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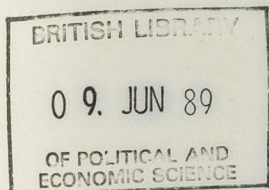
PA328

1987

Business Monitor

Report on the Census of Production

Miscellaneous machinery
and mechanical equipment



Business
Statistics
Office

A publication of the Government Statistical Service



BUSINESS MONITORS

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PA328

BUSINESS MONITOR

A publication of the Government Statistical Service

Report on the Census of Production 1987

Miscellaneous machinery and mechanical equipment

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

Department of Trade and Industry
Business Statistics Office

London: Her Majesty's Stationery Office

BUSINESS MONITORS MAKING UP THE COMPLETE CENSUS REPORT

The following is the list of Business Monitors making up the complete census report.

Shown alongside each title, where appropriate, is an indication of the change in the estimated employment in that industry that has arisen, between 1983 and 1984, from the introduction of a new, more up to date, register of businesses. The change shown reflects the increase or decrease between the old and new registers at a fixed point in time and does not in itself give any indication of the growth or contraction within any industry between 1983 and 1984. Over all manufacturing industry there was an increase between the two registers of 1.3%. Changes for individual industries have arisen not only from the addition of extra, mainly small, businesses but also from the reclassification of some small businesses from one industry to another.

Since estimates of census variables, based on register employment, are made for small businesses which are not required to complete census forms, the change will affect much of the data contained in the reports. This should be taken into account in interpreting the figures.

	Employment percentage variation	
PA1001	Introductory notes	
PA111	Coal extraction and manufacture of solid fuels	
PA120	Coke ovens	
PA130	Extraction of mineral oil and natural gas	
PA140	Mineral oil processing	
PA161	Production and distribution of electricity	
PA162	Public gas supply	
PA170	Water supply industry	
PA210	Extraction and preparation of metalliferous ores	38
PA221	Iron and steel industry	-1
PA222	Steel tubes	1
PA223	Drawing, cold rolling and cold forming of steel	-2
PA224	Non-ferrous metals industry	0
PA231	Extraction of stone, clay, sand and gravel	-18
PA239	Extraction of miscellaneous minerals (including salt)	-6
PA241	Structural clay products	-1
PA242	Cement, lime and plaster	0
PA243	Building products of concrete, cement or plaster	-9
PA244	Asbestos goods	0
PA245	Working of stone and other non-metallic minerals	-2
PA246	Abrasive products	-6
PA247	Glass and glassware	2
PA248	Refractory and ceramic goods	1
PA251	Basic industrial chemicals	0
PA255	Paints, varnishes and printing ink	1
PA256	Specialised chemical products mainly for industrial and agricultural purposes	1
PA257	Pharmaceutical products	1
PA258	Soap and toilet preparations	0
PA259	Specialised chemical products mainly for household and office use	0
PA260	Production of man made fibres	0
PA311	Foundries	-4
PA312	Forging, pressing and stamping	0
PA313	Bolts, nuts, etc; springs; non-precision chains; metals treatment	0
PA314	Metal doors, windows etc	2
PA316	Hand tools and finished metal goods	-1
PA320	Industrial plant and steelwork	4
PA321	Agricultural machinery and tractors	-1
PA322	Metal-working machine tools and engineers' tools	-1
PA323	Textile machinery	0
PA324	Machinery for the food, chemical and related industries; process engineering contractors	2
PA325	Mining machinery, construction and mechanical handling equipment	3
PA326	Mechanical power transmission equipment	14
PA327	Machinery for printing, paper, wood, leather, rubber, glass and related industries; laundry and dry cleaning machinery	-4
PA328	Miscellaneous machinery and mechanical equipment	0
PA329	Ordnance, small arms and ammunition	0
PA330	Manufacture of office machinery and data processing equipment	7
PA341	Insulated wires and cables	2
PA342	Basic electrical equipment	1
PA343	Electrical equipment for industrial use, and batteries and accumulators	3
PA344	Telecommunication equipment, electrical measuring equipment, electronic capital goods and passive electronic components	2
PA345	Miscellaneous electronic equipment	3
PA346	Domestic-type electric appliances	1
PA347	Electric lamps and other electric lighting equipment	13
PA351	Motor vehicles and their engines	0
PA352	Motor vehicle bodies, trailers and caravans	-3

BUSINESS MONITORS MAKING UP THE COMPLETE CENSUS REPORT (continued)

	Employment percentage variation	
PA353	Motor vehicle parts	-2
PA361	Shipbuilding and repairing	0
PA362	Railway and tramway vehicles	0
PA363	Cycles and motor cycles	0
PA364	Aerospace equipment manufacturing and repairing	0
PA365	Miscellaneous vehicles	2
PA371	Measuring, checking and precision instruments and apparatus	4
PA372	Medical and surgical equipment and orthopaedic appliances	-8
PA373	Optical precision instruments and photographic equipment	1
PA374	Clocks, watches and other timing devices	0
PA411	Organic oils and fats	1
PA412	Slaughtering of animals and production of meat and by-products	-5
PA413	Preparation of milk and milk products	0
PA414	Processing of fruit and vegetables	-4
PA415	Fish processing	-7
PA416	Grain milling	14
PA419	Bread, biscuits and flour confectionery	0
PA420	Sugar and sugar by-products	-2
PA421	Ice-cream, cocoa, chocolate and sugar confectionery	-5
PA422	Animal feeding stuffs	2
PA423	Starch and miscellaneous foods	0
PA424	Spirit distilling and compounding	2
PA426	Wines, cider and perry	0
PA427	Brewing and malting	-1
PA428	Soft drinks	0
PA429	Tobacco industry	-2
PA431	Woollen and worsted industry	3
PA432	Cotton and silk industries	-3
PA433	Throwing, texturing, etc. of continuous filament yarn	-3
PA434	Spinning and weaving of flax, hemp and ramie	0
PA435	Jute and polypropylene yarns and fabrics	3
PA436	Hosiery and other knitted goods	3
PA437	Textile finishing	1
PA438	Carpets and other textile floorcoverings	3
PA439	Miscellaneous textiles	-5
PA441	Leather (tanning and dressing) and fellmongery	8
PA442	Leather goods	2
PA451	Footwear	7
PA453	Clothing, hats and gloves	-2
PA455	Household textiles and other made-up textiles	-27
PA456	Fur goods	-17
PA461	Sawmilling, planing, etc. of wood	-4
PA462	Manufacture of semi-finished wood products and further processing and treatment of wood	-5
PA463	Builders carpentry and joinery	-6
PA464	Wooden containers	4
PA465	Miscellaneous wooden articles	7
PA466	Articles of cork and plaiting materials, brushes and brooms	-1
PA467	Wooden and upholstered furniture and shop and office fittings	1
PA471	Pulp, paper and board	3
PA472	Conversion of paper and board	5
PA475	Printing and publishing	-1
PA481	Rubber products	2
PA483	Processing of plastics	1
PA491	Jewellery and coins	-5
PA492	Musical instruments	-1
PA493	Photographic and cinematographic processing laboratories	-1
PA494	Toys and sports goods	67
PA495	Miscellaneous manufacturing industries	
PA500	Construction	
PA1002	Summary tables	

The information in this report relates to businesses classified to the Miscellaneous machinery and mechanical equipment industry, Group 328 in the Standard Industrial Classification Revised 1980. The industry Group covers the following Activity Headings:—

- 3281 Internal combustion engines (except for road vehicles, wheeled tractors primarily for agricultural purposes and aircraft) and other prime movers**
 - 1. Industrial internal combustion engines**
Manufacture of internal combustion reciprocating engines other than for road vehicles, wheeled tractors primarily for agricultural purposes, ships and aircraft. Included are stationary engines for machinery and generators, and engines for mobile equipment such as pumps, compressors, agricultural machinery, construction, earthmoving and mechanical handling equipment, and for rail traction engines.
 - 2. Marine engines**
Manufacture of internal combustion engines and steam and gas turbines for propulsion and other marine uses, including freshwater vessels.
 - 3. Other prime movers**
Manufacture of steam and gas turbines and other prime movers for all applications except for road vehicles, ships, aircraft and electricity generation.
- 3283 Compressors and fluid power equipment**
 - 1. Compressors**
Manufacture of air and gas compressors and exhausters other than compressors for commercial refrigeration machinery.
 - 2. Oil hydraulic equipment**
Manufacture of equipment for operating machinery by hydraulic means including actuators, control valves, hydraulic pumps and motors.
 - 3. Pneumatic control equipment**
Manufacture of equipment for operating machinery by pneumatic means including actuators and control valves.
- 3284 Refrigerating machinery, space heating, ventilating and air conditioning equipment**
 - 1. Refrigerating machinery**
Manufacture of refrigerating machinery, commercial refrigerators and commercial refrigerating equipment including deep freeze and quick freeze machinery but excluding domestic type refrigerators and deep freeze units which are classified to Group 346.
 - 2. Space heating equipment**
Manufacture of warm air generators, central heating boilers, heat emitters and other water, steam and radiant heating equipment but excluding domestic type gas heaters and domestic type electric heaters which are classified to Groups 316 and 346 respectively.
 - 3. Fans and other ventilating equipment**
Manufacture of fans, ventilators and ventilating units including hoods, cowls and ducting. Fans for industrial purposes are included. Domestic type electric fans are classified to Group 346.
 - 4. Air conditioning equipment**
Manufacture of air conditioning and dust extraction systems including major components thereof. Air treatment and distribution equipment is included.
 - 5. Burners**
Manufacture of domestic and industrial oil fuel and other burners.
- 3285 Scales, weighing machinery and portable power tools**
 - 1. Scales and weighing machinery**
Manufacture of scales, spring balances and other weighing machines other than analytical and other precision balances which are classified to Group 371.
 - 2. Portable power tools**
Manufacture of portable power tools including those used in civil engineering, mining and quarrying. Flexible shaft drive tools are included.
- 3286 Other industrial and commercial machinery**
 - 1. Industrial and commercial machinery and service equipment**
Manufacture of non-electronic testing machines and equipment, coin or token operated automatic slot machines, garage equipment, fire-fighting equipment, hand, power and tractor operated mowers for lawns, parks and sports grounds. Electronic testing equipment is classified to Group 344 and measuring, checking and precision testing instruments and apparatus to Group 371. Hand held fire extinguishers are classified to Group 316 and agricultural mowers to Group 321.
 - 2. Machinery for foundries and rolling mills**
Manufacture of founding and die-casting equipment and metallurgical rolling mills.
 - 3. Manufacture of other machinery and mechanical equipment not elsewhere specified**
- 3287 Pumps**
Manufacture of centrifugal reciprocating, rotary and other pumps for liquids including hand metering and petrol station pumps but excluding pumps for internal combustion engines, which are classified according to the type of engine.
- 3288 Industrial valves**
Manufacture of industrial type valves, taps and cocks. Valves for internal combustion engines are excluded and classified according to the type of engine.

- 1. Marine engineering**
Manufacture of auxiliary marine machinery (other than engines and turbines), diving and underwater engineering equipment not elsewhere specified.
- 2. Precision components for engines and machinery not elsewhere specified**
Manufacture of precision components common to wide ranges of engines and machinery e.g. pistons, gaskets, lubricators.
- 3. Mechanical engineering work not elsewhere specified**
Manufacture of gas welding and cutting machines and torches. Electric welding equipment is classified to Group 343. Establishments undertaking general sub-contract or repair work. Establishments manufacturing mechanical engineering products (including machinery parts) not elsewhere specified, or of such a mixed character that they cannot be placed elsewhere in Class 32.

For a full description of the 1980 classification see Standard Industrial Classification Revised 1980 obtainable from Her Majesty's Stationery Office, price £3.95.

In interpreting the data in the tables it is essential to bear in mind the notes and definitions which commence on page 7.

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3273 Compressors and fluid power equipment

1. Compressors
2. Hydraulic equipment
3. Pneumatic control equipment

3274 Refrigerating machinery, space heating, ventilating and air conditioning equipment

1. Refrigerating machinery
2. Space heating equipment
3. Fans and other ventilating equipment
4. Air conditioning equipment
5. Burners

3275 Scales, weighing machinery and portable power tools

1. Scales and weighing machinery
2. Portable power tools

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EXPLANATORY NOTES AND DEFINITIONS

INTRODUCTION

1. These notes give basic information to help with the interpretation of tables in this Industry Report. More general information about the Census is given in a separate Business Monitor - Report on the Census of Production, Introductory Notes (PA1001).

2. Since 1980, Censuses have been conducted on the Standard Industrial Classification Revised 1980 (SIC(80)). The Standard Industrial Classification exists to promote uniformity and comparability in the official statistics of the United Kingdom. The SIC(80) is the result of an attempt to align the United Kingdom classification with the General Industrial Classification of Economic Activities within the European Communities (NACE). It is based on activity rather than commodities produced. A full description of SIC(80) is given in Standard Industrial Classification Revised 1980, obtainable from Her Majesty's Stationery Office, price £3.95.

REPORTING UNIT

3. From the earliest censuses of production until that for 1986 the reporting unit to the census was the establishment. This was defined as the smallest unit which could provide the full range of data required for an economic census. Establishments were asked, where possible, to exclude from their returns to the census any non-production activity.

4. In 1987, for a number of administrative and statistical reasons, a new system of company-based reporting was introduced. Under the new system the reporting unit to the census is, generally, the company, but there are some exceptions. These arise, for example, for large mixed activity companies which are asked to make separate returns to the census for each of their production activities on an establishment basis. Throughout this monitor this mixture of reporting units are referred to as "businesses". These businesses are no longer asked to exclude non-production activities.

5. In practice, since most businesses, both before and after the change, reported for the company as a whole, little difference to the main economic series has resulted from the change.

6. For most businesses, the returned data are appropriate to a single activity heading of SIC(80) and fall within a single geographical region. Where information covers a mixture of activities, the business is classified according to the main activity. Where the business operates at a number of different addresses then, in order to enable regional data to be compiled, separate information on employment and capital expenditure is sought for each address.

THE REGISTER

7. A register of businesses throughout the United Kingdom is held on the BSO computer and provides the basis for BSO inquiries. For each business the register contains identification particulars and information about its eligibility for inclusion in an inquiry, its relationship with other businesses in common ownership, its industrial classification, the nationality of its parent and location indicators for regional analyses. Regional and size analyses of manufacturing units are published in Business Monitor PA1003 - Size analyses of United Kingdom businesses. During 1984, for production inquiries, the BSO moved to an updated register which makes fuller use of information obtained from HM Customs and Excise VAT records.

8. The Annual Census and other inquiries provide a major source of information for updating and checking the register. For businesses on the register making returns to the Quarterly Sales Inquiry, industrial classification is reviewed annually and is derived from an analysis of their commodity sales. Employment data are provided by the Quarterly Sales Inquiry and the Census of Production. Where businesses on the register do not make returns to these inquiries, employment is based mainly on information provided by the Department of Employment from Censuses of Employment. New additions to the register are obtained from various sources including HM Customs and Excise VAT records and Censuses of Employment.

COVERAGE

9. The Census covers United Kingdom businesses engaged in industrial production, ie mining and quarrying, manufacturing, construction, and gas, electricity and water supply industries (Divisions 1 to 5 of SIC(80)). Businesses in the Channel Islands and the Isle of Man are excluded.

10. Under the sampling arrangements agreed for the 1987 Census, forms were despatched to all businesses with 100 or more employed and, for most production industries, samples of 1 in 4 and 1 in 2 respectively being taken for businesses in the 20 to 49 and 50 to 99 employment size bands. It was necessary to increase the sample in those industries where there were few businesses in the sample size band or where response in earlier years was poor. About 16,200 forms were despatched in the United Kingdom for the 1987 Census.

PERIOD COVERED

11. Businesses were asked to make returns for the calendar year 1987 but, where this was not possible, returns for business years ending between 6 April 1987 and 5 April 1988 were accepted. Returns covering fewer than twelve months were accepted for businesses which had started or ceased trading during the year.

ESTIMATION

12. All published Census results include estimates for non-responders, unsatisfactory returns and businesses not selected for the Census. Estimates are also made for items not covered on the shorter form sent to smaller businesses.

13. Within employment size groups in each industry, the "average per head" is calculated for each census variable by dividing the total returned value for each variable by the total returned employment. This value is multiplied by the employment thought to exist in each non-responding or non-selected business to yield an estimated value for that business. Estimates for items not collected on the shorter form are made in a similar way using returned employment.

14. The accuracy of the totals produced by adding together estimates and returned data is mainly dependent on two measures. The first of these is the extent to which businesses making satisfactory returns account for the overall total for any heading. In practice a measure of this is normally taken to be the employment of businesses making satisfactory returns expressed as a percentage of the total estimated employment (this is given in footnote (a) to Table 1). Thus the accuracy of data published in an Industry Report where 95 per cent of the employment in the industry is covered by returns made, will, in general, be better than that in an Industry Report where the coverage is only 70 per cent.

15. The second measure is the extent to which individual headings in an Industry Report are related to employment. Thus an estimate of total earnings which bears a close relationship to total employment is likely to be more accurate than an estimate of capital expenditure where the relationship to employment is not so clearly marked.

SUPPRESSION OF INFORMATION RELATING TO INDIVIDUAL UNDERTAKINGS

16. Sub-section 9(5)(b) of the Statistics of Trade Act 1947 states that:

"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."

17. Figures which would be likely to disclose particulars relating to an individual undertaking are not published unless the contributor has given written consent for their publication.

CHANGES MADE FOR 1987

18. The 1987 Census, like that for 1986, was a slimline one. The questions relating to computers, included in the 1986 Census, were discontinued.

SYMBOLS USED

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

- .. not available
- nil or less than half the final digit shown
- * information suppressed to avoid disclosure
- R revised

ROUNDING OF FIGURES

20. Figures in the tables have been rounded to the nearest final digit where necessary and, in these instances, the sum of the constituent items may not always agree exactly with the total shown.

EXPLANATION OF TERMS USED IN THE CENSUS REPORT

21. The notes and definitions given in this section are based on the instructions given to respondents as to the way in which returns were to be completed.

CAPITAL EXPENDITURE

22. This represents the value charged to capital account together with any other amounts which ranked as capital items for taxation purposes during the year to which each return related. The value is inclusive of any amounts received or expected to be received in grants and/or allowances from government sources, statutory bodies or local authorities. Where expenditure is spread over more than one Census year, payments are included in the years in which they were made. Capital expenditure during the year in respect of production units where production had not started before the end of the year and the value of CAPITAL GOODS PRODUCED FOR USE WITHIN THE BUSINESS by its own staff are included. The value of any assets acquired in taking over an existing business are excluded. The figures include non-deductible VAT but exclude deductible VAT. No allowance is made for depreciation, amortisation or obsolescence.

a. on LAND AND EXISTING BUILDINGS

23. This represents the value of freeholds and the value or premium payable or receivable for leaseholds acquired or disposed of. The figures for acquisitions include architects' and surveyors' fees, legal fees, stamp duties, agents' commissions and Land Registry fees. The figures for disposals are net of any such professional fees payable.

b. on NEW BUILDING WORK

24. This represents the value of new building and other constructional work such as the extension and reconstruction of old buildings, and the value of any newly constructed buildings acquired. The figures include architects' and surveyors' fees, legal fees, stamp duties, agents' commissions and Land Registry fees.

c. on PLANT AND MACHINERY, VEHICLES

25. This represents the value of new and second-hand plant and machinery and vehicles acquired or disposed of. The figures for acquisitions are net of any discounts received but include the cost of transport and installation and Customs and Excise car tax. The figures for disposals exclude amounts written off for capital assets which are scrapped.

CAPITAL GOODS PRODUCED FOR USE WITHIN THE BUSINESS

26. This represents the value of all work of a capital nature carried out during the year by the staff of, and for use in, the businesses covered by the returns.

COST OF INDUSTRIAL SERVICES RECEIVED

27. This includes amounts payable to other organisations for work done on materials supplied by the business completing the return, for repairs and maintenance including those in respect of rented buildings, and for contracts which have been sublet. Direct payments to outworkers and amounts charged to capital account are excluded.

COST OF NON-INDUSTRIAL SERVICES RECEIVED

28. This includes commercial insurance premiums, bank charges and amounts payable to other organisations for the hire of vehicles, plant and machinery, for the rent of industrial and commercial buildings, for the services of accountants, auditors, agents, solicitors and surveyors other than in connection with the acquisition or disposal of capital assets, for postal and telecommunications services, for carriage by all forms of transport within the United Kingdom, for advertising, market research etc., for the right to use patents, trade marks, copyrights etc., for manufacturing and quarrying rights and technical know-how. Interest payments and amounts payable for sea and air freight on goods exported and on materials and fuel imported are excluded.

EMPLOYERS' NATIONAL INSURANCE CONTRIBUTIONS ETC.

29. This includes employers' national insurance contributions under the Social Security Pensions Act 1975, commercial insurance premiums for policies providing pensions, superannuation or other retirement benefits, sickness benefits, personal accident benefits, disability benefits or death benefits for employees, including former employees, or their dependants. Also included are contributions to canteens, social centres, children's and holiday homes etc. and the cost of supplying luncheon vouchers.

EMPLOYMENT

30. This is the average number of ADMINISTRATIVE, TECHNICAL AND CLERICAL EMPLOYEES and OPERATIVES on the payroll and the number of WORKING PROPRIETORS employed during the year of return. Full-time and part-time employees are included but outworkers (ie people who worked in their own homes on materials supplied by the business) and casual employees such as jobbers are excluded. The average number of employees returned by individual businesses may have been calculated by, for example, the average of the number of employees on the payroll for the last week of each calendar month.

a. ADMINISTRATIVE, TECHNICAL AND CLERICAL EMPLOYEES

31. This includes directors who received a definite wage, salary or commission, managers, foremen, draughtsmen, editorial and advertising staff, travellers, all office employees and research and design employees except operatives.

b. OPERATIVES

32. This includes all manual wage earners including operatives in power stations, operatives engaged in outside work of erecting, fitting etc, inspectors, maintenance workers and cleaners. Staff engaged in transport (including roundsmen) and employed in warehouses, stores, shops and canteens are included.

c. WORKING PROPRIETORS

33. These are people who are regarded as self-employed for national insurance purposes, members of their families who worked in the business without receiving a definite wage or salary for at least half the normal working hours and directors who worked in the business but did not receive a definite wage, salary or commission. Part-time directors paid by fee only and directors who received a definite wage, salary or commission are excluded.

ENTERPRISE

34. This is defined as one or more businesses under common ownership or control.

GROSS OUTPUT

35. This is calculated by adjusting the value of TOTAL SALES AND WORK DONE by the changes during the year of WORK IN PROGRESS and GOODS ON HAND FOR SALE.

GROSS VALUE ADDED AT FACTOR COST

36. This is calculated by deducting from NET OUTPUT the COST OF NON-INDUSTRIAL SERVICES RECEIVED, RATES and the cost of LICENSING OF MOTOR VEHICLES. This estimate of gross value added approaches more closely than NET OUTPUT the definition of net output or value added in national accounts statistics.

GROSS VALUE ADDED AT FACTOR COST PER HEAD

37. This is calculated by dividing GROSS VALUE ADDED AT FACTOR COST by total EMPLOYMENT.

NET CAPITAL EXPENDITURE

38. This is calculated by adding to the value of NEW BUILDING WORK acquisitions less disposals of LAND AND EXISTING BUILDINGS, VEHICLES and PLANT AND MACHINERY.

NET OUTPUT

39. This is calculated by deducting from GROSS OUTPUT the cost of PURCHASES OF MATERIALS FOR USE IN PRODUCTION AND PACKAGING AND FUEL and PURCHASES OF GOODS FOR MERCHANTING OR FACTORING, the COST OF INDUSTRIAL SERVICES RECEIVED and is adjusted for net duties and levies etc. where applicable. Purchases are adjusted for changes during the year of STOCKS OF MATERIALS, STORES AND FUEL.

NET OUTPUT PER HEAD

40. This is calculated by dividing NET OUTPUT by total EMPLOYMENT.

NON-INDUSTRIAL SERVICES RENDERED

41. This includes amounts charged for the hire of vehicles, plant and machinery, for the rent of industrial and commercial buildings, for the right to use patents, trade marks, copyrights etc., for manufacturing and quarrying rights, for technical know-how and for the provision of transport to other organisations. It also includes revenue from staff facilities such as canteens.

OPERATING RATIOS

42. These ratios are calculated using industry totals, ie including the estimates for businesses not responding to or not selected for the Census. Respondents are able to compare the ratios for their own businesses with those for the industry as a whole.

PURCHASES OF MATERIALS FOR USE IN PRODUCTION, AND PACKAGING AND FUEL. PURCHASES OF GOODS FOR MERCHANTING OR FACTORING

43. These include the cost of raw materials, components, semi-manufactured goods and workshop materials, replacement parts and consumable tools not charged to capital account, packaging materials of all types, stationery and printed matter, fuel, electricity and water, materials of all types used by the business or given out to others, for the production of machinery or other capital items used in the business, and materials used when working on goods supplied by customers. The figures exclude VAT, purchases of machinery and plant, which are included in CAPITAL EXPENDITURE, and amounts payable to transport firms or credited to the business's own transport departments for delivery of materials. The figures are net of the value of goods or packaging materials returned to suppliers and trade discounts receivable. Materials purchased duty-paid are included at their duty-paid value less drawbacks, rebates etc. Imported goods are included at their full delivered cost. If the transport from docks or airport of imported goods is not included in the cost of goods purchased, the cost is entered at fit plus duty, if applicable. Transfers of goods from other departments of the business not covered by the return are included at the estimated selling value recorded by the other departments.

REMUNERATION PAID TO OUTWORKERS

44. This represents amounts paid to outworkers, ie people who do work in their own homes generally on a piece-work basis, whose names appear on the payroll. Amounts paid to outworkers by subcontractors are included in the COST OF INDUSTRIAL SERVICES RECEIVED. Estimates are not made for remuneration of outworkers for businesses not completing Census returns.

SALES OF GOODS PRODUCED

45. This represents sales of goods during the year, irrespective of whether or not they were produced in the year of the return. It also includes sales of goods made from materials given out to other firms or to outworkers and sales of waste products and residues. The value of sales is the 'net selling value', ie the amount charged to customers whether valued 'ex-works' or 'delivered' less VAT, trade discounts, agents' commissions etc and allowances on returned goods. Where products attract Excise duty, the value includes duty if the goods are sold 'duty-paid', but excludes it if they are sold in bond or exported. The cost of packaging materials less allowances for returnable containers is included. Sales of fixed assets and exceptional receipts are excluded. Transfers of goods produced by a business to departments not covered by the return (including other businesses in the same enterprise group) are treated as sales, valued as if sold to an independent purchaser.

STOCKS

46. This represents the value of goods on hand for sale, including goods for merchanting or factoring and of materials, stores and fuel held by businesses, whether held in the United Kingdom or abroad. Values include any duty payable but exclude VAT.

WAGES AND SALARIES

47. This represents amounts paid during the year to ADMINISTRATIVE, TECHNICAL AND CLERICAL EMPLOYEES and to OPERATIVES. All overtime payments, bonuses, commissions, holiday pay and redundancy payments, less any amounts reimbursed for this purpose from government sources, are included. No deduction is made for income tax or employees' national insurance contributions etc. Payments to WORKING PROPRIETORS, payments in kind, travelling expenses, lodging allowances etc. and EMPLOYERS' NATIONAL INSURANCE CONTRIBUTIONS ETC. are excluded.

WORK DONE AND INDUSTRIAL SERVICES RENDERED

48. This includes amounts charged for work carried out including that done by sub-contractors on customers' materials and amounts charged for materials supplied in the course of such work. Industrial services such as repairs and maintenance, installation work and technical research and studies rendered to other organisations is also included. For certain industries this heading covers a wide variety of activities, for example, butter packed on commission in the food industries, making up of garments, fur dressing and textile finishing in the textile industries, and preparatory work on typesetting, block making and binding in the printing and publishing industries. Work done is an important part of the activities of the electrical machinery and heavy engineering industries, and includes erection, installation and repair and jobbing work.

WORK IN PROGRESS

49. This represents materials which have been partially processed and are awaiting further processing before being sold or transferred. Progress payments made to sub-contractors are excluded and progress payments received from other organisations are not deducted.

TABLE 1

PA328

Output and costs, 1983-1987
All United Kingdom businesses classified to the industry (a)

	Unit	1983	1984	1985	1986	1987
Enterprises	Number	5,957	8,081(b)	8,434	8,756	8,878
Businesses	"	6,421	8,483(b)	8,865	9,172	9,215
Sales of goods produced	£ million	5,321.8	5,640.0	6,460.5	6,445.2	6,645.2
Work done and industrial services rendered	"	402.4	452.1	489.6	568.5	594.9
Capital goods produced for use within the business	"	6.6	6.8	7.2	7.5	5.9
Non-industrial services rendered	"	39.9	40.2	43.4	58.1	41.4
Goods merchanted or factored	"	486.1	550.8	620.8	620.0	643.4
Total sales and work done	"	6,256.8	6,690.0	7,621.5	7,699.2	7,930.8
Increase during the year, work in progress and goods on hand for sale	"	98.0	134.9	-22.9	-176.0	55.3
Gross output	"	6,354.8	6,824.8	7,598.5	7,523.2	7,986.1
Purchases of materials for use in production, packaging and fuel	"	2,572.4	2,796.8	3,128.6	3,053.4	3,221.6
Purchases of goods for merchenting or factoring	"	352.7	404.4	450.8	440.8	448.5
Increase during the year, stocks of materials, stores and fuel	"	-16.0	18.8	49.0	3.2	23.4
Cost of industrial services received	"	183.7	198.8	218.6	226.8	220.6
Net output	"	3,229.9	3,443.6	3,849.6	3,805.5	4,118.9
Total employment	Thousand	231.1	218.8	217.0	210.3	201.5
Net output per head	£	13,978	15,737	17,740	18,093	20,443
Cost of non-industrial services received						
Hire of vehicles, plant and machinery	£ million	44.6	46.0	53.0	62.1	58.8
Rents of industrial and commercial buildings	"	39.4	39.3	43.3	45.5	46.7
Commercial insurance premiums	"	42.4	31.6	36.9	44.5	47.2
Bank charges	"	4.6	5.3	5.9	6.7	7.2
Other non-industrial services	"	402.3	430.5	458.9	443.2	468.1
Licensing of motor vehicles	"	2.5	2.6	2.7	2.8	2.5
Rates, excluding water rates	"	61.3	62.4	67.8	73.7	75.9
Gross value added at factor cost	"	2,632.8	2,825.9	3,181.1	3,127.0	3,412.6
Gross value added at factor cost per head	£	11,394	12,914	14,660	14,867	16,937

(a) Satisfactory returns accounted for 68 per cent of employment within the industry in 1987.

(b) Use of a new register of businesses for 1984 has affected the number of enterprises and businesses. Further information is given on page 2.

TABLE 2

PA328

Capital expenditure, 1983-1987
All United Kingdom businesses classified to the industry

	1983	1984	1985	1986	1987
Land and buildings					
New building work	17.9	18.0	30.6	28.6	18.9
Land and existing buildings					
Acquisitions	16.7	16.8	19.5	13.7	15.5
Disposals	12.3	16.4	26.1	14.1	23.8
Net	22.3	18.4	24.0	28.2	10.6
Plant and machinery					
Acquisitions	163.7	193.4	242.0	229.1	221.2
Disposals	19.8	14.8	20.5	18.8	13.3
Net	143.9	178.6	221.5	210.3	207.9
Vehicles					
Acquisitions	31.5	34.2	36.1	36.4	42.0
Disposals	12.1	11.9	11.6	13.4	16.1
Net	19.4	22.3	24.5	23.0	25.8
Total net capital expenditure	185.6	219.3	269.9	261.4	244.3

TABLE 3

Stocks and work in progress, 1983-1987
All United Kingdom businesses classified to the industry

	1983	1984	1985	1986	1987	Value at end of 1987
£ million						
Increase during year						
Materials, stores and fuel	-16.0	18.8	49.0	3.2	23.4	605.5
Work in progress	120.0	116.9	-26.4	-175.9	49.7	882.1
Goods on hand for sale	-22.0	18.0	3.4	-0.1	5.6	449.3
Total	82.0	153.7	26.0	-172.8	78.7	1,936.9

TABLE 4

Employment, labour costs, output, net capital expenditure and stocks and work in progress by size of total employment, 1987

All United Kingdom businesses classified to the industry (a)

Size group	Busin- esses	Enter- prises (b)	Employment			Wages and salaries (c)			
			Total including working proprietors	Opera- tives	Admini- strative,tech- nical and clerical	Operatives		Administrative, technical and clerical	
						Total	per head	Total	per head
Number	Number	Thousand	Thousand	Thousand	£ million	£	£ million	£	
1-9	6,799	6,742	19.6	50.7	24.6	447.4	8,819	274.0	11,136
10-19	948	944	13.3						
20-49	812	792	25.6						
50-99	293	279	20.5						
100-199	161	147	22.4	14.0	8.4	122.8	8,792	93.8	11,192
200-299	76	68	18.5	11.1	7.3	102.0	9,157	79.5	10,869
300-399	35	34	11.9	7.0	4.9	65.2	9,300	55.3	11,345
400-499	31	27	14.1	8.1	6.0	70.7	8,767	66.4	11,054
500-749	30	29	17.8	10.5	7.3	102.1	9,700	84.5	11,544
750-999	13	13	11.3	6.0	5.3	52.8	8,856	61.4	11,560
1,000-1,499	11	11	12.7	7.1	5.6	73.3	10,342	70.7	12,651
1,500-Plus	6	6	13.9	8.2	5.7	79.4	9,630	71.1	12,546
Total	9,215	8,878	201.5	122.7	75.1	1,115.7	9,090	856.8	11,412

(a) Businesses employing fewer than 20 persons are not required to complete census returns. Because of this, data for these businesses should be regarded merely as the best estimates available and used with caution.

(b) The count of enterprises shown in each row represents the number of enterprises, irrespective of size, owning the businesses shown in each size group. Because an enterprise may own businesses in more than one size group, the sum of individual enterprise counts may exceed the total for the industry.

(c) The cost of employers' contributions to the national insurance, pensions and welfare schemes and the running costs of canteens are excluded from the table but were estimated for the industry at £256.6 million. The remuneration of outworkers on returns received - also excluded from the table - was £317 thousand.

(d) Gross value added data relate to businesses employing 1-199.

Total sales and work done	Gross output	Net output		Gross value added at factor cost		Net capital expenditure	Total stocks and work in progress at end of year
		Total	per head	Total	per head		
2,592.0	2,615.5	1,431.8	18,126	(d)	(d)	91.0	441.7
876.1	888.5	464.7	20,788	1,573.6(d)	15,519(d)	28.2	180.7
762.6	770.2	387.7	20,996	328.4	17,784	25.0	155.2
521.3	518.7	257.7	21,678	217.9	18,327	14.8	106.0
556.0	552.5	285.0	20,243	232.5	16,513	12.1	121.8
786.0	799.2	388.5	21,772	320.3	17,950	26.5	221.5
463.7	453.3	218.3	19,358	176.0	15,600	9.4	98.6
543.9	556.2	287.2	22,652	248.3	19,586	20.8	374.7
829.1	832.0	398.0	28,614	315.7	22,697	16.4	236.8
7,930.8	7,986.1	4,118.9	20,443	3,412.6	16,937	244.3	1,936.9

TABLE 5

PA328

Percentage analysis of twelve-month periods covered by returns received for the 1987 Census by number of returns and total employment

Accounting year ended	Percentage of total returns received	Percentage of total employment
1987		
April 6-30	2.7	1.3
May	3.0	1.4
June	4.6	5.2
July	3.1	2.2
August	3.1	1.3
September	7.1	5.9
October	4.2	4.8
November	3.3	2.1
December	40.0	44.7
1988		
January	4.6	8.7
February	2.5	1.0
1 March - 5 April	21.7	21.4

TABLE 6

Operating ratios, 1983-1987

All United Kingdom businesses classified to the industry

	Unit	1983	1984	1985	1986	1987
Gross output per head	£	27,500	31,189	35,017	35,769	39,635
Net output per head	£	13,978	15,737	17,740	18,093	20,443
Gross value added per head	£	11,394	12,914	14,660	14,867	16,937
Gross value added as a percentage of gross output	%	41	41	42	42	43
Ratio of gross output to stocks		3.1	3.2	3.5	3.9	4.1
Wages and salaries as a percentage of gross value added	%	63	60	58	62	58
Ratio of operatives to administrative, technical and clerical employees		1.7	1.7	1.6	1.7	1.6
Wages and salaries per operative	£	6,684	7,315	7,944	8,509	9,091
Wages and salaries per administrative, technical and clerical employee	£	8,282	8,960	9,764	10,685	11,412
Net capital expenditure per head	£	803	1,002	1,244	1,243	1,212
Net capital expenditure as a percentage of gross value added	%	7	8	9	8	7

TABLE 7

PA328

Regional distribution of employment, net capital expenditure, net output and gross value added at factor cost, 1987
All United Kingdom businesses classified to the industry

Area	Total employment (a)		Net capital expenditure (b)		Net output (c)		Gross value added at factor cost (c)	
	Thousand	per cent of United Kingdom	£ million	per cent of United Kingdom	£ million	per cent of United Kingdom	£ million	per cent of United Kingdom
Standard regions of England								
North	10.4	5.2	17.0	7.0	269.2	6.5	206.2	6.0
Yorkshire and Humberside	19.4	9.6	27.7	11.4	370.6	9.0	309.2	9.1
East Midlands	15.6	7.7	17.4	7.1	336.8	8.2	278.9	8.2
East Anglia	11.3	5.6	15.0	6.1	262.3	6.4	226.8	6.6
South East	54.1	26.8	62.6	25.6	1,110.2	27.0	912.0	26.7
South West	18.2	9.0	18.1	7.4	334.9	8.1	282.7	8.3
West Midlands	29.9	14.9	33.0	13.5	590.6	14.3	491.9	14.4
North West	22.1	11.0	29.8	12.2	446.3	10.8	376.4	11.0
England	181.0	89.8	220.6	90.3	3,720.9	90.3	3,084.0	90.4
Wales	5.0	2.5	5.5	2.3	103.4	2.5	83.2	2.4
Scotland	13.4	6.7	11.5	4.7	256.2	6.2	212.3	6.2
Great Britain	199.5	99.0	237.7	97.3	4,080.5	99.1	3,379.5	99.0
Northern Ireland	2.0	1.0	6.6	2.7	38.4	0.9	33.1	1.0
United Kingdom	201.5	100.0	244.3	100.0	4,118.9	100.0	3,412.6	100.0

(a) Average number employed during the year, including full and part-time employees and working proprietors.

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

(c) Where a census return covered addresses in two or more regions, an estimate of the net output attributable to each address was made by assuming that net output was proportionate to employment. An estimate for each region was obtained by aggregating estimates of net output for addresses located in that region. Gross value added at factor cost was treated similarly.

TABLE 8

Output and costs, 1987
All United Kingdom businesses classified to each Activity Heading within the industry

	Unit	3281	3283	3284
Enterprises(a)	Number	274	350	946
Businesses	"	287	372	989
Sales of goods produced	£ million	855.7	829.1	1,396.4
Work done and industrial services rendered	"	33.8	18.5	112.0
Capital goods produced for use within the business	"	1.3	0.4	0.9
Non-industrial services rendered	"	9.7	10.0	4.2
Goods merchanted or factored	"	99.6	129.5	87.6
Total sales and work done	"	1,000.2	987.5	1,601.0
Increase during the year, work in progress and goods on hand for sale	"	-0.8	9.3	21.1
Gross output	"	999.3	996.7	1,622.2
Purchases of materials for use in production, packaging and fuel	"	485.1	379.5	706.4
Purchases of goods for merchenting or factoring	"	68.4	88.7	61.3
Increase during the year, stocks of materials, stores and fuel	"	15.7	0.7	8.2
Cost of industrial services received	"	20.3	29.3	39.0
Net output	"	441.2	499.9	823.7
Total employment	Thousand	19.8	23.5	37.9
Net output per head	£	22,336	21,251	21,744
Cost of non-industrial services received				
Hire of vehicles, plant and machinery	£ million	6.6	8.5	10.7
Rents of industrial and commercial buildings	"	1.6	4.9	11.1
Commercial insurance premiums	"	5.5	5.1	7.6
Bank charges	"	0.6	0.8	1.1
Other non-industrial services	"	35.7	55.8	87.1
Licensing of motor vehicles	"	0.2	0.2	0.7
Rates, excluding water rates	"	7.8	9.3	14.0
Gross value added at factor cost	"	383.3	415.3	691.4
Gross value added at factor cost per head	£	19,402	17,655	18,252

(a) The count of enterprises shown in each column represents the number of enterprises owning the businesses shown for each activity heading. Because an enterprise may own businesses in more than one activity heading, the sum of the enterprise counts may exceed the total for the industry.

PA328

	3285	3286	3287	3288	3289
	74	384	267	202	6,517
	84	419	277	212	6,575
	328.6	757.0	517.4	530.9	1,430.0
	10.3	81.0	42.8	12.5	284.1
	0.1	0.4	0.4	0.4	2.1
	0.7	4.8	1.9	0.2	9.8
	86.5	63.2	70.2	50.1	56.7
	426.2	906.5	632.7	594.2	1,782.6
	8.8	24.4	-2.4	-10.3	5.2
	435.0	930.8	630.3	583.8	1,787.8
	143.9	443.1	227.6	212.8	623.2
	48.2	45.9	55.5	36.4	44.0
	1.7	0.5	-3.2	-7.0	6.9
	5.8	24.7	11.8	20.0	69.7
	238.8	417.6	332.2	307.7	1,057.8
	8.7	20.0	16.3	15.2	60.2
	27,481	20,890	20,404	20,293	17,570
	3.1	8.0	6.2	3.7	12.0
	3.0	4.5	3.9	3.6	14.1
	2.1	4.7	3.8	4.2	14.2
	0.4	0.8	0.6	0.7	2.1
	54.2	64.5	38.1	34.8	98.0
	0.1	0.3	0.3	0.1	0.5
	3.1	7.3	6.6	6.2	21.6
	172.7	327.5	272.7	254.3	895.3
	19,873	16,384	16,749	16,772	14,871

TABLE 9

Capital expenditure, 1987
All United Kingdom businesses classified to each Activity Heading within the industry

	3281	3283	3284
Land and buildings			
New building work	*	3.4	3.1
Land and existing buildings			
Acquisitions	*	1.6	1.1
Disposals	6.6	2.1	0.8
Net	-4.8	2.9	3.4
Plant and machinery			
Acquisitions	22.5	32.7	37.0
Disposals	0.4	1.4	1.8
Net	22.1	31.4	35.2
Vehicles			
Acquisitions	1.6	3.3	10.4
Disposals	0.7	2.3	4.3
Net	0.9	1.0	6.0
Total net capital expenditure	18.2	35.2	44.7

TABLE 10

Stocks and work in progress, 1987
All United Kingdom businesses classified to each Activity Heading within the industry

	3281	3283	3284
10a Increase during year			
Materials, stores and fuel	15.7	0.7	8.2
Work in progress	-	10.1	5.3
Goods on hand for sale	-0.8	-0.8	15.9
Total	14.9	10.0	29.3
10b Value at end of year			
Materials, stores and fuel	149.0	64.1	118.8
Work in progress	138.4	96.0	84.6
Goods on hand for sale	76.0	73.7	75.4
Total	363.4	233.9	278.9

£ million

	3285	3286	3287	3288	3289
	3.3	3.8	1.5	*	2.3
	-	0.9	3.9	*	6.0
	3.8	0.4	4.6	1.6	3.8
	-0.5	4.3	0.9	-	4.4
	10.6	23.4	13.4	13.2	68.5
	0.4	1.2	0.8	1.4	6.1
	10.2	22.2	12.6	11.8	62.4
	2.4	4.7	2.2	2.2	15.1
	0.8	1.7	1.1	0.5	4.6
	1.6	3.0	1.1	1.7	10.5
	11.4	29.5	14.5	13.4	77.3

	3285	3286	3287	3288	3289
	1.7	0.5	-3.2	-7.0	6.9
	4.7	28.1	-1.2	-2.2	5.0
	4.1	-3.7	-1.1	-8.1	0.2
	10.5	24.8	-5.6	-17.3	12.1
	23.6	60.5	47.0	47.5	94.9
	29.2	301.7	50.2	59.3	122.6
	41.7	56.0	26.5	54.4	45.5
	94.6	418.2	123.7	161.3	263.0

TABLE 11

PA328

Operating ratios, 1987

All United Kingdom businesses classified to each Activity Heading within the industry


	Unit	3281	3283	3284	3285
Gross output per head	£	50,589	42,370	42,824	50,054
Net output per head	£	22,336	21,251	21,744	27,481
Gross value added per head	£	19,402	17,655	18,252	19,873
Gross value added as a percentage of gross output	%	38	42	43	40
Ratio of gross output to stocks		2.7	4.3	5.8	4.6
Wages and salaries as a percentage of gross value added	%	55	56	55	50
Ratio of operatives to administrative, technical and clerical employees		1.4	1.3	1.6	1.3
Wages and salaries per operative	£	9,570	9,196	9,108	8,027
Wages and salaries per administrative, technical and clerical employee	£	12,136	10,741	11,565	12,233
Net capital expenditure per head	£	923	1,498	1,180	1,312
Net capital expenditure as a percentage of gross value added	%	5	9	7	7

TABLE 11

Operating ratios, 1987

All United Kingdom businesses classified to each Activity Heading within the industry

	Unit	3286	3287	3288	3289
Gross output per head	£	46,567	38,711	38,505	29,696
Net output per head	£	20,890	20,404	20,293	17,570
Gross value added per head	£	16,384	16,749	16,772	14,871
Gross value added as a percentage of gross output	%	35	43	44	50
Ratio of gross output to stocks		2.2	5.1	3.6	6.8
Wages and salaries as a percentage of gross value added	%	62	60	60	62
Ratio of operatives to administrative, technical and clerical employees		1.3	1.1	1.6	2.6
Wages and salaries per operative	£	8,982	9,036	9,261	9,042
Wages and salaries per administrative, technical and clerical employee	£	11,592	11,174	11,402	11,163
Net capital expenditure per head	£	1,474	893	887	1,284
Net capital expenditure as a percentage of gross value added	%	9	5	5	9



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