



MANUFACTURING IN TYNE AND WEAR CITY REGION 2001-2007

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PREFACE

This report on the manufacturing sector breaks new ground in two important respects; first by presenting much finer-grain data by industry (at 3-digit, 25 industries, instead of 2-digit), and secondly by presenting a much wider range of comparator City Regions (not just Leeds CR but also Liverpool CR and Sheffield CR).

The report also extends forwards two years to 2007; this was a period of growth before the recession (of 2008-09), when TW's manufacturing output grew by about 10% over six years (2001-07).

Manufacturing is shown to continue to be one of the strengths of the TW economy; performance was higher than the UK across many manufacturing industries.

The analysis considers 25 manufacturing industries which each employ over a thousand in TWCR. Of these, the analysis identifies six as showing competitiveness in the CR (eight in TW).

The report shows which industries within Machinery & Equipment are the large manufacturing industries; (what TWRI has called) Machinery for Industry (sp), Lifting & Other Machinery and Mechanical Power Machinery¹.

Note that five industries (at SIC 3-digit level) have had to be left out of the analysis because ONS has suppressed their data (on the grounds they would be disclosive)². In particular, the (large) Manufacture of Motor Vehicles has had to be left out. This industry, according to public domain information, employs around 5,000 people, so would have been similar in size, in that respect, to Plastic Products (the largest industry in the TWCR analysis).

This report is part of a series; analysis in the 2001-05 report was extended to cover the City Region with a comparison to Leeds CR. This approach, now with more comparison CRs, follows the advice of the OECD Territorial Review³ that City Region research should provide a view which places changes in the local economy within the context of activities in other areas.

This report can be read in conjunction with other TWRI annual reports which have been extended to cover TWCR. In particular, that on 'Business Demographics' shows how the Rest of the City Region (RoCR) complements TW, with a higher number of businesses in relation to population.

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Note: the ONS provided ABI/2 data to TWRI. It is not responsible for the analysis and conclusions drawn.

Whilst every effort has been taken to ensure the accuracy and reliability of the information 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 The SIC (long) names are given in Table 1.2.

² These five excluded industries are listed on p5.

³ 'Building a Competitive City Region: The Case of Newcastle in The North East', Organisation for Economic Co-Operation and Development, 29-30 June 2006 (GOV/TDPC(2006)10)

MAIN POINTS ON MANUFACTURING PERFORMANCE

In manufacturing, **Tyne & Wear (TW)** was the **top performer** (under-lined in table, below) on two key performance indicators. Liverpool City Region was the top performer on the other two key performance indicators.

		UK	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region	Tyne & Wear	West Yorkshire
Output 2007	£m	155,313	4,450	7,866	3,020	4,497	3,289	6,083
Change in Output 2001-2007		-8.7%	4.0%	-8.3%	2.6%	0.7%	<u>11.7%</u>	-11.4%
Average pa		-1.5%	0.7%	-1.4%	0.4%	0.1%	2.0%	-1.9%
Productivity 2007	£	53,524	53,672	46,747	54,754	45,971	57,738	45,893
Change in Productivity 2001-2007		16.2%	26.1%	18.0%	17.6%	22.1%	<u>33.0%</u>	18.9%
Average pa		2.7%	4.3%	3.0%	2.9%	3.7%	<u>5.5%</u>	3.2%
Operating Profit 2007	£m	71,171	2,217	3,633	1,356	1,755	1,650	2,737
Change in real Operating Profit 2001-2007		2.3%	27.7%	8.1%	<u>65.9%</u>	6.7%	39.2%	4.4%
Operating Profit Margins 2007		45.8%	49.8%	46.2%	44.9%	39.0%	50.2%	45.0%
Operating Profit Margins 2001-2007 (pp)		4.9	9.3	7	<u>17.1</u>	2.2	9.9	6.8

This report identifies the eight most competitive big⁴ manufacturing industries at 3-digit level 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 2007).

	Output Location Quotient	Profit Margins v UK	Employment growth 2001-07	Establishment Size v UK	Comments
Plastic Products	1.30	1.06	+11.6%	1.17	
Metal Treatments	1.46	1.5	+10%	1.74	Large establishments
Lifting & Other Machinery	1.25	1.7	-6.9%	1.42	Much more profitable than UK
Machinery for Industry (sp)	3.11	2.1	+4.8%	3.04	Very large, high OLQ and profitable
Furniture	1.37	1.7	-28.8%	1.01	
Textile Articles	1.91	1.35	+4.1%	1.67	
Forging & Pressing	1.17	1.23	-13.1%	1.83	Large establishments
Mech Power Machinery	1.64	1.5	-16.6%	1.45	

Competitiveness in TW correlates with large establishment size (relative to the UK).

In WY, the above industries do not generally display competitiveness; except Textile Articles, Furniture and Mech Power Machinery.

⁴ The definition of 'big' here is that they employed at least 1,000 in TWCR (in 2001).

Output:

- **Output in TWCR** was **£4,450m** in 2007, 3% of total UK manufacturing output (£155bn) and equal to 57% of output in Leeds CR (£7.9bn), 147% of output in Liverpool CR (£3.0bn), and 99% of output in Sheffield CR (£4.5bn).
- TWCR's manufacturing industry is more diverse (i.e. showing less specialisation) than Leeds CR and Liverpool CR: eight top ten manufacturing industries were over-represented in TWCR, one more than Leeds CR and six more than Liverpool CR. Sheffield is also over-represented in eight of the top ten manufacturing industries.
- In 2007, TW contributed three-quarters (£3,289m) of total TWCR manufacturing output.
- Output in TWCR **grew 4%** in 2001-2007. The growth contrasts with the fall in Leeds CR (-8.3%) and the UK (-8.7%) and is faster than the growth in Liverpool CR (2.6%) and Sheffield CR (0.7%).

Employment:

- **Employment** in TWCR was just under **83,000** in 2007, 3% of total UK manufacturing employment (2,901,700) and equal to 49% of total Leeds CR manufacturing employment (168,300), 85% of manufacturing employment in Sheffield CR (97,800), and 150% of manufacturing employment in Liverpool CR (55,200). **TW manufacturing employment accounts for 69% of manufacturing employment in TWCR.**
- TWCR employment **fell 17%** in 2001-2007, **also slower than in all comparators** (Leeds CR fell 22%, Liverpool CR -28%, Sheffield CR -18%, and the UK -21%). Employment also fell in TW, -16% and more rapidly in West Yorkshire, -26%.

Productivity:

- **Productivity** (measured as Gross Value Added⁵ per employed person) in TWCR was **£53,700** in 2007, 0.3% above the UK (£53,500), 15% above LCR (£46,700), 17% above Sheffield CR (£46,000), but 2% below Liverpool CR (£54,800). Productivity in TW (£57,700) is much higher than in West Yorkshire (£45,900).
- Productivity **growth in TWCR (26%, 4% pa) was faster than in all other comparator areas:** productivity in Leeds and Liverpool CRs rose 18% (3.0% pa), Sheffield CR rose 22% (4% pa), and the UK rose 16% (3% pa).
- Productivity growth in TW was very strong, at 33%, much faster than in West Yorkshire (19%).

Profits:

- **Operating profits** in TWCR were **£2,217m** in 2007, 3% of total UK manufacturing operating profits (£71bn) and equal to 61% of operating profits in Leeds CR (£3,633m), 164% of operating profits in Liverpool CR (£1,356m), and 126% of operating profits in Sheffield CR (£1,755m). Operating profits were **much higher in West Yorkshire (£2,737m) than in TW (£1,650m).**
- Operating profits in real terms⁶ **rose in TWCR (28%), much stronger than the rise in the UK (2%), Leeds CR (8%), and Sheffield CR (7%) but weaker than in Liverpool CR (66%).** Operating profits rose 39% in TW in 2001-2007 but only 4% in West Yorkshire.

⁵ GVA is Gross Value Added. See box in §2 for the meaning of value-added.

⁶ 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.

Manufacturing in Tyne and Wear City Region 2001-2007

- Operating **profit margins** in TWCR (**50%**) in 2007 were above other comparators; Leeds CR 46%, Liverpool CR 45%, Sheffield CR 39%, and the UK 46%. Operating profit margins in **TW** (50%) were **5pp higher** than in **West Yorkshire**.
- **Growth in profit margins** in 2001-2007 in TWCR (+ 9pp) was **higher than in the UK** (+5pp), Leeds CR (+7pp), and Sheffield CR (+2pp), but lower than in Liverpool CR (+17pp). In TW profit margins rose 10pp compared to 7pp in West Yorkshire.

Establishment Size:

- **Average establishment size** in TWCR in 2007 was **26** employees, **47% bigger than the UK** (18), and around 28-33% bigger than the other CRs (20). TW's average establishment size (27) was larger than West Yorkshire (20) although both were above the UK.
- Average establishment size **fell in all areas** in 2001-2007; TWCR, Leeds CR, and Sheffield CR (-3 employees), the UK (-2) and Liverpool CR (-5). In TW, average establishment size fell (-2 employees) and in West Yorkshire (-4).

IMPORTANT Caution: ONS has suppressed data on some major manufacturing industries, which, therefore, have to be excluded from this analysis. In particular, the motor vehicle manufacturing industry is excluded.

1 Introduction

This report presents TWRI's major analysis of the performance of the manufacturing sector between 2001 and 2007. It follows TWRI's 2008 report on Manufacturing which reported at 2-digit level. This report provides analysis at finer 3-digit level on output, employment, productivity, operating profit, net investment and establishment size. The analysis presents data on all those TWCR manufacturing industries (25) which employ over a thousand people and for which we have data. At 3-digit level TWRI identifies Tyne & Wear's eight competitive major manufacturing industries.

Five manufacturing industries have had to be excluded from this analysis (which otherwise met the criteria) because ONS suppressed their data (at 3-digit level). The largest one⁷ is Motor Vehicles (SIC 341), which from public domain information is known to have employed about 5,000 people; this would have made it the largest manufacturing industry (at 3-digit level) along with Plastic Products. The other four industries excluded are Paints, Pharmaceuticals, Basic Precious and other Non-Ferrous Metals, and Insulated Wire & Cable⁸.

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 (at 3-digit level), showing some selected outputs of the analysis:

Data	Information	Knowledge	Understanding
ABI/2	By comparing with the UK, Leeds CR, Liverpool CR, Sheffield CR, and West Yorkshire.	From combined features (OLQ ⁹ and margins)	Some possible drivers (causes), especially scale, examined
	TW manufacturing output has grown, more strongly than all other comparator areas.	Competitive industries identified in TW (largely engineering-based, but also plastics).	Scale is shown to be a significant driver in TW, but not in RoCR.

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

The previous two reports, published in 2004 and 2008, were the first also to cover market services and the construction industry. The latest of these is reported in the separate report 'Market Services Performance in Tyne & Wear City Region 2001-05'. TWRI divided the series following significant additions to the geographical scope of the analysis, which now include a number of comparator city regions.

SOURCES AND RELIABILITY

TWRI acquired the TW and TWCR datasets for this report (the 'county table') specifically from ONS. **Caution** has to be attached to the reliability of the figures at county-level. For further details, please read the Data Quality Statement included in this report.

⁷ Probably

⁸ Their SIC codes are Paints (SIC 243), Pharmaceuticals (SIC 244), Basic Metals (SIC 274), and Insulated Wire & Cable (SIC 313).

⁹ An OLQ is an 'Output Location Quotient' (see sections on Output for definition).

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.

COMPARISONS ACROSS SPACE AND TIME

Comparisons are largely made for 2001-2007 for TWCR, Leeds CR, Liverpool CR, Sheffield CR, TW and West Yorkshire. They are made for 1979-2007 for TW and the UK (where appropriate). Spatial comparisons are primarily drawn between a) TWCR, Leeds CR, Liverpool CR, Sheffield CR and the UK, and between b) TW, WY 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 2006 prices¹⁰. Current (2007) 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 reports¹¹ (See Appendix 8.1 for more on this).

GEOGRAPHICAL COVERAGE

The three reported areas are the Tyne & Wear City Region (TWCR), Tyne & Wear (TW) and the UK. TWCR includes the five TW Local Authority Districts (LADs) of Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland, with the addition of the eight former shire Districts of Blyth Valley, Castle Morpeth, Chester-le-Street, Derwentside, Durham, Easington, Tynedale and Wansbeck.

This report gives comparisons with Leeds City Region (Leeds CR), Liverpool City Region (Liverpool CR), Sheffield City Region (Sheffield CR), and West Yorkshire (WY). These comparisons have been introduced to provide suitable context for the TWCR data and the TW data.

Leeds CR¹² (LCR) 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.

Liverpool CR (LPCR) includes the Local Authority Districts of Halton, Knowsley, Liverpool, Sefton, St Helens, and Wirral.

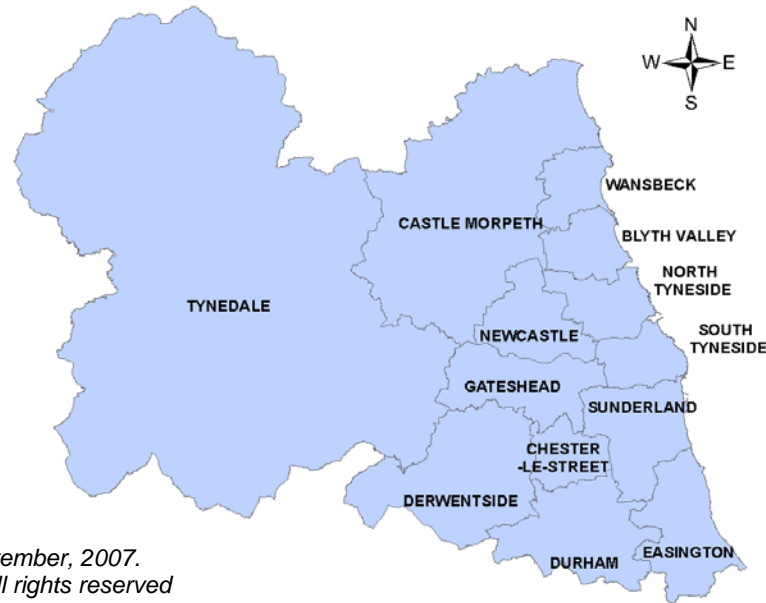
Sheffield CR (SCR) includes the Local Authority Districts of Barnsley, Bassetlaw, Bolsover, Chesterfield, Derbyshire Dales, Doncaster, North East Derbyshire, Rotherham, and Sheffield.

¹⁰ 2006 is the present base year in the ONS main economic series.

¹¹ The manufacturing data are for periods of a year. The price deflators used (to make comparisons in real terms) are therefore for average prices over each year.

¹² TWRI's series of Annual Monitoring Reports for Tyne Wear Partnership have, hitherto, benchmarked Tyne & Wear with West Yorkshire.

THE TYNE & WEAR CITY REGION



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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 1.8 million of these are of working age, meaning that the population of working age in TWCR is equivalent to around 57% of that in Leeds City Region. [TWCR’s manufacturing output is only 57% of Leeds CR’s –which is an important reason for lower incomes.]

Within TWCR, around two-thirds (65%) of the population are located in TW, 20% 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, 2007

Tyne & Wear	65.3%	Durham (4)	19.6%	Northumberland (4)	15.1%
Gateshead	11.4%	Chester-le-Street	3.2%	Blyth Valley	4.8%
Newcastle	16.5%	Derwentside	5.2%	Castle Morpeth	3.0%
North Tyneside	11.7%	Durham	5.5%	Tynedale	3.5%
South Tyneside	9.0%	Easington	5.7%	Wansbeck	3.7%
Sunderland	16.8%				

Source: ONS Mid-Year Population Estimates, 2007

TWCR’s population during the period covered by this report was fairly stable between 2001 and 2004, however, the population has been growing since 2005. Between 2001-2007, TWCR’s population rose by 0.8%. Population growth in Leeds CR was around six times faster than TWCR, but was still a fairly small increase of 4.8% over six years.

Population in LPCR has been steadily declining over the period, falling by -1.02% between 2001-2007. In SCR, there has been steady population growth of 2.4% over the period.

¹⁵ Population figures and Working-Age Population figures taken from ONS Mid-Year Population Estimates for 2007.

3-DIGIT SIC CODES AND INDUSTRY NAMING CONVENTIONS

This report analyses manufacturing industry data at three-digit SIC 2003 level. The following table provides both the full manufacturing industry names as provided in SIC 2003 and the shorter names used by TWRI in this report.

Table 1.2: 3-Digit SIC Codes and Industry Naming Conventions

SIC (3 Digit)	Industry	Short Name
151	Production and preserving meat etc	Meat Production
158	Manufacture of other food products	Other Food Products
174	Manufacture of made-up textile articles	Textile Articles
182	Manufacture of other wearing apparel etc	Clothing
212	Manuf: articles of paper/paperboard	Paper & Products
221	Publishing	Publishing
222	Printing etc	Printing
241	Manufacture of basic chemicals	Basic Chemicals
251	Manufacture of rubber products	Rubber Products
252	Manufacture of plastic products	Plastic Products
261	Manufacture of glass and glass products	Glass
281	Manufacture of structural metal products	Structural metal Prods
284	Forging/ pressing/ stamping etc	Forging & Pressing
285	Treatment and coating of metals etc	Metal Treatments
287	Manuf: other fabricated metal products	Oth Fabricated Metal Prods
291	Manuf: machin. for prod. of mech. power	Mech Power Machinery
292	Manuf: other general purpose machinery	Lifting & Other Machinery
295	Manuf: other special purpose machinery	Machinery for Industry (sp)
312	Manuf: electricity distrib. apparatus	Electric Distrib Equipment
316	Manufacture of electrical equipment nec	Electrical Equipment
321	Manufacture of electronic valves etc	Electronic Valves etc
343	Manufacture of parts for motor vehicles	Motor Parts
351	Building and repairing of ships/boats	Boat-building
361	Manufacture of furniture	Furniture
366	Miscellaneous manufacturing nec	Miscellaneous Manu

Source: Annual Business Inquiry, ONS

Short names provided by TWRI

Disclaimer on named firms:

TWRI does not have data relating to individual firms. This has remained in the hands of ONS. TWRI has obtained aggregate data for local industries. To make this meaningful to local policy-makers, and other readers, TWRI has inserted the names of firms in Tyne & Wear which it believes are coded (or likely to be coded) to these industries. These examples might not correspond to ONS' coding in all cases.

PART A: MANUFACTURING IN TYNE & WEAR CITY REGION

2 Manufacturing Output

- In 2007, manufacturing output in TWCR was £4.5bn, 3% of UK output (£155bn) and equal to 57% of output in Leeds CR (£7.9bn), 147% of output in Liverpool CR (£3.0bn), and 99% of output in Sheffield CR (£4.5bn).
- At 3-digit SIC, TWCR is most dependent on output from Plastic Products, which produced 6% of its total manufacturing output in 2007.
- TWCR's manufacturing industry is more diverse than Leeds CR and Liverpool CR: eight top ten manufacturing industries were over-represented in TWCR, one more than Leeds CR and six more than Liverpool CR. Sheffield is also over-represented in eight of the top ten manufacturing industries.
- In 2001-2007, output grew 4% in TWCR, faster than Liverpool CR (+2.6%), and Sheffield CR (+0.7%). This contrasts with falls in Leeds CR (-8.0%) and in the UK (-8.7%). [All based on 2006 prices.] Output in TWCR grew in six top ten industries, more broadly than Leeds and Liverpool CRs and the UK but one fewer than in Sheffield CR.

'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 ACT¹⁴ 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') 3-digit industries in TWCR accounted for 40% of its manufacturing output (Table 2.1). The analysis throughout this report (both Part A and Part B) focuses on these top ten industries (notably in the graphics).

The top ten industries in Leeds, Liverpool, and Sheffield CRs were slightly different¹⁵ to TWCR. As the primary purpose of including comparator CRs was to provide comparisons to TWCR, analysis of other CRs is presented in terms of the top ten industries in TWCR.

In 2007 the value of manufacturing output (GVA) from Tyne & Wear City Region (TWCR) was £4,450m, 2.9% of the UK total. TWCR's manufacturing output was equal to just over half that of Leeds City Region (Leeds CR), which was £7,866m, 5% of the UK (current prices¹⁶).

¹⁴ ACT was used in previous reports to mean Advertising, Computing and Telecoms.

¹⁵ See Appendix 2.2

¹⁶ 'Current prices' refers to the prices actually prevailing in this period (2007).

TWCR is more concentrated on output from its top ten industries (40% by output) than Liverpool (29%) and the UK (30%), but a bit less so than Leeds CR (43%) and Sheffield CR (41%). Caution: these concentrations are understated as data for some industries, which will actually be in the top ten, are suppressed by ONS, e.g., vehicle manufacture in TWCR.

In 2005, at 2-digit level this higher dependency was most obvious in Transport Equipment, which 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.

In 2007, at 3-digit level, the contribution to output was highest from Plastic Products, at 6% (£261m). This industry's share of output was relatively stable in TWCR in 2001-2007, at 5% of output in 2001, rising to 7% in 2005 and falling to 6% in 2007. Manufacturers of Plastic Products in Tyne & Wear include; Wellstream (Newcastle), Du-co (Newcastle) Formica (N.Tyneside), Smithers-Oasis (Sunderland), Thermopak (Gateshead), and possibly Freudenberg (N. Tyneside). [A number of Manufacturers of Plastic Products supply Nissan in Sunderland.]

Dependency on Plastic Products was also high in Sheffield CR where it ranked second in 2007, at 7%. Share of output in Leeds and Liverpool CRs and the UK was lower, at around 3-5%.

Also in 2007 at 3-digit level, Motor Parts ranked 5th in TWCR in terms of output. A number of suppliers to Nissan are located in Sunderland, including; Ikeda-Hoover, TRW and Calsonic. Also Freudenberg Technical Products in N. Tyneside.

Table 2.1: Output (GVA); Tyne & Wear City Region, with Leeds, Liverpool, and Sheffield City Regions and UK Comparison, 2007

SIC (3 Digit) Industry	Output (Gross Value Added)									
	Tyne & Wear City Region		Leeds City Region		Liverpool City Region		Sheffield City Region		UK	
	(£m)	% of total output	(£m)	% of total output	(£m)	% of total output	(£m)	% of total output	(£m)	% of total output
252 Plastic Products	261	6%	348	4%	97	3%	298	7%	6,538	4%
158 Other Food Products	223	5%	881	11%	330	11%	468	10%	8,484	5%
295 Machinery for Industry (sp)	210	5%	138	2%	16	1%	133	3%	2,911	2%
292 Lifting & Other Machinery	198	4%	255	3%	44	1%	110	2%	4,506	3%
343 Motor Parts	188	4%	132	2%	*	*	88	2%	2,768	2%
285 Metal Treatments	180	4%	186	2%	94	3%	229	5%	4,864	3%
361 Furniture	170	4%	397	5%	49	2%	120	3%	3,976	3%
222 Printing	131	3%	544	7%	116	4%	138	3%	6,543	4%
291 Mech Power Machinery	119	3%	284	4%	48	2%	102	2%	3,132	2%
281 Structural Metal Prods	112	3%	189	2%	83	3%	141	3%	3,532	2%
212 Paper & Products	101	2%	129	2%	47	2%	79	2%	2,263	1%
321 Electronic Valves etc	83	2%	16	0%	2	0%	6	0%	1,271	1%
221 Publishing	82	2%	405	5%	88	3%	72	2%	8,991	6%
241 Basic Chemicals	71	2%	80	1%	211	7%	62	1%	4,971	3%
287 Oth Fabricated Metal Prods	60	1%	223	3%	41	1%	190	4%	2,500	2%
174 Textile Articles	56	1%	91	1%	31	1%	13	0%	936	1%
151 Meat Production	54	1%	193	2%	33	1%	69	2%	3,244	2%
261 Glass	52	1%	177	2%	174	6%	129	3%	1,274	1%
312 Electric Distrib Equipment	41	1%	92	1%	5	0%	46	1%	1,376	1%
182 Clothing	32	1%	74	1%	12	0%	20	0%	1,137	1%
284 Forging & Pressing	29	1%	31	0%	16	1%	147	3%	1,062	1%
351 Boat-building	26	1%	4	0%	17	1%	3	0%	1,717	1%
251 Rubber Products	26	1%	20	0%	4	0%	26	1%	1,173	1%
366 Miscellaneous Manu	25	1%	69	1%	35	1%	39	1%	1,214	1%
316 Electrical Equipment	19	0%	103	1%	7	0%	45	1%	1,531	1%
Total	2,550		5,062		1,599		2,771		81,911	
All Manufacturing	4,450	57%	7,866	64%	3,020	53%	4,497	62%	155,313	53%

Source: ABI Tables, ONS

Totals may not sum due to rounding

* Indicates that a value is confidential and has been suppressed

Although in TWCR Other Food Products is the second-largest manufacturing industry by output, at 5% or £223m in 2007, its share is only around half of the share in Leeds, Liverpool, and Sheffield CRs (11%, 11%, and 10% respectively). This reflects the trends shown in 2005 at 2-digit level. Other

Food Products includes confectionery, tea and ready-meals. Manufacturers of these products in Tyne & Wear include Nestle and Longbenton Foods (formerly Findus).

In 2005 (at 2-digit level), Machinery & Equipment ranked second in TWCR. At 3-digit level in 2007, Machinery for Industry (sp) (which includes firms such as Bonas, Crabtree in Gateshead, Komatsu) and Lifting & Other Machinery (Stannah, Liebherr) ranked third and fourth respectively. Mech Power Machinery (which includes Siemens Energy¹⁷ in Newcastle) ranked ninth.

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.

Eight of the top ten manufacturing industries were over-represented in TWCR in 2007 compared to the UK (Table 2.2): Machinery for Industry (sp) (2.52), Motor Parts (2.37), Lifting & Other Machinery (1.53), Furniture (1.50), Plastic Products (1.39), Mech Power Machinery (1.32), Metal Treatments (1.29), and Structural Metal Prods (1.10).

Table 2.2: Output Location Quotient; Tyne & Wear City Region, Leeds CR, Liverpool CR, Sheffield CR, 2007

SIC (3 Digit) Industry	Output Location Quotient			
	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region
252 Plastic Products	1.39	1.05	0.76	1.57
158 Other Food Products	0.92	2.05	2.00	1.90
295 Machinery for Industry (sp)	2.52	0.94	0.28	1.57
292 Lifting & Other Machinery	1.53	1.12	0.51	0.84
343 Motor Parts	2.37	0.94	*	1.09
285 Metal Treatments	1.29	0.76	0.99	1.63
361 Furniture	1.50	1.97	0.64	1.04
222 Printing	0.70	1.64	0.91	0.73
291 Mech Power Machinery	1.32	1.79	0.78	1.12
281 Structural Metal Prods	1.10	1.06	1.21	1.38
212 Paper & Products	1.55	1.13	1.07	1.20
321 Electronic Valves etc	2.28	0.24	0.08	0.17
221 Publishing	0.32	0.89	0.50	0.28
241 Basic Chemicals	0.50	0.32	2.18	0.43
287 Oth Fabricated Metal Prods	0.83	1.76	0.84	2.63
174 Textile Articles	2.07	1.93	1.69	0.49
151 Meat Production	0.59	1.18	0.53	0.74
261 Glass	1.42	2.75	7.03	3.49
312 Electric Distrib Equipment	1.04	1.33	0.19	1.15
182 Clothing	0.99	1.28	0.54	0.60
284 Forging & Pressing	0.95	0.58	0.76	4.78
351 Boat-building	0.53	0.05	0.52	0.05
251 Rubber Products	0.77	0.34	0.17	0.78
366 Miscellaneous Manu	0.73	1.12	1.47	1.12
316 Electrical Equipment	0.43	1.32	0.23	1.00

* Indicates that a value is confidential and has been suppressed

The remaining two top ten manufacturing industries in TWCR were slightly under-represented relative to their share of output in the UK. This was greatest in Printing, whose output was just over two-thirds of the industry's share of UK output (0.70). Also Other Food Products was under-represented, at 0.92. [Caution: Low TWCR Other Food Products 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.]

TWCR's manufacturing industries are more diverse than Leeds and Liverpool CRs; the outputs of *eight* top ten industries were stronger in TWCR than the UK (i.e. had an output location quotient above 1.0), compared to *seven* in Leeds CR and and only *two* in Liverpool CR. Sheffield CR also had *eight* top ten industries which were stronger than the UK.

¹⁷ Widely known as Parsons

All four CRs are over-represented in the Structural Metal Prods but differ in their remaining sources of large shares of output (relative to the UK).

Tyne & Wear CR is strongly over-represented in the Machinery for Industry (sp) (2.52), Motor Parts (2.37), and [outside the top ten manufacturing industries] in Electronic Valves etc. (2.28), and Textile Articles (2.07),

Leeds CR has strong over-representation in Glass (2.75) [which is outside the top ten manufacturing industries] and Other Food Products (2.05).

Liverpool CR shows very strong over-representation in Glass (7.03)¹⁸, and also in Basic Chemicals (2.18)¹⁹ [both outside the top ten manufacturing industries], and Other Food Products (2.00).

Sheffield CR is strongly over-represented in Forging & Pressing (4.78), Glass (3.49), and Oth Fabricated Metal Prods (2.63) [all of which are outside the top ten manufacturing industries].

2.2 Competitive manufacturing industries in TWCR

In TWCR, six manufacturing industries emerge as **competitive**, with both a high 'output location quotient' (OLQ) and higher profit margins than in the UK (Box 2.1). They are Plastic Products, Machinery for Industry (sp), Lifting & Other Machinery, Motor Parts, Metal Treatments, and Furniture.

Box 2.1 Manufacturing Competitive Industries in Tyne & Wear City Region, 2007

Industry	Output Location Quotient	Productivity (relative to the UK)	Profit Margins (relative to the UK)	Output Growth (2001-2007)	Employment Growth
Plastic Products	1.39	1.13	1.02	21%	12%
Machinery for Industry (sp)	2.52	1.91	1.47	121%	5%
Lifting & Other Machinery	1.53	1.15	1.32	31%	-7%
Motor Parts	2.37	1.07	1.10	-2%	-11%
Metal Treatments	1.29	1.21	1.29	71%	10%
Furniture	1.50	1.23	1.40	20%	-29%

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 (§8.2).

Machinery for Industry (sp) (2.52) had the highest output location quotient as well as the highest profit margins relative to the UK (1.47). This industry also had the highest productivity relative to the UK (1.91) and the highest output growth 2001-2007 (121%).

Motor Parts (2.37) ranked second highest on output location quotient but ranked much lower on the other criteria; fifth on profit margins (1.10), sixth on productivity (1.07) and output growth (-2%).

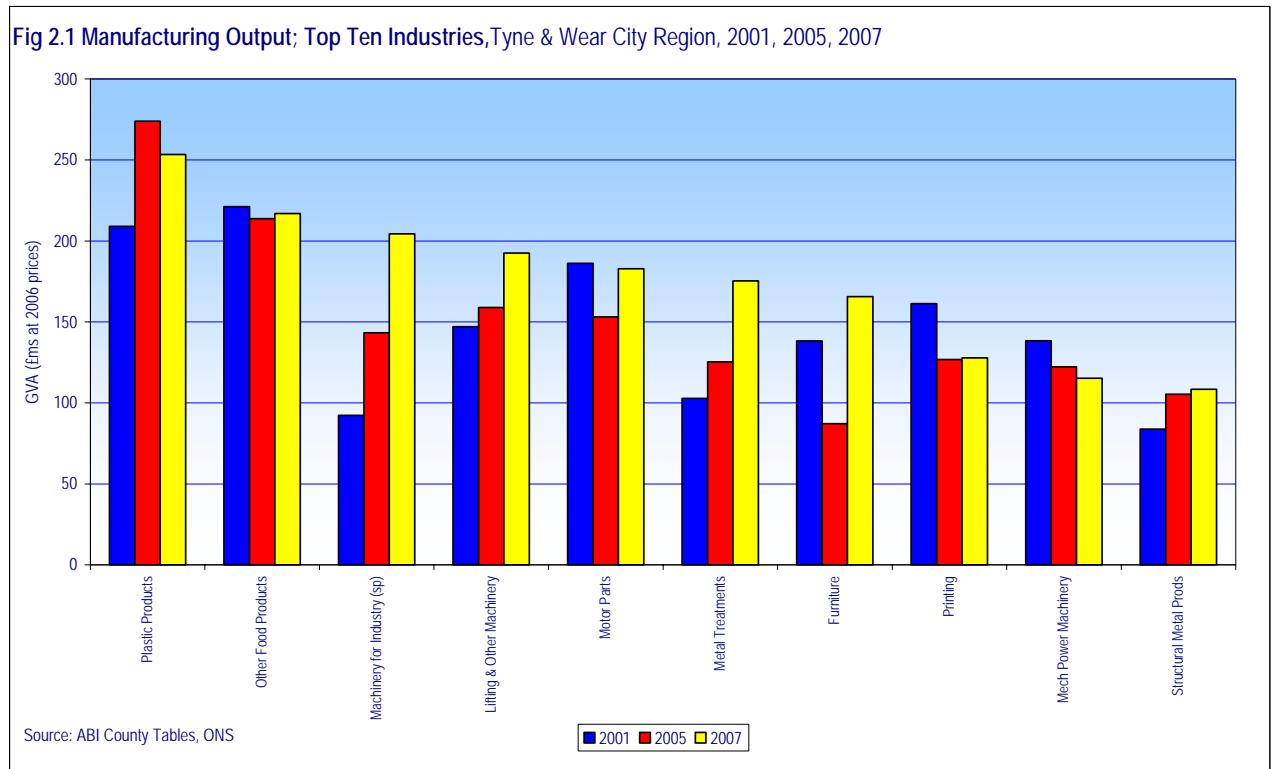
Metal Treatments (1.29) ranked lowest on output location quotient but second on output growth (71%). It also ranked third on productivity (1.21) and fourth on profit margins (1.29).

¹⁸ With Pilkington based in St. Helens.

¹⁹ With the salt-based chemicals businesses of the former ICI based in Halton.

2.3 Change in output

In 2001-2007, manufacturing output in TWCR grew 4% (£167m) from £4,157m in 2001 to £4,325m in 2007 (2006 prices). The growth in TWCR was faster than in Liverpool and Sheffield CRs; 1.4pp faster than Liverpool CR (+2.6%, +£75m, to £2,935), and 3.3pp faster than Sheffield CR (+0.7%, + £30m, to £4,370). The growth in TWCR contrasts with a fall in Leeds CR of -8.3% (-£694m, to £7,644) and a fall in the UK of -8.7% (-£14bn, to £151bn in 2007)²⁰.



Note: The 2001-2007 time series data are given in Appendix 2.1.

Output grew in six of the top ten industries in TWCR in 2001-2007 (Fig 2.1):

- Machinery for Industry (sp) (up 121%) (firms in Tyne & Wear such as Bonas, Crabtree, Komatsu)
- Metal Treatments (up 71%) (firms such as Barrier in N. Tyneside, Dacon in Gateshead, and BNB in S. Tyneside)
- Lifting & Other Machinery (up 31%) (firms such as Liebherr, Langley / Clarke-Chapman, Stannah)
- Structural Metal Prods (up 29%) (firms such as A&P Tyne in S. Tyneside, and AMEC P&E – to around 2005)
- Plastic Products (up 21%) (firms such as Wellstream, Du-co, Formica, Smithers-Oasis)
- Furniture (up 20%) (firms such as Be Modern in S. Tyneside, and Delcor in N. Tyneside)

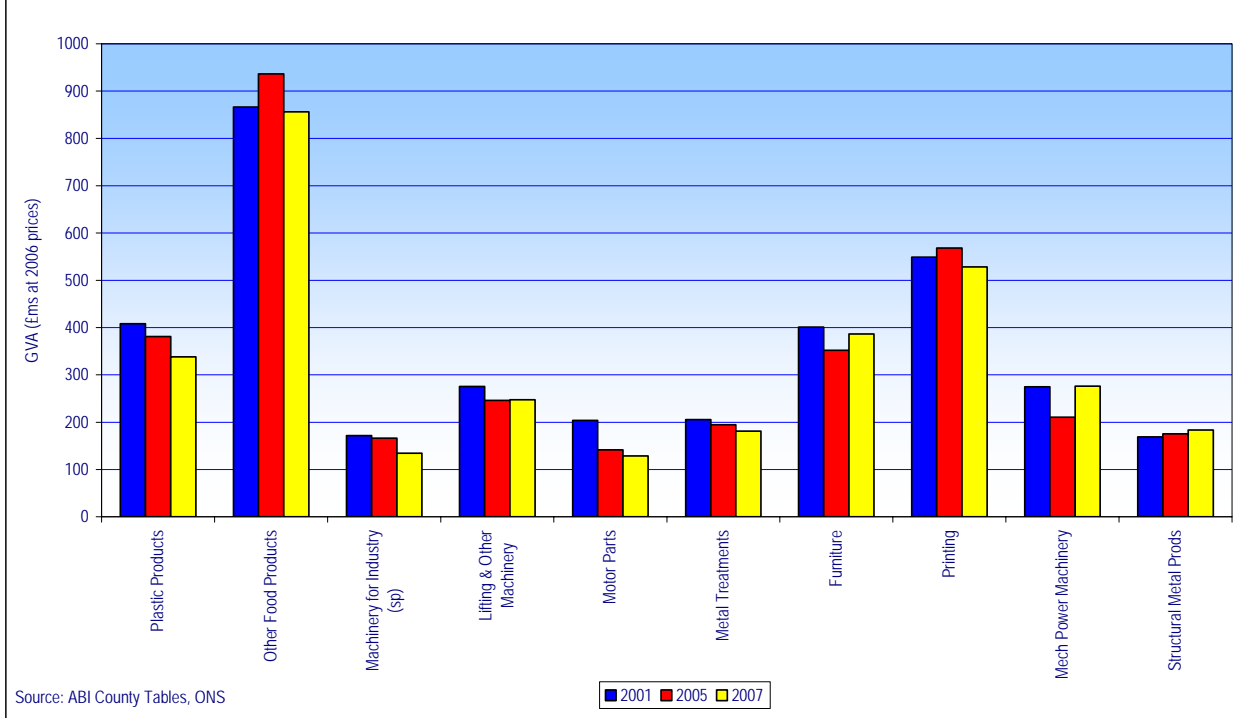
Manufacturing output in TWCR fell in the remaining four top ten industries: markedly in Printing, (-21%), Mech Power Machinery (-17%), but also in Other Food Products (-2%), and Motor Parts (-2%).

Nevertheless, changes in five of the top ten industries were more favourable in TWCR than in all other comparator regions (Fig 2.2, Fig 2.3, and Fig 2.4).

²⁰ In 2001-2005, all CRs and the UK experienced a fall in output. The decline in this period was slower in TWCR than its comparators; LPCR (-17%), UK (-10%), LCR (-10%), SCR (-7%), and TWCR (-6%). In 2005-2007 output grew in all CRs and the UK. Output grew fastest in LPCR (23%), followed by TWCR (11%), SCR (8%), LCR (2%), and the UK (1%).

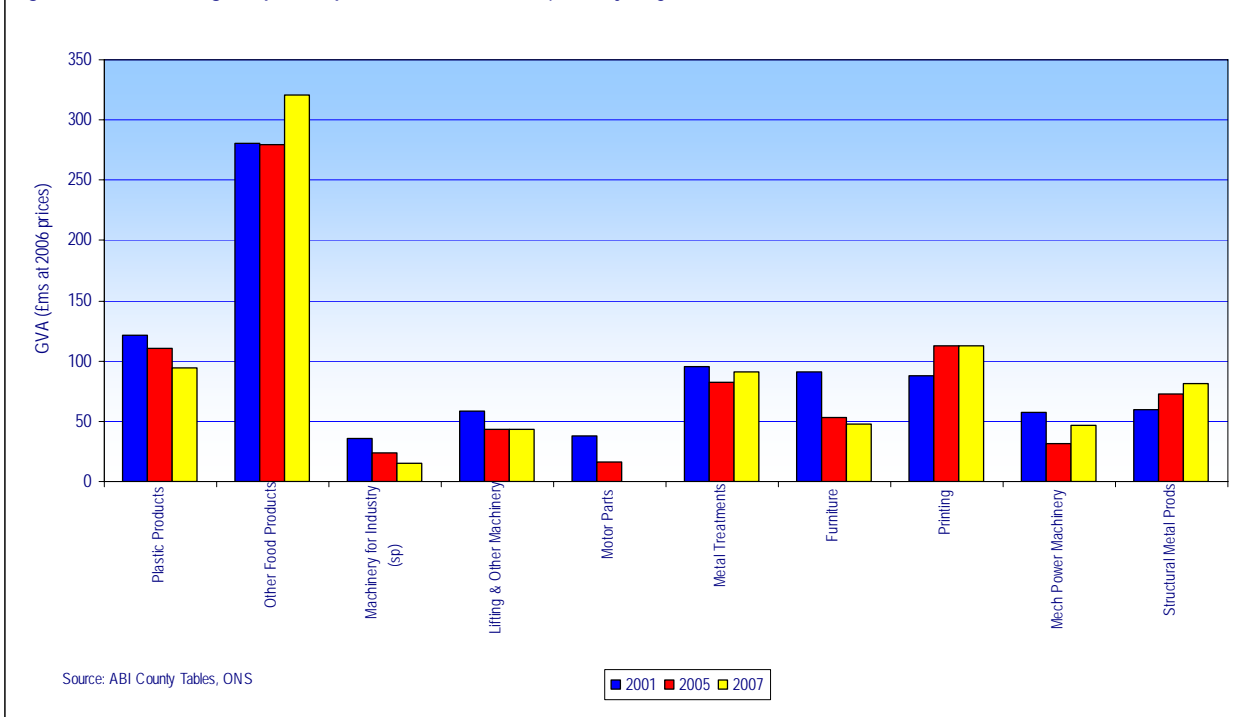
Manufacturing output in Leeds CR grew in just two top ten industries between 2001-2007; Mech Power Machinery, and Structural Metal Prods (Fig 2.2).

Fig 2.2 Manufacturing Output; Top Ten Industries, Leeds City Region, 2001, 2005, 2007



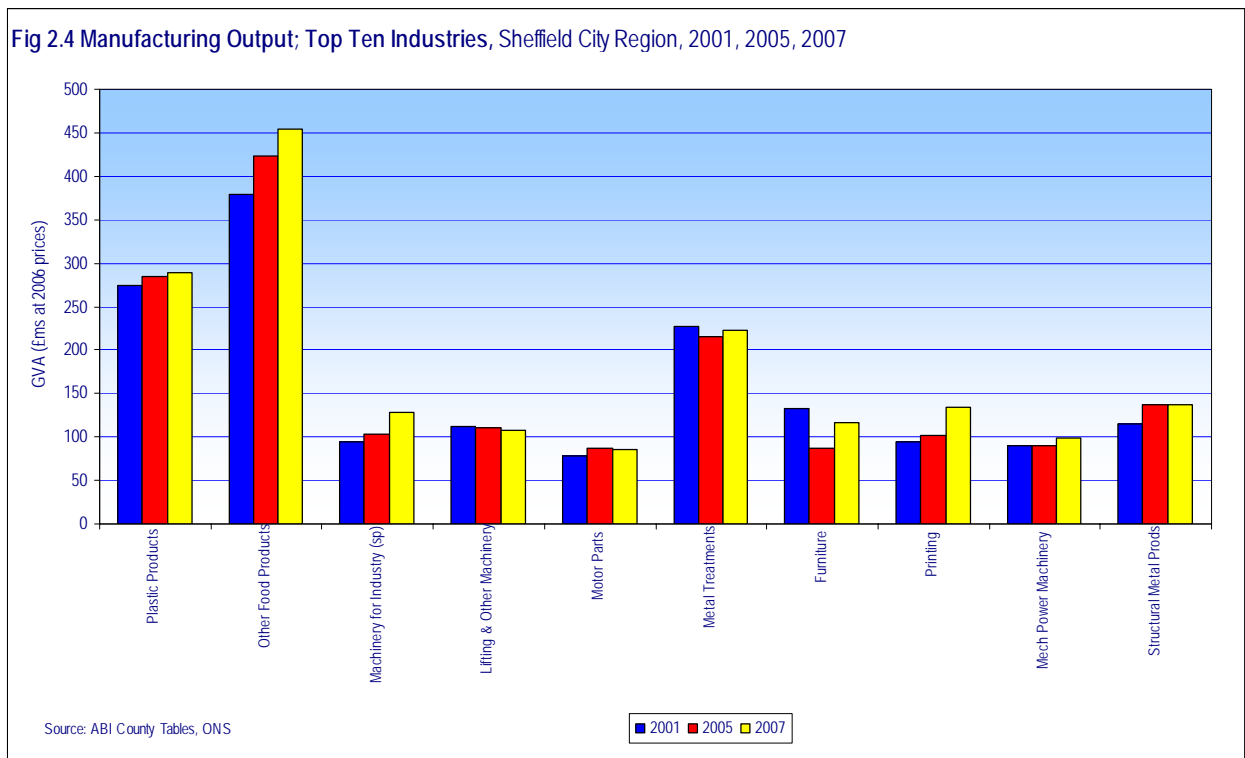
In Liverpool CR, manufacturing output grew in three top ten industries between 2001-2007; Other Food Products, Printing, and Structural Metal Prods (Fig 2.3).

Fig 2.3 Manufacturing Output; Top Ten Industries, Liverpool City Region, 2001, 2005, 2007



Output data for Motor Parts were suppressed for 2007

Manufacturing output in Sheffield CR grew in seven top ten industries; Plastic Products, Other Food Products, Machinery for Industry (sp), Motor Parts, Printing, Mech Power Machinery, and Structural Metal Prods (Fig 2.4).



In the UK, manufacturing output grew in three top ten industries in 2001-2007; Machinery for Industry (sp), Lifting & Other Machinery, and Structural Metal Prods.

Machinery for Industry (sp) in TWCR grew very rapidly, up 121% from £92m in 2001 to £204m in 2007 (2006 prices). The growth in TWCR contrasts with falls in both Leeds and Liverpool CRs and was also much stronger than the growth in Sheffield CR (38%) and the UK (6%).

Metal Treatments output in TWCR grew 71% from £103m in 2001 to £175m in 2007. The performance in TWCR was in sharp contrast to all other comparator CRs and the UK, where in 2001-2007 output fell.

Lifting & Other Machinery output in TWCR grew 31% in 2001-2007. Again, the performance in TWCR contrasts sharply with comparator CRs, where output fell. TWCR greatly out-performed growth in the UK (2.3%) in 2001-2007.

Structural Metal Prods grew 29% in TWCR. This out-performed growth in Leeds and Sheffield CRs and the UK, but was slower than growth in Liverpool CR (36%).

Plastic Products output in TWCR grew 21%, faster than in Sheffield CR (5.4%), and in contrast to falls in Leeds and Liverpool CRs and the UK. In TWCR, the industry grew 31% between 2001-2005, before falling 8% between 2005-2007. The fast growth in TWCR might be driven by plastic piping for the offshore industry. [This reflects the growth shown at 2-digit level 2001-2005 in Rubber & Plastics, which was up 26%.]

Furniture in TWCR grew 20%²¹, which again contrasts with falls in all other comparator areas. The industry grew in TWCR between 2005-2007 (up 90%). This followed a decline between 2001-2005 (down 37%).

The sharpest fall in TWCR was in Printing, down -21% (from £161m in 2001 to £128m in 2007), faster than the fall in both Leeds CR and the UK, and in contrast to growth in Liverpool and Sheffield CRs. Most of the decline in TWCR occurred between 2001-2005 (-21%) as there was slight growth

²¹ The reported growth in Furniture is odd, given the closure of Homeworthy (in Sunderland), although its employment fell 1,400 (-29%).

Manufacturing in Tyne and Wear City Region 2001-2007

between 2005-2007 (0.8%). 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].

Output in TWCR in Mech Power Machinery fell -17% in 2001-2007 (from £138m in 2001 to £115m in 2007). TWCR's performance was much weaker than Sheffield CR (up 10%) and Leeds CR (up 1%). It was twice as weak as the UK, (down -8%). However, Liverpool CR was weaker than TWCR (down 20%).

Output in TWCR in Other Food Products fell fastest in TWCR (down 2%), compared to falls of 1.9% in the UK and 1.2% in Leeds CR. Output grew in both Liverpool (up 14%) and Sheffield (up 20%) CRs. In TWCR, decline in the industry occurred between 2001-2005 (down 3%) before growth of 1% between 2005-2007.

The fall in output in TWCR of 2% in Motor Parts was slow in contrast to the falls in Leeds CR (down 37%) and the UK (down 25%). It contrasts with growth of 9% in Sheffield CR. In TWCR, the initial fall between 2001-2005 (-17%) was almost reversed by growth of 19% in the later period (2005-2007).

3 Manufacturing Employment

- In 2007, manufacturing employment was just under 83,000 in TWCR. This is 3% of total UK manufacturing employment (2,901,700) and equal to 49% of manufacturing employment in Leeds CR (168,300), 85% of manufacturing employment in Sheffield CR (97,800), and 150% of manufacturing employment in Liverpool CR (55,200).
- In 2001-2007 manufacturing employment fell in all areas. The -17% fall in TWCR was slower than in all other comparator areas; Leeds CR (-22%). Liverpool CR (-28%), Sheffield CR (-18%) and the UK (-21%).

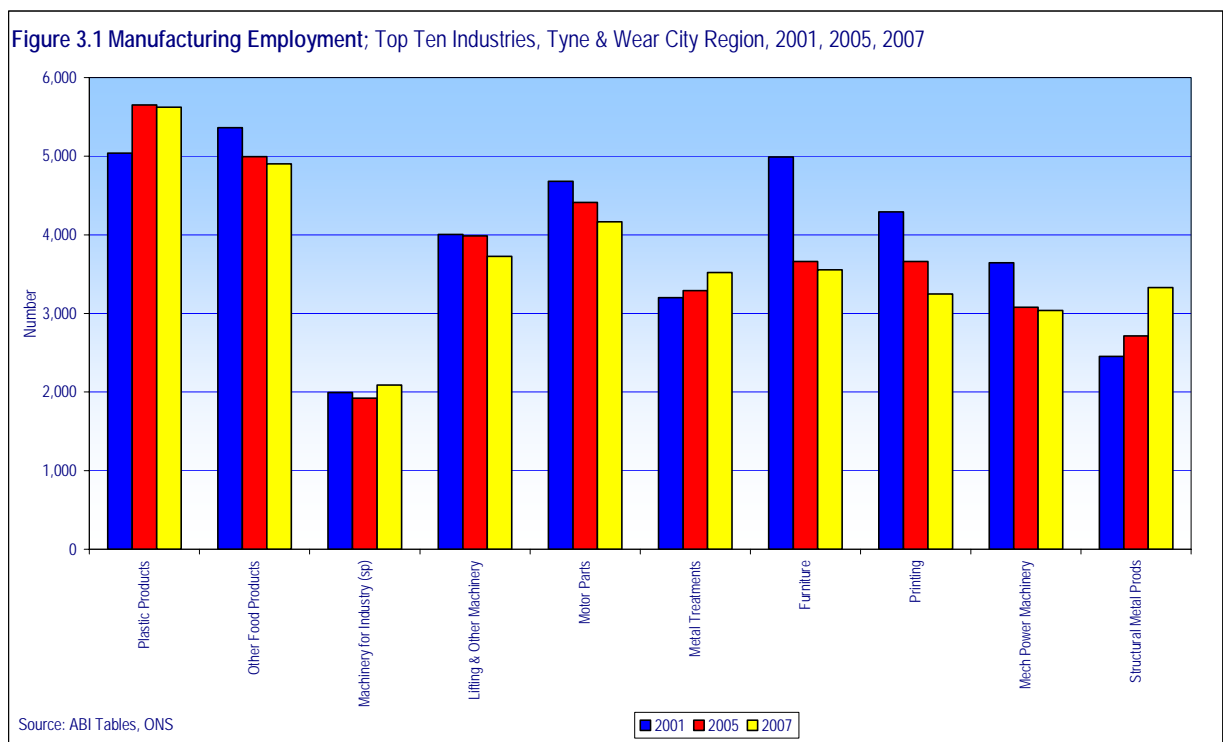
In 2001, manufacturing employment in TWCR was 100,500, less than 3% of total UK employment in manufacturing (3,695,200) and equal to 46% of total manufacturing employment in Leeds CR (216,600), 85% of total manufacturing employment in Sheffield CR (118,600), and 131% of total manufacturing employment in Liverpool CR (76,700).

In 2001-2007, manufacturing employment in TWCR fell -17% (-17,600)²². The greatest jobs loss was in 2001-2005, down 14% (-14,100). Employment fell -4% (-3,500) in 2005-2007.

Manufacturing employment declined at a slower rate in TWCR than in all other comparators; manufacturing employment fell -22% (-48,300) in Leeds CR, -28% (-21,600) in Liverpool CR, -18% (-20,800) in Sheffield CR, and -21% (793,500) in the UK.

In 2007, manufacturing employment in TWCR was 82,900, 3% of total UK manufacturing employment (2,901,700) and equal to 49% of total manufacturing employment in Leeds CR (168,300), 85% of total manufacturing employment in Sheffield CR (97,800), and 150% of total manufacturing employment in Liverpool CR (55,200).

In 2001, manufacturing employment in TWCR was over 4,000 in six of the top ten industries (Fig 3.1); Other Food Products (5,400), Plastic Products (5,000), Furniture (5,000), Motor Parts (4,700), Printing (4,300), Lifting & Other Machinery (4,000). These six account for over a third of manufacturing employment in TWCR.



²² Tyne & Wear City Region's manufacturing employment loss average of nearly 3,000 pa, or 3% pa.

In 2001-2007, employment fell in six of the top ten industries in TWCR. The greatest declines were in; Furniture (-29%, -1,400), Printing (-1,000, -24%), Mech Power Machinery (-600, -17%) and Motor Parts (-500, -11%). The falls in the remaining top ten manufacturing industries were slower, at less than -10%.

Box 3.1 The Clothing Industry's Employment Collapse

At 3-digit SIC, Clothing, alone, accounted for another 16% of net employment losses from TWCR manufacturing, TWCR's largest numeric fall. The industry shed 2,700 jobs to 2007 in TWCR, 75% of its workforce in 2001. Clothing 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 2001-2007 and affected TWCR. In 2007, Clothing output was £32.1m (current prices) meaning it remains outside the top ten. Clothing continued to employ 900 in TWCR in 2007. The remaining largest firm is probably Barbour.

Similarly, the Clothing industry in Leeds CR shed 3,800 jobs in 2001-2007, its largest numeric fall and 66% of its workforce in 2001. Leeds CR continued to employ about 2,000 in the industry, about twice TWCR's level.

In Liverpool CR, the industry lost 1,300 in 2001-2007, 77% of its workforce in 2001. In 2007, it only employed just under 400.

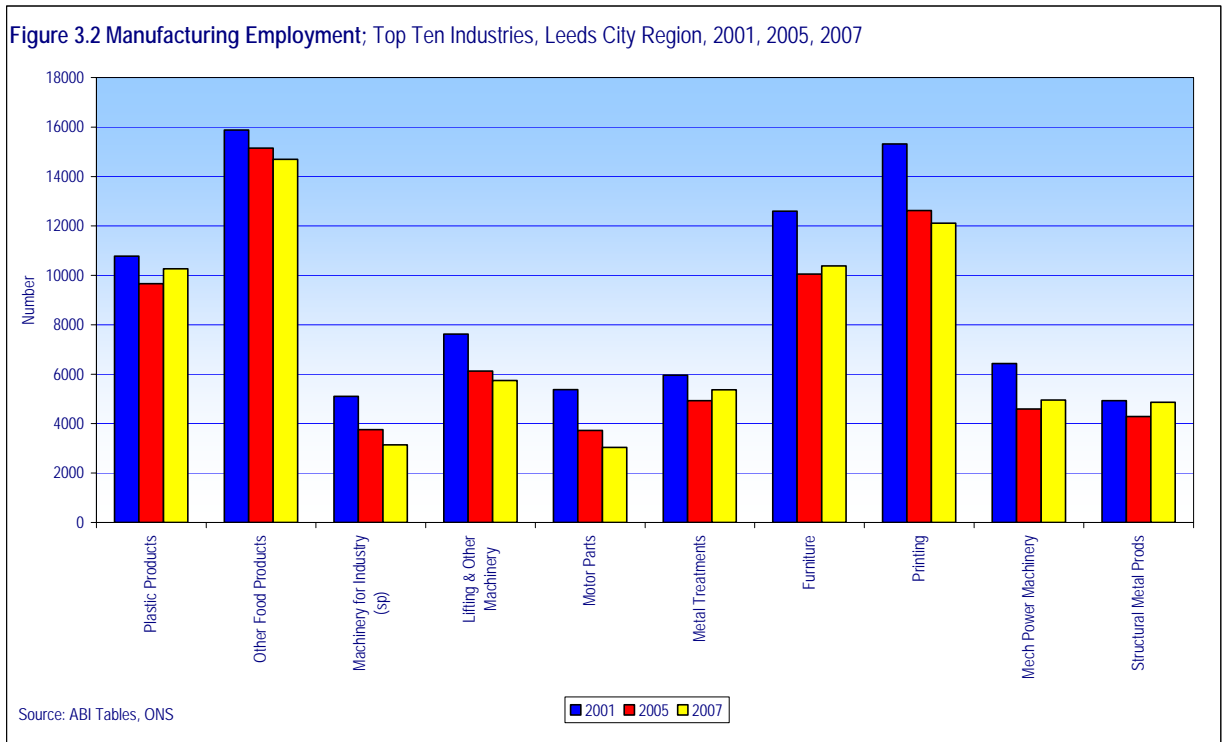
In Sheffield CR, the industry shed 1,800 jobs, its largest numerical fall and 77% of its workforce in 2001. In 2007, it only employed just over 500.

The fastest rise in employment in the top ten manufacturing industries in TWCR was in Structural Metal Prods (+900, 36%). This was followed by more modest rises in Plastic Products (+600, 12%), Metal Treatments (+300, 10%), and Machinery for Industry (sp) (+100, 5%).

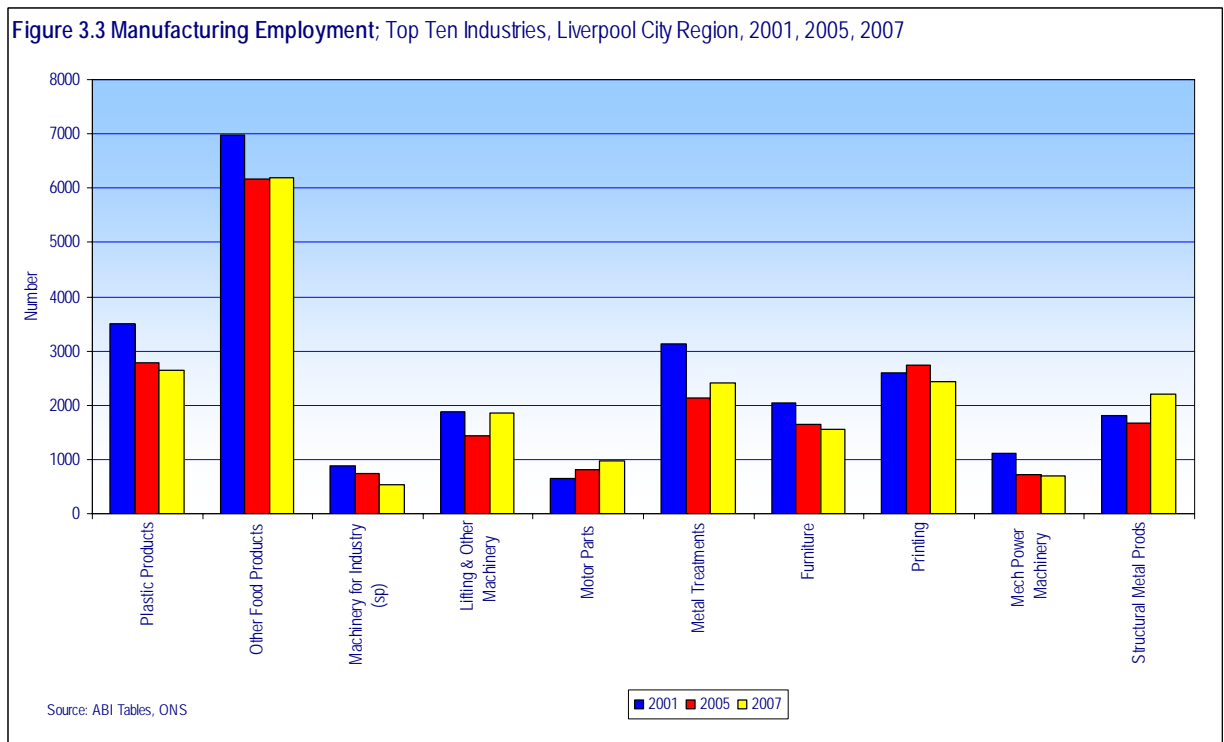
In Leeds CR in 2001 employment was highest in Other Food Products (15,900) and Printing (15,300) (Fig 3.2). [Similarly, at 2-digit level in 2001, employment was highest in Paper & Printing, and Food & Drink.] Employment in these industries was three times larger in Leeds CR than TWCR; this suggests they were supported (more than in TWCR) by demand outside the CR. An example was the regional newspaper²³ and the chocolate industry in York²⁴. 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 in 2007, Plastic Products, employed 10,300 in Leeds CR, almost twice as many as in TWCR.

²³ The Yorkshire Post group

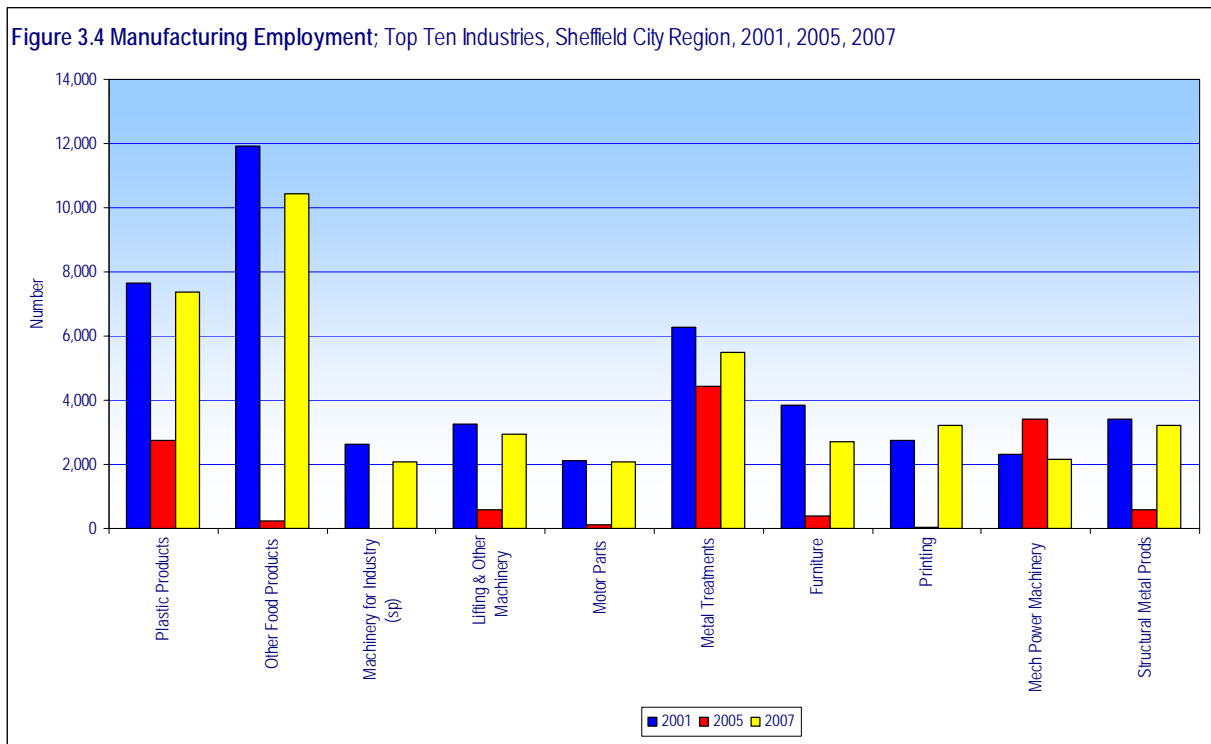
²⁴ Nestlé mainly (known as Rowntree up to 1988), but also Terrys etc.



In Liverpool CR in 2001 employment was highest in Other Food Products (7,000) and Plastic Products (3,500) (Fig 3.3).



In Sheffield CR in 2001 employment was highest in Other Food Products (11,900) and Plastic Products (7,600) (Fig 3.4). These industries were around double and 1½ times (respectively) larger in Sheffield CR than in TWCR. Metal Treatments also employed more than 6,200 in 2001. [Caution: 2005 data for Sheffield CR appears suspect, very low for many industries.]



Employment fell more slowly in TWCR than the UK in seven top ten industries (suggesting competitiveness in TWCR). This was most evident in Plastic Products, Metal Treatments, and Machinery for Industry (sp) where employment in TWCR *rose* 12%, 10% and 5% respectively in 2001-2007 but *fell* 14%, 14% and 17% in the UK. Employment grew (much) faster in TWCR in Structural Metal Prods (up 36%) than in the UK (up 4%).

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

- Motor Parts (a decline of 19pp slower in TWCR than the UK)
- Lifting & Other Machinery (7pp slower)
- Other Food Products (1pp slower)

Conversely, employment levels fell more quickly in TWCR than the UK in three industries: Furniture (a decline of 8pp faster in TWCR than the UK), Mech Power Machinery (2pp faster), and Printing (1pp faster).

In 2007, manufacturing employment in TWCR remained highest in Plastic Products (5,600), Other Food Products (4,900), and Motor Parts (4,200).

The relative positions of the employment levels of the top ten industries remained fairly constant between 2001 and 2007 (movement of one or two position at most). The four exceptions were Machinery for Industry (sp), which rose five positions to 11th place; Metal Treatments, which rose four positions to 6th place; Structural Metal Prods, which also rose four positions to 7th place; and Printing, which fell 3 positions to 8th place.

In Leeds CR, employment levels in the top ten industries remained highest in Other Food Products (14,700), Printing (12,100), Furniture (10,400), and Plastic Products (10,300).

In Liverpool CR, employment levels remained highest in Other Food Products (6,200). In Sheffield CR, employment levels remained highest in Other Food Products (10,400), Plastic Products (7,400), and Metal Treatments (5,500).

4 Manufacturing Productivity

- In 2007, manufacturing productivity was £53,700 in TWCR, 15% above Leeds CR (£46,700), 17% above Sheffield CR (£46,000) and 0.3% above the UK (£53,500). However, it was 2% below Liverpool CR (£54,800).
- In 2001-2007, productivity in TWCR rose 26%, faster than in all other comparator areas; UK (16%), Leeds CR (18%), Liverpool CR (18%), and Sheffield CR (22%).

4.1 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 unrounded figures are retained in table 4.1 in order to allow readers to perform their own calculations or analyses should they wish to do so.

Table 4.1: Productivity (GVA/employee) Levels; Tyne & Wear City Region, with Leeds, Liverpool, Sheffield City Regions and UK Comparison, 2007 (current prices)

SIC	Industry	Tyne & Wear City Region £	TWCR as Index of UK (UK=100)	Leeds City Region £	LCR as Index of UK (UK=100)	Liverpool City Region £	LPCR as Index of UK (UK=100)	Sheffield City Region £	SCR as Index of UK (UK=100)	UK £
252	Plastic Products	46,360	113.2	33,923	82.9	36,552	89.3	40,383	98.6	40,936
158	Other Food Products	45,501	93.3	59,938	122.9	53,331	109.4	44,908	92.1	48,756
295	Machinery for Industry (sp)	100,769	190.9	43,913	83.2	29,097	55.1	64,073	121.4	52,797
292	Lifting & Other Machinery	53,167	114.5	44,350	95.5	23,817	51.3	37,335	80.4	46,427
343	Motor Parts	45,151	106.8	43,688	103.4	*	*	41,976	99.3	42,270
285	Metal Treatments	51,209	121.2	34,722	82.2	38,835	91.9	41,752	98.8	42,266
361	Furniture	47,942	123.3	38,286	98.4	31,891	82.0	44,129	113.5	38,897
222	Printing	40,490	87.9	44,891	97.5	47,535	103.2	42,593	92.5	46,042
291	Mech Power Machinery	39,054	80.0	57,401	117.5	67,378	137.9	47,297	96.8	48,846
281	Structural Metal Prods	33,517	74.2	38,838	85.9	37,658	83.3	43,908	97.1	45,198
212	Paper & Products	42,228	99.5	35,930	84.7	48,947	115.3	48,892	115.2	42,437
321	Electronic Valves etc	72,391	138.6	64,074	122.7	23,142	44.3	74,832	143.3	52,232
221	Publishing	39,542	65.2	32,549	53.6	43,095	71.0	38,383	63.3	60,672
241	Basic Chemicals	75,260	73.2	30,712	29.9	71,795	69.8	60,704	59.1	102,791
287	Oth Fabricated Metal Prods	47,222	104.9	47,156	104.7	44,704	99.3	62,243	138.2	45,037
174	Textile Articles	40,283	105.5	46,570	122.0	38,209	100.1	44,621	116.9	38,178
151	Meat Production	27,645	81.2	48,929	143.8	32,297	94.9	28,614	84.1	34,032
261	Glass	36,739	73.9	58,904	118.4	87,174	175.2	62,877	126.4	49,745
312	Electric Distrib Equipment	25,980	62.4	61,960	148.8	34,720	83.4	45,725	109.8	41,651
182	Clothing	34,485	87.3	36,788	93.1	30,723	77.8	37,193	94.2	39,500
284	Forging & Pressing	31,243	74.1	35,448	84.1	52,766	125.1	72,130	171.1	42,169
351	Boat-building	55,407	108.5	55,235	108.2	28,551	55.9	36,411	71.3	51,067
251	Rubber Products	33,456	69.7	39,317	81.9	48,092	100.2	36,502	76.1	47,992
366	Miscellaneous Manu	31,950	75.8	41,301	98.0	36,776	87.3	42,076	99.9	42,127
316	Electrical Equipment	28,045	55.9	45,774	91.3	25,457	50.8	32,220	64.2	50,162
	All Manufacturing	53,672	100.3	46,747	87.3	54,754	102.3	45,971	85.9	53,524

Totals may not sum due to rounding

* Indicates that a value is confidential and has been suppressed

In 2007, manufacturing productivity in Tyne & Wear City Region (TWCR) was £53,700, 15% above Leeds CR (£46,700), 17% above Sheffield CR (£46,000) and 0.3% above the UK (£53,500). However, it was 2% below Liverpool CR (£54,800) (current prices) (Table 4.1).

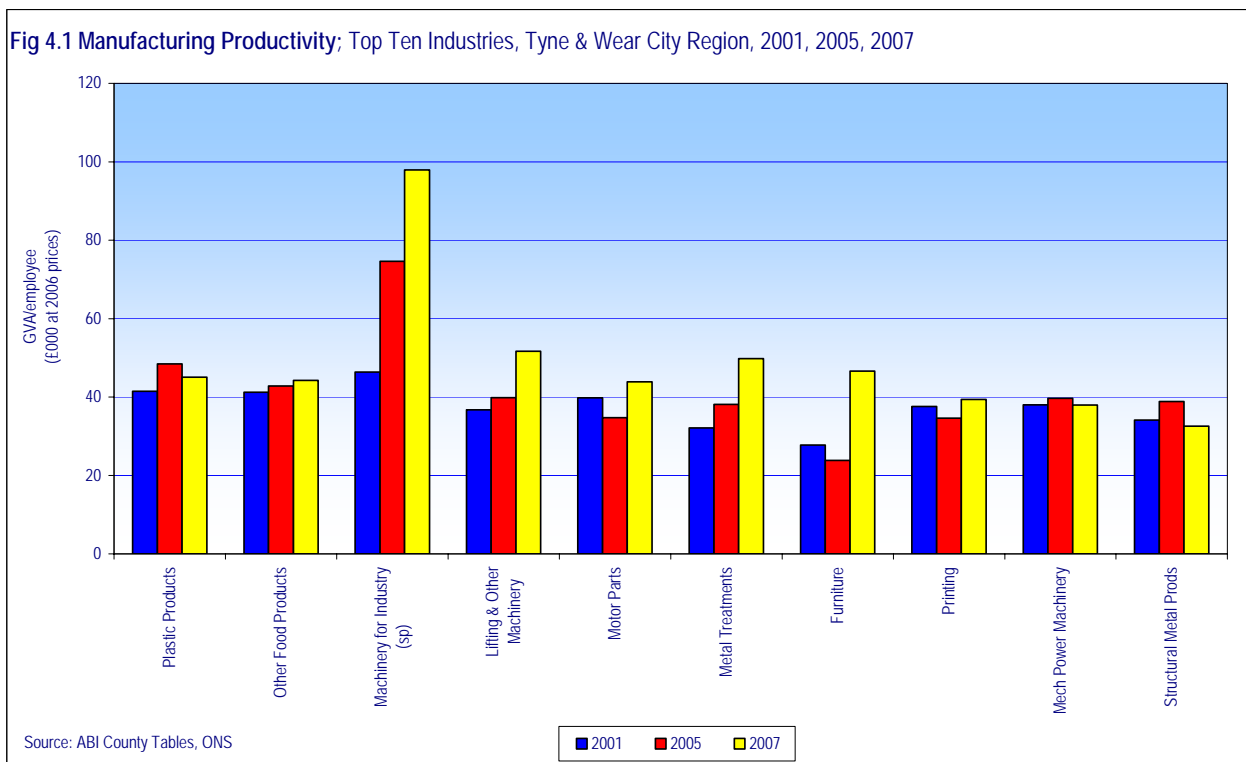
Productivity in TWCR was highest in Machinery for Industry (sp) (at a remarkable £100,800). Productivity was also high in Lifting & Other Machinery (£53,200) and Metal Treatments (£51,200). It was slightly lower in the remaining top ten industries. Among the top ten manufacturing industries, productivity was lowest in Structural Metal Prods (£33,500). [Outside the top ten manufacturing industries, productivity was also high in Basic Chemicals (£75,300), Electronic Valves etc. (£72,400), Boat-building (£55,400). Productivity was lowest in Electric Distrib Equipment (£26,000).]

In 2007, productivity was higher in six of the top ten manufacturing industries in TWCR than in the other comparator areas. Exceptions were; Other Food Products, where all comparators except Sheffield CR had higher productivity than TWCR; productivity was higher in all other comparator areas than in TWCR in Printing, Mech Power Machinery, and also in Structural Metal Prods.

4.2 Productivity Growth

In 2001-2007, productivity in TWCR grew 26%, from £41,400 in 2001 to £52,200 in 2007, an average of 4% per annum (2006 prices). Moreover, productivity growth accelerated in TWCR. This was markedly faster than in all other comparator areas; UK (16%), Leeds CR (18%), Liverpool CR (18%), and Sheffield CR (22%).

Productivity grew in eight of the top ten industries in TWCR in 2001-2007 (Fig 4.1): the two exceptions being Structural Metal Prods (-5%), and Mech Power Machinery (-0.1%). Productivity growth was most rapid in Machinery for Industry (sp) (111%), Furniture (68%)²⁵, Metal Treatments (55%) and Lifting & Other Machinery (41%). Productivity growth was more modest in Motor Parts (10%), Plastic Products (9%), Other Food Products (7%), and in Printing (5%). The rise in the business cycle from mild recession in 2001 will have helped productivity, especially, probably, for producers of machinery (since their demand is especially cyclical).



Note: The 2001-2007 time series data are given in Appendix 3.1.

²⁵ Possibly boosted by the closure of loss-making Homeworthy (in Sunderland).

Among all comparator areas, productivity growth was fastest in TWCR in four top ten industries; Machinery for Industry (sp), Lifting & Other Machinery, Metal Treatments, and in Furniture. Productivity growth was lowest among all comparators in TWCR in three top ten industries; Printing, Mech Power Machinery, and in Structural Metal Prods.

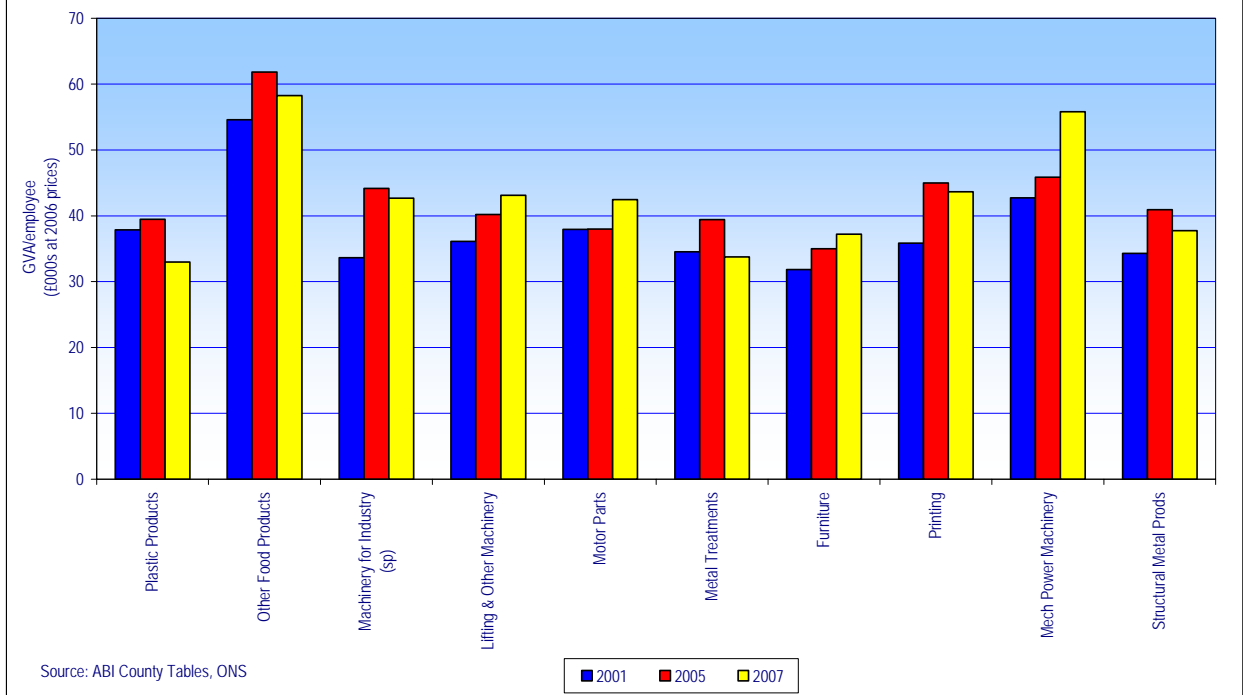
Productivity in Leeds CR also grew in eight of the top ten industries²⁶ (all except Plastic Products and Metal Treatments). (Fig 4.2). Productivity growth was fastest in Mech Power Machinery (31%), and in Machinery for Industry (sp) (27%).

Box 4.2 Productivity Trajectories: Later Productivity Growth in TWCR

Productivity rose fastest in 2005-2007 in both TWCR and the UK²⁷, but in 2001-2005 in Leeds, Liverpool and Sheffield CRs. In 2005-2007, productivity rose 16% in TWCR (around 8% pa) and 6% in the UK (around 3% pa), but just 4% in Leeds CR (around 2% pa), 2% in Liverpool CR (around 1% pa), and just 1% in Sheffield CR (around 0.6% pa).

In contrast, productivity in 2001-2005 rose 9% (around 2% pa) in TWCR, and 10% in the UK (around 3% pa). Productivity rose faster in Leeds CR at 14% (around 4% pa), Liverpool CR at 15% (around 4% pa) and particularly in Sheffield CR at 21% (around 5% pa).

Fig 4.2 Manufacturing Productivity; Top Ten Industries, Leeds City Region, 2001, 2005, 2007

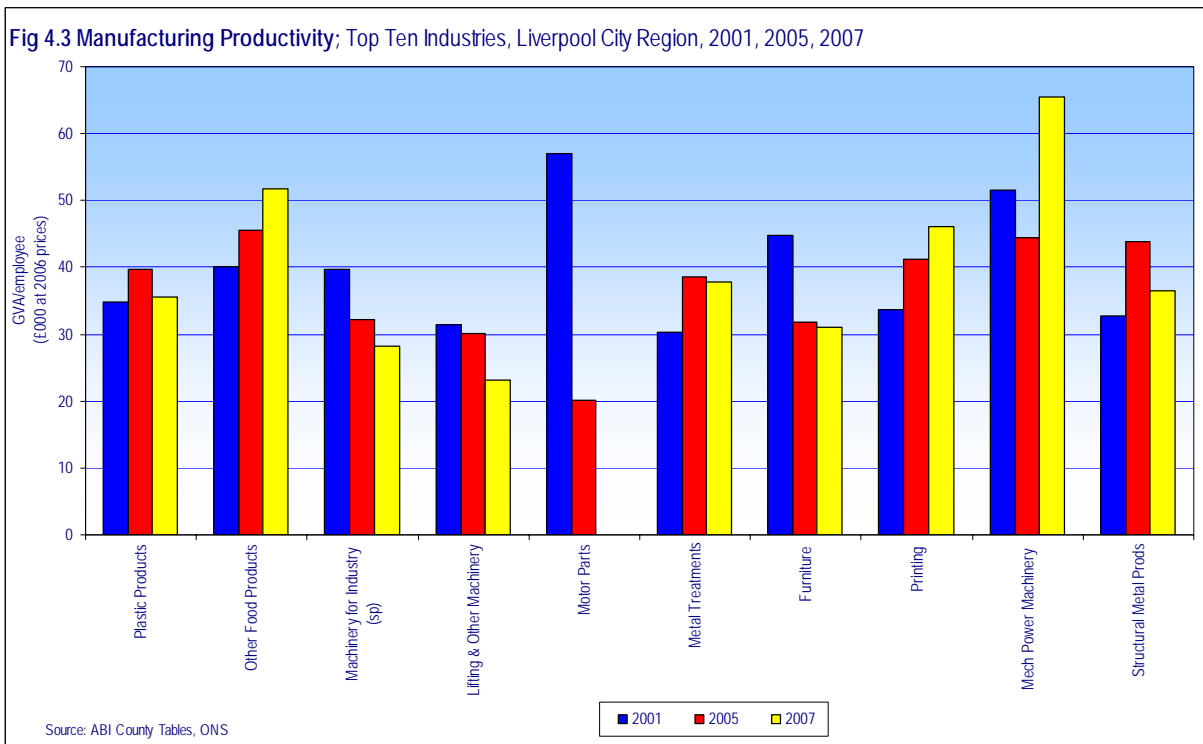


Rapid productivity growth [2001-2007] in TWCR in Machinery for Industry (sp) contrasted with Liverpool CR, where productivity fell -29% (Fig 4.3). [The differential in productivity growth between TWCR and Liverpool CR was a dramatic 140pp.] Productivity growth in this industry was more modest in all other comparator areas, with Sheffield CR being closest to TWCR, at (a very strong) 75%.

In Liverpool CR, productivity also fell in Lifting & Other Machinery (-26%), and Furniture (-31%). Productivity growth was fastest in Printing, at 37%.

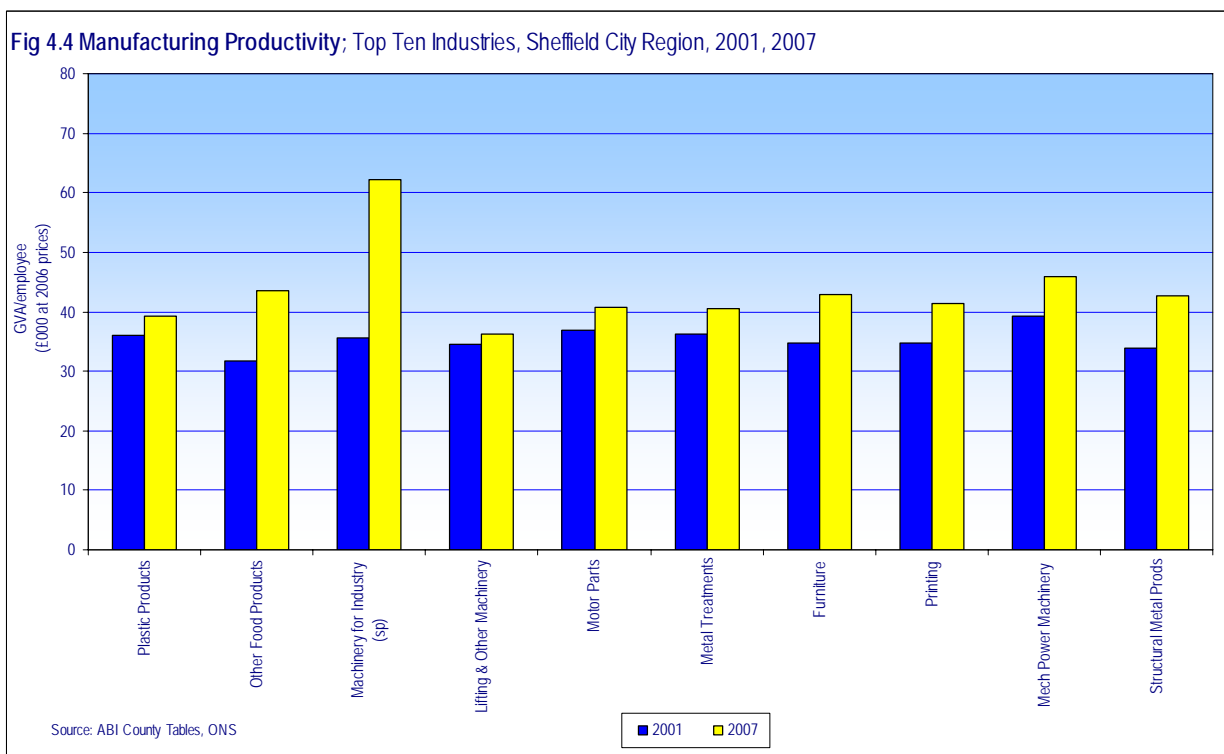
²⁶ The top ten manufacturing industries are those in Tyne & Wear City Region by output.

²⁷ Based on average growth per annum



Gross Value Added (GVA) data for Motor Parts in 2007 were suppressed by ONS

Productivity grew in *all* top ten manufacturing industries in Sheffield CR between 2001-2007 (Fig 4.4). However, ONS data for 2005 appear to be very odd²⁸.



Caution: 2005 data have been omitted from Fig 4.4 as they appear suspect.

In the UK, productivity growth was fastest in Machinery for Industry (sp), at 28%, and Structural Metal Prods, at 21%. Productivity growth was slowest in Plastic Products, at only 2%.

²⁸ See Appendix Table 3.2 for 2005 data.

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 (2006 prices).*

- TWCR operating profits were £2,217m in 2007²⁹.
- Operating profits in TWCR rose 28% in 2001-2007, faster than Leeds CR (8%), Sheffield CR (7%) and the UK (2%). This was, however, very much slower than in Liverpool CR (66%).
- In 2007, operating profit margins averaged 50% in TWCR, 4pp more than both Leeds CR and the UK, 5pp more than Liverpool CR, and 11pp more than Sheffield CR. In 2001-2007, profit margins in TWCR rose 9pp, faster than Leeds CR (7pp), Sheffield CR (2pp), and the UK (5pp), but slower than Liverpool CR (17pp).

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.

Note: in industries with high capital-intensity (a large amount of equipment or 'capital stock' per employee) the operating profit margin needs to be higher than in other industries. This is so as to generate the revenue to service the higher capital-stock. In Tyne & Wear, this notably applies to motor vehicle manufacture; it may apply in some other industries.

5.1 Operating Profit Levels

In 2007 manufacturing operating profits in TWCR were £2,217m, 3% of the UK total (£71bn) and equal to 61% of operating profits in Leeds CR (£3,633m), 164% of operating profits in Liverpool CR (£1,356m), and 126% of operating profits in Sheffield CR (£1,755m) (current prices) (Table 5.1).

²⁹ 3% of the UK and equal to 61% of operating profits in Leeds CR (£3,633m), 164% of operating profits in Liverpool CR (£1,356m), and 126% of operating profits in Sheffield CR (£1,755m).

Table 5.1: Manufacturing Industries' Operating Profits in Tyne & Wear City Region, with Leeds, Liverpool, and Sheffield City Region and UK Comparison, 2007

SIC	Industry	Tyne & Wear City Region £m	Leeds City Region £m	Liverpool City Region	Sheffield City Region £m	UK £m
252	Plastic Products	107	131	39	118	2,630
158	Other Food Products	115	515	156	234	4,272
295	Machinery for Industry (sp)	139	51	7	59	1,308
292	Lifting & Other Machinery	103	77	15	13	1,780
343	Motor Parts	63	44	*	26	844
285	Metal Treatments	101	73	41	86	2,096
361	Furniture	101	176	17	52	1,689
222	Printing	48	232	55	55	2,830
291	Mech Power Machinery	41	110	8	34	1,134
281	Structural Metal Prods	43	75	35	55	1,524
212	Paper & Products	29	46	21	26	836
321	Electronic Valves etc	47	7	1	1	570
221	Publishing	24	180	22	33	4,058
241	Basic Chemicals	48	-9	80	30	2,984
287	Oth Fabricated Metal Prods	22	120	19	98	1,064
174	Textile Articles	30	44	12	6	414
151	Meat Production	19	105	8	19	1,194
261	Glass	19	83	97	62	562
312	Electric Distrib Equipment	6	34	-4	13	437
182	Clothing	17	32	6	9	532
284	Forging & Pressing	11	13	8	67	430
351	Boat-building	*	2	5	0	631
251	Rubber Products	4	7	2	9	448
366	Miscellaneous Manu	11	35	14	18	586
316	Electrical Equipment	5	44	2	3	592
	All Manufacturing	2,217	3,633	1,356	1,755	71,171

* Indicates that a value is confidential and has been suppressed

Note: The 2001-2007 time series data are given in Appendix 5.1.

- Operating profits in TWCR rose 28% in 2001-2007, faster than Leeds CR (8%), Sheffield CR (7%) and the UK (2%). This was, however, very much slower than in Liverpool CR (66%).

Box 5.1 Trajectories of Operating Profits

In 2001-2007, real operating profits in TWCR rose 28%³⁰, much faster growth than Leeds CR (8%), Sheffield CR (7%), and the UK (2%). It was very much slower than in Liverpool CR (66%).

Operating profits in TWCR rose 41% in 2005-2007³¹, recovering dramatically from a -9% fall in 2001-2005. Operating profits also grew in Leeds CR (13%), Liverpool CR (75%), Sheffield CR (14%), and the UK (11%) in 2005-2007, again recovering fully from falls in 2001-2005 (Leeds CR -5%, Liverpool CR -5%, Sheffield CR -7%, and UK -8%).

³⁰ From £1,687m to £2,155m in 2007 (2006 prices)

³¹ From £1,534m in 2005

5.2 Operating Profit Margins

In 2007, profit margins in TWCR averaged 50%, above all comparators areas (Leeds CR 46%, Liverpool CR 45%, Sheffield CR 39%, and UK 46%) (Table 5.2). Although overall profit margins in TWCR were broadly similar to, and higher than, its comparators, profit margins at industry-level varied substantially.

Table 5.2: Manufacturing Industries' Operating Profit Margins in Tyne & Wear City Region, with Leeds, Liverpool and Sheffield City Region and UK Comparison, 2007

SIC	Industry	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region	UK
252	Plastic Products	41%	38%	40%	40%	40%
158	Other Food Products	51%	58%	47%	50%	50%
295	Machinery for Industry (sp)	66%	37%	43%	44%	45%
292	Lifting & Other Machinery	52%	30%	33%	12%	39%
343	Motor Parts	34%	33%	*	30%	30%
285	Metal Treatments	56%	39%	44%	37%	43%
361	Furniture	59%	44%	36%	44%	42%
222	Printing	37%	43%	48%	40%	43%
291	Mech Power Machinery	35%	39%	17%	33%	36%
281	Structural Metal Prods	39%	40%	43%	39%	43%
212	Paper & Products	29%	36%	44%	33%	37%
321	Electronic Valves etc	57%	42%	35%	11%	45%
221	Publishing	29%	45%	25%	46%	45%
241	Basic Chemicals	68%	-11%	38%	49%	60%
287	Oth Fabricated Metal Prods	37%	54%	47%	51%	43%
174	Textile Articles	55%	49%	40%	44%	44%
151	Meat Production	35%	54%	23%	27%	37%
261	Glass	37%	47%	56%	48%	44%
312	Electric Distrib Equipment	15%	36%	-80%	29%	32%
182	Clothing	53%	44%	47%	44%	47%
284	Forging & Pressing	38%	41%	54%	46%	40%
351	Boat-building	*	45%	31%	15%	37%
251	Rubber Products	17%	37%	50%	34%	38%
366	Miscellaneous Manu	45%	51%	40%	46%	48%
316	Electrical Equipment	29%	43%	32%	8%	39%
	All Manufacturing	50%	46%	45%	39%	46%

* Indicates that a value is confidential and has been suppressed

Profit margins in seven of the top ten manufacturing industries in TWCR were above those for the industry in the UK:

- Plastic Products (1pp above the UK)
- Other Food Products (1pp)
- Machinery for Industry (sp) (21pp), suggesting that TWCR may have particular competitiveness in Machinery for Industry (sp).
- Lifting & Other Machinery (13pp), suggesting that TWCR may have particular competitiveness in Lifting & Other Machinery.
- Motor Parts (3pp)
- Metal Treatments (13pp), suggesting that TWCR may have particular competitiveness in Metal Treatments.
- Furniture (17pp), suggesting that TWCR may have particular competitiveness in Furniture.

Significantly, these industries with profit margins above the UK include TWCR's five most competitive industries [based on their output location quotient].

Operating profit margins in the remaining three top ten industries were *below* the UK industry's margin. Profit margins in both TWCR and Leeds CR in 2007 were below the UK in Structural Metal Prods. Profit margins in TWCR were below the UK in Printing, and Mech Power Machinery. Profit margins in TWCR in 2007 were lower than the UK by the greatest amount in Structural Metal Prods (-4pp).

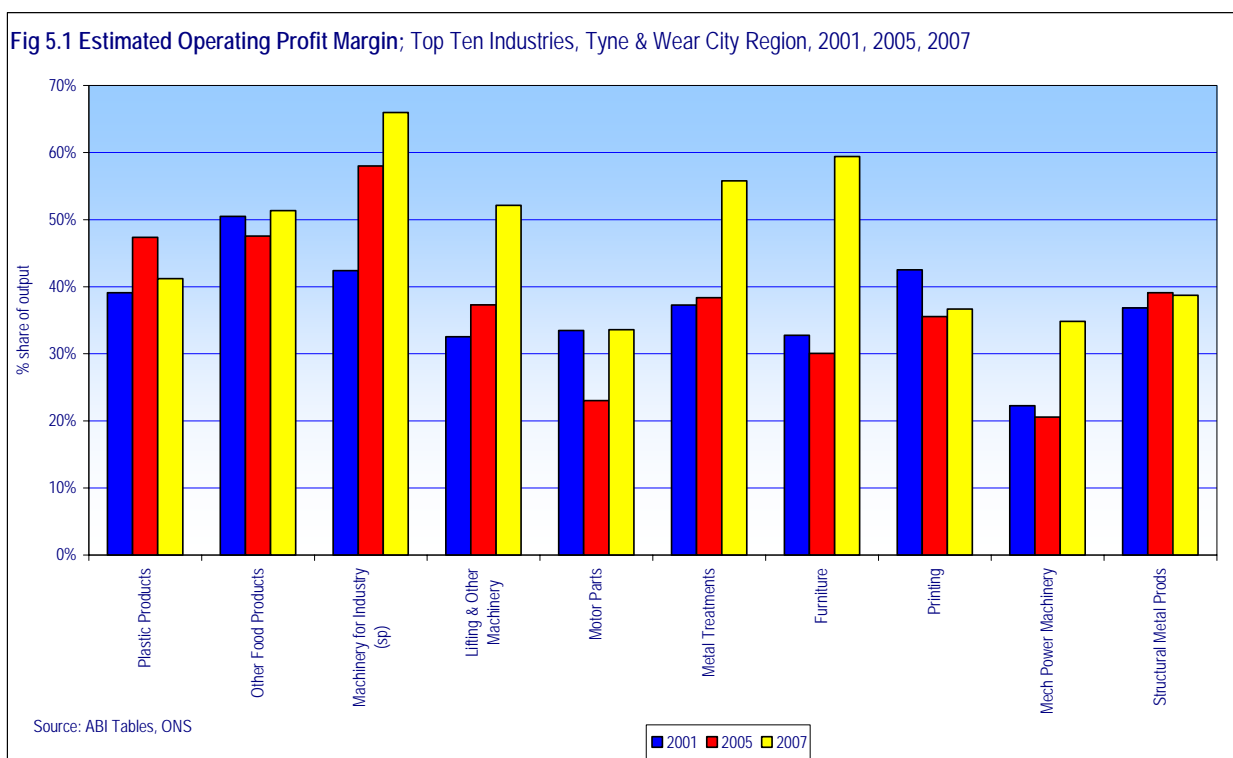
Between 2001 and 2007, profit margins in TWCR jumped 9pp³², 2pp more than the rise in Leeds CR (up 7pp), 7pp more than the rise in Sheffield CR (up 2pp), and 4pp more than the rise in the UK (up 5pp). The rise in TWCR was 8pp less than in Liverpool CR (up 17pp). In 2001, profit margins had averaged 41% in TWCR, the same as in the UK, just above Leeds CR (39%) and Sheffield CR (37%) and significantly above Liverpool CR (28%), meaning TWCR's profit margins have overtaken the UK average.

In 2001-2007, profit margins in TWCR rose in nine of the top ten manufacturing industries (Fig 5.1): [The first] Four of the fastest risers were competitive industries;

- Furniture (+27pp)
- Machinery for Industry (sp) (+24pp)
- Lifting & Other Machinery (+20pp)
- Metal Treatments (19pp)

The other five are small risers;

- Mech Power Machinery (+13pp)
- Plastic Products (+2pp)
- Structural Metal Prods (+2pp)
- Other Food Products (+1pp)
- Motor Parts (+0.1pp)



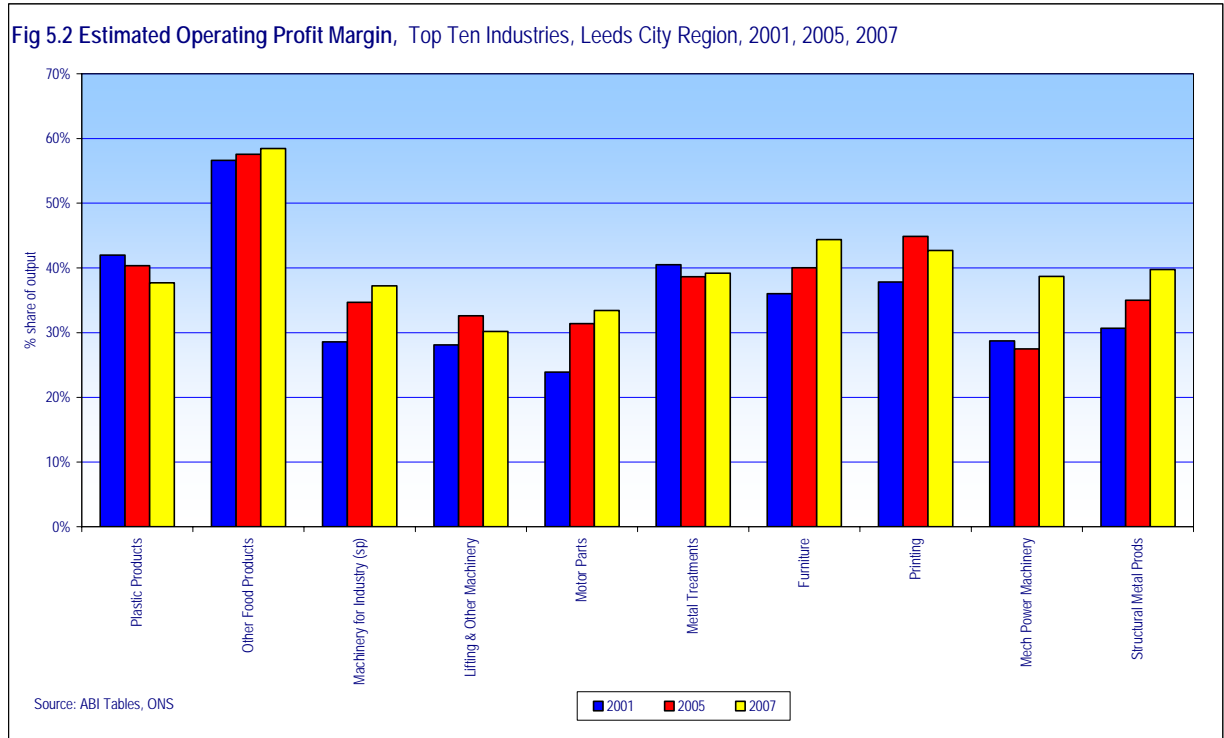
Profit margins fell in the remaining top ten industry in TWCR, Printing, (-6pp).

In TWCR, profit margins grew faster than in Leeds CR in six of the top ten manufacturing industries (Fig 5.2). Margin growth in Metal Treatments in TWCR was a huge 20pp faster than Leeds CR, which fell 1pp.

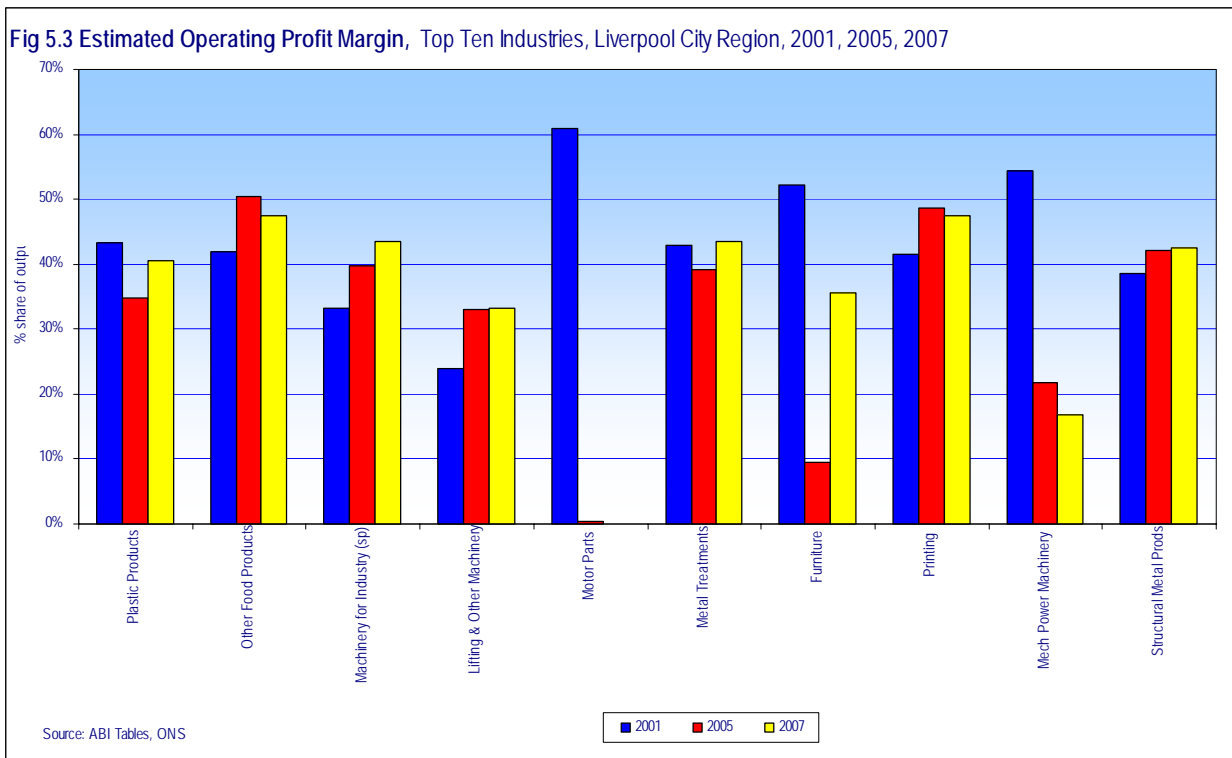
³² From 40.6% in 2001 to 49.8% in 2007.

Margin growth in TWCR was also faster than Leeds CR in Plastic Products, Machinery for Industry (sp), Lifting & Other Machinery, Furniture, and Mech Power Machinery.

Operating profit margins in TWCR grew more slowly than Leeds CR in the remaining four industries; Other Food Products, Motor Parts, Printing, and Structural Metal Prods. This was greatest in Printing, where operating profit in TWCR fell 6pp but rose 5pp in Leeds CR.

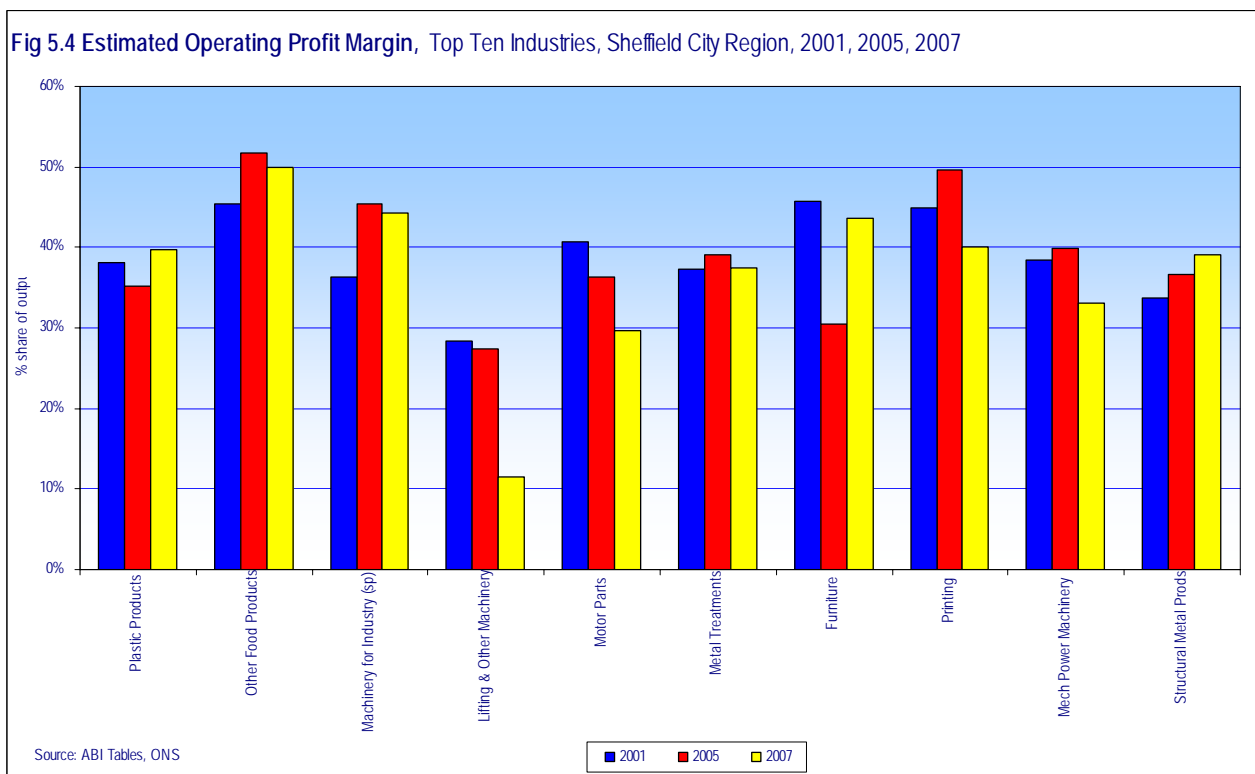


In TWCR, profit margins grew faster than in Liverpool CR in the same six top ten manufacturing industries as in Leeds CR (Fig 5.3). Margin growth in Mech Power Machinery in TWCR was a huge 50pp faster than in Liverpool CR, which fell 38pp. Similarly, margin growth in Furniture in TWCR was 43pp faster than in Liverpool CR, which fell 17pp.



Gross Value Added (GVA) data for Motor Parts in 2007 were suppressed by ONS.

In TWCR, profit margins grew faster than in Sheffield CR in the same six top ten manufacturing industries as in Leeds CR (Fig 5.4), with the addition of Motor Parts. Margin growth in Lifting & Other Machinery in TWCR was 37pp faster than Sheffield CR, where it dropped by 17pp.



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.

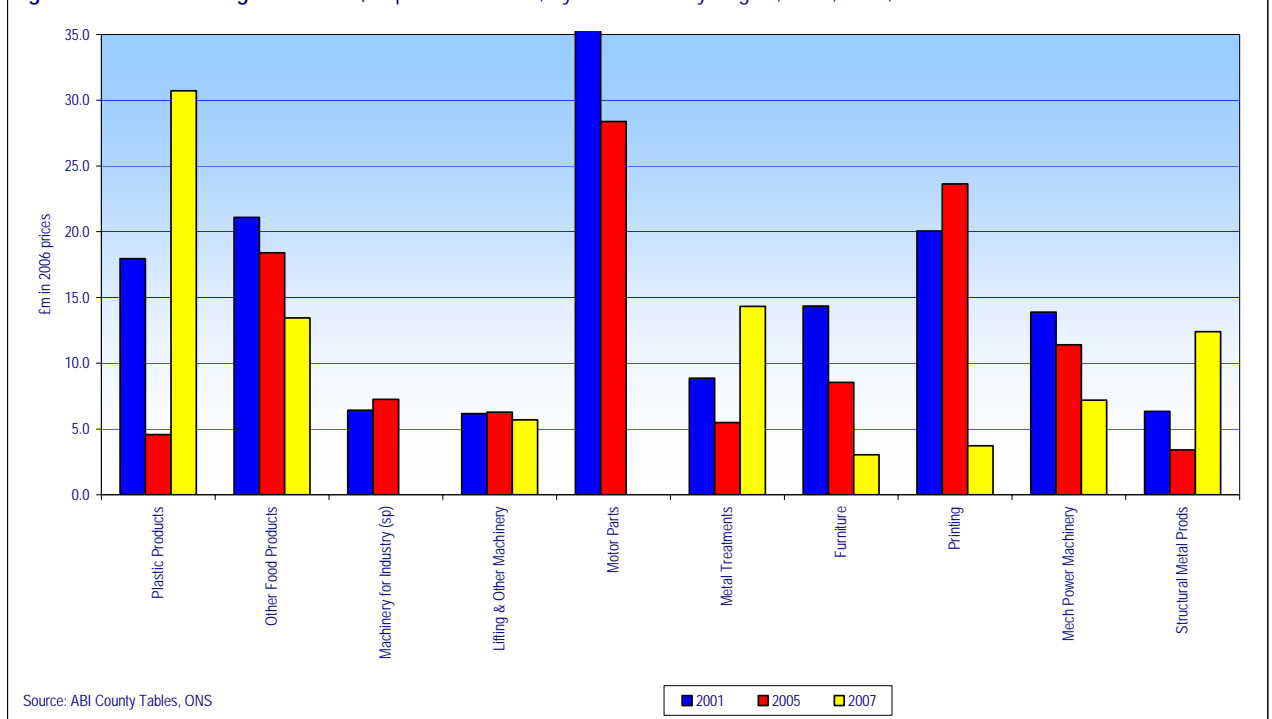
Investment figures give a strong (but volatile) indication of the direction in which the manufacturing sector is developing. It is both a physical and psychological sign of where growth is expected (by management). In practice, investment tends to follow previous profitability –as the major source of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

Cautions:

- From ONS; The regional capital expenditure figures do not meet the ONS quality standards and, consequently, do not have National Statistics status.
- 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 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 £354m in 2007, 3% of UK (£12,350m) and equal to 56% of net investment in Leeds CR (£637m), 120% in Liverpool CR (£296m), and 140% in Sheffield CR (£253m) (current prices).

Figure 6.1 Manufacturing Investment, Top Ten Industries, Tyne & Wear City Region, 2001, 2005, 2007



The figures for Investment in Machinery for Industry (sp) and Motor Parts were suppressed for 2007
 Note: The 2001-2007 time series data for Net Investment are given in Appendix 6.1

In 2001-2007, net investment fell in TWCR and its comparator areas. ‘Headline’ Net investment in TWCR more than halved (-57%) from £795m in 2001 to £344m in 2007 (2006 prices). Net investment in the UK also fell steeply, down -36% from £18.7bn in 2001 to £12.0bn in 2007. In the comparator CRs, decline was steepest in Sheffield CR, falling 43% (from £435m in 2001 to £246m in 2007). The

decline in Leeds CR was much slower, falling -26% (from £836m in 2001 to £619m in 2007). In Liverpool CR, net investment rose 10% (from £261m in 2001 to £287m in 2007).

In 2007, net investment in TWCR was highest in Plastic Products (£31m).
Caution; net investment may well be particularly affected by a few firms.

Net investment data were suppressed by ONS in two of the top ten manufacturing industries in 2007; Machinery for Industry (sp), and Motor Parts. Net investment in TWCR fell in five of the remaining major industries (Fig. 6.1). The fastest fall was in Printing, where net investment fell by a massive 81% from £20m in 2001 to £4m in 2007. There were also sharp falls in Furniture (-79% from £14m to £3m), Mech Power Machinery (-48%, from £14m to £7m), and Other Food Products (-36%, from £21m to £13m). Net investment in Lifting & Other Machinery fell -8%.

Net investment rose (and strongly) in the remaining three top ten manufacturing industries for which figures were available; Structural Metal Prods (up 95%), Plastic Products (up 71%), and Metal Treatments (up 62%).

Net investment per employee in TWCR was higher than in Leeds CR, Sheffield CR and the UK, but lower than in Liverpool CR in 2007³³. Net investment per employee was £4,200 in 2007, much greater than in Leeds CR (£3,700) and Sheffield CR (£2,500), and slightly above the UK (£4,100), but lower than in Liverpool CR (£5,200) (2006 prices).

Table 6.1 shows net investment and net investment per employee for the *top ten industries only*. This is less flattering to TWCR's net investment, as other industries³⁴ have higher investment per employee.

Table 6.1: Net Investment in top ten Tyne & Wear City Region Manufacturing Industries, with Leeds, Liverpool, and Sheffield City Region & UK comparisons, 2001, 2005, 2007

	Net Investment (£m at 2006 prices)					Net Investment per employee (£ at 2006 prices)				
	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region	UK	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region	UK
2001	156	293	75	150	4,411	3,936	3,252	3,055	3,257	3,522
2005	117	236	54	114	3,081	3,140	3,149	2,576	9,022	2,881
2007	91	201	37	89	3,049	2,435	2,693	1,726	2,145	2,895

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

For the top ten industries only, net investment per employee in TWCR fell 38% in 2001-2007, from £3,940 in 2001 (2006 prices). Net investment per employee fell at a similar rate in Sheffield CR (-34%, from £3,260 in 2001). Net investment fell about half as fast, -18%, in the UK (from £3,520 in 2001) and -17% in Leeds CR (from £3,250 in 2001). The fall in net investment per employee was fastest in Liverpool CR, -44% (from £3,060 in 2001).

[Note: The Appendices give further details on Net Investment. The tables; Appendix 5.1 gives a Net Investment *time series* for TWCR, Leeds CR and the UK. Appendix 5.2 gives Net Investment *per employee*, in detail, for TWCR, Leeds CR and the UK, 2007. Appendix 5.3 gives a Net Investment *time series* for TW, WY and the UK. Appendix 5.4 gives Net Investment *per employee*, for TW and WY, 2007. Fig A5.1 shows Leeds CR in the format of Fig 6.1, above. Fig A5.2 shows Liverpool CR as above. Fig A5.3 shows SCR as above. Fig A5.4 shows TW as above. Fig A5.5 shows WY as above.]

³³ Although the fall in Liverpool CR was a bit faster (-44%, TWCR -38%).
³⁴ These other industries with higher investment may well include Motor Vehicles.

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 2007, 47% larger than the UK (18), 33% larger than Liverpool CR (20), 29% larger than Sheffield CR (20), and 28% larger than Leeds CR (20).
- Establishment size had fallen 3 employees in TWCR, Leeds CR and Sheffield CR in 2001-2007. It fell by 2 employees in the UK, but by 5 employees in Liverpool CR.

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

In 2007 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 (28%) greater than the average in Leeds CR (20), 33% greater than in Liverpool CR (20), 29% greater than in Sheffield CR (20), and 8 employees (47%) greater than the UK.

In 2001-2007, average establishment size in TWCR fell 3 employees, which matched the numeric decline in Leeds CR and Sheffield CR (-3). It was larger than the fall in the UK (-2), but smaller than in Liverpool CR (-5).

Table 7.1: Establishment Size* in Manufacturing Industries in Tyne & Wear City Region, with Leeds, Liverpool, Sheffield City Region & UK comparison, 2007

SIC	Industry	Tyne & Wear City Region	Leeds City Region	Liverpool City Region	Sheffield City Region	UK	TWCR/UK	LCR/UK	LPCR/UK	SCR/UK
252	Plastic Products	31.2	25.8	19.2	30.3	23.4	1.34	1.10	0.82	1.30
158	Other Food Products	33.4	59.3	39.1	74.4	37.2	0.90	1.59	1.05	2.00
295	Machinery for Industry (sp)	29.0	12.7	13.6	14.3	16.1	1.80	0.79	0.84	0.89
292	Lifting & Other Machinery	28.0	19.5	19.4	16.4	18.1	1.54	1.07	1.07	0.90
343	Motor Parts	104.1	48.1	48.4	49.7	41.7	2.50	1.15	1.16	1.19
285	Metal Treatments	13.0	7.7	9.5	9.4	8.0	1.63	0.97	1.19	1.18
361	Furniture	22.8	20.8	10.4	14.0	13.2	1.73	1.58	0.79	1.06
222	Printing	11.6	14.2	9.0	10.7	8.6	1.35	1.65	1.04	1.25
291	Mech Power Machinery	60.7	45.9	25.3	31.6	33.1	1.83	1.38	0.76	0.95
281	Structural Metal Prods	24.5	19.3	20.6	19.0	16.4	1.49	1.18	1.26	1.16
212	Paper & Products	68.1	33.0	17.8	43.5	28.7	2.37	1.15	0.62	1.51
321	Electronic Valves etc	52.1	17.4	15.1	4.9	31.1	1.68	0.56	0.49	0.16
221	Publishing	20.9	40.5	19.1	12.6	13.6	1.54	2.98	1.41	0.93
241	Basic Chemicals	41.1	37.6	54.4	26.1	36.7	1.12	1.02	1.48	0.71
287	Oth Fabricated Metal Prods	10.2	13.4	9.1	12.5	10.3	0.99	1.30	0.89	1.22
174	Textile Articles	26.0	15.5	16.1	7.1	11.0	2.37	1.41	1.46	0.65
151	Meat Production	70.3	47.0	51.6	80.8	72.8	0.97	0.65	0.71	1.11
261	Glass	31.4	32.3	60.5	48.8	20.0	1.56	1.61	3.02	2.43
312	Electric Distrib Equipment	58.2	26.6	8.5	34.6	30.0	1.94	0.89	0.28	1.15
182	Clothing	17.3	13.0	11.8	9.5	7.7	2.25	1.69	1.54	1.23
284	Forging & Pressing	32.0	14.7	19.7	33.4	21.4	1.50	0.69	0.92	1.57
351	Boat-building	22.4	3.7	17.4	4.4	20.6	1.09	0.18	0.84	0.21
251	Rubber Products	36.9	14.2	8.3	24.1	32.0	1.15	0.44	0.26	0.75
366	Miscellaneous Manu	6.1	5.2	7.9	4.9	4.9	1.25	1.06	1.61	0.99
316	Electrical Equipment	14.4	24.4	9.0	19.5	13.1	1.10	1.86	0.68	1.48
	All Manufacturing	26.0	20.3	19.5	20.2	17.7	1.47	1.15	1.10	1.14

* = Employees per business

Source: ABI Tables, ONS

Box 7.1 Large Establishment and Competitiveness

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

- Motor Parts (2.50)
- Mech Power Machinery (1.83)
- Machinery for Industry (sp) (1.80)
- Furniture (1.73)
- Metal Treatments (1.63)
- Lifting & Other Machinery (1.54)
- Structural Metal Prods (1.49)
- Printing (1.35)
- Plastic Products (1.34)

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 Other Food Products (0.90). [Small establishment size, and hence poor economies of scale, might be one important reason for TWCR's Food & Drink small output relative to comparators.]

Motor Parts in TWCR, at 104 employees, was more than twice the average for the other CRs, and 2.5 times as large as the average in the UK (42) (2.50). This made a significant contribution to the higher overall average in TWCR in 2007 relative to its comparators. However, TWCR's large establishment size is certainly not solely attributable to Motor Parts. [Rather, TWRI believes TWCR's large establishment size was due, in large part, to high levels of foreign-ownership, FDI³⁵.]

Average establishment size was significantly larger (by more than 10 employees) in TWCR than Leeds CR in Machinery for Industry (sp), and Mech Power Machinery.

The average establishment size in TWCR was smaller than Leeds CR in two industries; Other Food Products (-26 employees), and Printing (-3). [Leeds CR's Printing output and Other Food Products output are very much greater than in TWCR, and their larger average establishment sizes reflect this to some extent.]

Average establishment size was significantly larger (by more than 10 employees) in TWCR than Liverpool CR in four other industries; Mech Power Machinery, Machinery for Industry (sp), Furniture, and Plastic Products.

The average establishment size in TWCR was smaller than Liverpool CR in Other Food Products (-6 employees).

Average establishment size was significantly larger (by more than 10 employees) in TWCR than Sheffield CR in three other industries; Mech Power Machinery, Machinery for Industry (sp), and Lifting & Other Machinery.

The average establishment size in TWCR was smaller than Sheffield CR in Other Food Products (-41 employees).

³⁵ FDI is Foreign Direct Investment.

PART B: MANUFACTURING IN TYNE & WEAR AND WEST YORKSHIRE

In Tyne & Wear (TW), eight manufacturing industries³⁶ emerge as **competitive**, with both a high 'output location quotient' (OLQ) and higher profit margins than in the UK. They are;

- Plastic Products,
- Metal Treatments,
- Lifting & Other Machinery,
- Machinery for Industry (sp),
- Furniture,
- Textile Articles,
- Forging & Pressing, and
- Mech Power Machinery.

8 Manufacturing Output

- Output in TW (measured by Gross Value Added) was nearly £3.3bn in 2007, 74% of TWCR output.
- Growth in output of 32% in TW was very substantially faster than in West Yorkshire (WY) (5%) (2001-2007).

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.

8.1 Structure of Output

In Tyne & Wear, the twenty-five major manufacturing industries identified within Tyne & Wear City Region (TWCR) employing over 1,000 people, accounted for approximately 56% of its manufacturing output in 2007 (Table 8.1). The analysis throughout this Part B (as in Part A) focuses on the top ten industries (in the graphics). Data on the 25-industries are presented in the tables.

Note: the 'top ten industries' have been established from Tyne & Wear City Region (TWCR), but happen to be the same industries in Tyne & Wear (in a slightly different order). This gives a consistency of focus in the graphics, across both parts of the report, upon the same top ten industries.

³⁶ At 3-digit SIC-level.

In this section, on Tyne & Wear, the graphics show these industries in their declining size-order for Tyne & Wear (not for TWCR).

SIC (3 Digit) Industry	Output (Gross Value Added)					
	Tyne & Wear		West Yorkshire		UK	
	(£m)	% of total output	(£m)	% of total output	(£m)	% of total output
295 Machinery for Industry (sp)	192	6%	99	2%	2,911	2%
252 Plastic Products	180	5%	272	4%	6,538	4%
158 Other Food Products	168	5%	449	7%	8,484	5%
285 Metal Treatments	151	5%	164	3%	4,864	3%
343 Motor Parts	140	4%	121	2%	2,768	2%
292 Lifting & Other Machinery	119	4%	214	4%	4,506	3%
361 Furniture	116	4%	370	6%	3,976	3%
222 Printing	114	3%	472	8%	6,543	4%
291 Mech Power Machinery	109	3%	254	4%	3,132	2%
281 Structural metal Prods	77	2%	123	2%	3,532	2%
221 Publishing	76	2%	281	5%	8,991	6%
321 Electronic Valves etc	71	2%	1	0%	1,271	1%
212 Paper & Products	57	2%	114	2%	2,263	1%
287 Oth Fabricated Metal Prods	50	2%	161	3%	2,500	2%
261 Glass	40	1%	84	1%	1,274	1%
174 Textile Articles	38	1%	89	1%	936	1%
312 Electric Distrib Equipment	28	1%	89	1%	1,376	1%
284 Forging & Pressing	26	1%	29	0%	1,062	1%
151 Meat Production	23	1%	151	2%	3,244	2%
182 Clothing	20	1%	65	1%	1,137	1%
251 Rubber Products	15	0%	9	0%	1,173	1%
316 Electrical Equipment	12	0%	28	0%	1,531	1%
366 Miscellaneous Manu	10	0%	51	1%	1,214	1%
241 Basic Chemicals	*	*	67	1%	4,971	3%
351 Boat-building	*	*	3	0%	1,717	1%
Total	*	*	3,760	62%	81,911	53%
All Manufacturing	3,289		6,083		155,313	

Source: ABI Tables, ONS
 Totals may not sum due to rounding
 * Indicates that a value is confidential and has been suppressed

TYNE & WEAR

In 2007, manufacturing output in TW was £3,289m, 2.0% of the UK total. TW produced 74% of TWCR's manufacturing output and the shares held by each industry in TW were broadly similar to those in TWCR. The top ten industries (in terms of output) within TWCR and TW were the same, albeit with different rankings. The top industry in TWCR was Plastic Products, whilst in TW it was Machinery for Industry (sp).

In 2005, the SIC-2 digit industry Machinery & Equipment was the second largest manufacturing industry in TW. This included Machinery for Industry (sp), Lifting & Other Machinery and Mech Power Machinery. The largest manufacturing industry was Transport Equipment, which included Motor Parts and Boat-building³⁷ (and the Motor Vehicles manufacturing industry³⁸).

³⁷ The industry called here 'boat-building' will have included ship-repair, and some offshore engineering activity when it took place (e.g. the AMEC Process & Energy yard, until 2004).

³⁸ Whose data have been suppressed by ONS.

Box 8.1 Tyne & Wear's Eight Most Competitive Industries

TW's eight most competitive manufacturing industries (at 3-digit level) 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;

- Plastic Products
- Metal Treatments
- Lifting & Other Machinery
- Machinery for Industry (sp)
- Furniture
- Textile Articles
- Forging & Pressing
- Mech Power Machinery.

TW's eight most competitive manufacturing industries are essentially the same as in TWCR. Together they account for 28% of TW's manufacturing output, 1pp more than in TWCR (27%).

Machinery for Industry (sp) (e.g. Bonas (Gd) and Crabtree (Gd)) was the largest manufacturing industry in TW, with output of £192m in 2007 (6% of all manufacturing output). This was three times the UK's share (2%). This was a significant improvement on previous years; Machinery for Industry (sp) accounted for 3% of all manufacturing output in 2001, and 5% in 2005. Other large manufacturing industries (over £100m of output) in TW were;

- Plastic Products (5%, £180m) e.g. Wellstream (Nc), Duco (Nc), Smithers-Oasis (Sd)
- Other Food Products (5%, £168m) e.g. Nestle (Nc), Longbenton Foods (NT)
- Metal Treatments (5%, £151m) e.g. Barrier (NT), Dacon (Gd) and BNB (ST)
- Motor Parts (4%, £116m) e.g. Freudenberg Tech Products (NT), Calsonic (Sd)

One industry listed above, Other Food Products, has an OLQ of less than 1 (Table 8.2). Conversely, Electronic Valves etc³⁹ has a high OLQ (2.63), but relatively low output of £71m. These mixed indicators suggest these industries are marginally competitive.

³⁹Electronic Valves etc may include firms such as Canford Audio (Sd), ABB Low Voltage (Sd), and, perhaps, Zytronic (Gd).

Table 8.2: Output Location Quotient; Tyne & Wear, and West Yorkshire

		Output Location Quotient	
SIC (3 Digit)	Industry	Tyne & Wear	West Yorkshire
295	Machinery for Industry (sp)	3.11	0.87
252	Plastic Products	1.30	1.06
158	Other Food Products	0.94	1.35
285	Metal Treatments	1.46	0.86
343	Motor Parts	2.39	1.11
292	Lifting & Other Machinery	1.25	1.21
361	Furniture	1.37	2.37
222	Printing	0.82	1.84
291	Mech Power Machinery	1.64	2.07
281	Structural metal Prods	1.03	0.89
221	Publishing	0.40	0.80
321	Electronic Valves etc	2.63	0.03
212	Paper & Products	1.18	1.29
287	Oth Fabricated Metal Prods	0.94	1.64
261	Glass	1.49	1.68
174	Textile Articles	1.91	2.44
312	Electric Distrib Equipment	0.97	1.65
284	Forging & Pressing	1.17	0.71
151	Meat Production	0.34	1.19
182	Clothing	0.84	1.47
251	Rubber Products	0.61	0.19
316	Electrical Equipment	0.37	0.47
366	Miscellaneous Manu	0.39	1.07
241	Basic Chemicals	*	0.35
351	Boat-building	*	0.05

Source: ABI Tables, ONS
 * Indicates that a value is confidential and has been suppressed

Other Food Products is TW's third-largest manufacturing industry. However, the Food & Drink industry (at SIC 2-digit level) in TW has a relatively small presence, with a particularly low OLQ in Meat Production (0.34) and only slightly in Other Food Products (0.94). The low OLQ suggests that a disproportionately large share of the demand from TW [and/or export demand] for manufactured food products is being met by producers in the rest of the country (see box below, on its composition in TW).

Box 8.2 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
 Longbenton Foods (in NT)

WEST YORKSHIRE

The value of output in West Yorkshire (WY) in 2007 was just over £6bn (£6,083m). This is almost double that of TW, and 4% of the UK total. The structure of manufacturing in WY is different to that in TW. Ten industries have been identified as being competitive⁴⁰:

	OLQ
Textile Articles	2.44
Furniture	2.37
Mech Power Machinery.	2.07
Motor Parts	1.11
Miscellaneous Manu	1.07
Printing	1.84
Electric Distrib Equipment	1.65
Oth Fabricated Metal Prods	1.64
Other Food Products	1.35
Meat Production	1.19

West Yorkshire is over-represented in ten manufacturing industries, of which three echo competitive industries at TW-level; Textile Articles (OLQ of 2.44), Mech Power Machinery (2.07) and Furniture (2.37).

Printing is a major competitive industry in WY (OLQ of 1.84), with the highest proportion of total output (8%, £472m). In TW, Printing accounts for just 3% of output (£114m).

Other Food Products is the second-largest manufacturing industry; accounting for 7% of WY's manufacturing output (£449m).

West Yorkshire's manufacturing sector is somewhat more diverse (less specialised) than TW with sixteen industries over-represented versus the UK (OLQ over 1.0), compared with thirteen in TW.

8.2 Change in output

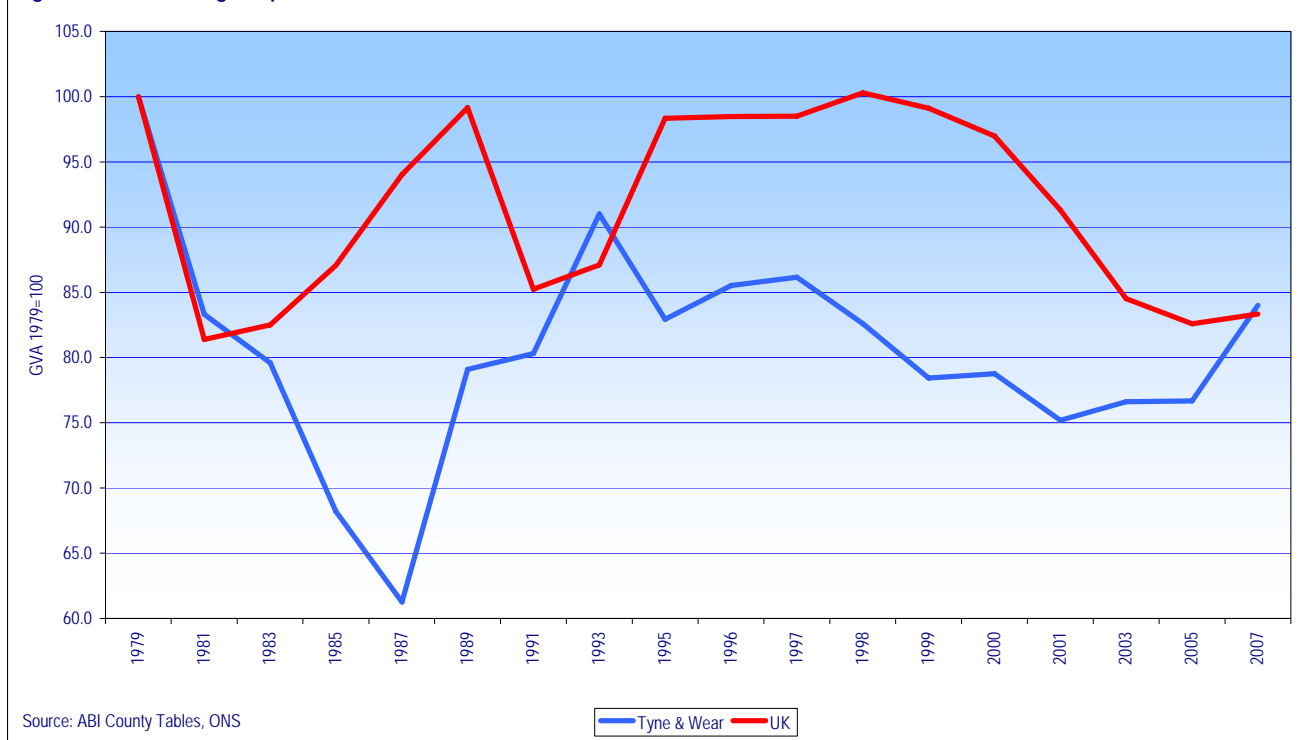
TYNE & WEAR: LONG TERM TRENDS (SINCE 1979)

Manufacturing output in TW fell hugely from 1979 (by over -38%) until a nadir⁴¹ of 61% of the 1979 level (in real terms) in 1987 (Fig. 8.1). 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, fluctuating at about 75-80% of the 1979 level from 1998 to 2005. In 2007 there was a sharp rise, with manufacturing output reaching 84% of the 1979 level.

⁴⁰ On the basis that they have high OLQs (above 1.0) and higher profit margins than in the UK.

⁴¹ i.e. low-point.

Fig 8.1 Manufacturing Output; 1979-2007



Source: ABI County Tables, ONS

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

In the most recent period, 2003-2007, manufacturing output (as a percentage of the level in 1979) rose from 77% in 2003 to 84% in 2007⁴². 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. In 2007 there was a slight rise to 83%, putting UK output (relative to 1979) below Tyne & Wear for the first time since 1993.

TYNE & WEAR: 2001-2007

Between 2001 and 2007, TW manufacturing output grew 10% (+£335m) from £2,860m in 2001 to £3,196m in 2007 (2006 prices). This was in sharp contrast to the UK, where overall output fell 8.7%. Furthermore, growth in TW was widely-based; thirteen of the top twenty-five manufacturing industries grew in 2001-2007⁴³, whereas in the UK, output fell in nineteen.

In TW's top ten industries for GVA output, the fastest growth was in six of its eight most competitive industries (Fig. 8.2);

Machinery for Industry (sp)	(up 125% to £186m) [UK rose 6%]
Metal Treatments	(up 108% to £146m) [UK fell 6%]
Plastic Products	(up 53% to £175m) [UK fell 13%]
Lifting & Other Machinery	(up 16% to £116m) [UK rose 2%]
Mech Power Machinery	(up 12% to £105m) [UK fell 8%].
Furniture	(up 12% to £112m) [UK fell 129%]

The output of three major manufacturing industries (in the top ten) also rose, suggesting they could be marginally competitive (or better).

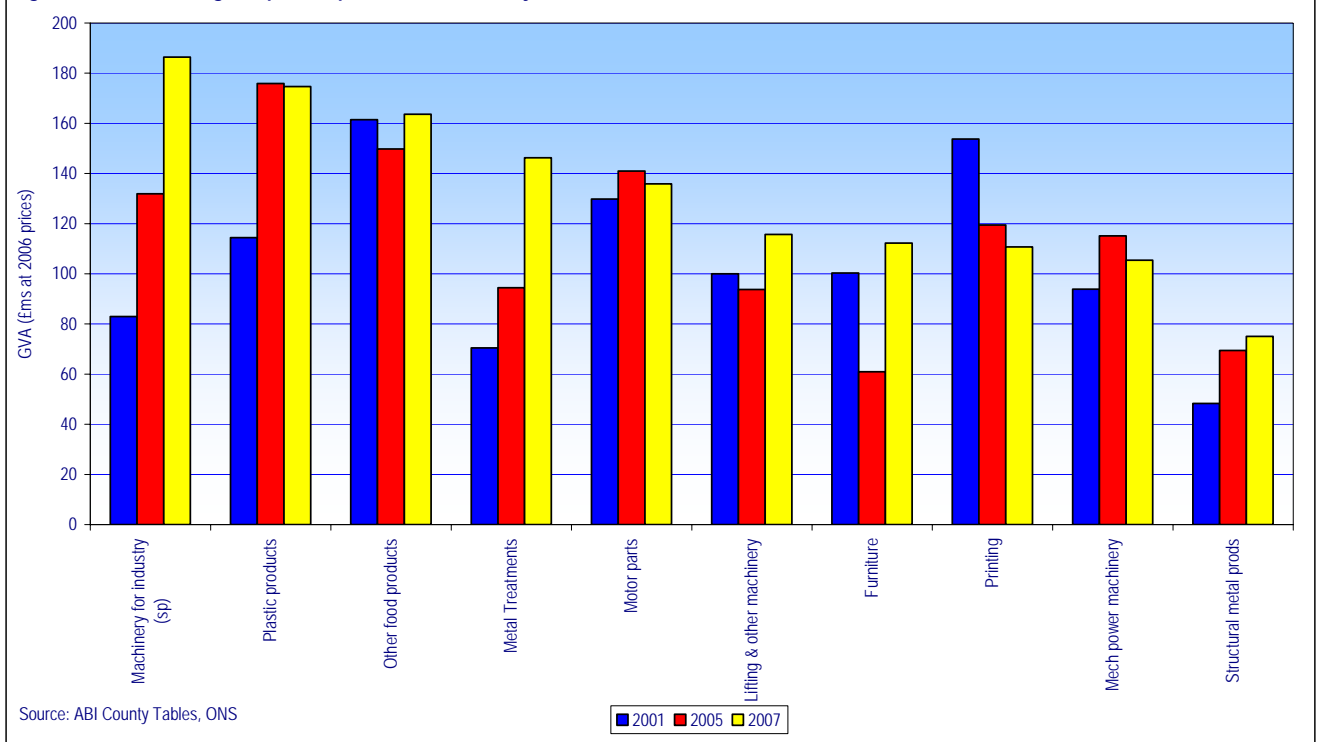
Structural Metal Prods	(up 55.1% to £75m) [UK rose 25.9%]
Motor Parts	(up 4.7% to £136m) [UK fell 24.6%]
Other Food Products	(up 1.4% to £164m) [UK fell 1.9%]

⁴² After falling from 82% to 75% in 1998-2001.

⁴³ Output shrank in nine manufacturing industries, whilst data was suppressed in 4 industries in order to maintain confidentiality.

Growth in Transport Equipment (SIC 2-digit level) was quite weak between 2001-2005, just 2% to £627m. This was due to a fall in 2005. However, at a more detailed level, manufacture of Motor Parts rose in 2005, followed by a slight dip in 2007. Data for Boat-building was suppressed in 2007.

Fig 8.2 Manufacturing Output; Top Ten Industries, Tyne & Wear, 2001, 2005, 2007



The output of one of the top ten major manufacturing industries in TW declined;

Printing fell 28% to £111m (perhaps from NE Press⁴⁴ [part of Johnston Press], Newcastle Chronicle & Journal [part of Trinity Mirror] and De la Rue) [UK down 16%]

WEST YORKSHIRE

West Yorkshire's (WY) manufacturing output dropped by an alarming -11.4% (down -£762m) in 2001-07, more than the UK rate of manufacturing decline (down 8.7% over the same period).

In the six years 2001-07, WY manufacturing grew in just four of the top ten (TW) industries (Fig. 8.3);

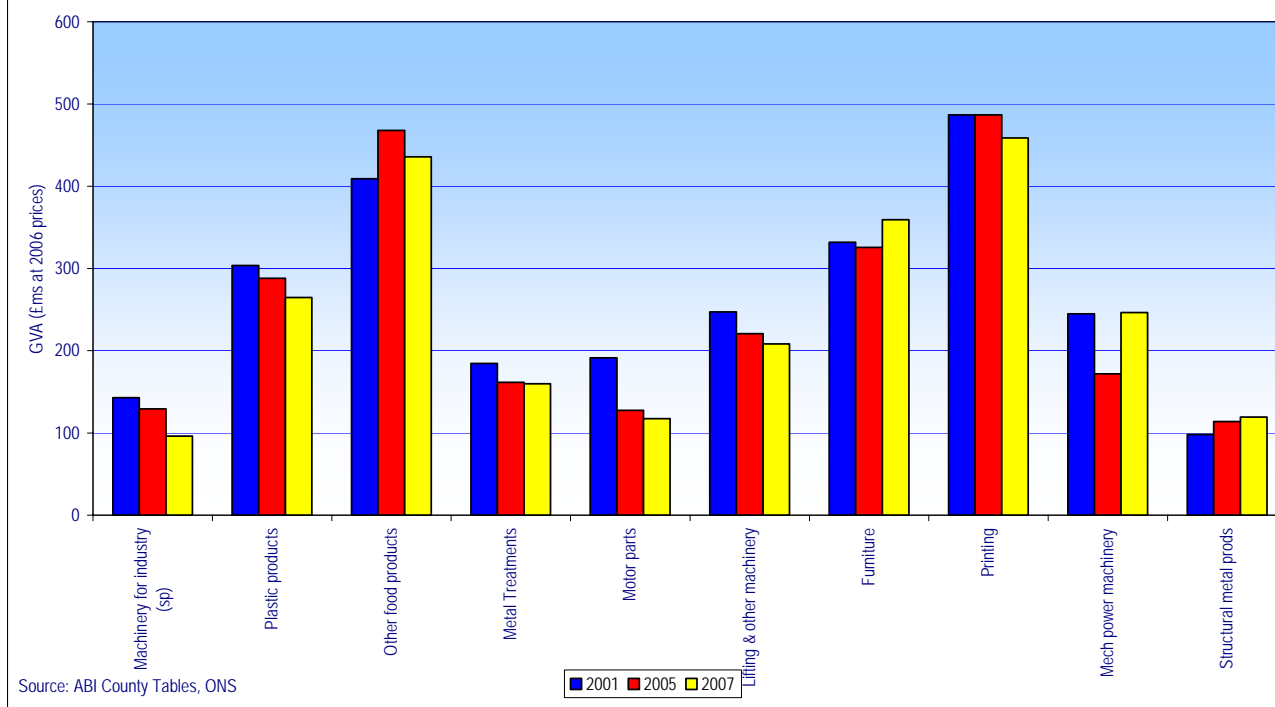
Other Food Products	(up 7% to £436m)
Furniture	(up 8% to £359m)
Mech Power Machinery	(up 1% to £246m)
Structural Metal Prods	(up 22% to £120m)

Output from the remaining six top ten (TWCR⁴⁵) industries was very weak. The declines were in;

Lifting & Other Machinery	(down 16% to £208m)
Motor Parts	(down 39% to £117m)
Plastic products	(down 13% to £265m)
Machinery for Industry (sp)	(down 33% to £96m)
Metal Treatments	(down 13% to £160m)
Printing	(down 6% to £459m)

⁴⁴ Printers of the Sunderland Echo.

⁴⁵ The 'top ten industries' are the same in TWCR and Tyne & Wear.

Fig 8.3 Manufacturing Output; Top Ten Industries, West Yorkshire 2001, 2005, 2007
 (Ranked on 2007 TW Output Order)


Source: ABI County Tables, ONS

Table 8.3: Output (GVA) Growth; Tyne & Wear, West Yorkshire and UK Comparison, % change, 2001-2007

SIC (3 Digit) Industry	Output (Gross Value Added)								
	Tyne & Wear			West Yorkshire			UK		
	2001-2005	2005-2007	2001-2007	2001-2005	2005-2007	2001-2007	2001-2005	2005-2007	2001-2007
295 Machinery for Industry (sp)	77	50	166	1	-21	-20	8	16	25
252 Plastic Products	72	5	81	6	-3	3	4	-1	3
158 Other Food Products	4	16	20	28	-1	26	13	3	16
285 Metal Treatments	50	64	146	-2	5	-73	4	7	11
343 Motor Parts	21	2	24	-26	-2	-28	-3	-8	-11
292 Lifting & Other Machinery	5	31	37	0	0	0	3	17	21
361 Furniture	-32	95	32	10	17	28	-5	9	4
222 Printing	-13	-2	-15	12	0	11	0	-1	-1
291 Mech Power Machinery	37	-3	33	-22	52	19	0	8	8
281 Structural metal Prods	60	15	83	30	11	44	17	27	49
221 Publishing	-1	-3	-4	29	2	32	14	4	19
321 Electronic Valves etc	55	354	604	-77	20	-73	-23	7	-18
212 Paper & Products	-7	-36	-41	-13	-13	-24	-14	-5	-19
287 Oth Fabricated Metal Prods	22	35	65	-5	16	10	-2	5	3
261 Glass	-17	1	-16	-5	-18	-22	-4	2	-1
174 Textile Articles	23	27	57	61	7	72	2	-4	-2
312 Electric Distrib Equipment	-39	5	-36	5	56	64	-18	6	-14
284 Forging & Pressing	64	-20	31	-8	5	-4	-6	6	0
151 Meat Production	-43	18	-33	2	17	-44	9	0	10
182 Clothing	-29	-29	-49	-53	17	-44	-40	-12	-48
251 Rubber Products	*	*	-62	-71	36	-60	1	-16	-15
316 Electrical Equipment	*	*	*	-1	22	21	-5	15	9
366 Miscellaneous Manu	-56	-36	-72	-22	27	-1	-3	1	-3
241 Basic Chemicals	-26	*	*	-16	-47	-56	34	-5	27
351 Boat-building	98	*	*	5	-6	-1	-2	53	51
All Manufacturing	14	16	*	-5	10	5	1	7	8

Source: ABI Tables, ONS

Totals may not sum due to rounding

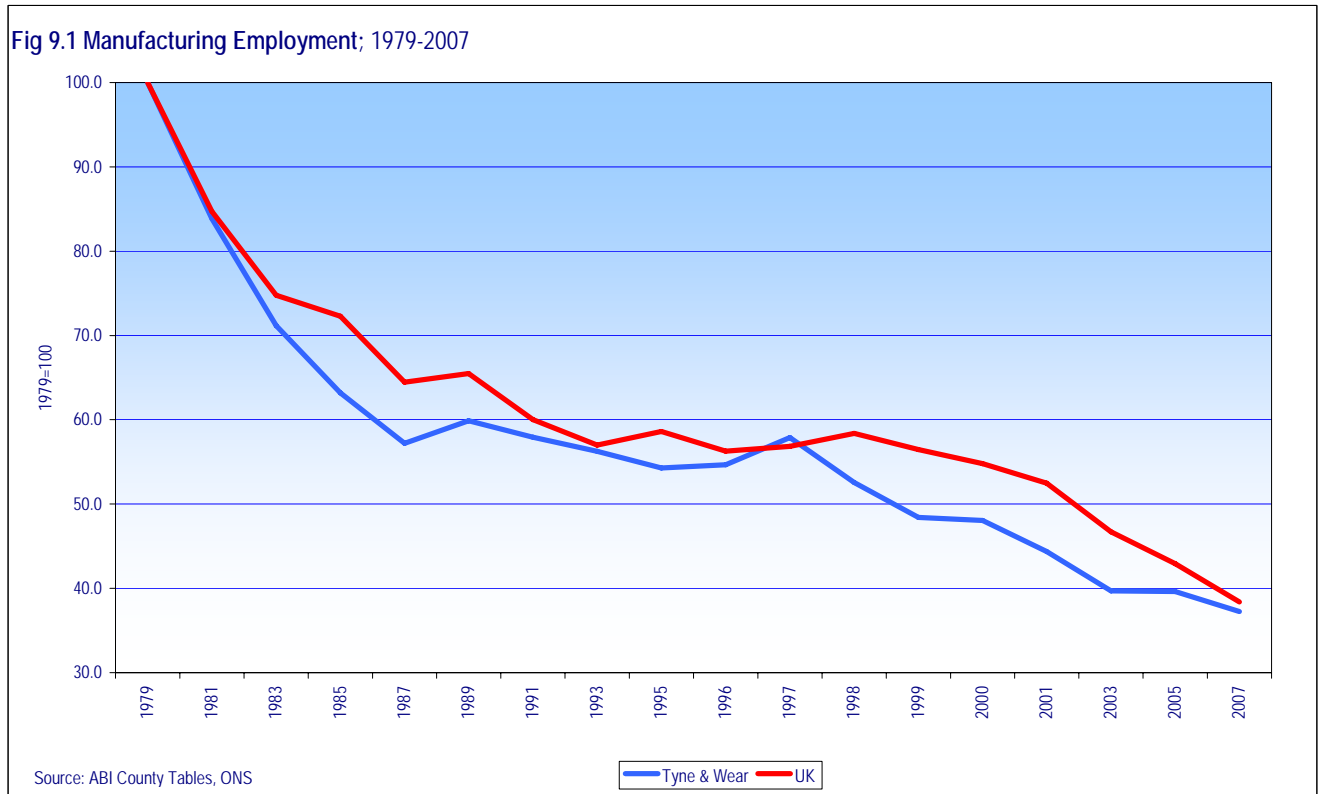
* Indicates that a value is confidential and has been suppressed

9 Manufacturing Employment

- In 2007, manufacturing employment in TW (57,000) was less than half that in WY (132,600).
- 69% of TWCR manufacturing employment was located in TW in 2007.
- Between 2001 and 2007, manufacturing employment fell by 16% in TW, similar to the fall in TWCR (-17%). In WY manufacturing employment fell more sharply (-26%) over the same period.

TYNE & WEAR: LONG TERM TRENDS (SINCE 1979)

Between 1979 and 2007, manufacturing employment more than halved in both TW and the UK (Fig. 9.1). In TW, manufacturing employment fell by an average of -1.8% pa, to 37% of the 1979 level. Similarly, manufacturing employment in the UK fell to 38% 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 1987-2007 (by an average of about -1%pa) but the decline was essentially all after 1997⁴⁶.



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 2007 (to be 62% below its 1979 level).

TW's competitiveness in manufacturing appears to have kept up employment since 2001, at least relative to the UK. In 2001-2007, manufacturing employment in TW declined 7pp, from 44% of the 1979 level in 2001, to 37% in 2007. From 2001, manufacturing employment in the UK fell twice as fast as TW, down 14pp (of 1979 levels) from 53% in 2001. The fall in TW occurred in 2001-2003 (-4.7pp) and in 2005-2007 (-2.3pp). Employment in 2005 matched the level in 2003 (40% of the 1979 level). In comparison, the UK fell 6pp in 2001-2003, 4pp in 2003-2005 and a further 5pp in 2005-2007.

⁴⁶ Manufacturing decline since 1997 in TW has included the Clothing industry's 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.

TYNE & WEAR: 2001-2007

In 2001, the TW manufacturing industry employed 67,800, more than two-thirds (67%) of total manufacturing employment in TWCR. Over two-thirds (69%) of those employed in manufacturing were employed in the twenty-five largest industries. (Only) 12% of these employees were employed in the five most competitive industries, which were (in 2001);

Printing	4,000
Other Food Products	3,400
Lifting & Other Machinery	2,400
Machinery for Industry (sp)	1,700
Textile Articles	800

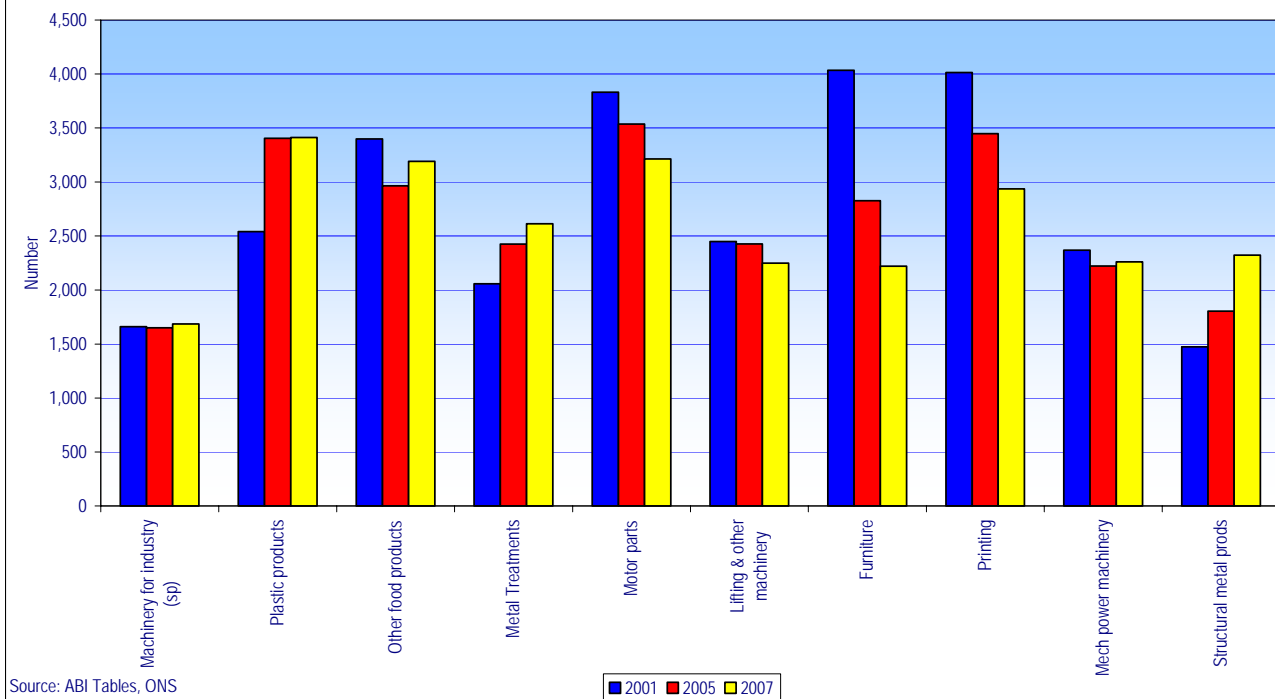
In 2001-2007, employment in TW fell -16% (to 57,000), an average annual decline of about 3% (or -1,810 jobs), but its share of TWCR manufacturing employment rose slightly to 69%.

Employment rose in just eight of the twenty-five largest industries, four of which were in the top ten industries;

Machinery for Industry (sp)	up 2% (under 100)	(Competitive)
Plastic Products	up 34% (900)	(Competitive)
Metal Treatments	up 27% (600)	(Competitive)
Structural Metal Prods	up 58% (800)	

This suggests that *competitiveness was positively associated with employment growth*; while overall, employment in the eight competitive industries fell -2.5% (-400) in 2001-2007, this was 10-times slower than the decline in the remaining seventeen⁴⁷ major industries (-27%, -8,400). Thus by 2007, 28% of TW manufacturing jobs were in these eight competitive industries (a rise averaging about 0.5pp annually).

Fig 9.2 Manufacturing Employment; Top Ten Industries, Tyne & Wear, 2001, 2005, 2007
(ranked on 2007 TW output order)



⁴⁷ Manufacturing of Electronic Values is excluded, as data is suppressed in order to maintain confidentiality.

The largest losses of employment were in;

Clothing	-1,600 (-72%)
Boat-building	-1,100 (-71%)
Miscellaneous Manu	-800 (-68%)
Rubber Products	-800 (-65%)

Box 9.1 Job Losses in Tyne & Wear's Transport Equipment Industry (Boat-building)

The overall loss of -1,100 jobs in TW's Boat-building industry might be explained by the closure of Cammell Laird in 2001 and Swan Hunter in 2006. In 2001-2005 there was a 44% fall (-700) in employment in TW's Boat-building Industry. This was followed by a further 48% fall (-400) in 2005-2007.

Remaining firms in Boat-building (which includes ship-repair etc.) include A&P Tyne, Wear Dock Engineering and possibly SMD⁴⁸.

Box 9.2 The Clothing Industry's Collapse in Tyne & Wear

Outside of the top ten industries, TW's Clothing industry lost approximately 1,600 jobs in 2001-2007. The majority of the loss was in 2001-2005, when employment in the TW industry fell 69% (-1,500). In 2007, employment in Clothing was 600, after it fell a further 10% (-100) in 2005-2007. [About a third of the 1,500 job losses in 2001-2005 can be identified as from Dewhirst in Sunderland; -390 in 2002 and -150 in 2004⁴⁹].

WEST YORKSHIRE

In 2007, West Yorkshire's manufacturing employment was 132,550, over double that in TW. In 2001-2007 manufacturing employment fell -26%, about 1½ times faster than the rate of decline in TW (-16%) and faster than the UK (-22%).

In 2001, employment in WY was highest in Printing, which employed 8% of all manufacturing employees. In 2007, despite a 23% fall in employment, Printing remained the highest industry (10,500) (Fig. 9.3).

Employment in WY in 2007 was also high in;

Furniture	(9,500, -13% since 2001)
Other Food Products	(9,300, +2.3% since 2001)
Publishing	(8,200, -21% since 2001)
Plastic Products	(8,000, -1.2% since 2001)

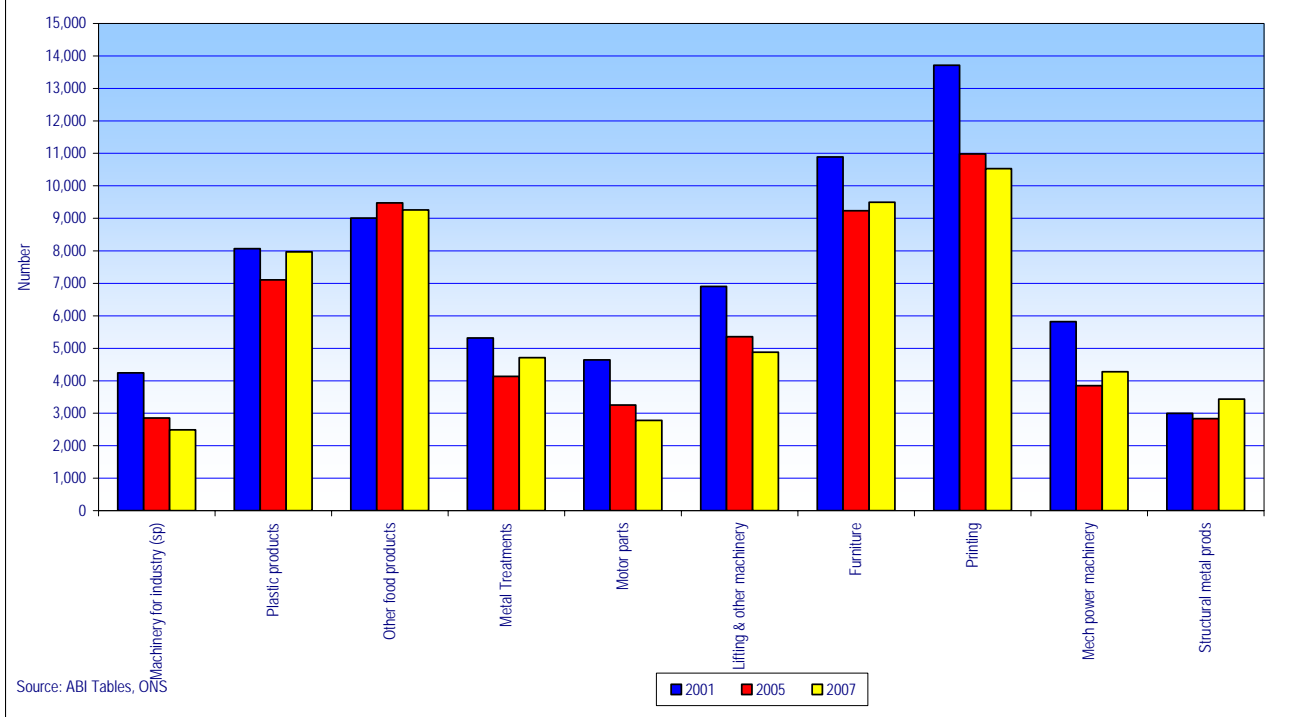
Five of the (TW) top ten manufacturing industries were competitive in WY;

Other Food Products
 Motor Parts
 Furniture
 Printing
 Mech Power Machinery

⁴⁸ Which makes sub-sea Remote Operated Vehicles (ROVs).

⁴⁹ The Journal, 9/2/02 and 22/5/04.

Fig 9.3 Manufacturing Employment; Top Ten Industries, West Yorkshire, 2001, 2005, 2007
(ranked on TW 2007 output order),



In 2001-2007, manufacturing employment in WY fell by a large 26%. Moreover, employment in WY fell in all but two of the top twenty-five manufacturing industries in this period. The only two WY industries to escape job losses were;

Structural Metal Prods	up 15% (400 jobs)
Other Food Products	up 3% (300 jobs)

In WY, one of TW's competitive industry shed jobs, the opposite to TW (Textile Articles).

Over the period, 2001-2007, WY's biggest job losses in the (TW) top ten industries were in;

Printing	-3,200 jobs (-23%)
Lifting & Other Machinery	-2,000 jobs (-29%)
Motor Parts	-1,900 jobs (-40%)
Machinery for Industry (sp)	-1,800 jobs (-41%)

Employment change in Furniture, Boat-building and Paper & Products, where losses in TW were fastest, were slower in WY. Employment in Furniture fell -13% in WY, approximately one third the rate of decline in TW (-45%). Employment in Boat-building fell by -45% in WY, slower than the rate of the decline in TW (-71%). Employment in Paper & Products fell by -26% in WY, almost one third the rate of decline in TW (-72%).

Other Food Products employment rose 3% in WY compared to a -6% fall in TW. The only other industry where employment in WY rose was Structural Metal Prods, where employment grew 15% (+400) compared to a 58% rise in TW.

10. Manufacturing Productivity

- Manufacturing productivity in TW in 2007 was above the UK (by 8%). This is a return to the position in 1993 (before productivity deteriorated).
- In 2001-2007, productivity growth in TW averaged a healthy 5.5%pa (up 33%). In WY, growth was much slower, up by 19% (2.7%pa).
- In 2007, TW's manufacturing productivity (£57,700 GVA per employed person) was over 20% higher than in WY (£45,900).

10.1 Productivity levels

- Productivity levels are a measure of efficiency in the use of labour and provide a guide towards future output and employee performance. In this report, productivity is defined as 'Gross Value Added per Employee'.
- Productivity figures have been rounded to the nearest £100 in the text, but the unrounded figures are retained in table 10.1 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 2007, manufacturing productivity in TW had risen to be 8% (£4,200) *higher* than the UK – a remarkable improvement from around 10% below the UK in 2000. This has returned TW to its position in 1993 (before productivity deteriorated) when it was 8% above the UK average⁵⁰.

The five highest productivity industries in TW, relative to the UK, were four previously identified as competitive in TW. The exception is Meat Production (Table 10.1).

⁵⁰ 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

Table 10.1: Productivity (GVA/employee) Levels; Tyne & Wear, with West Yorkshire and UK Comparisons, 2007 (current prices) (ranked on 2007 TW output order)

SIC	Industry	Tyne & Wear £	TW as Index of UK (UK=100)	West Yorkshire £	WY as Index of UK (UK=100)	UK £
295	Machinery for Industry (sp)	113,794	215.5	39,833	75.4	52,797
252	Plastic Products	52,686	128.7	34,182	83.5	40,936
158	Other Food Products	52,761	108.2	48,420	99.3	48,756
285	Metal Treatments	57,618	136.3	34,881	82.5	42,266
343	Motor Parts	43,491	102.9	43,433	102.8	42,270
292	Lifting & Other Machinery	52,979	114.1	43,968	94.7	46,427
361	Furniture	52,070	133.9	38,955	100.1	38,897
222	Printing	38,803	84.3	44,820	97.3	46,042
291	Mech Power Machinery	48,039	98.3	59,300	121.4	48,846
281	Structural metal Prods	33,232	73.5	35,829	79.3	45,198
221	Publishing	39,075	64.4	34,170	56.3	60,672
321	Electronic Valves etc	*	*	163,964	313.9	52,232
212	Paper & Products	34,232	80.7	35,879	84.5	42,437
287	Oth Fabricated Metal Prods	53,672	119.2	41,616	92.4	45,037
261	Glass	41,991	84.4	42,559	85.6	49,745
174	Textile Articles	37,877	99.2	46,716	122.4	38,178
312	Electric Distrib Equipment	23,062	55.4	62,285	149.5	41,651
284	Forging & Pressing	33,520	79.5	35,852	85.0	42,169
151	Meat Production	48,664	143.0	56,121	164.9	34,032
182	Clothing	32,590	82.5	37,133	94.0	39,500
251	Rubber Products	32,833	68.4	36,207	75.4	47,992
316	Electrical Equipment	34,403	68.6	36,172	72.1	50,162
366	Miscellaneous Manu	25,117	59.6	43,727	103.8	42,127
241	Basic Chemicals	*	*	29,364	28.6	102,791
351	Boat-building	*	*	45,781	89.6	51,067
	All Manufacturing	57,738	107.9	45,893	85.7	53,524

Totals may not sum due to rounding

* Indicates that a value is confidential and has been suppressed

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

Machinery for Industry (sp) 216% of UK

[For example, Crabtree (Gd) and Komatsu (Gd)]

Metal Treatments 136% of UK

[For example, Barrier (NT), Dacon (Gd) and BNB (ST)]

Furniture 134% of UK

[For example, Godfrey-Syrett (NT) and Be Modern (ST)]

Plastic Products 129% of UK

[For example, Wellstream (Nc), Duco (Nc), Thermopak (Gd) and Smithers-Oasis (Sd)]

In addition, five other industries also had productivity above the UK average;

Meat Production 143% of UK

Oth Fabricated Metal Prods 119% of UK

Lifting & Other Machinery 114% of UK

Other Food Products 108% of UK

Motor Parts 103% of UK

Productivity in the remaining four competitive industries was below the UK average, with the exception of Lifting & Other Machinery (114%) (e.g. Liebherr (Sd), Continental Conveyor (Gd)). Of the top ten industries productivity was close to the UK in Mech Power Machinery (98%). [E.g. Siemens Energy (Nc) and Grundfos (Sd)]. The two other major manufacturing industries were well adrift, at least 15%% below UK averages;

Printing	84%
Structural Metal Prods	74%

Productivity was very poor in two industries:

Miscellaneous Manu	60%
Electric Distrib Equipment	55%

WEST YORKSHIRE

In 2007 productivity in WY, was only £45,900, 14% below the UK and 20.5% lower than TW.

Productivity was very high in Electronic Valves etc, at an outstanding 314% of the UK average at £164,000 and was also high in Meat Production, an impressive 165% of the UK average at £56,100.

Meat production was much more productive in WY than in TW, whilst for Electronic Valves etc data was suppressed in TW in order to maintain confidentiality.

In WY, productivity was higher or the same as the UK in only three of the (TW) top ten industries;

Mech Power Machinery	121% of UK
Motor Parts	103% of UK
Furniture	100% of UK

Productivity was poor (between 5 and 25% below the UK) in Lifting & Other Machinery (95%, £44,000), Plastic Products (84%, £34,200), Metal Treatments (83%, £34,900) and Machinery for Industry (sp) (75%, £39,800). These are four of the eight industries which are competitive in TW.

WY's productivity was poor in three of its competitive industries⁵¹;

Other Food Products	99%	(£48,400)
Printing	97%	(£44,800)
Oth Fabricated Metal Prods	92%	(£41,600)

However, productivity was particularly poor in;

Basic Chemicals	29%
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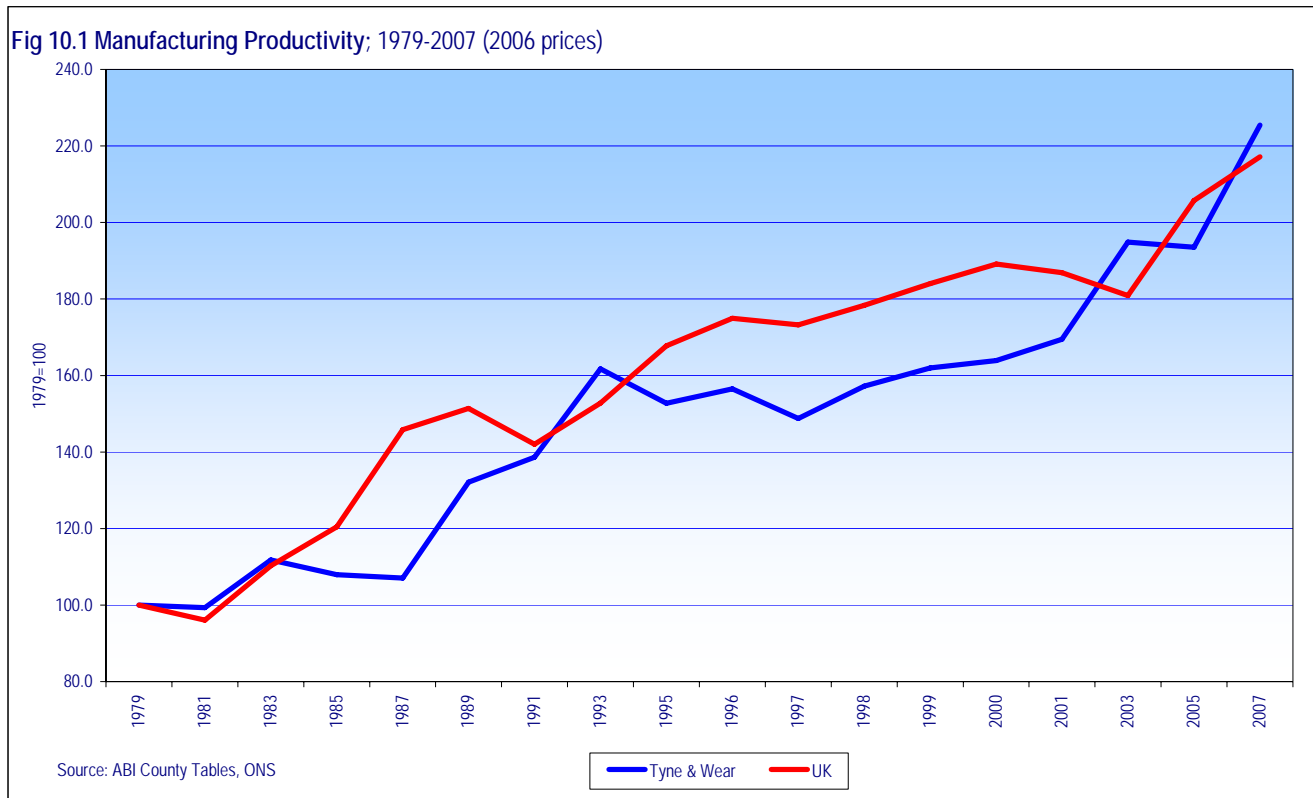
This level is so low as to be very difficult to generate profits. Thus, this industry looks particularly vulnerable. In addition, in TW, data for this industry are suppressed.

⁵¹ WY's top ten competitive industries are listed on p39.

10.2 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, each of about five years (1985-89 and 1995-2000) (Fig. 10.1).



Caution: The chart shows even years, 1996, 1998 and 2000, which tends to exaggerate the apparent duration of the low productivity period. Productivity is at 2006 prices.

Between 1979 and 2007, 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 125%) and in the UK (up 117%) 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 FDI⁵²].

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. More recently, productivity in TW has fluctuated, being above the UK in 2003 and again in 2007.

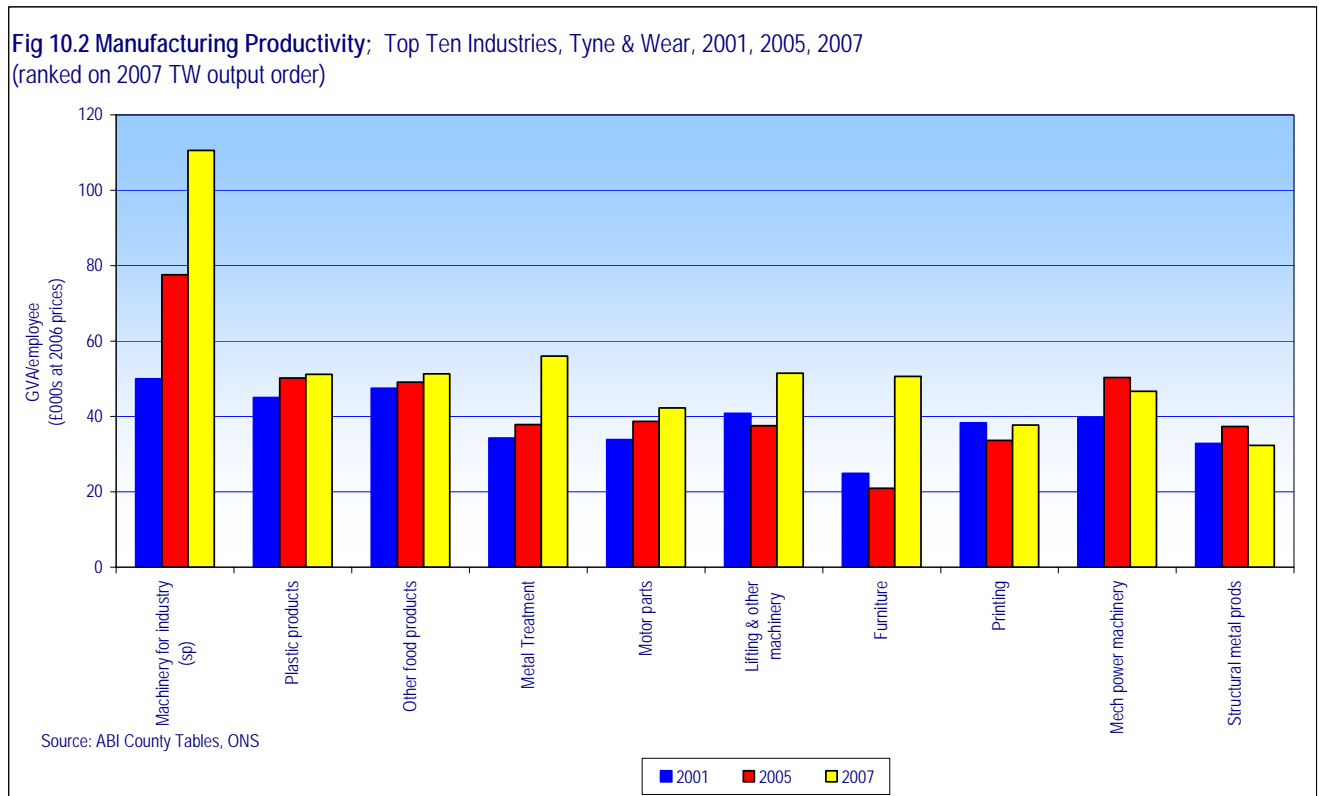
TYNE & WEAR: 2001-2007

In 2001-2007, productivity levels in TW exceeded the UK, rising 56pp in TW and 30pp in the UK. There were 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. However, since 2005 productivity in TW has grown at a much faster rate than in the UK.

⁵² FDI is Foreign Direct Investment

Productivity growth in TW in 2001-2007 was slightly faster than the UK long-run rate of 4% pa. Productivity in TW manufacturing industries rose 33% overall in 2001-2007 (average of 5.5% per annum) to £56,100 in 2007, twice as fast as the rise in the UK (+16% to £52,000 in the UK) [2006 prices].

TW's greatest productivity rise was in 2005-2007 when it rose 16% to £56,100. This followed a rise in 2001-2003 by 15%, a very sharp acceleration from sluggish growth in 1998-2000, when productivity rose by 4% in TW (1% pa).



Productivity in TW rose in eight of the top ten manufacturing industries in 2001-2007.

The fastest rises were in;

Machinery for Industry (sp)	+121% to £111,00
Furniture	+104% to £51,000 ⁵³
Metal Treatment	+64% to £56,000
Lifting & Other Machinery	+26% to £51,000
Motor Parts	+25% to £42,000

Productivity also rose, but less quickly than the 4% pa rate, in Plastic Products (+14%, to £51,000), Other Food Products (+8%, to £51,000) and Mech Power Machinery (+18%, to £47,000).

Productivity *fell* slightly in TW in the remaining two top ten manufacturing industries in 2001-2007; Structural Metal Prods (-1.6%, to £32,000) [e.g. A&P Tyne (ST) and McNulty Offshore (ST)] and Printing (-1.5%, to £38,000) [probably reflecting downward pressure on the newspaper industry, including Trinity Mirror, etc., but it could have reflected difficulties at De La Rue].

Between 2001 and 2007, productivity fell in six additional major industries, with the fastest fall being in Electric Distrib Equipment (-35.9%)⁵⁴. Data were suppressed in four major industries; Electronic valves etc⁵⁵, Basic Chemicals, Boat-building and Electrical Equipment.

⁵³ Possibly helped by the closure of Homeworthy (Sd)

Box 10.1 Tyne & Wear Productivity Growth Twice as Fast as in the UK, from 2001-07

Productivity growth in TW in 2001-2007 was 17pp faster than the UK, where productivity rose 16% to £56,000. Productivity growth in the UK was 6% in 2005-2007, slower than in TW (+16.5%).

Productivity growth in TW was more favourable than the UK in seven industries⁵⁶. This was most evident in;

- Machinery for Industry (sp) [productivity in TW rose by 121%, 93pp faster than the UK (28%)]
- Furniture (TW +92pp faster than UK)
- Metal Treatment (TW +54pp faster than UK)

Productivity growth was *less* favourable in TW than the UK in three industries; two industries where productivity in TW fell (Structural Metal Prods and Printing) and Other Food Products.

The change in productivity in Structural Metal Prods in TW was 23pp less than the UK in 2001-2007. Structural Metal Prods productivity in TW fell almost 2% but rose 21% in the UK. Similarly, productivity in Printing fell 1.5% in TW, but rose 10% in the UK (difference of 11pp).

Productivity in Other Food Products rose in both TW and the UK in 2001-2007, but at a slightly slower pace in TW (8%) than in the UK (9%).

WEST YORKSHIRE

In 2001-2007, productivity in WY rose 19% from £38,000 in 2001 to £45,000 in 2007 (2006 prices). Productivity in WY rose 6% in 2003-2005, following a 12% rise in 2001-2005. This was a similar pattern to the UK.

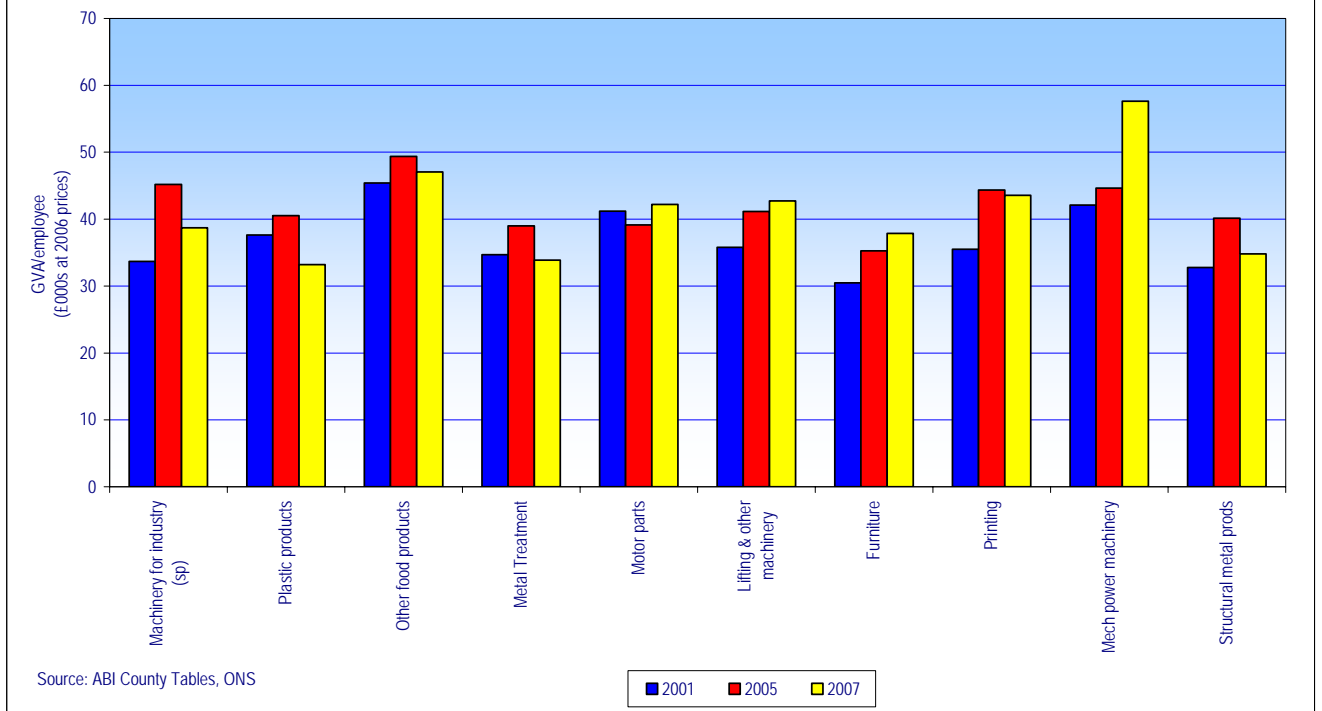
In 2001-2007, productivity in WY rose in eight of the top ten manufacturing industries, the same number as in TW, albeit different industries (Fig 10.3). Productivity growth in WY was, however, faster than TW in just one industry; Mech Power Machinery (37%). Productivity fell in WY in Plastic Products (-12%) and Metal Treatment (-3%).

⁵⁴ This industry includes Siemens Switchgear (ST), where the Trench UK operation subsequently shrank.

⁵⁵ Electronic valves etc. might include Canford Audio (Sunderland), ABB Low Voltage (Sunderland) and, possibly, Zytronic (Gateshead).

⁵⁶ Productivity rose in (only) eight of the top ten manufacturing industries in TW, but rose in all ten in the UK.

Fig 10.3 Manufacturing Productivity; Top Ten Industries, West Yorkshire, 2001, 2005, 2007
(ranked by 2007 TW output order)



Productivity rose hugely in Electronic Valves etc⁵⁷ (+460%) and Electric Distrib Equipment (105%). Productivity fell in five additional major industries⁵⁸. The fastest falls were in Basic Chemicals, down -15%, and Paper & Products, down -13%.

⁵⁷ Electronic Valves etc. in West Yorkshire might include Filtronic.

⁵⁸ Of the 25 industries analysed in this report.

11. 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 (2006 prices).

- In 2007, TW contributed 68% (£1,002m) of TWCR's operating profits.
- Operating profits in WY (£2,218m) were double those in TW.
- Between 2001 and 2007, operating profits rose 10% in TW, 7% in WY and by 5% in the UK.

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.

Note: in industries with high capital-intensity (a large amount of equipment or 'capital stock' per employee) the operating profit margin needs to be higher than in other industries. This is so as to generate the revenue to service the higher capital-stock. In Tyne & Wear, this notably applies to motor vehicle manufacture; it may apply in some other industries.

11.1 Operating Profit Levels

TYNE & WEAR

In TW in 2007, manufacturing operating profits were £1,650m, 2% of total manufacturing operating profits in the UK (current prices) (Table 11.1). TW contributed 68% of total operating profits in TWCR.

TW contributed exceptionally high proportions of UK operating profits in a few industries; 10% of UK manufacturing operating profits within Machinery for Industry (sp), whilst also contributing 7% of UK manufacturing operating profit for Electronic Valves etc. In addition, three industries contributed about 5% of UK manufacturing operating profit; Textile Articles, Mech Power Machinery and Motor Parts.

Table 11.1: Manufacturing Industries' Operating Profits in Tyne & Wear and West Yorkshire, with UK Comparison, 2007 (ranked on 2007 TW output order)

SIC	Industry	Tyne & Wear £m	West Yorkshire £m	UK £m
295	Machinery for Industry (sp)	129	33	1,308
252	Plastic Products	79	109	2,630
158	Other Food Products	87	248	4,272
285	Metal Treatments	90	65	2,096
343	Motor Parts	40	39	844
292	Lifting & Other Machinery	61	68	1,780
361	Furniture	73	167	1,689
222	Printing	40	210	2,830
291	Mech Power Machinery	54	101	1,134
281	Structural metal Prods	30	50	1,524
221	Publishing	21	122	4,058
321	Electronic Valves etc	42	1	570
212	Paper & Products	8	39	836
287	Oth Fabricated Metal Prods	18	78	1,064
261	Glass	16	29	562
174	Textile Articles	21	44	414
312	Electric Distrib Equipment	-1	32	437
284	Forging & Pressing	11	12	430
151	Meat Production	12	88	1,194
182	Clothing	10	29	532
251	Rubber Products	1	3	448
316	Electrical Equipment	2	10	592
366	Miscellaneous Manu	4	27	586
241	Basic Chemicals	*	-14	2,984
351	Boat-building	*	1	631
	All Manufacturing	1,650	2,737	71,171

* Indicates that a value is confidential and has been suppressed

Operating profits in TW rose strongly (+39%) in 2001-2007 (from £1,151m in 2001 to £1,603m in 2007) which was in sharp contrast to the UK, where operating profits rose just 2% (2006 prices). The rise in TW was primarily between 2005 and 2007, up 34%. In the UK, there was actually a fall in operating profits between 2001 and 2005, down 7.5%.

WEST YORKSHIRE

In West Yorkshire (WY) in 2007, manufacturing operating profits were £2,737m, 4% of total UK manufacturing operating profits (current prices).

WY contributed 11% of UK manufacturing operating profits within Textile Articles, whilst also contributing to 10% of UK manufacturing operating profits for Furniture.

Operating profits in WY rose by just 4% in 2001-2007, from £2,549m in 2001 to £2,660m in 2007 (2006 prices). In 2001-2005 operating profits in WY declined by over one-tenth (-11%) but this was followed by an 18% rise in operating profits in 2005-2007.

11.2 Operating Profit Margins

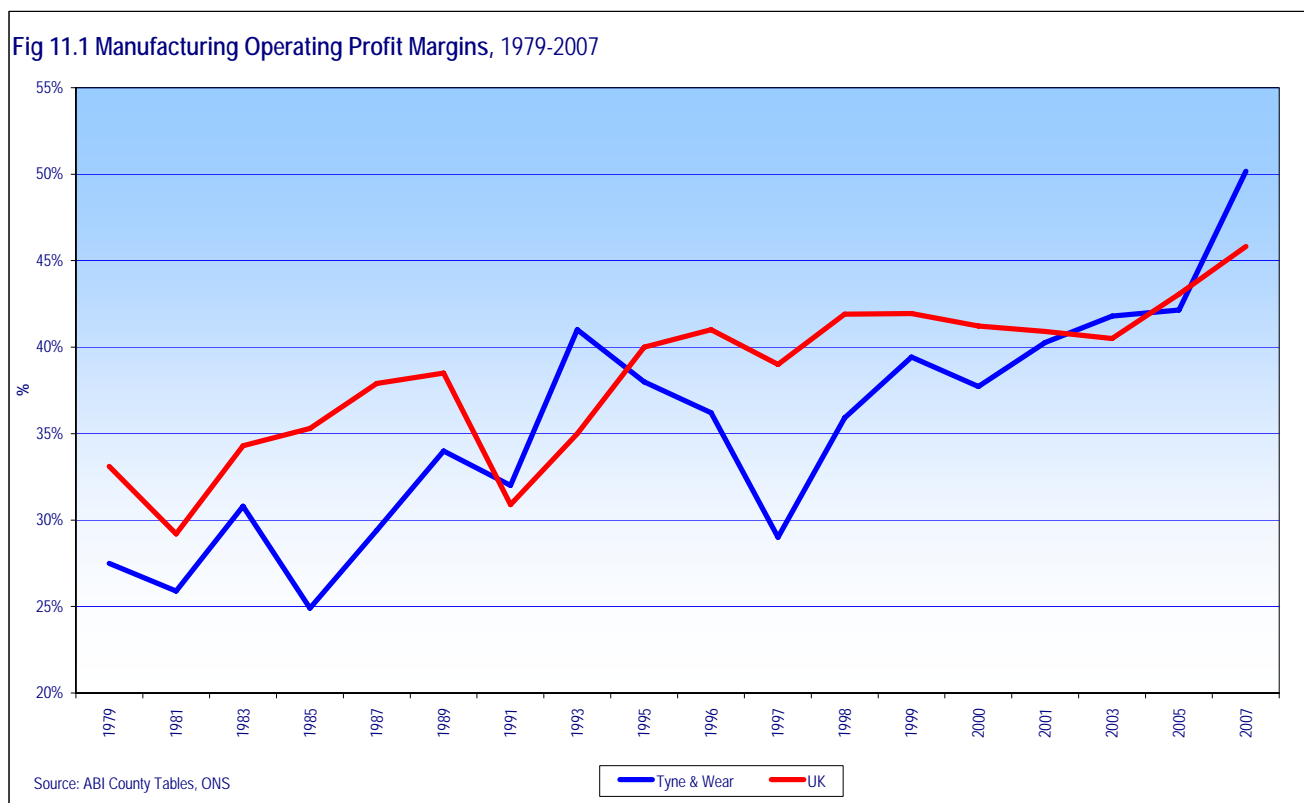
CONTEXT

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 2007, manufacturing operating profit margins in TW rose very substantially, up 22pp from 28% to 50% (Fig 11.1). Profit margins in the UK rose 13pp to 46% 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% (4pp more growth than in the UK). Profit margins in TW remained below this level (41%) until after 2001.

In 2003, profit margins in TW rose to 42%, and overtook UK profit margins by 1.3pp. Profit margins in TW then fell below UK levels in 2005 (0.9pp below UK), before once again overtaking UK profit margins in 2007, reaching 50% (4.4pp above UK)

TYNE & WEAR: 2001-2007

In 2007, profit margins in TW averaged 50%, higher than the UK (46%) and WY (45%) (Table 11.2).

Table 11.2: Manufacturing Industries' Operating Profit Margins in Tyne & Wear and West Yorkshire, with UK Comparison, 2007 (ranked on 2007 TW output order)

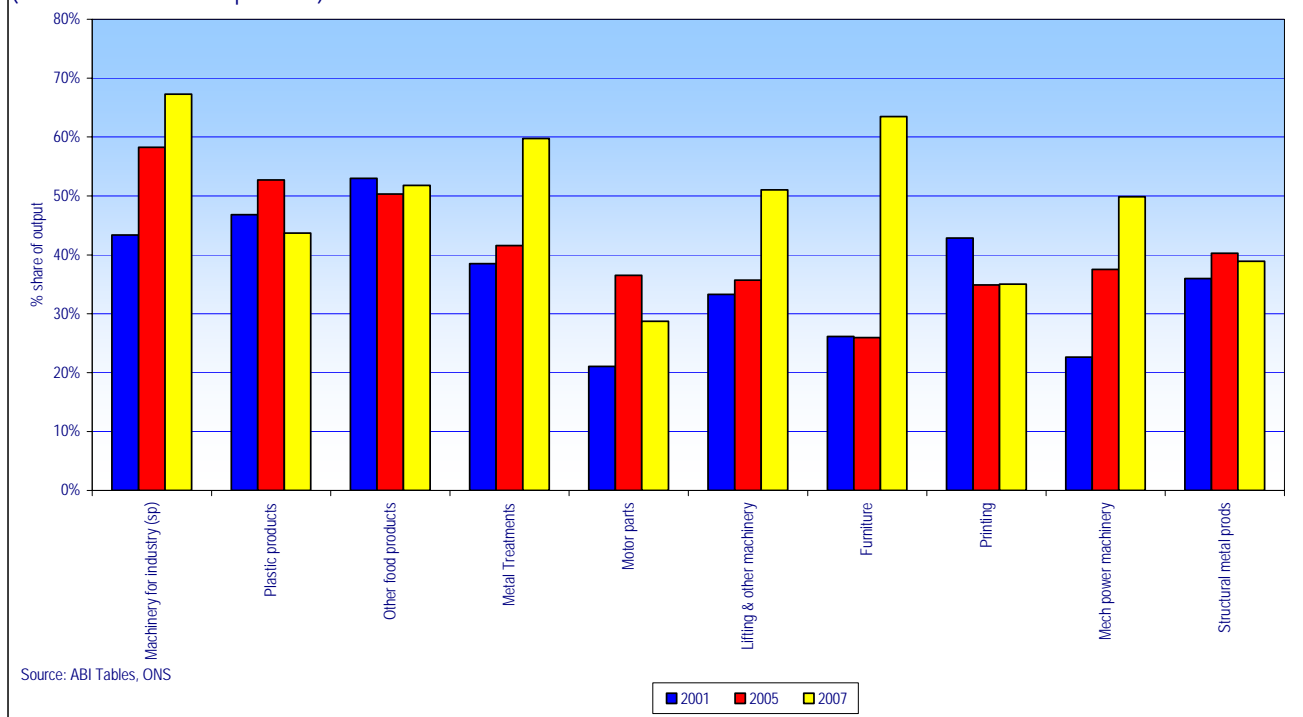
SIC	Industry	Tyne & Wear	West Yorkshire	UK
295	Machinery for Industry (sp)	67%	33%	45%
252	Plastic Products	44%	40%	40%
158	Other Food Products	52%	55%	50%
285	Metal Treatments	60%	40%	43%
343	Motor Parts	29%	32%	30%
292	Lifting & Other Machinery	51%	31%	39%
361	Furniture	63%	45%	42%
222	Printing	35%	44%	43%
291	Mech Power Machinery	50%	40%	36%
281	Structural metal Prods	39%	41%	43%
221	Publishing	27%	44%	45%
321	Electronic Valves etc	59%	39%	45%
212	Paper & Products	14%	34%	37%
287	Oth Fabricated Metal Prods	37%	48%	43%
261	Glass	40%	35%	44%
174	Textile Articles	56%	49%	44%
312	Electric Distrib Equipment	-5%	36%	32%
284	Forging & Pressing	41%	41%	40%
151	Meat Production	50%	58%	37%
182	Clothing	51%	45%	47%
251	Rubber Products	4%	38%	38%
316	Electrical Equipment	19%	36%	39%
366	Miscellaneous Manu	41%	54%	48%
241	Basic Chemicals	*	-20%	60%
351	Boat-building	*	40%	37%
	All Manufacturing	50%	45%	46%

* Indicates that a value is confidential and has been suppressed

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

Machinery for Industry (sp)	(67%)	(22pp higher than the UK)
Furniture	(63%)	(20pp lower than the UK)
Metal Treatments	(60%)	(17pp higher than the UK) (Fig 11.2).

Fig 11.2 Estimated Operating Profit Margin, Top Ten Industries, Tyne & Wear, 2001, 2005, 2007
(ranked on 2007 TW output order)



Profit margins were lower in TW than in the UK in three of the top ten industries; Motor Parts (TW 29%, UK 30%), Printing (TW 35%, UK 43%) and Structural Metal Prods (TW 39%, UK 43%)

In 2001-2007, profit margins rose in seven of the top ten industries in TW, rising 10pp overall (Fig 11.2). The biggest rises ['recoveries'] were in;

Furniture	(+37pp)
Machinery for Industry (sp)	(+29pp)
Mech Power Machinery	(+27pp)

There are strong indications, from profit margin changes in 2001-2007, of under-performance in;

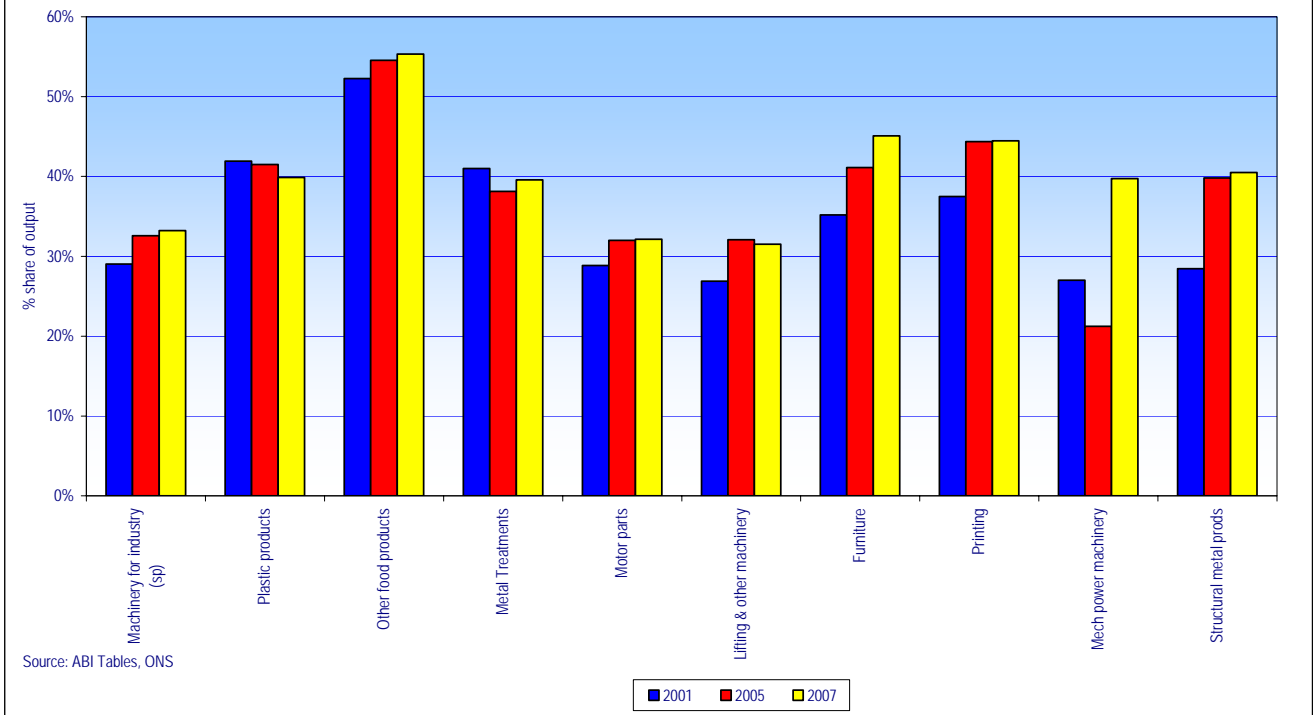
Electric Distrib Equipment	(-29pp to -5%, 37pp below the UK in 2007)
Paper and Products	(-22pp to 14%, 23pp below the UK 2007)
Publishing	(-20pp to 27%, 18pp below the UK in 2007)

WEST YORKSHIRE

In 2007, profit margins in the West Yorkshire (WY) averaged 45%, 5pp lower than its TW comparator. Profit margins in WY were 1pp less than the UK.

Profit margins in WY in 2007 were highest in Meat Production at 58%. However, out of the top ten (TW) industries, Other Food Products was the highest at 55% (Fig. 11.3). There were also healthy profit margins in Furniture (45%), Printing (44%), Structural Metal Prods (41%), Mech Power Machinery (40%), Plastic Products (40%) and Metal Treatments (40%). Profit margins in 2007 were lowest in Lifting & Other Machinery (31%).

Fig 11.3 Estimated Operating Profit Margin; Top Ten Industries, West Yorkshire, 2001, 2005, 2007
(ranked on 2007 TW output order)



Box 11.1 West Yorkshire’s Competitive Manufacturing Industries

Compared with the UK, WY has five⁵⁹ manufacturing industries which have higher profit margins. They are;

- Other Food Products (WY 55% margin, UK 50%)
- Mech Power Machinery (WY 40% margin, UK 36%)
- Furniture (WY 45% margin, UK 42.5%)
- Motor Parts (WY 32% margin, UK 30.5%)
- Printing (WY 44% margin, UK 43%)

⁵⁹Out of the top ten industries ranked on 2007 TW output order.

Manufacturing in Tyne and Wear City Region 2001-2007

Between 2001-2007, profit margins in WY increased almost 7pp to 45%. The increase in WY was faster than the rise in the UK (+5pp) but slower than in TW (+10pp), over the same period.

In WY, in 2007 profit margins in the (TW) top ten manufacturing industries were highest in Other Food Products. However, growth was fastest in Mech Power Machinery, rising 13pp from 27% in 2001 to 40% in 2007 and in Structural Metal Prods, rising 12pp from 28% in 2001 to 41% in 2007.

Profit margins rose in six other industries, but growth was more modest, ranging between 3.1pp and 9.9pp. In addition, profit margins recovered 26pp to 39% in Electronic Values etc⁶⁰, not one of TW's top ten industries.

Profit margins in WY fell, slightly, in two of the top ten industries. The faster fall was in Plastic Products, where profit margins slipped 2pp to 40% in 2007. Metal Treatment profit margins fell 1.4pp to 40% between 2001-2007.

The fastest fall in profit margins for industries not in the top ten was in Basic Chemicals, down 18pp to 20%.

Note: Investment in manufacturing in Tyne & Wear and in West Yorkshire.

As the available data are very incomplete, (under a ¼ in 2001, under ½ in 2007) and thus potentially misleading, these are presented in the Appendix 5.3, rather than in the main text. ONS' suppression of data for the Motor Vehicles industry most likely omits a very substantial part of manufacturing investment in Tyne & Wear.

⁶⁰ This presumably includes Filtronic, which is based in West Yorkshire.

12. Manufacturing Establishment Size

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

- In 2007, the average establishment in TW (27) was 7 employees (35%) larger than in WY (20).
- Motor Parts had the highest number of employees per business in TW in 2007 (104).

Box 12.1 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 eight most competitive industries in TW⁶¹ all have establishment size larger than their UK average (by at least 20%).

Of the four remaining industries, in the top ten, with establishment size above the UK average, one is on the cusp; Other Food Products (1.07).

Reasons and causation

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

- 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.
- FDI⁶² [in those industries where it is substantial] is another cause of both large size and higher profit margins.
- 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.

⁶¹ The eight most competitive industries in TW are listed on p37. Only two of these most competitive industries are outside the top ten industries (by size), namely Textile Articles and Forging & Pressing.

⁶² FDI is Foreign Direct Investment.

TYNE & WEAR

The average establishment size in Tyne & Wear (TW) was 50% (9 employees) larger than the UK (18) in 2007, but its size has fallen (Table 12.1). In 2007 the average manufacturing establishment in TW had 27 employees⁶³.

Table 12.1: Establishment Size* in Manufacturing Industries in Tyne & Wear and West Yorkshire, with UK comparison, 2007

SIC	Industry	Tyne & Wear	West Yorkshire	UK	TW/UK	WY/UK
295	Machinery for Industry (sp)	35.9	11.8	16.1	2.23	0.73
252	Plastic Products	29.2	24.8	23.4	1.25	1.06
158	Other Food Products	39.9	59.4	37.2	1.07	1.60
285	Metal Treatments	14.4	8.3	8.0	1.81	1.04
343	Motor Parts	103.7	55.6	41.7	2.49	1.33
292	Lifting & Other Machinery	27.1	19.1	18.1	1.49	1.05
361	Furniture	24.4	24.0	13.2	1.85	1.82
222	Printing	13.8	15.0	8.6	1.60	1.74
291	Mech Power Machinery	66.4	46.0	33.1	2.01	1.39
281	Structural metal Prods	23.9	16.2	16.4	1.46	0.99
221	Publishing	25.3	39.5	13.6	1.86	2.91
321	Electronic Valves etc	*	1.4	31.1	*	0.04
212	Paper & Products	63.8	35.7	28.7	2.22	1.24
287	Oth Fabricated Metal Prods	10.3	13.5	10.3	1.00	1.31
261	Glass	29.8	26.6	20.0	1.49	1.33
174	Textile Articles	29.4	17.6	11.0	2.67	1.60
312	Electric Distrib Equipment	68.3	28.5	30.0	2.28	0.95
284	Forging & Pressing	31.4	17.1	21.4	1.47	0.80
151	Meat Production	29.6	47.3	72.8	0.41	0.65
182	Clothing	16.3	13.7	7.7	2.12	1.78
251	Rubber Products	46.2	8.9	32.0	1.44	0.28
316	Electrical Equipment	12.3	11.8	13.1	0.94	0.90
366	Miscellaneous Manu	5.0	4.8	4.9	1.02	0.97
241	Basic Chemicals	37.3	40.9	36.7	1.01	1.11
351	Boat-building	30.2	4.0	20.6	1.47	0.19
	All Manufacturing	26.8	20.3	17.7	1.52	1.15

* = Employees per business

Source: ABI Tables, ONS

Large establishment size is widespread in TW, and a source of competitive advantage (see box above); in 2007, all of the top ten manufacturing industries in TW had an average establishment size which was greater than the UK industry average.

Average establishment size, was more than double the UK in Machinery for Industry (sp) (2.23), Motor Parts (2.49) and Mech Power Machinery (2.01). The large Nissan plant in Sunderland, which employs nearly 5,000 people, will also have been a big contributor to the larger establishment size in TW.

Average establishment size was also more than double in TW that in the UK in Textile Articles (2.67), Electric Distrib Equipment (2.28), Paper & Products (2.22), and Clothing (2.12).

The average establishment size in TW was *smaller* than the UK in Electrical Equipment (0.94) and especially Meat Production (0.41). Data for Electronic Valves etc were suppressed in order to maintain confidentiality.

⁶³ There are about 2,000 manufacturing establishments in TW. Establishment size in TW in 2007 was 2 employees less than 2001 and 7 employees less than in 1998. UK average establishment size in 2007 was 2 employees less than in 2001 (20).

WEST YORKSHIRE

The average establishment size in West Yorkshire (WY) was 20 in 2007. Although 7 employees smaller than Tyne & Wear (27), it was still 2 employees larger than the UK (18).

Despite WY's fairly large establishment size, and potential economies of scale, its manufacturers did not perform as well as TW's. In 2001-2007, average establishment size in WY fell [reflecting very weak output] down four employees from 24 in 2001, double the rate of decline in TW and the UK.

In 2007, WY's largest manufacturing establishments were in Other Food Products, whose average size was 59 employees. Motor Parts had the second-largest establishments (56 employees).

In WY, Publishing (40) establishments were almost three-times as big as the UK average (14), and almost double the TW average (25).

The average establishment size in WY was *smaller* than the UK in Machinery for Industry (sp) (0.73) and Structural Metal Prods (0.99). Establishment size was smaller than the UK in an additional eight of the top twenty-five largest industries in TW.

Box 12.2 In West Yorkshire Scale is Not Associated with Competitiveness (Unlike in Tyne & Wear)

In 2007, average establishment size in WY was bigger than the UK in eight of the top ten manufacturing industries;

Industry	Establishment Size (relative to the UK)	Output Growth 2001-07	Employment Growth 2001-07
Plastic Products	1.06	3% (UK 3%)	-1%
Other Food Products	1.60	26% (UK 16%)	3%
Metal Treatments	1.04	2% (UK 11%)	-11%
Motor Parts	1.33	-28% (UK -11%)	-40%
Lifting & Other Machinery	1.05	-0.4% (UK 21%)	-29%
Furniture	1.82	28% (UK 4%)	-13%
Printing	1.74	11% (UK -1%)	-23%
Mech Power Machinery	1.39	19% (UK 8%)	-27%

Size was below the UK in the remaining two; Machinery for Industry (sp) and Structural Metal Prods.

Note: as large establishment size is much less marked in West Yorkshire than in Tyne & Wear, one would expect the association with competitiveness to be much weaker.

In WY, output growth in the eight top ten industries with establishment size bigger than the UK was, overall, essentially no faster than in the UK; in Plastics, growth was the same as in the UK. In three industries, growth was slower than in the UK. In the remaining four industries, growth was faster than in the UK.

APPENDICES

APPENDIX 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 data⁶⁴ 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'⁶⁵ 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.⁶⁶

⁶⁴ This was the guidance given in the presentation to the TWRI Conference in November 2007.

⁶⁵ TWRI's quality rating on ABI 1 was under four out of ten, meaning it should only be used in conjunction with other sources.

⁶⁶ These cautions are specifically repeated in the section on Net Investment, as required by ONS.

APPENDIX 2

CHAP. 2: Time series 2001-2007 manufacturing output

Appendix 2.1: Manufacturing Industry in Tyne & Wear City Region: Output (GVA), 2001-2007

SIC (3 Digit)	Industry	Output at Current Prices			Output at 2006 Prices		
		GVA (£m)			GVA (£m)		
		2001	2005	2007	2001	2005	2007
151	Meat Production	61	61	54	70	63	53
158	Other Food Products	192	208	223	221	214	217
174	Textile Articles	34	38	56	40	39	54
182	Clothing	76	37	32	88	39	31
212	Paper & Products	170	114	101	195	117	98
221	Publishing	83	84	82	96	86	80
222	Printing	140	123	131	161	127	128
241	Basic Chemicals	71	51	71	82	53	69
251	Rubber Products	69	86	26	79	88	25
252	Plastic Products	182	266	261	209	274	253
261	Glass	53	49	52	61	50	50
281	Structural metal Prods	73	102	112	84	105	108
284	Forging & Pressing	30	37	29	34	38	28
285	Metal Treatments	89	122	180	103	125	175
287	Oth Fabricated Metal Prods	38	43	60	43	44	58
291	Mech Power Machinery	120	119	119	138	122	115
292	Lifting & Other Machinery	128	154	198	147	159	192
295	Machinery for Industry (sp)	80	139	210	92	143	204
312	Electric Distrib Equipment	52	32	41	60	33	40
316	Electrical Equipment	15	81	19	17	84	18
321	Electronic Valves etc	75	64	83	86	66	81
343	Motor Parts	162	149	188	186	153	183
351	Boat-building	21	44	26	25	45	25
361	Furniture	120	85	170	138	87	166
366	Miscellaneous Manu	45	27	25	52	28	25
	All Manufacturing	3,617	3,782	4,450	4,157	3,895	4,325

Source: Annual Business Inquiry, ONS

Totals may not sum due to rounding

* Indicates that a value is confidential and has been suppressed

APPENDIX 3

CHAP. 4: time series 2001-2007 manufacturing productivity

Appendix 3.1: Manufacturing Industry in Tyne & Wear City Region: Productivity (GVA/employee), 2001-2007

SIC	Industry	Productivity at Current Prices			Productivity at 2006 Prices		
		2001	2005	2007	2001	2005	2007
151	Meat Production	25,679	29,190	27,645	29,516	30,062	26,866
158	Other Food Products	35,869	41,569	45,501	41,229	42,811	44,219
174	Textile Articles	26,021	29,553	40,283	29,910	30,436	39,148
182	Clothing	20,740	37,961	34,485	23,839	39,095	33,513
212	Paper & Products	52,588	37,400	42,228	60,446	38,517	41,038
221	Publishing	36,167	41,245	39,542	41,571	42,477	38,427
222	Printing	32,693	33,614	40,490	37,578	34,618	39,349
241	Basic Chemicals	39,066	43,893	75,260	44,903	45,204	73,139
251	Rubber Products	29,570	66,139	33,456	33,989	68,115	32,513
252	Plastic Products	36,100	47,060	46,360	41,494	48,466	45,054
261	Glass	30,641	29,439	36,739	35,220	30,318	35,703
281	Structural Metal Prods	29,703	37,700	33,517	34,142	38,826	32,572
284	Forging & Pressing	28,036	36,418	31,243	32,225	37,505	30,363
285	Metal Treatments	27,933	36,983	51,209	32,107	38,087	49,766
287	Oth Fabricated Metal Prods	34,181	35,533	47,222	39,289	36,594	45,891
291	Mech Power Machinery	33,048	38,548	39,054	37,986	39,699	37,954
292	Lifting & Other Machinery	31,954	38,697	53,167	36,728	39,852	51,669
295	Machinery for Industry (sp)	40,315	72,435	100,769	46,339	74,598	97,929
312	Electric Distrib Equipment	28,614	19,603	25,980	32,890	20,189	25,248
316	Electrical Equipment	14,338	63,261	28,045	16,481	65,151	27,255
321	Electronic Valves etc	36,725	35,773	72,391	42,212	36,841	70,350
343	Motor Parts	34,594	33,708	45,151	39,763	34,714	43,879
351	Boat-building	13,456	45,181	55,407	15,467	46,530	53,845
361	Furniture	24,119	23,116	47,942	27,723	23,806	46,591
366	Miscellaneous Manu	26,655	30,538	31,950	30,637	31,450	31,050
	All Manufacturing	35,988	43,783	53,672	41,365	45,091	52,159

Source: Annual Business Inquiry, ONS

The following table presents (for completeness) Sheffield CR's calculated productivity. Caution; there appear to be substantial errors in the ONS estimates for employment for 2005. The estimates for 2001 and 2007 are presented in Fig 4.4.

SIC	Industry	Productivity at Current Prices			Productivity at 2006 Prices		
		2001	2005	2007	2001	2005	2007
151	Meat Production	26,229	163,547	28,614	30,149	168,432	27,807
158	Other Food Products	27,678	1,727,303	44,908	31,814	1,778,891	43,642
174	Textile Articles	28,867	34,207	44,621	33,180	35,229	43,363
182	Clothing	21,699	*	37,193	24,941	*	36,145
212	Paper & Products	27,230	45,424	48,892	31,299	46,780	47,514
221	Publishing	31,917	20,168	38,383	36,686	20,771	37,301
222	Printing	30,206	2,413,377	42,593	34,719	2,485,455	41,392
241	Basic Chemicals	46,686	*	60,704	53,662	*	58,993
251	Rubber Products	28,737	3,797	36,502	33,032	3,911	35,473
252	Plastic Products	31,292	100,899	40,383	35,968	103,912	39,245
261	Glass	53,074	124,772	62,877	61,004	128,498	61,105
281	Structural Metal Prods	29,443	219,486	43,908	33,843	226,042	42,671
284	Forging & Pressing	28,432	16,242	72,130	32,680	16,727	70,097
285	Metal Treatments	31,471	47,242	41,752	36,173	48,653	40,575
287	Oth Fabricated Metal Prods	31,201	70,193	62,243	35,863	72,289	60,489
291	Mech Power Machinery	34,113	25,422	47,297	39,210	26,181	45,964
292	Lifting & Other Machinery	30,041	182,007	37,335	34,530	187,443	36,283
295	Machinery for Industry (sp)	30,943	11,247,254	64,073	35,566	11,583,166	62,268
312	Electric Distrib Equipment	31,479	700,113	45,725	36,183	721,022	44,436
316	Electrical Equipment	28,542	364,478	32,220	32,807	375,363	31,312
321	Electronic Valves etc	28,265	75,349	74,832	32,488	77,600	72,723
343	Motor Parts	32,052	725,921	41,976	36,842	747,601	40,793
351	Boat-building	38,208	4,034	36,411	43,918	4,154	35,384
361	Furniture	30,213	207,396	44,129	34,727	213,590	42,885
366	Miscellaneous Manu	31,214	39,424	42,076	35,879	40,602	40,890
	All Manufacturing	31,830	42,907	45,971	36,587	44,188	44,676

Source: Annual Business Inquiry, ONS

Note: Total number of employees data for 2005 for Clothing, and Basic Chemicals were suppressed by ONS, in addition to Gross Value Added data for 2005 for Clothing and Basic Chemicals.

APPENDIX 4

CHAP. 5: Time Series 2001-2007 manufacturing operating profits

Appendix 4.1: Manufacturing Industry in Tyne & Wear City Region:
Operating Profits and Profit Margins, 2001-2007

SIC	Industry	Operating Profits			Operating Profit Margins		
		(£m in 2006 prices)			2001	2005	2007
		2001	2005	2007			
151	Meat Production	23	22	18	32.6%	35.1%	34.8%
158	Other Food Products	112	102	111	50.5%	47.6%	51.3%
174	Textile Articles	17	16	30	43.5%	42.3%	54.6%
182	Clothing	26	14	17	29.3%	37.5%	53.0%
212	Paper & Products	101	36	28	51.9%	30.5%	29.0%
221	Publishing	46	34	23	47.5%	39.8%	29.2%
222	Printing	69	45	47	42.5%	35.6%	36.7%
241	Basic Chemicals	26	14	47	32.2%	26.2%	67.6%
251	Rubber Products	8	32	4	10.7%	36.7%	17.2%
252	Plastic Products	82	130	104	39.1%	47.4%	41.2%
261	Glass	24	12	19	38.8%	24.4%	36.8%
281	Structural Metal Prods	31	41	42	36.8%	39.1%	38.7%
284	Forging & Pressing	12	15	11	33.6%	38.8%	37.9%
285	Metal Treatments	38	48	98	37.3%	38.4%	55.8%
287	Oth Fabricated Metal Prods	19	16	21	43.6%	35.3%	37.1%
291	Mech Power Machinery	31	25	40	22.3%	20.6%	34.9%
292	Lifting & Other Machinery	48	59	100	32.5%	37.3%	52.1%
295	Machinery for Industry (sp)	39	83	135	42.4%	58.0%	66.0%
312	Electric Distrib Equipment	14	0	6	24.1%	0.4%	15.5%
316	Electrical Equipment	-12	51	5	-72.0%	61.4%	28.5%
321	Electronic Valves etc	34	20	46	39.3%	30.0%	57.0%
343	Motor Parts	62	35	61	33.5%	23.0%	33.6%
351	Boat-building	3	12	*	11.5%	27.4%	*
361	Furniture	45	26	98	32.8%	30.1%	59.4%
366	Miscellaneous Manu	21	11	11	39.4%	40.0%	44.8%
	All Manufacturing	1,687	1,534	2,155	40.6%	39.4%	49.8%

Source: Annual Business Inquiry, ONS

* Indicates that a value is confidential and has been suppressed

APPENDIX 5

CHAP. 6: Time Series 2001-2007 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, Liverpool and Sheffield City Region & UK comparisons, 2001, 2005, 2007

		Net Investment (£m at 2006 prices)														
SIC	Industry	Tyne & Wear City Region			Leeds City Region			Liverpool City Region			Sheffield City Region			UK		
		2001	2005	2007	2001	2005	2007	2001	2005	2007	2001	2005	2007	2001	2005	2007
151	Meat Production	9	4	3	15	10	29	2	4	2	10	20	*	302	328	285
158	Other Food Products	21	18	13	76	61	56	19	16	17	32	29	30	803	572	776
174	Textile Articles	3	2	1	4	5	8	2	2	1	2	1	0	82	61	51
182	Clothing	4	1	1	10	5	2	2	1	0	4	*	0	148	68	53
212	Paper & Products	18	23	*	13	16	*	5	3	2	4	10	9	222	271	196
221	Publishing	8	7	*	20	36	18	6	3	7	5	8	-4	562	485	400
222	Printing	20	24	4	59	45	28	9	9	7	12	*	5	765	626	425
241	Basic Chemicals	17	4	5	110	40	19	39	*	*	13	*	6	1,154	619	753
251	Rubber Products	*	*	3	5	3	1	0	0	0	3	1	1	123	91	67
252	Plastic Products	18	5	31	42	34	21	12	8	8	39	30	21	738	427	486
261	Glass	7	7	4	22	26	19	8	*	*	30	22	*	134	149	147
281	Structural Metal Prods	6	3	12	17	16	16	4	4	2	9	8	10	213	170	246
284	Forging & Pressing	3	2	3	3	3	3	1	1	1	11	6	11	105	33	74
285	Metal Treatments	9	5	14	19	17	15	8	6	2	20	14	13	387	272	273
287	Oth Fabricated Metal Prods	3	2	5	12	18	9	3	2	1	10	11	9	198	165	131
291	Mech Power Machinery	14	11	7	14	15	18	5	*	*	5	8	*	276	179	176
292	Lifting & Other Machinery	6	6	6	12	6	11	3	1	1	6	5	3	259	179	199
295	Machinery for Industry (sp)	6	7	*	5	8	8	2	-2	*	5	5	*	150	98	124
312	Electric Distrib Equipment	5	*	3	2	*	1	*	*	0	2	*	1	128	41	49
316	Electrical Equipment	*	*	0	2	4	6	1	0	0	2	3	*	252	102	79
321	Electronic Valves etc	7	1	*	*	0	2	0	0	*	0	0	0	222	*	46
343	Motor Parts	41	28	*	20	12	11	5	2	-1	10	7	5	466	290	130
351	Boat-building	1	1	*	0	0	0	2	0	1	0	0	0	98	80	124
361	Furniture	14	9	3	29	22	17	7	10	0	13	7	3	353	269	214
366	Miscellaneous Manu	5	3	*	6	5	4	5	*	2	5	2	1	124	78	71
	All Manufacturing	795	421	344	836	679	619	261	449	287	435	408	246	18,727	11,964	12,002

Source: Annual Business Inquiry, ONS

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."

Fig A5.1 Manufacturing Investment, Top Ten Industries, Leeds City Region, 2001, 2005, 2007
(ranked on TWCR output order)

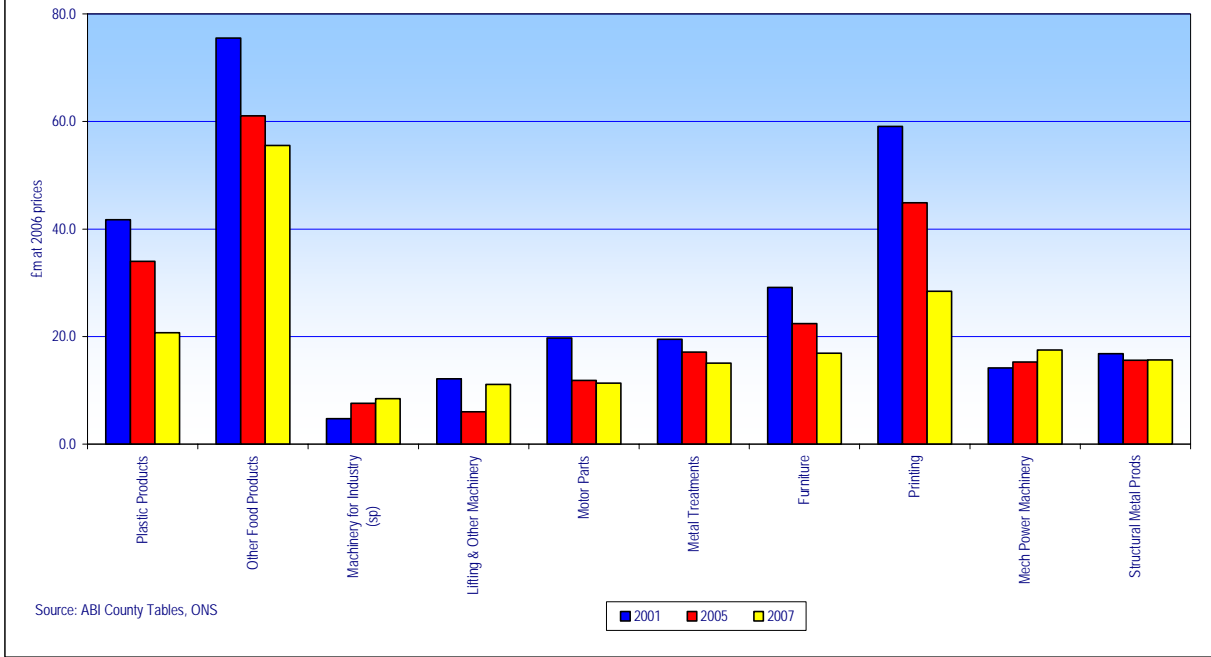


Figure A5.2 Manufacturing Investment, Top Ten Industries, Liverpool City Region, 2001, 2005, 2007
(ranked on TWCR output order)

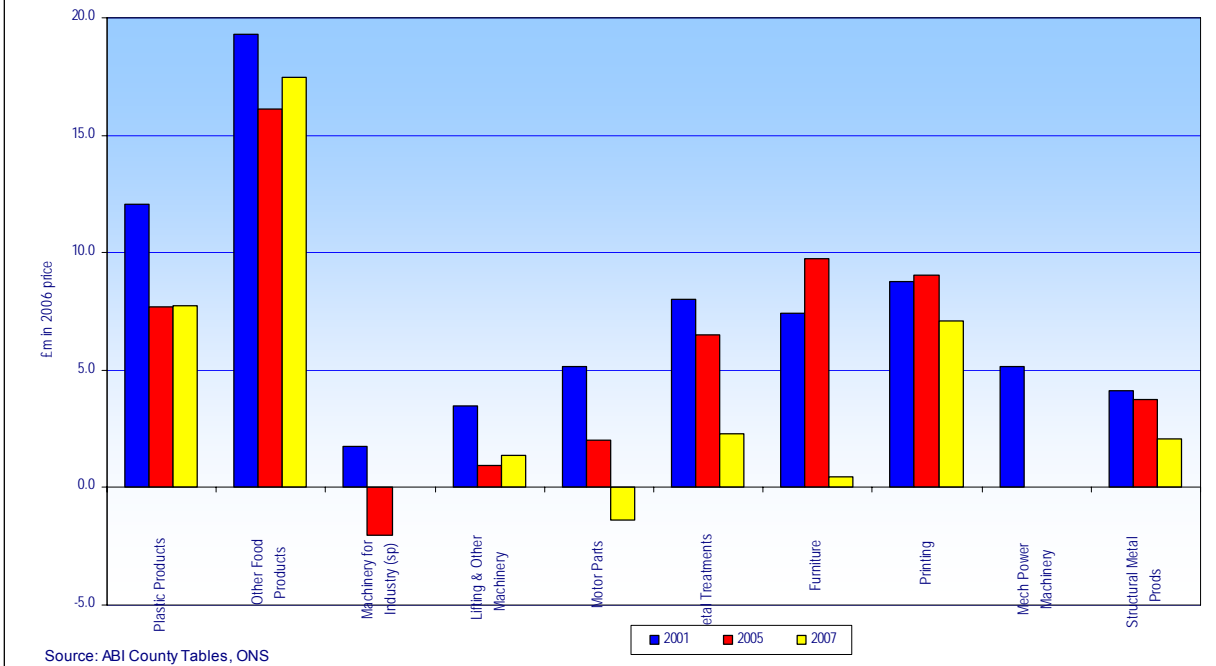
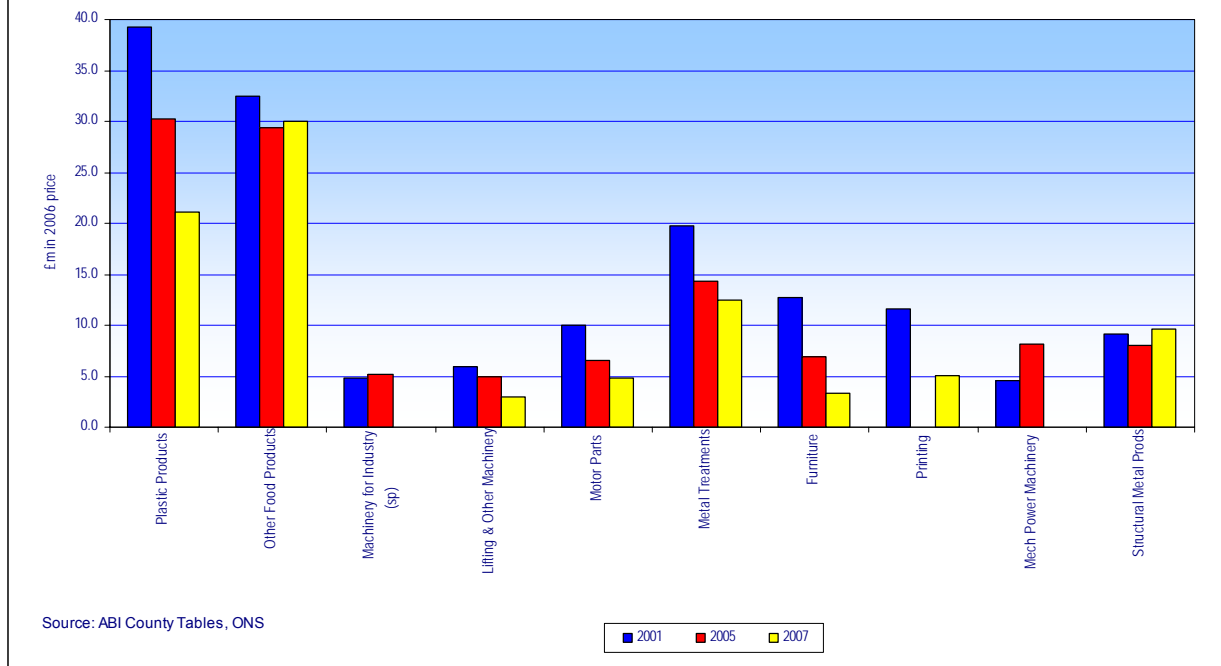


Figure A5.3 Manufacturing Investment, Top Ten Industries, Sheffield City Region, 2001, 2005, 2007 (ranked on TWCR output order)



Appendix 5.2: Net Investment per Employee in Manufacturing Industries, Tyne & Wear City Region, with Leeds Liverpool, Sheffield City Region & UK Comparisons, 2007 (2006 prices)

SIC	Industry	Tyne & Wear City Region £	Leeds City Region £	Liverpool City Region £	Sheffield City Region £	UK £	TWCR/UK	LCR/UK	LPCR/UK	SCR/UK
151	Meat Production	1,418	7,454	1,983	*	2,992	0.5	2.5	0.7	*
158	Other Food Products	2,745	3,779	2,829	2,882	4,461	0.6	0.8	0.6	0.6
174	Textile Articles	996	3,833	1,105	1,103	2,097	0.5	1.8	0.5	0.5
182	Clothing	1,161	1,075	775	907	1,851	0.6	0.6	0.4	0.5
212	Paper & Products	*	*	2,403	5,497	3,680	*	*	0.7	1.5
221	Publishing	*	1,451	3,327	-2,170	2,698	*	0.5	1.2	-0.8
222	Printing	1,146	2,346	2,910	1,561	2,990	0.4	0.8	1.0	0.5
241	Basic Chemicals	5,657	7,329	*	5,682	15,563	0.4	0.5	*	0.4
251	Rubber Products	4,276	2,669	1,412	1,788	2,746	1.6	1.0	0.5	0.7
252	Plastic Products	5,462	2,021	2,925	2,865	3,043	1.8	0.7	1.0	0.9
261	Glass	3,110	6,212	*	*	5,748	0.5	1.1	*	*
281	Structural Metal Prods	3,725	3,226	929	2,998	3,147	1.2	1.0	0.3	1.0
284	Forging & Pressing	3,090	3,545	2,046	5,343	2,939	1.1	1.2	0.7	1.8
285	Metal Treatments	4,070	2,807	946	2,281	2,371	1.7	1.2	0.4	1.0
287	Oth Fabricated Metal Prods	3,943	1,964	727	3,084	2,358	1.7	0.8	0.3	1.3
291	Mech Power Machinery	2,366	3,537	*	*	2,741	0.9	1.3	*	*
292	Lifting & Other Machinery	1,527	1,934	745	1,008	2,047	0.7	0.9	0.4	0.5
295	Machinery for Industry (sp)	*	2,693	*	*	2,241	*	1.2	*	*
312	Electric Distrib Equipment	1,806	910	1,281	1,207	1,496	1.2	0.6	0.9	0.8
316	Electrical Equipment	410	2,748	-821	*	2,599	0.2	1.1	-0.3	*
321	Electronic Valves etc	*	9,155	*	1,857	1,906	*	4.8	*	1.0
343	Motor Parts	*	3,733	-1,413	2,310	1,992	*	1.9	-0.7	1.2
351	Boat-building	*	4,066	1,240	524	3,701	*	1.1	0.3	0.1
361	Furniture	855	1,627	289	1,217	2,096	0.4	0.8	0.1	0.6
366	Miscellaneous Manu	*	2,267	1,987	888	2,469	*	0.9	0.8	0.4
	All Manufacturing	4,152	3,678	5,210	2,516	4,136	1.0	0.9	1.3	0.6

Source: Annual Business Inquiry, ONS

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."

Note: Net investment per employee in TWCR must be much higher in industries not listed, to produce the average for 'All Manufacturing'.

Appendix 5.3: Net Investment in Manufacturing Industries in Tyne & Wear and West Yorkshire, with UK comparison, 2001, 2005, 2007

		Net Investment (£m at 2006 prices)								
SIC	Industry	Tyne & Wear			West Yorkshire			UK		
		2001	2005	2007	2001	2005	2007	2001	2005	2007
151	Meat Production	5	*	*	14	6	26	302	328	285
158	Other Food Products	14	13	7	47	30	28	803	572	776
174	Textile Articles	3	2	*	4	5	7	82	61	51
182	Clothing	3	1	*	8	4	2	148	68	53
212	Paper & Products	12	11	*	11	15	*	222	271	196
221	Publishing	8	7	*	18	19	9	562	485	400
222	Printing	19	23	3	51	38	23	765	626	425
241	Basic Chemicals	1	1	1	109	37	18	1,154	619	753
251	Rubber Products	*	*	2	4	0	1	123	91	67
252	Plastic Products	6	8	20	31	19	17	738	427	486
261	Glass	6	7	3	10	16	11	134	149	147
281	Structural Metal Prods	3	4	7	9	8	10	213	170	246
284	Forging & Pressing	1	2	3	3	2	3	105	33	74
285	Metal Treatments	5	6	12	18	13	14	387	272	273
287	Oth Fabricated Metal Prods	2	2	4	11	14	8	198	165	131
291	Mech Power Machinery	8	8	3	13	9	16	276	179	176
292	Lifting & Other Machinery	4	4	4	11	6	9	259	179	199
295	Machinery for Industry (sp)	*	7	*	4	5	3	150	98	124
312	Electric Distrib Equipment	3	*	2	2	*	1	128	41	49
316	Electrical Equipment	*	*	*	1	1	1	252	102	79
321	Electronic Valves etc	1	*	*	*	0	0	222	*	46
343	Motor Parts	37	21	*	25	*	11	466	290	130
351	Boat-building	1	1	*	0	0	0	98	80	124
361	Furniture	12	6	-2	25	19	14	353	269	214
366	Miscellaneous Manu	4	1	-2	5	3	2	124	78	71
	All Manufacturing	641	324	161	709	485	421	18,727	11,964	12,002

Source: Annual Business Inquiry, ONS

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."

Fig A5.4 Manufacturing Investment, Top Ten Industries Tyne & Wear, 2001, 2005, 2007
(ranked on TW 2007 output order)

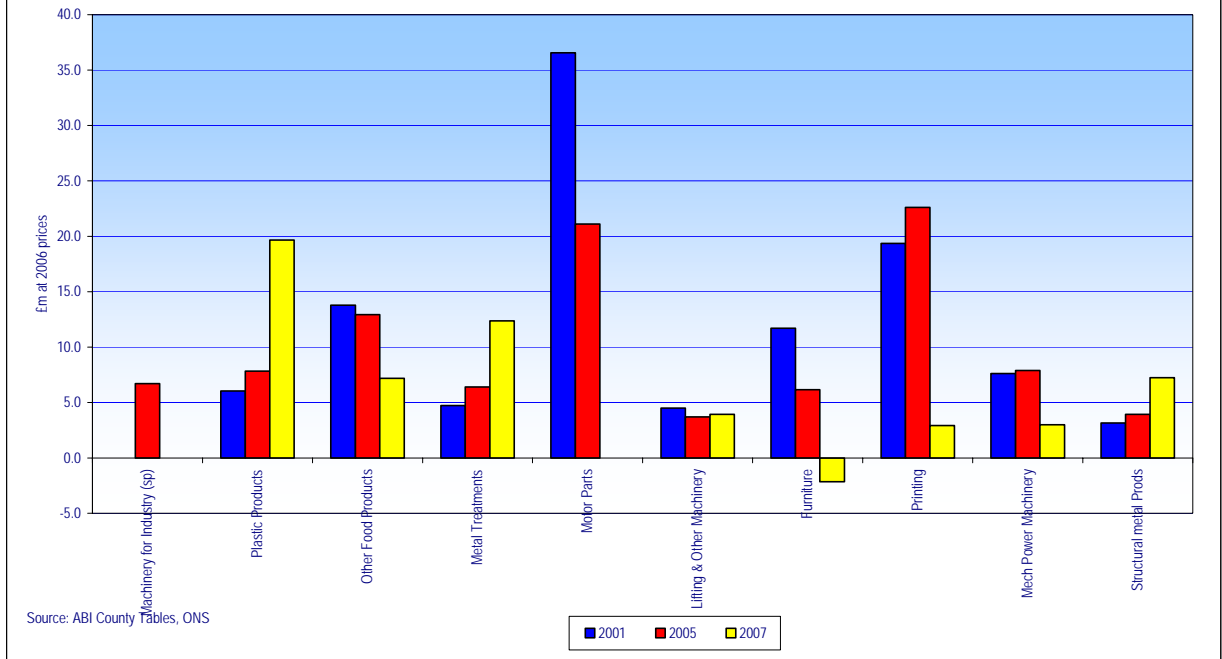
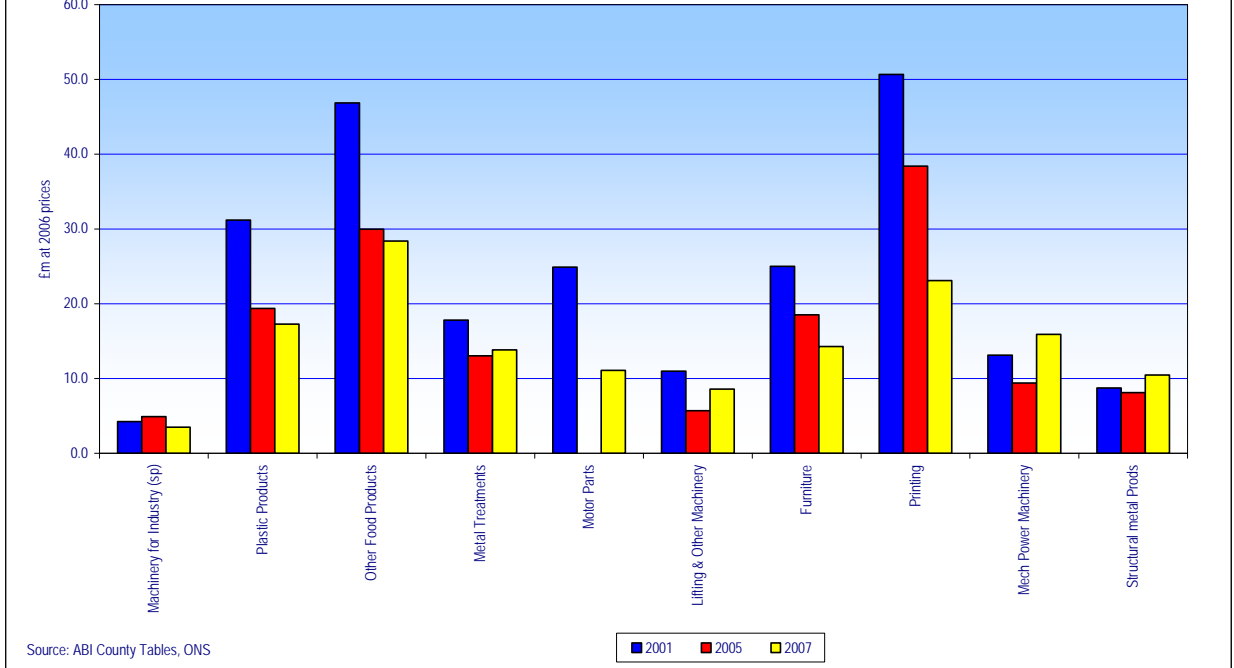


Fig A5.5 Manufacturing Investment, Top Ten Industries, West Yorkshire, 2001, 2005, 2007
(ranked on TW 2007 output order)



Appendix 5.4: Net Investment per Employee in Manufacturing Industries, Tyne & Wear and West Yorkshire, with UK Comparison, 2007 (£ 2006 prices)

SIC	Industry	Tyne & Wear	West Yorkshire	UK	TW/UK	WY/UK
151	Meat Production	*	9,568	2,992	*	3.2
158	Other Food Products	2,250	3,062	4,461	0.5	0.7
174	Textile Articles	*	3,852	2,097	*	1.8
182	Clothing	*	1,013	1,851	*	0.5
212	Paper & Products	*	*	3,680	*	*
221	Publishing	*	1,106	2,698	*	0.4
222	Printing	994	2,194	2,990	0.3	0.7
241	Basic Chemicals	3,335	7,846	15,563	0.2	0.5
251	Rubber Products	4,777	2,579	2,746	1.7	0.9
252	Plastic Products	5,764	2,168	3,043	1.9	0.7
261	Glass	3,551	5,385	5,748	0.6	0.9
281	Structural Metal Prods	3,117	3,046	3,147	1.0	1.0
284	Forging & Pressing	3,603	3,657	2,939	1.2	1.2
285	Metal Treatments	4,738	2,937	2,371	2.0	1.2
287	Oth Fabricated Metal Prods	4,533	2,019	2,358	1.9	0.9
291	Mech Power Machinery	1,326	3,722	2,741	0.5	1.4
292	Lifting & Other Machinery	1,748	1,762	2,047	0.9	0.9
295	Machinery for Industry (sp)	*	1,400	2,241	*	0.6
312	Electric Distrib Equipment	1,519	662	1,496	1.0	0.4
316	Electrical Equipment	*	651	2,599	*	0.3
321	Electronic Valves etc	*	6,200	1,906	*	3.3
343	Motor Parts	*	3,992	1,992	*	2.0
351	Boat-building	*	1,667	3,701	*	0.5
361	Furniture	-971	1,503	2,096	-0.5	0.7
366	Miscellaneous Manu	-4,187	2,001	2,469	-1.7	0.8
	All Manufacturing	2,829	3,178	4,136	0.7	0.8

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."

Special caution should apply to net investment estimates, especially to Tyne & Wear. In 2007, manufacturing investment was £344m in TWCR, but only £161m of this was in Tyne & Wear.

In 2007, the much lower net investment per employee in Tyne & Wear (£2,829) than in TWCR (£4,152) implies that it was much higher in the rest of the City Region (apparently around £7,000 per employee).

APPENDIX 6

CHAP. 7: Time Series 2001-2007 manufacturing establishment size

Appendix 6.1: Manufacturing Industry in Tyne & Wear City Region:
Establishment Size, 2001-2007

SIC	Industry	Tyne & Wear City Region			UK		
		2001	2005	2007	2001	2005	2007
151	Meat Production	69.4	69.6	70.3	72.7	77.9	72.8
158	Other Food Products	29.1	32.9	33.4	34.9	34.2	37.2
174	Textile Articles	25.0	25.0	26.0	16.0	12.5	11.0
182	Clothing	50.4	18.3	17.3	13.3	8.3	7.7
212	Paper & Products	65.8	60.9	68.1	29.1	29.6	28.7
221	Publishing	22.6	18.3	20.9	14.6	14.3	13.6
222	Printing	14.5	12.8	11.6	9.4	8.9	8.6
241	Basic Chemicals	51.9	40.2	41.1	43.8	36.9	36.7
251	Rubber Products	63.0	59.0	36.9	41.8	34.0	32.0
252	Plastic Products	30.3	29.4	31.2	25.8	23.6	23.4
261	Glass	30.0	33.9	31.4	18.3	20.3	20.0
281	Structural Metal Prods	21.9	22.8	24.5	18.8	15.4	16.4
284	Forging & Pressing	28.8	27.6	32.0	24.8	21.7	21.4
285	Metal Treatments	11.3	11.9	13.0	8.3	7.9	8.0
287	Oth Fabricated Metal Prods	9.4	10.3	10.2	11.3	10.5	10.3
291	Mech Power Machinery	68.7	60.4	60.7	37.3	32.3	33.1
292	Lifting & Other Machinery	28.6	28.1	28.0	20.3	17.5	18.1
295	Machinery for Industry (sp)	29.7	27.1	29.0	18.5	16.2	16.1
312	Electric Distrib Equipment	67.5	56.8	58.2	41.0	30.2	30.0
316	Electrical Equipment	23.6	24.2	14.4	16.1	15.3	13.1
321	Electronic Valves etc	70.5	81.1	52.1	38.5	31.3	31.1
343	Motor Parts	123.2	105.0	104.1	55.2	46.3	41.7
351	Boat-building	51.2	46.5	22.4	21.9	19.6	20.6
361	Furniture	32.0	24.1	22.8	15.4	13.2	13.2
366	Miscellaneous Manu	8.4	5.5	6.1	4.8	4.9	4.9
	All Manufacturing	29.1	26.3	26.0	19.9	17.9	17.7

Source: Annual Business Inquiry, ONS

Figures are numbers of employees.

APPENDIX 7

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 six years 2001-07, the actual real growth of TW's manufacturing output will have been around 16% instead of 10%. Thus the average annual rate of real growth will have been around 2.7% instead of 1.7%.