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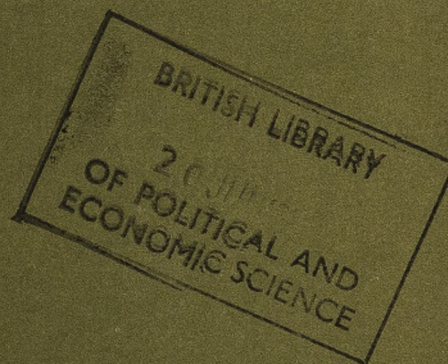
1976

Business Statistics Office

# Business Monitor

## Report on the Census of Production

### Scientific and industrial instruments and systems



HMSO



A publication of the Government Statistical Service

#### Special Note for Purchasers

Commencing with the 1971 Census, the Census of Production reports are being numbered in a uniform series embracing all industrial inquiries in the Business Monitor series. These Business Monitors have a code P (for production) followed first by A (indicating that it is an annual series) or Q (quarterly) or M (monthly); and then by a number indicating the minimum list heading, or sub-division of a minimum list heading, of the Standard Industrial Classification (revised 1968).

The Census of Production (PA) reports are available on standing order (details on application to Her Majesty's Stationery Office, P.O. Box 569, London SE1 9NH. Telephone 01-928 6977), although they are not included in the global subscription arrangements for the Business Monitor series.

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# PA354

# Business Monitor

A publication of the Government Statistical Service

## Report on the Census of Production 1976

## 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

List of Industry Reports, etc.

- PA1001 Introductory notes
- PA101 Coal mining
- PA102 Stone and slate quarrying and mining
- PA103 Chalk, clay, sand and gravel extraction
- PA104 Petroleum and natural gas
- PA109 Miscellaneous mining and quarrying
- PA211 Grain milling
- PA212 Bread and flour confectionery
- PA213 Biscuits
- PA214 Bacon curing, meat and fish products
- PA215 Milk and milk products
- PA216 Sugar
- PA217 Cocoa, chocolate and sugar confectionery
- PA218 Fruit and vegetable products
- PA219 Animal and poultry foods
- PA221 Vegetable and animal oils and fats
- PA229.1 Margarine
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- PA261 Coke ovens and manufactured fuel
- PA262 Mineral oil refining
- PA263 Lubricating oils and greases
- PA271.1 Inorganic chemicals
- PA271.2 Organic chemicals
- PA271.3 Miscellaneous chemicals
- PA272 Pharmaceutical chemicals and preparations
- PA273 Toilet preparations
- PA274 Paint
- PA275 Soap and detergents
- PA276 Synthetic resins and plastics materials and synthetic rubber
- PA277 Dyestuffs and pigments
- PA278 Fertilizers
- PA279.1 Polishes
- PA279.2 Formulated adhesives, gelatine, etc.
- PA279.3 Explosives and fireworks
- PA279.4 Formulated pesticides, etc.
- PA279.5 Printing ink
- PA279.6 Surgical bandages, etc.
- PA279.7 Photographic chemical materials
- PA311 Iron and steel (general)
- PA312 Steel tubes
- PA313 Iron castings, etc.
- PA321 Aluminium and aluminium alloys
- PA322 Copper, brass and other copper alloys
- PA323 Miscellaneous base metals
- PA331 Agricultural machinery (except tractors)
- PA332 Metal-working machine tools
- PA333.1 Pumps
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- PA333.3 Compressors and fluid power equipment
- PA334 Industrial engines
- PA335 Textile machinery and accessories
- PA336 Construction and earth-moving equipment
- PA337 Mechanical handling equipment
- PA338 Office machinery
- PA339.1 Mining machinery
- PA339.2 Printing, bookbinding and paper goods machinery
- PA339.3 Refrigerating machinery, space-heating, ventilating and air-conditioning equipment
- PA339.5 Scales and weighing machinery and portable power tools
- PA339.7 Food and drink processing machinery and packaging and bottling machinery
- PA339.9 Miscellaneous (non-electrical) machinery
- PA341 Industrial (including process) plant and steelwork
- PA342 Ordnance and small arms
- PA349.1 Ball, roller, plain and other bearings
- PA349.2 Precision chains and other mechanical engineering
- PA351 Photographic and document copying equipment
- PA352 Watches and clocks
- PA353 Surgical instruments and appliances
- PA354 Scientific and industrial instruments and systems
- PA361 Electrical machinery
- PA362 Insulated wires and cables
- PA363 Telegraph and telephone apparatus and equipment
- PA364 Radio and electronic components
- PA365.1 Gramophone records and tape recordings
- PA365.2 Broadcast receiving and sound reproducing equipment
- PA366 Electronic computers
- PA367 Radio, radar and electronic capital goods
- PA368 Electrical appliances primarily for domestic use
- PA369.1 Electrical equipment for motor vehicles, cycles and aircraft
- PA369.2 Primary and secondary batteries
- PA369.4 Electric lamps, electric light fittings, wiring accessories, etc.
- PA370 Shipbuilding and marine engineering
- PA380 Wheeled tractor manufacturing
- PA381.1 Motor vehicle manufacturing
- PA381.2 Trailers, caravans and freight containers
- PA382 Motor cycle, tricycle and pedal cycle manufacturing
- PA383 Aerospace equipment manufacturing and repairing
- PA384 Locomotives, railway track equipment, railway carriages, wagons and trams
- PA390 Engineers' small tools and gauges
- PA391 Hand tools and implements
- PA392 Cutlery, spoons, forks and plated tableware, etc.
- PA393 Bolts, nuts, screws, rivets, etc.
- PA394 Wire and wire manufactures
- PA395 Cans and metal boxes
- PA396 Jewellery and precious metals
- PA399.1 Metal furniture
- PA399.5 Drop forgings, etc.
- PA399.6 Metal hollow-ware
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- PA411 Production of man-made fibres
- PA412 Spinning and doubling on the cotton and flax systems
- PA413 Weaving of cotton, linen and man-made fibres
- PA414 Woollen and worsted
- PA415 Jute
- PA416 Rope, twine and net
- PA417.1 Hosiery and other knitted goods
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- PA418 Lace
- PA419 Carpets
- PA421 Narrow fabrics
- PA422.1 Household textiles and handkerchiefs
- PA422.2 Canvas goods and sacks and other made-up textiles
- PA423 Textile finishing
- PA429.1 Asbestos
- PA429.2 Miscellaneous textile industries
- PA431 Leather (tanning and dressing) and fellmongery
- PA432 Leather goods
- PA433 Fur
- PA441 Weatherproof outerwear
- PA442 Men's and boys' tailored outerwear
- PA443 Women's and girls' tailored outerwear
- PA444 Overalls and men's shirts, underwear, etc.
- PA445 Dresses, lingerie, infants' wear, etc.
- PA446 Hats, caps and millinery
- PA449.1 Corsets and miscellaneous dress industries
- PA449.2 Gloves
- PA450 Footwear
- PA461.1 Refractory goods
- PA461.2 Building bricks and non-refractory goods
- PA462 Pottery
- PA463 Glass
- PA464 Cement
- PA469.1 Abrasives
- PA469.2 Miscellaneous building materials and mineral products
- PA471 Timber
- PA472 Furniture and upholstery
- PA473 Bedding, etc.
- PA474 Shop and office fitting
- PA475 Wooden containers and baskets
- PA479 Miscellaneous wood and cork manufactures
- PA481 Paper and board
- PA482.1 Cardboard boxes, cartons and fibre-board packing cases
- PA482.2 Packaging products of paper and associated materials
- PA483 Manufactured stationery
- PA484.1 Wallcoverings
- PA484.2 Miscellaneous manufactures of paper and board
- PA485 Printing, publishing of newspapers and periodicals
- PA489 General printing and publishing
- PA491 Rubber
- PA492 Linoleum, plastics floor-covering, leathercloth, etc.
- PA493 Brushes and brooms
- PA494.1 Toys, games and children's carriages
- PA494.3 Sports equipment
- PA495 Miscellaneous stationers' goods
- PA496 Plastics products
- PA499.1 Musical instruments
- PA499.2 Miscellaneous manufacturing industries
- PA500 Construction
- PA601 Gas
- PA602 Electricity
- PA603 Water supply
- PA1002 Summary tables

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 manufacture 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 4

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Analysis of establishments by size, 1976  
All United Kingdom establishments classified to the industry (a)

Size group (b)	Establishments	Enterprises (c)	Employment			Wages and salaries (f)			
			Total (d)	Operatives	Others (e)	Operatives		Others (e)	
						Total	per head	Total	per head
Number	Number	Number	Number	Number	£ thousand	£	£ thousand	£	
1 - 10	665	652	3,033						
11 - 19	224	221	3,274						
20 - 49	174	173	5,664	11,106	7,320	26,354	2,373	24,069	3,288
50 - 99	106	102	7,495						
100 - 199	73	70	10,476	5,971	4,498	14,437	2,418	14,879	3,308
200 - 299	38	35	8,885	5,048	3,833	11,962	2,370	12,479	3,256
300 - 399	13	13	4,397	2,286	2,111	5,902	2,582	7,264	3,441
400 - 499	13	12	5,586	3,031	2,553	7,643	2,522	7,855	3,077
500 - 749	16	15	9,696	6,309	3,384	16,372	2,595	11,963	3,535
750 - 999	10	10	8,254	4,385	3,869	11,544	2,633	12,232	3,162
1,000 - 1,499	13	8	15,877	7,233	8,644	20,049	2,772	28,125	3,254
1,500 and over	6	6	18,698	11,198	7,500	29,278	2,615	26,863	3,582
<b>Total</b>	<b>1,351</b>	<b>1,212</b>	<b>101,335</b>	<b>56,567</b>	<b>43,712</b>	<b>143,541</b>	<b>2,538</b>	<b>145,729</b>	<b>3,334</b>

- (a) Including estimates for establishments not making satisfactory returns, non-response and establishments with fewer than 20 employees.  
(b) Average number employed, including full and part-time employees (see table 7) and working proprietors.  
(c) The sum of the figures for the size groups may exceed the total for the industry because some enterprises control establishments in more than one size group.  
(d) Including working proprietors.  
(e) Administrative, technical and clerical employees.

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Total sales and work done (g)	Gross output	Net output	Gross value added at factor cost		Net capital expenditure (h)	Total stocks and work in progress at end of year
			Total	per head		
166,047	169,601	99,361	(j)	(j)	5,037	43,854
99,827	103,482	56,847	134,545(j)	4,494(j)	3,233	31,807
74,939	76,915	44,242	37,830	4,258	2,056	24,293
37,043	38,171	24,339	21,837	4,966	1,640	14,583
44,961	45,176	24,356	21,121	3,781	940	18,579
84,835	87,142	55,422	49,592	5,115	2,518	27,666
73,906	77,211	47,898	42,600	5,161	1,952	26,493
159,431	165,343	103,067	94,343	5,942	3,976	65,150
129,164	133,290	82,691	70,972	3,796	3,887	61,307
<b>870,154</b>	<b>896,332</b>	<b>538,223</b>	<b>472,839</b>	<b>4,666</b>	<b>25,239</b>	<b>313,732</b>

- (f) The cost of employers' contributions to national insurance, graduated pensions, other pensions and welfare schemes and the running costs of canteens, is estimated for the industry at £36,178 thousand. In addition, the remuneration of outworkers on returns received was £191 thousand.  
(g) Sales of goods produced, capital goods manufactured, buildings constructed by establishments for their own use, work done, industrial and non-industrial services rendered and merchanted goods.  
(h) New building work plus acquisitions less disposals of land and existing buildings, vehicles and plant and machinery.  
(j) Gross value added data relate to establishments employing 1-199.

TABLE 5

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Regional distribution of employment, net capital expenditure, net output and gross value added at factor cost, 1976  
All United Kingdom establishments classified to the industry

Area	Total employment (a)		Net capital expenditure (b)(c)		Net output, gross value added and employment in the region from returns received from 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	£ thousand	£ thousand	Employment as a percentage of total regional employment in the industry
Standard regions of England							
North	2.3	2.3	407	1.6	4,393	3,732	48.7
Yorkshire and Humberside	2.9	2.9	677	2.7	9,596	8,412	67.8
East Midlands	3.8	3.8	1,181	4.7	17,581	16,019	86.2
East Anglia	4.8	4.7	1,020	4.0	17,830	15,229	53.8
South East	49.6	48.9	11,680	46.3	176,362	157,160	64.0
South West	8.1	8.0	1,995	7.9	21,383	18,552	57.4
West Midlands	5.1	5.0	957	3.8	16,469	14,509	64.0
North West	13.4	13.2	2,885	11.4	48,046	39,501	83.6
England	89.9	88.7	20,802	82.4	311,662	273,113	66.5
Wales	2.0	1.9	1,531	6.1	4,715	4,380	28.0
Scotland	9.3	9.2	2,883	11.4	43,925	40,211	78.4
Great Britain	101.2	99.8	25,217	99.9	360,301	317,703	66.8
Northern Ireland	0.2	0.2	22	0.1	288	189	83.8
Unallocated (e)	—	—	—	—	177,634	154,947	—
United Kingdom (b)	101.3	100.0	25,239	100.0	538,223	472,839	

- (a) Average number employed, including full and part-time employees (see table 7) and working proprietors.
- (b) Including estimates for establishments not making satisfactory returns, non-response and establishments with fewer than 20 employees.
- (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 and gross value added 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 and gross value added at each address covered by a return was proportional to employment at the address.
- (e) Unallocated net output and gross value added covering establishments with addresses in two or more regions, plus estimates for unsatisfactory returns, non-response and establishments exempt because of size.

TABLE 6

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Percentage analysis of twelve-month periods covered by returns received from United Kingdom establishments employing 20 or more persons, 1976

Accounting year ended	Percentage of total returns received		Percentage of total number employed	
		per cent		per cent
1976 April (a)		1.9		0.4
May		2.9		1.3
June		6.8		5.2
July		3.9		3.8
August		1.3		0.2
September		7.1		6.5
October		8.1		6.6
November		2.3		2.2
December		36.4		32.4
1977 January		2.9		3.4
February		1.9		1.0
March (b)		24.5		37.0

(a) From 6th April.

(b) Including returns made for twelve-month period ended 1st to 5th April 1977.

TABLE 7

Percentage analysis of employees, by full and part-time employment and sex, 1976(a)

Sex	Full-time		Part-time		All employees
		per cent		per cent	
Male	66		1		67
Female	26		7		33

Source: Department of Employment

(a) The percentages relate to the numbers employed (excluding working proprietors) in the United Kingdom at end June, 1976.

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## Notes

These notes give the main information needed for interpreting the figures in the Industry Business Monitors: more detailed information about the census is given in a separate Business Monitor - PA1001 (Introductory Notes) of the Report on the Census of Production, 1976.

## GENERAL INFORMATION

### Changes made for 1976

The Census for 1976 is in line with similar inquiries being conducted in other member countries of the European Economic Communities. There was a small number of changes in the scope of the industry reports compared with 1975. These include separate headings for:

Sales of goods produced

Receipts for work done and industrial services rendered

Amounts paid for hire of plant and machinery

Amounts paid for rent of industrial and commercial buildings

Specific changes are explained in the introductions to the industry reports or by footnotes to the tables.

### Suppression of information relating to individual undertakings

Section 9(5)(b) of the Statistics of Trade Act 1947 states - "The following provisions shall have effect with respect to any report, summary or other communication to the public of information obtained under the foregoing provisions of this Act - In compiling any such report, summary or communication the competent authority shall so arrange it as to prevent any particulars published therein from being identified as being particulars relating to any individual person or undertaking except with the previous consent in writing of that person or the person carrying on that undertaking, as the case may be; but this provision shall not prevent the disclosure of the total quantity or value of any articles produced, sold or delivered; so, however, that before disclosing any such total the competent authority shall have regard to any representations made to them by any person who alleges that the disclosure thereof would enable particulars relating to him or to an undertaking carried on by him to be deduced from the total disclosed."

If a figure involved disclosure the contributor concerned was sometimes asked to give permission for its publication. In the majority of cases permission was given. When it was refused and where contributors were not approached the figure has been suppressed, either by combining it with other figures, or 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 in Business Monitor PQ1000.

## Statistical units

The statistical unit for the purpose of the Census 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 the latter case the establishment is defined to cover the combined activities at these addresses (termed local units). Separate figures are obtained of employment and net capital expenditure at each unit in order to compile regional tables. 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 mainly engaged in the administration of the production units within the scope of the census 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 PA1002) related establishments are combined. For these purposes an enterprise group may be defined as a business consisting of either a single establishment or two or more establishments under common ownership or control. Bringing together 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 making returns to the quarterly inquiries, the industrial classification is derived from an analysis of their sales of commodities and is reviewed annually. Employment data are entered on the register from returns to the annual census of production. In cases where an establishment does not make a return to these inquiries the employment data are 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 with 25 or more employees provide to the quarterly inquiries. Information about establishments with fewer 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 1976 Census 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 and 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. 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. 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 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 assets acquired in taking over an existing business), and the amounts receivable for 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

This 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

This includes rent of industrial and commercial buildings, hire of plant and machinery, commercial insurance premiums, bank charges and amounts paid for professional services, post office services, transport, advertising etc. Amounts payable on royalties for the right to use patents, trademarks, 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, hire of plant and machinery, 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 merchanting 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.

#### Sales of goods produced

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 and sales of waste products are included. 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 establishments' 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 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.

#### Work done and Industrial services rendered

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 include repairs and maintenance, installation work, and technical research and studies for other organisations.

Capital goods produced for establishments' own use This includes all work of a capital nature carried out during the year by the establishments' own staff for their own use.

#### Non-Industrial services rendered

This 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. It also includes amounts received for the right to use patents, trademarks, copyrights etc., manufacturing and quarrying rights and technical "know-how" and revenue from such staff facilities as canteens.

#### Goods merchant or factored

Merchant 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 merchanting 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, super-annuation 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 and holiday homes, etc. for employees, former employees and their dependants are also included.



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