices of manufactured goods tend to *fall* relative to overall GVA price inflation.

Thus by the use of the GVA deflator, TWRI may well have *under*-estimated the real growth of manufacturing output.

For example, prices of TW’s manufactured goods might have risen annually 1 percentage point more slowly than the GVA deflator. If so, then over the four years 2001-05, the actual real growth of TW’s manufacturing output will have been around 9% instead of 5%. Thus the average annual rate of real growth will have been around 2¼% instead of 1¼%.