

PA354

Business Statistics Office

Business Monitor

1974 & 75

Report on the Censuses of Production

Scientific and industrial instruments and systems

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A publication of the Government Statistical Service

PA353 Surgical instruments and appliances

① S/42 (HA 251)

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# PA354

# Business Monitor

A publication of the Government Statistical Service

## Report on the Censuses of Production 1974 & 75

## Scientific and industrial instruments and systems

Presented by the Secretary of State for Industry  
to Parliament in pursuance of the Statistics of Trade Act 1947  
(10 & 11 Geo.6 Cha.39 sec 7)

Department of Industry  
Business Statistics Office

London: Her Majesty's Stationery Office

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**PA354 SCIENTIFIC AND INDUSTRIAL INSTRUMENTS AND SYSTEMS**

The information in this report relates to establishments classified to the Scientific and industrial instruments and systems industry, minimum list heading 354 in the Standard Industrial Classification (revised 1968). The activities of the industry include:-

*Manufacturing lenses, prisms and other optically worked elements, telescopes, binoculars, monoculars, microscopes, optical surveying instruments, optical metrological instruments, optical density measuring equipment, optical nautical and aeronautical and gunnery control instruments, ophthalmic instruments, photocells, and other optical instruments and apparatus.*

*Manufacturing scientific instruments, equipment and systems for sensing, measuring, indicating, recording and/or control of mechanical electrical (including electronic), and magnetic magnitudes, including simple measuring devices such as pressure gauges and meters, ultrasonic instruments and equipment, mechanical and electrical medical measuring instruments but excluding other electro-medical equipment.*

The manufacturing of photographic and cinematographic apparatus, engineers' gauges (other than optical), and the grinding of spectacle lenses are excluded.

**In interpreting the data in the tables it is essential to bear in mind the notes and definitions which commence on page (iii).**

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TABLE 1

PA354 2

Output and costs, 1971-1975  
All United Kingdom establishments classified to the industry (a)

	Unit	1971	1972	1973	1974	1975
Enterprises	Number	947	970	978	1,113	1,148
Establishments	"	1,068	1,096	1,092	1,233	1,290
Sales of goods produced, work done and industrial services rendered (b)	£ thousand	440,868	437,222	401,710	533,970	676,843
Capital goods produced for establishments' own use (c)	"					
Non-industrial services rendered (d)	"					
Goods merchanted or factored	"	30,218	37,736	43,921	49,843	49,360
<b>Total sales and work done (b)(d)</b>	"	<b>471,086</b>	<b>474,957</b>	<b>449,151</b>	<b>587,375</b>	<b>730,875</b>
Increase during the year, work in progress and goods on hand for sale	"	1,629	933	29,958	40,088	18,352
<b>Gross output (b)(d)</b>	"	<b>472,716</b>	<b>475,891</b>	<b>479,109</b>	<b>627,463</b>	<b>749,227</b>
Purchases of materials for use in production, and packaging and fuel (c)	"	198,976	196,314	165,100	235,672	260,702
Purchases of goods for merchanting or factoring (c)	"					
Increase during the year, stocks of materials, stores and fuel	"	1,239	131	8,766	13,726	4,324
Cost of industrial services received (e)	"	7,146	9,922	12,044	18,187	18,969
<b>Net output</b>	"	<b>267,833</b>	<b>269,785</b>	<b>274,130</b>	<b>346,240</b>	<b>435,209</b>
Total employment (f)	Thousands	119.9	112.0	96.3	102.7	104.6
<b>Net output per head</b>	£	<b>2,234</b>	<b>2,409</b>	<b>2,847</b>	<b>3,370</b>	<b>4,160</b>
Payments for non-industrial services (g)						
Rents, hire of plant and machinery (h)	£ thousand	..	..	4,850	5,394	7,015
Commercial insurance premiums	"					
Bank charges	"					
Other non-industrial services	"					
Licensing of motor vehicles (j)	"					
Rates, excluding water rates (j)	"	139	162	245		
<b>Gross value added at factor cost</b>	"	<b>244,261</b>	<b>305,095</b>	<b>380,089</b>		
<b>Gross value added at factor cost per head</b>	£	<b>2,537</b>	<b>2,970</b>	<b>3,633</b>		

- (a) For 1975, estimates for establishments employing less than 20 persons accounted for 6 per cent of the total employment of the industry. Estimates for unsatisfactory returns and non-response accounted for 25 per cent. For 1974, the comparable figures were 5 per cent and 21 per cent respectively.
- (b) The figures for 1971-1972 do not include receipts for repairs and maintenance.
- (c) Not recorded separately for 1971-1972.
- (d) The figures for 1971-1972 do not include revenue from rents for industrial buildings.
- (e) The figures for 1971-1972 exclude the amounts payable for repairs and maintenance.
- (f) Average number employed (full and part-time; see table 7) during the year (including working proprietors) by the establishment.
- (g) Not collected for 1971-1972 except for amounts payable to other organisations for transport of goods within the United Kingdom.
- (h) For 1973, the figures include hire of vehicles.
- (j) Not collected for 1971-1972.

TABLE 2

PA354 3

Capital expenditure, 1971-1975  
All United Kingdom establishments classified to the industry (a) (b)

	£ thousand				
	1971	1972	1973	1974	1975
Land and buildings					
New building work	2,018	1,594	1,583	2,778	2,490
Land and existing buildings					
Acquisitions	1,191	1,869	1,207	1,142	781
Disposals	2,786	2,675	1,591	1,007	517
Vehicles					
Acquisitions					
Motor cars (c)	2,133	2,402	2,145	2,860	3,156
Other vehicles (c)					
Disposals					
Motor cars (c)	880	1,206	719	911	1,040
Other vehicles (c)					
Plant and machinery					
Acquisitions	10,019	11,355	12,076	15,060	15,100
Disposals	842	484	444	702	693
<b>Total net capital expenditure (d)</b>	<b>10,854</b>	<b>12,855</b>	<b>14,382</b>	<b>19,681</b>	<b>19,277</b>

- (a) Including estimates for establishments not making satisfactory returns, non-response, and establishments exempted by virtue of size.
- (b) Capital expenditure in respect of manufacturing establishments where production had not commenced before the end of the year, is included.
- (c) Not recorded separately for 1971, 1972 and 1975.
- (d) New building work plus acquisitions less disposals of land and existing buildings, vehicles and plant and machinery.

TABLE 3

Stocks and work in progress, 1971-1975  
All United Kingdom establishments classified to the industry (a)

	£ thousand					Value at end of year
	1971	1972	1973	1974	1975	
	Increase					
Materials, stores and fuel	1,239	131	8,766	13,726	4,324	93,561
Work in progress	-1,227	1,553	28,871	30,743	9,372	140,568
Goods on hand for sale	2,856	-620	1,087	9,345	8,980	43,243
<b>Total</b>	<b>2,868</b>	<b>1,065</b>	<b>38,724</b>	<b>53,814</b>	<b>22,676</b>	<b>277,372</b>

- (a) Including estimates for establishments not making satisfactory returns, non-response, and establishments exempted by virtue of size.

TABLE 4

PA354 4

Analysis of establishments by size, 1975  
All United Kingdom establishments classified to the industry (a)

Size group (b)	Estab-lish-ments	Enter-prises (c)	Employment			Wages and salaries (e)			
			Total (b)	Opera-tives	Others (d)	Operatives		Others (d)	
						Total	per head	Total	per head
Number	Number	Number	Number	Number	£ thousand	£	£ thousand	£	
1 - 10	624	611	2,933	11,435	6,805	23,332	2,040	20,090	2,952
11 - 19	202	198	2,929						
20 - 49	176	173	5,671						
50 - 99	107	102	7,664						
100 - 199	68	63	10,110	6,089	4,007	12,885	2,116	12,177	3,039
200 - 299	34	32	8,262	4,754	3,503	10,151	2,135	10,819	3,089
300 - 399	18	16	6,071	3,409	2,662	7,246	2,126	7,431	2,792
400 - 499	13	11	5,806	3,218	2,586	6,406	1,991	7,601	2,939
500 - 749	20	18	12,318	7,346	4,969	16,193	2,204	14,896	2,998
750 - 999	11	11	9,479	5,504	3,975	12,035	2,187	11,053	2,781
1,000 - 1,499	9	7	11,111	5,478	5,633	12,127	2,214	17,065	3,030
1,500 and over	8	7	22,274	12,456	9,818	28,084	2,255	28,750	2,928
<b>Total</b>	<b>1,290</b>	<b>1,148</b>	<b>104,628</b>	<b>59,689</b>	<b>43,958</b>	<b>128,462(j)</b>	<b>2,152</b>	<b>129,883(j)</b>	<b>2,955</b>

- (a) Including estimates for establishments not making satisfactory returns, non-response, and establishments employing less than 20 persons.
- (b) Average number employed (full and part-time; see table 7) during the year (including working proprietors) by the establishment.
- (c) Some enterprises control establishments in more than one size group: the sum of the figures for the size groups therefore exceeds the total for the industry.
- (d) Administrative, technical and clerical employees.
- (e) Another important component of labour costs, employers' national insurance contributions, graduated pensions, contributions to other pensions and welfare schemes and the running costs of canteens, is estimated for the industry at £30,034 thousand. For 1974, the comparable figure was £21,843 thousand. In addition, the remuneration of outworkers on returns received was £275 thousand for 1974 and £166 thousand for 1975.

PA354 5

Total sales and work done (f)	Gross output	Net output		Gross value added at factor cost		Net capital expenditure (g)	Total stocks and work in progress at end of year		
		Total	per head	Total	per head				
								Total	per head
£ thousand	£ thousand	£ thousand	£	£ thousand	£	£ thousand	£ thousand		
138,561	141,546	82,810	4,314	(h)	(h)	3,721	37,616		
78,037	80,651	45,283	4,479	110,132(h)	3,758(h)	2,736	25,068		
67,369	68,884	39,722	4,808	34,372	4,160	1,501	21,463		
44,077	44,936	25,907	4,267	22,785	3,753	835	14,643		
39,684	40,986	22,775	3,923	19,953	3,437	988	15,386		
84,190	88,129	50,011	4,060	44,206	3,589	2,606	33,153		
64,463	66,672	40,021	4,222	35,152	3,708	1,613	23,752		
85,657	89,701	52,763	4,749	48,331	4,350	1,881	39,766		
128,838	127,723	75,917	3,408	65,159	2,925	3,396	66,524		
<b>730,875</b>	<b>749,227</b>	<b>435,209</b>	<b>4,160</b>	<b>380,089</b>	<b>3,633</b>	<b>19,277</b>	<b>277,372</b>		

- (f) Comprises sales of goods produced (including capital goods manufactured, buildings constructed by establishments for their own use), work done, industrial and non-industrial services rendered, goods merchanted or factored.
- (g) New building work plus acquisitions less disposals of land and existing buildings, vehicles and plant and machinery.
- (h) Gross value added data relates to establishments employing 1-199 persons.
- (j) The estimates of total wages and salaries for the industry in 1974 were:-

	£'000
Operatives	102,885
Others	102,455

TABLE 5

PA354 6

Regional distribution of employment, net capital expenditure and net output, 1975  
All United Kingdom establishments classified to the industry

Area	Employment (a)		Net capital expenditure (b)(c)		Net output and employment in the region of establishments with more than 80 per cent of their employment in the region (d)	
	Thousands	per cent of United Kingdom	£ thousand	per cent of United Kingdom	Estimated net output £ thousand	Average number employed as a percentage of total average number employed in the industry in the region
Standard regions of England						
North	2.6	2.5	339	1.8	5,807	50.2
Yorkshire and Humberside	2.6	2.5	1,286	6.7	5,272	65.6
East Midlands	3.8	3.6	1,183	6.1	15,088	88.1
East Anglia	4.7	4.4	808	4.2	3,103	10.4
South East	51.8	49.5	8,714	45.2	136,077	58.7
South West	7.5	7.2	1,223	6.4	19,881	70.9
West Midlands	5.0	4.8	1,139	6.0	14,406	69.0
North West	15.2	14.5	1,782	9.2	36,631	74.1
England	93.2	89.1	16,476	85.5	236,265	61.5
Wales	1.9	1.9	563	2.9	3,192	29.6
Scotland	9.2	8.8	2,205	11.4	28,613	78.5
Great Britain	104.4	99.8	19,243	99.8	268,070	62.4
Northern Ireland	0.3	0.2	34	0.2	935	88.0
United Kingdom	104.6	100.0	19,277	100.0	435,209(e)	

(a) Average number employed (full and part-time; see table 7) during the year (including working proprietors).

(b) Including estimates for establishments not making satisfactory returns, non-response, and establishments employing less than 20 persons.

(c) New building work plus acquisitions less disposals of land and existing buildings, vehicles and plant and machinery.

(d) Where a census return covered addresses in two or more regions an estimate was made of the net output attributable to the region only where more than 80 per cent of the establishment's employees were located in the region. The estimate was made by assuming that net output at each address covered by a return was proportional to employment at the address. The establishment's residual net output was included in unallocated net output.

(e) Includes £166,204 thousand of unallocated net output of establishments covering addresses in two or more regions, plus estimates for unsatisfactory returns, non-response, and establishments employing less than 20 persons.

TABLE 6

PA354 7

Percentage analysis of twelve-month periods covered by returns received from United Kingdom establishments employing 20 or more persons, 1975

Accounting year ended	Percentage of total returns received	Percentage of total number employed
	per cent	per cent
1975 April (a)	2.9	0.9
May	2.3	1.3
June	7.8	4.7
July	2.9	1.6
August	2.6	3.5
September	8.1	5.4
October	5.5	6.4
November	2.9	3.0
December	36.1	30.6
1976 January	2.6	1.3
February	1.6	0.9
March (b)	24.7	40.4
	<b>100.0</b>	<b>100.0</b>

(a) From 6th April.

(b) Including returns made for twelve-month period ended 1st to 5th April 1976.

TABLE 7

Percentage analysis of employees, by full and part-time employment and sex, 1975(a)

Sex	Full-time	Part-time	All employees
	per cent	per cent	per cent
Male	66	1	67
Female	26	7	33
	<b>92</b>	<b>8</b>	<b>100</b>

Source: Department of Employment

(a) The percentages relate to the numbers employed (excluding working proprietors) in the United Kingdom at June, 1975.

TABLE 8

PA354 8

Sales of principal products of the industry by establishments employing 25 or more persons, including sales by establishments classified to other industries, 1974-1975

Manufacturers' sales of the principal products of the Scientific and industrial instruments and systems industry are published regularly in Business Monitor PQ354. Details of sales for 1974 will be found in the monitor for third quarter 1976 published January 1977 and for 1975 in the second quarter 1977 issue published October 1977.

Quarterly Business Monitors are available from HMSO by annual subscription.

TABLE 9

PA354 9

Purchases by establishments employing 100 or more persons, classified to the industry, 1974  
Analysis of returns received, United Kingdom

	Quantity	Value
		£ thousand
Materials for use in production		
Iron and steel in all forms except finished parts, wire and scrap		
Iron castings, etc.	{ 1.6 ..	585 1,472
Steel products		
Steel tubes and fittings, including welded and seamless tubes, conduits, etc.	{ 0.6 ..	507 564
Drop forgings	..	281
Other steel products e.g. bars and rods (including wire rods), angles, shapes, sections, girders, beams, joists and pillars rolled (not fabricated), including tube rounds and squares, etc. but excluding finished parts, wire and scrap	{ 10.8 ..	3,225 1,036
Light metals and non-ferrous metals in all forms except finished goods, wire and scrap		
Aluminium and aluminium alloys	{ 1.4 ..	1,413 1,655
Other light metals and non-ferrous metals and their alloys e.g. copper, cadmium copper, brass, lead, solder, zinc, tin, nickel, etc.	{ 6.2 ..	6,680 2,044
Wire and wire manufactures (excluding insulated wires and cables)	..	1,117
Insulated wires, cables, strips and strands	..	1,684
Precious metals in all forms	..	2,673
Inorganic and organic chemicals (including gases), chemical mixtures and compounds for specific end uses	..	1,228
Synthetic resins and plastics materials (excluding leathercloth and reinforced plastics) e.g. phenolics and allied products, thermosetting polyesters, etc.	..	1,573
Products wholly or mainly of plastics	..	4,151
Manufactures wholly or mainly of natural or synthetic rubber, balata and gutta-percha including sheeting but excluding replacement parts for the firms' own machinery, plant, vehicles, etc.	..	1,422
Glass, including optical glass in unworked form	..	2,216
Semi-finished blanks for lenses (including bifocal and multifocal blanks), purchased for further processing	..	233
Components and accessories purchased for incorporation in goods of the firms' own manufacture		
Cases for holding instruments, appliances, etc. (excluding packaging materials)	..	1,570
Bolts, nuts, screws, rivets, etc.	..	2,301
Springs	..	668
Electrical machinery e.g. motors, transformers, switchgear, transmitters, etc.	..	12,117
Electronic components e.g. valves, semi-conductor devices, rectifiers, resistors, capacitors, etc.	..	26,705
Partly manufactured instruments and systems (e.g. fabricated assemblies); parts of clocks and watches (including cases); complete watch and clock movements; synchronous electric motors	..	14,236
Metal components not elsewhere specified	..	15,912
Stationery	..	1,855
Packaging materials (including materials for the manufacture of the firms' own packaging)		
Paper and board		
Cartons and boxes wholly or mainly of cardboard (excluding fibreboard packing cases, e.g. for transit)	..	1,293
Other packaging products of paper and board (e.g. fibreboard packing cases, wrapping and packaging paper, moulded pulp products, labels, etc.)	..	759
All other packaging materials	..	790

TABLE 9 (continued)

PA354 10

	Quantity	Value
		£ thousand
Fuel and electricity		
Coal	Th tons 6.3	85
Derv fuel and motor spirit	Th gal 779	419
Fuel oil	5,009	119
Liquefied petroleum gases (e.g. propane, butane, etc.)	..	841
Gas	Th therms 6,965	161
Electricity	Th kWh 110,164	9
All other fuels	..	426
Replacement parts and consumable tools		115
Tyres and other spare parts for the firms' own road vehicles	..	185
Replacement parts for the firms' own machinery, plant and equipment	..	1,265
Consumable tools (including gauges)	..	1,887
Other purchases	..	10,222
<b>TOTAL VALUE OF PURCHASES (other than for merchanting or factoring)</b>		<b>131,842</b>

TABLE 10

PA354 11

Payments to other organisations for certain services received, 1974  
Returns received in respect of establishments with 300 or more employees

	£ thousand
<b>Industrial services received</b>	<b>10,038</b>
Repairs and maintenance to	
Buildings	717
Road goods vehicles	256
Plant and machinery	2,510
Work done on materials given out	5,365
Other	1,190
<b>Non-industrial services received</b>	<b>18,992</b>
Rent of buildings, hire of plant and machinery	2,773
Commercial insurance premiums	1,737
Bank charges	360
Postage, telephone, telegrams, cables and telex	2,027
Transport	
Road	1,282
Rail and other means (excluding postal services)	717
Other	10,096



## Notes

These notes give the main information needed for interpreting the figures in the industry Business Monitors: more detailed information about the censuses is given in a separate Business Monitor—PA 1001 (Introductory Notes) of the Report on the Censuses of Production, 1974 and 1975.

### GENERAL INFORMATION

#### *Changes made for 1974 and 1975*

The Censuses for 1974 and 1975 are in line with similar inquiries being conducted in other member countries of the European Economic Communities. From 1974, the Census has been extended to include the construction industry. For 1974, establishments with 300 or more employees were asked to provide additional information relating to industrial and non-industrial services. These include amounts paid:

to other organisations for repairs and maintenance to buildings (including those in respect of rented buildings), road goods vehicles, plant, machinery and other capital equipment  
for postage, telephones, telegrams, cables and telex  
to other organisations for transport by road, rail or other means (excluding postal services)

In a separate inquiry for 1974, larger firms in each industry were also asked to provide a breakdown of the figure of total purchases (other than purchases of goods for merchandising or factoring). See paragraph on "Purchases".

*Suppression of information relating to individual undertakings.* The Statistics of Trade Act 1947 provides that—"No individual estimates or returns, and no information relating to an individual undertaking, obtained under the foregoing provisions of this Act, shall, without the previous consent in writing of the person carrying on the undertaking which is the subject of the estimates, returns or information, be disclosed except—

(a) in accordance with directions given by the Minister in charge of the government department in possession of the estimates, returns or information to a government department or to the Import Duties Advisory Committee for the purposes of the exercise by that department or committee of any of their functions; or

(b) for the purposes of any proceedings for an offence under this Act or any report of these proceedings."

If a figure involved disclosure the contributor concerned was sometimes asked to give permission for its publication. In the majority of cases this permission was given but when it was refused and in cases where the contributors were not approached the figure has been suppressed, sometimes by combining it in some way with other figures, but sometimes—as in the regional tables by omitting the figure altogether.

#### *Symbols used*

The following symbols are used throughout the PA series of Business Monitors:

- .. not available
- nil or less than half the final digit shown
- \* figures cannot be shown owing to the risk of disclosing information about individual enterprises
- R revised

#### *Rounding of figures*

Figures in the tables have, where necessary, been rounded to the nearest final digit. Where figures have been so rounded, the sum of the constituent items may not always agree exactly with the total shown.

#### *Industrial classification*

The United Kingdom Standard Industrial Classification (SIC) was first issued in 1948 and was subsequently revised in 1958 and 1968. It exists to promote uniformity and comparability in the official statistics of the United Kingdom. The general principles followed are those of the International Standard Industrial Classification of all Economic Activities of the United Nations Statistical Office but the United Kingdom SIC reflects the organisation and structure of industry and trade as it exists in the United Kingdom. The SIC is a classification by activity and is not a commodity classification. However, an index of all commodity headings for which sales data are provided in the Quarterly Business Monitors, is published as PQ 1000 in the Business Monitor Series.

#### *Statistical units*

The statistical unit for the purpose of the Censuses is the establishment which is defined in the SIC as the smallest unit which can provide the information normally required for an economic census, for example, employment, expenses, turnover, capital formation. Usually the principal activities carried on in an establishment fall within a single heading of the classification (e.g. steel making or sugar refining). Typically the establishment embraces all the activities carried on at a single address e.g. a farm, a mine, or a factory, including those which are ancillary to the principal activities. Frequently distinct activities characteristic of different industries are carried on at one address, but normally these are not classified separately and the whole establishment is classified according to the main activity. If, however, the required range of data can be provided for each activity, each is taken to constitute a separate establishment. Sometimes activities which are conducted as a single business are carried on at a number of addresses. Where this is so, businesses are asked to provide the full range of separate information in respect of each address, whether or not the activities are different. Their activities may, however, be integrated to such an extent that they constitute a single establishment. In that case the establishment is defined to cover the combined activities at these addresses (termed local units). Separate figures are obtained, however, of employment and net capital expenditure at each unit. Efforts are made by the Business Statistics Office to ensure, by negotiating with respondents, that the return from an establishment does not cover local units or addresses in more than one of the countries of the United Kingdom.

Further information about the statistical unit appeared in an article "The statistical unit in business inquiries" in Statistical News No. 13 May 1971.

Establishments are asked to exclude from their returns particulars relating to any department not engaged in production e.g. merchandising, transport, warehousing, for which they keep a separate set of accounts. Transfers of goods produced to such departments are treated as sales and respondents are asked to value them as far as possible as if sold to an independent purchaser. Where separate accounts are not kept they are asked to include details of all these activities in their return.

Particulars relating to head offices, which were mainly engaged in the administration of the production units within the scope of the censuses were included. Where more than one return was made the information in respect of the head office was apportioned among them.

For certain purposes in the annual censuses of production (especially the enterprise analyses of Business Monitor PA 1002) related establishments are combined. For these purposes an enterprise group is defined as a business consisting of either a single establishment, or of two or more establishments under common ownership or control. The bringing together of establishments into enterprise groups is also necessary for the purpose of ensuring that there will be no disclosure of the activities of any one enterprise group. Information about the relationship of establishments, the changing structure of groups of companies and about common ownership links is obtained from many sources, including the Stock Exchange Year Book, company reports, press reports and information supplied by individual establishments.

#### THE REGISTER

The register permits a questionnaire to be sent direct to the reporting establishment on which the latter can include information relating to all the manufacturing (or local) units which it comprises.

The inquiries provide a major source of information for keeping the register continuously up-to-date and act as a check on its detail and structure. For the establishments on the register which make returns to the quarterly inquiries, the industrial classification is derived from an analysis of their sales of commodities and is reviewed annually. Employment data is entered on the register from returns to the annual censuses of production. In cases where an establishment does not make a return to these inquiries the employment data is based on information provided by the Department of Employment from the annual censuses of employment.

Establishments with 20 or more employees are included in the censuses each year and the information they supply to the census is supplemented by the returns that those of them

with 25 or more employees provide to the quarterly inquiries. Information about establishments with less than 20 employees in most industries is less securely based, but increasing use has been made of data on these small establishments supplied by the Department of Employment. One benefit of using this information is an improvement in the estimates of the number of smaller establishments and enterprises, but there is little effect on other aggregates (e.g. employment, output, net capital expenditure).

#### Coverage

A return was required in the 1974 and 1975 Censuses from each establishment with 20 or more employees. Each establishment is classified to an industry, as defined in the SIC, whose principal products form the major part of the establishment's sales.

#### Regions

The regions defined in Table 5 take account of the boundary changes arising out of the Local Government Act 1972 and the Local Government Act (Scotland) 1973. These changes came into effect in April 1974 in England and Wales and May 1975 in Scotland.

#### TERMS USED IN THE CENSUS REPORT

##### Average number employed

Establishments were required to state the number of persons on the payroll on average during the year of return, whether full-time or part-time employees. Separate figures were required for:

- (a) administrative, technical and clerical employees
- (b) all other employees (operatives)

Averages could be calculated from the figures relating to the last week of each calendar month. Establishments were also required to state the number of working proprietors where appropriate and these are included in total employment figures. Outworkers (i.e. persons employed by establishments who worked in their own homes etc. on materials supplied by the establishment) are excluded. The figures include persons engaged on merchandising or factoring and canteen workers where particulars in respect of these activities could not be excluded from the return.

##### Working proprietors

These include all persons regarded as "self-employed" for national insurance purposes and members of their families who worked in the business without receiving a wage or salary; but such persons who worked less than half the normal number of working hours are excluded. Directors working in the business but not in receipt of a definite wage, salary or commission are included under this heading: directors paid by fee only are not included.

##### Employees

Administrative, technical and clerical employees include directors in receipt of a definite wage, salary or commission, managers, superintendents and works foremen; research, design employees (other than operatives); draughtsmen, editorial staff, advertising staff, travellers and all office employees.

Operatives include all other classes of employees, that is, broadly speaking, all manual wage earners. They include operatives employed in power stations, transport (including roundsmen), warehouses, stores, shops and canteens, inspectors, maintenance workers and cleaners. Operatives engaged in outside work of erecting, fitting etc. are also included, but outworkers are excluded.

##### Capital expenditure

Capital expenditure during the year in respect of manufacturing units where production had not started before the end of the year is included in the figures for 1971 to 1975. Establishments were asked not to deduct from the value of capital expenditure amounts received or expected to be received in grants or allowances from the Government or any statutory body or local authority. From 1973, establishments with 100 or more employees were asked to include a total net capital expenditure figure for each calendar year.

##### (a) New building work

This represents the cost incurred during the year of new building and other constructional work to be used in connection with the business covered by the return. The value is that charged to capital account during the year of return; it includes expenditure on new buildings and on the extension or reconstruction of old buildings, the value of works of a capital nature carried out by the establishment's own staff and the cost of any newly constructed buildings purchased. Figures shown include any legal charges, stamp duties, agents' commissions, etc.

##### (b) Land and existing buildings

The items shown are the capital cost of freeholds purchased and the capital cost or premium payable for leaseholds acquired (excluding the value of any assets acquired in taking over an existing business), and the amounts receivable for any freeholds or leaseholds disposed of. The value is that charged to capital account during the year of return.

##### (c) Plant, machinery and vehicles

The items shown are the value of plant and machinery and of vehicles acquired, both new and second-hand, and the amount received for items disposed of during the year. The value of plant and machinery acquired includes plant, etc., which firms produced for their own use in connection with the business covered by the return. The value of plant, etc., acquired is the expenditure charged to capital account during the year of return less any discounts received, but including the cost of transport and installation. Deductible value added tax is excluded but non-deductible value added tax on motor cars acquired is included. No deduction is made for depreciation, amortization or obsolescence. The proceeds of items disposed of during the year exclude amounts written-off for items scrapped.

##### Cost of industrial services

Includes amounts payable to other firms for work done on materials supplied by the establishment, payments for repairs and maintenance (including those in respect of rented buildings) and amounts paid to other firms for contracts which have been sublet. Payments to outworkers are excluded.

##### Cost of non-industrial services

Includes rent of industrial buildings and capital equipment, commercial insurance premiums, bank charges and amounts paid for professional services, postal etc., services, transport, advertising etc. Amounts payable on royalties for the right to use patents, trade-marks, copyrights etc., manufacturing and quarrying rights and technical "know-how" are also included.

##### Gross output

In the calculation of gross output the value of total sales and work done is increased by the rise (or reduced by the fall) during the year in the value of work in progress and goods on hand for sale.

##### Net output

Net output, a customary census measure, is calculated by deducting from gross output the cost of purchases (reduced by the rise, or increased by the fall, during the year of stocks of materials etc.) and the cost of industrial services received, and where applicable, duties etc.

##### Net output per head

The figures of net output per head are derived by dividing the net output by the average number of persons employed (full and part-time) on all activities covered by the returns, including operatives, administrative, technical and clerical employees and working proprietors, but excluding outworkers.

##### Gross value added at factor cost

Gross value added at factor cost is calculated by deducting from net output the cost of non-industrial services (e.g. rent of buildings and capital equipment, commercial insurance premiums, bank charges and amounts paid for professional services, post office services, transport and advertising), rates (excluding water rates) and the cost of licensing motor vehicles. This estimate of gross value added approaches more closely than census net output to the definition of net output or value added in national accounts statistics.

##### Gross value added at factor cost per head

The figures of gross value added at factor cost per head are derived by dividing the gross value added by the average number of persons employed (full and part-time) on all activities covered by the returns, including operatives, administrative, technical and clerical employees and working proprietors, but excluding outworkers.

##### Purchases

Purchases include the cost of raw materials, components, semi-manufactured goods and workshop materials; of replacement parts and consumable tools not charged to capital account; of packaging materials of all types; of stationery and printed matter; of fuel, electricity and water; of materials to be used by the establishment or given out to other establishments for the production of machinery or other capital items for the establishment's own use; of materials for use by the establishment when working on goods supplied by customers; and of food, etc. for any canteen covered by the establishment's return. Transfers of goods to the establishment from another department of the same firm not covered by the establishment's return are included at a cost corresponding to the estimated selling value recorded by the other department. Amounts payable to transport firms or credited to the firm's own transport department for delivery of materials are excluded, as are all purchases of machinery and plant charged to capital account. Purchases of goods for merchandising or factoring have been collected separately since 1973. The values shown exclude VAT. They include, in addition to the actual purchase price, the value of packaging material charged to the establishment. The value of returned goods or packaging material returned to suppliers and any trade discounts are excluded. Materials purchased duty-paid are included at their duty-paid value, less any drawback, rebate, etc. The cost of transport is included only if it is included with the purchase price in the firm's accounts. Imported goods are included at their full delivered cost. If in the firm's accounts the transport from docks or airport is not included in the cost of goods purchased, the cost is entered at c.i.f. plus duty (if applicable). Leasing, renting and hire purchase charges are excluded.

The information shown in Table 9 was obtained in an inquiry carried out as a supplement to the Census of Production for 1974, in which the larger firms in each industry were asked to provide a breakdown of the figure of total purchases (other than purchases of goods for merchandising or factoring) that they contributed to the Census. No establishment with fewer than 25 employees was asked to contribute to the inquiry; and this exemption limit was raised to exclude establishments with fewer than 50 or 100 employees, in those industries in which exempted establishments were estimated to account for less than 15 per cent of the industry's total purchases. A breakdown of purchases similar to that sought in the 1974 inquiry was previously obtained as part of the Censuses of Production for 1963 and 1968, and results were published in Table 10 of the Industry Reports of those Censuses.

##### Sales of goods produced, work done and industrial services rendered

Sales for the purposes of the annual censuses means deliveries on sale of goods made by establishments in the United Kingdom covered by the inquiry. Sales of goods made for these establishments by outworkers or by other establishments from materials given out to them are included; as also are sales of waste products. Any new building work and machinery or other capital items produced by establishments for hiring out or leasing are regarded as sales, the value included in the return being that adopted in the establishment's capital asset accounts. Forward sales and canteen takings are excluded. All sales in the period of the inquiry are included irrespective of when the goods were manufactured. Goods produced in one establishment and transferred either to ancillary departments not engaged in production and for which there are separate accounts, or to another establishment of the same firm not covered by the return, are treated as sales by the producing establishment and valued as far as possible as if they had been sold to an independent purchaser. Goods transferred to wholesale or retail selling organisations, for which separate accounts are kept are valued on the same basis.

The value shown for sales is the "net selling value" defined as the amount (excluding value added tax) charged to customers whether on an ex-works or delivered basis, after

any trade discounts and agents' commissions have been deducted. The cost of packing materials less allowance for returnable cases is included. In industries where products attract Excise Duty the value stated is usually inclusive of duty if sold duty-paid and exclusive of duty if sold in bond or exported.

Figures for work done represent the amount charged for work carried out on materials supplied by a customer and include repair work. Within certain industries this heading covers a wide variety of activities. For example, within the food sector—butter packed on commission; within the textile industries—making up of garments, fur dressing and textile finishing; within printing and publishing—preparatory work on type-setting, block making and binding. Work done is also significant in the electrical machinery and heavy engineering industries, covering erection, installation and repair and jobbing work. Other activities within this heading include exploration work, research and development, glass cutting and dressing and planing of timber. Industrial services rendered includes repairs and maintenance, installation work, and technical research and studies rendered to other organisations.

##### Capital goods produced for establishments' own use

This includes all work carried out during the year by the establishments' own staff for their own use, which was of a capital nature.

##### Non-industrial services rendered

Includes rents received for commercial and industrial buildings, amounts charged for hiring out plant, machinery and other goods and amounts charged to other organisations for the provision of transport. Also includes amounts received for the right to use patents, trademarks, copyrights etc., manufacturing and quarrying rights and technical "know-how"; revenue from such staff facilities as canteens is also included.

##### Goods merchanted or factored

Merchanted goods are those (excluding canteen sales) sold without having been subjected to any manufacturing process by the seller.

##### Stocks and work in progress

Values are given of stocks of goods on hand for sale and of materials, stores and fuel, at the end of the year of return and of the change during the year, including any stocks of goods held for merchandising or factoring. Work in progress is defined as materials which have been partially processed by the establishment but which are not usually sold or transferred to another establishment without further processing. The values include the cost of materials consumed and labour used, together with a margin of overhead costs and profits. Progress payments made to sub-contractors are excluded and progress payments received from other organisations are not deducted.

##### Wages and salaries

These are amounts paid during the year to operatives and to administrative, technical and clerical employees. Payments to working proprietors, whether called salaries or not, are excluded. The values shown include all overtime payments, bonuses and commissions, whether paid regularly or not, and no deduction is made for income tax, insurances, contributory pensions etc. The value of redundancy payments less any amounts reimbursed from Government sources is included. The value of any payments in kind, travelling expenses etc. is excluded.

##### Remuneration paid to outworkers

The remuneration paid to outworkers (i.e. persons employed by the establishment who do their work in their own homes) is generally on a piece-work basis. Only amounts paid to outworkers whose names appear on the establishment's payroll are included. Amounts paid to outworkers by sub-contractors are excluded.

##### Employers' insurance and welfare contributions

This item includes employers' contributions to national insurance and graduated pensions (and/or earnings related basic contributions under the Social Security Act, 1973) as well as commercial insurance premiums to provide pensions, superannuation or other retirement benefits, sickness benefits, personal accident benefits, disability or death benefits for employees or former employees or their dependants. Contributions to the running costs of canteens, social centres, children's holiday homes, etc. for employees, former employees and their dependants are also included.

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