

## STUDENTS BRIEF

### SCOTLAND FROM THE CENSUS OF PRODUCTION

The Census of Production is a survey of manufacturing establishments\* in the UK and has been carried out, in one form or another, since 1907. Initially the surveys were only taken every 5 years but since 1948 they have been done on an annual basis. Since 1952 sample techniques have been introduced such that approximately 1 in 7 establishments are required to provide information about their activities. Over the years the information asked has changed, with a general tendency toward greater simplification in the range of questions, yet always retaining the important aggregates - total persons employed, total wages and salaries, total value of output and capital expenditure.

The Business Statistics Office (BSO) are responsible for conducting the Census of Production and they publish the results in the series entitled "Business Monitors". The main objective of the survey is to provide information useful for economic analysis, government departments and industry. The detailed results are contained in the separate reports published for each industrial sector. However, a secondary objective of the survey is to identify the regional differences which exist within manufacturing industries. Accordingly the result for Scotland (and the other regions of the UK) are reported in the Summary Tables (Business Monitor PA 1002) for each year, the most recent of which covers both 1974 and 1975.

Excluded from the survey, at least since 1973, are firms employing less than 20 people. This exempts approximately 60,000 establishments from complying with the survey requirements, but estimates for these small firms are included in the published results. In a further effort to reduce the burden on small firms, those employing between 20 and 99 people are asked to fill in a condensed version of the Census of Production questionnaires.

Recently the Business Statistics Office have published an "Historical Record of the Census of Production 1907 to 1970". In the table reporting regional comparisons, only employment and net output are considered. Net output (or value added) is expressed in current prices. In the following sections the discussion will concentrate on these aggregates and will attempt to highlight the structural changes by comparing the trend within each industrial sector of employment (and of net output) as a percentage of total manufacturing employment (output) in Scotland.

The overall situation for manufacturing industries, as defined by the 1968 Standard Industrial Classification (SIC) Orders III - XIX indicate, in Table 1, that Scotland's share of manufacturing employment has remained fairly stable over the post-war period at just under 9.0% of UK manufacturing employment.

Scotland's contribution to UK net output however reflects a steadily declining share up to 1972 with only 6.3%. Thereafter there is a sharp recovery back to mid-1950's levels. No doubt much of this reversal of fortunes can be explained by the growth of North Sea oil related activity effectively cushioning Scotland from the worst excesses of the economic recession of the mid-1970's.

\* A single enterprise may control a number of establishments.

Table 1 Manufacturing Industries (SIC Order III-XIX)

Year	Employment ('000)			Output (£m. current prices)		
	UK	Scotland	Scotland as % UK	UK	Scotland	Scotland as % UK
1954	7672	689	9.0	6235	523	8.4
1958	7782	675	8.7	7848	657	8.4
1963	7952	637	8.0	10820	849	7.8
1968	7826	649	8.3	15289	1207	7.9
1970	8033	674	8.4	18531	1379	7.4
1971	7029	647	9.2	20624	1349	6.5
1972	7522	623	8.3	22785	1438	6.3
1973	7522	623	8.3	22785	1438	6.3
1973	7616	636	8.4	26600	2263	8.5
1974	7755	657	8.5	33048	2784	8.4
1975	7467	639	8.6	36948	3075	8.3

Source: *Historical Record of the Census of Production 1907-1970 Table 8*  
*Business Monitor PA 1002, 1971, 1972, 1973, 1974/75*

Despite the apparent recovery in the manufacturing industries as a whole there are differences between individual sectors which highlight the swing away from a reliance on the heavy industries which dominate Scotland's industrial past toward a broader base of industrial activity.

#### Shipbuilding and Marine Engineering (SIC Order X)

The decline in Shipbuilding is particularly marked when a world perspective is taken. At the end of the last century Scotland's market share in shipbuilding was 30% but today represents only around 1%. However, even within the UK, Scotland's share of this industry has been declining.

Table 2 Shipbuilding and Marine Engineering

	Employment ( '000)	Net Output £m	Employment as % of Scottish mfg.emplmnt.	Net output as % of Scottish mfg.emplmnt.
1954	68.2	43.1	9.9	8.2
1958	67.1	52.3	9.9	8.0
1963	44.1	41.8	6.9	4.9
1968	37.6	51.6	5.8	4.3
1970	39.2	52.0	5.8	3.8
1971	37.9	60.5	5.9	4.5
1972	38.9	57.0	6.0	4.0
1973	41.5	89.4	6.5	4.0
1975	40.4	103.9	6.3	3.4

Source: *Historical Record ibid.*  
*Business Monitor PA 1002 ibid.*

Employment in shipbuilding has steadily declined over the period, accounting for only 6.3% of total manufacturing employment in Scotland by 1975. Further evidence of the decline of the shipbuilding sector is illustrated by the labour productivity record of the industry. During the 1950's the sector's output share was broadly in line with the employment share (8.2% and 9.9% respectively). Since then the output share has steadily fallen to 3.4% of Scottish manufacturing output despite employing 6.3% of Scottish manufacturing employment.

#### Engineering and Allied (SIC Order VII-XIX, XI and XII)

For purposes of comparison the mechanical, electrical and instrument engineering sectors, along with vehicles and other metal goods have all been aggregated in Table 3.

Table 3      Engineering & Allied Industries

	Employment ( '000)	Output fm	Employment as % of Scottish mfg.emplmnt.	Output as % of Scottish mfg.emplmnt.
1970	237.9	454.3	35.3	32.9
1971	223.1	419.2	34.5	31.1
1972	208.0	427.0	33.4	29.7
1973	212.7	635.1	33.4	28.1
1974	-	-	-	-
1975	221.7	1073.5	34.7	34.9

Source: *Historical Record* *ibid.*  
*Business Monitor PA 10002* *ibid.*

Engineering industries maintained a fairly stable share of both employment and output in Scotland despite a 7% decline in employment. Furthermore labour productivity in the sense of the % share of employment compared with % share of net output, improved markedly between 1973 and 1975. Explaining this trend requires more information than is provided by the Census of Production. For example, it is tempting to attribute the success of the engineering sector to investment in new technology. However the growth in capital expenditure in the sector was only 45.1% in real terms between 1970 and 1975 compared with 89% for Scottish manufacturing industry as a whole. Perhaps this may indicate that it is not technology but education and training promoting labour productivity and efficiency. Secondly, technology is a non-homogeneous commodity which cannot easily be compared simply in terms of capital costs and must also isolate the technical efficiency of the technology. We cannot, therefore, use the Census of Production as our sole guide in explaining productivity differences between regions or industries.

#### Food, Drink and Tobacco (SIC Order III)

This sector incorporates the important distilling and brewing industries, but space does not permit a separate analysis of the constituent parts.

Table 4 Food, Drink & Tobacco

	Employment ( '000)	Output £m	Employment as % of Scottish mfg. emplmnt.	Output as % of Scottish mfg. output.
1958	84.4	110.7	12.5	16.8
1963	86.6	163.7	13.6	19.3
1968	95.9	250.8	14.8	20.8
1970	97.5	328.8	14.5	23.8
1971	100.9	344.8	15.6	25.6
1972	95.8	337.6	15.8	23.8
1973	100.5	537.9	15.8	23.8
1974	103.8	612.0	15.8	23.8
1975	102.4	672.2	16.0	21.9

Source: *Historical Record* *ibid.*  
*Business Monitor PA 1002* *ibid.*

Over the period 1958-1975 employment has grown from 12.5% to 16% of Scottish manufacturing employment whilst the output share has grown from 16.8% to 21.9%, significantly higher than the employment share. Net output per employee in Scotland was approximately £6,560 in 1975 compared with £6,200 for the UK as a whole.

Table 5 Net Output per Employee 1975

	UK	Scotland
III-XIX All manufacturing	£4948	£4814
III Food, Drink & Tobacco	£6166	£6564
V Chemicals & Allied	£8326	£8087
VI Metal Manufacture	£4851	£3665
VII Mechanical Engineering	£5121	£5357
VIII Instrument Engineering	£3996	£3572
IX Electrical Engineering	£4479	£4696
X-XI Shipbuilding, marine engineering & vehicles	£4255	£3565
XII Metal goods n.e.s.	£4249	£4631
XIII Textiles	£3647	£3352
XIV Leather, Leather goods & Fur	£3783	£4360
XV Clothing & Footwear	£2578	£2589
XVI Bricks, Pottery and Glass	£5738	£6266
XVII Timber & Furniture	£4560	£4293
XVIII Paper, Printing & Publishing	£5100	£4866
XIX Other manufacturing	£4511	£5025

Source: *Business Monitor PA 1002, 1974/1975*

The evidence in Table 5 indicates wide differences in net output per employee, both between industries and between Scotland and the UK as a whole. But output per employee should not be interpreted as reflecting on the quality of labour in the different sectors since no account is taken of the contribution of capital stock.

Most of the results discussed in this students brief have required some heroic aggregations of industrial sectors in order to highlight the broad structural feature of Scottish manufacturing industry. If a more detailed analysis of individual sectors had been possible, for example in the engineering industry which encompasses mechanical, electrical and instrument engineering, we would have found wide variations in employment and output trends.

### Useful References

1. Historical Record of the Census of Production 1907 to 1970. Business Statistics Office 1978 (H.M.S.O.£10)
2. Business Monitors published by the Business Statistics Office for each census. There are three main groupings of this series.
  - (a) Industry Reports: Individual reports on individual sectors for most Minimum List Headings of the Standard Industrial Classification.
  - (b) Summary Tables: Aggregated results from the industry reports on an establishment and an enterprise basis. Regional information is included under the former.
  - (c) Series of miscellaneous reports including introductory notes and an analysis of manufacturing units by employment size and regional breakdown.