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From the Private Secretary

9 March 1987

MANUFACTURING OUTPUT

The Prime Minister has seen your letter to me of 3 March about the effect of contracting out on the measurement of manufacturing output, and has noted the position.

DAVID NORGROVE

Paul Steeples, Esq.,
Department of Trade and Industry

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Secretary of State for Trade and Industry

3 March 1987

D R Norgrove Esq
Private Secretary to the
Prime Minister
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*The effect on manufacturing
employment?*

Prime Minister &

*I asked about the effect
of contracting out (transport, computing etc.)
on manufacturing output. This suggests
that because of the way the figures are
constructed manufacturing output is
probably overstated rather than understated
on this account.*

Dear David,

Thank you for your letter of 17 February.

*DLW
6/3*

Our statisticians have consulted their colleagues in the Central Statistical Office concerned with manufacturing output, and while it is clear that manufacturing industry does contract out more functions now than in the past, the effect on the official figures is by no means clear-cut, and it is not possible from the information available to provide a reliable estimate of the scale of this effect. We believe, however, that the impact on the official figures for manufacturing output has been very small.

George Ray, in an article published in the August 1986 edition of the National Institute Economic Review (copy attached), attempted to make an estimate of the effect of the shift of certain activities from manufacturing to services on the official index of manufacturing output between 1973 and 1983. He concluded that the effect was fairly small, substantially less than 3 per cent difference in total growth over the ten year period. However, his calculations were based on the false premise that the official index of manufacturing directly measures output in terms of value added at constant prices. In principle the index should do so, but for good practical reasons the indicators used to construct the manufacturing index measure gross output (ie total production), and therefore will not have been affected by whether services are provided in-house or not.

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Indeed, if it were possible to adjust the manufacturing output figures to take account of the growing proportion of gross output apparently accounted for by bought-in services, the revised series would, almost certainly, show lower growth over recent years than the figures now published. The overall figures for GDP(O) would also be reduced to the extent of the likely present double counting in the manufacturing and service sectors.

To sum up, because of the way the index of manufacturing is constructed, it is not thought that the factor pointed out in your letter has affected the official information for manufacturing output significantly. It may well have boosted the series for the service sector to some extent but we are not able to estimate this with any degree of certainty.

This is a particularly difficult problem which official statisticians here are aware of; it is also a topic currently under the spotlight in statistical work in OECD since many developed countries are experiencing similar changes.

Yours ever,

Paul

PAUL STEEPLES
Private Secretary

SERVICES FOR MANUFACTURING

This short note attempts to answer the question of whether, and to what degree, the decline in manufacturing output in 1973–83 might have been due to a shift of certain activities from manufacturing to services.

Introduction

The most recent peak in the production of UK manufacturing industries was in 1973; ten years later, in 1983, the level of manufacturing output was still 15 per cent lower.

In the same period the official output index for services (as measured by value added and other methods) increased markedly and one of its sections—Division 8, covering banking and finance, insurance, leasing, business and professional services—grew particularly rapidly, by about 70 per cent.

It is reasonable to assume that certain services previously performed by manufacturing firms themselves might have been taken over by companies classified under services; or new types of services—for example, those allied to spreading computerisation and the application of microprocessors—have been sent to outside firms by some manufacturers, whilst others have solved problems arising from the new techniques, such as, for example, software, by employing skilled personnel.

In any case, between 1973 and 1983, the most recent year for which detailed information is available from Census of Production reports, the value, at current prices, of manufacturing industries' gross output trebled, whilst the value of manufacturers' purchases of non-industrial services rose almost sixfold. This very disproportionate development

appears to indicate that there might have been a shift of certain activities from manufacturers to the service industries, a change that presumably reduced the value added by manufacturing and increased that of services. In this note an attempt is made to quantify the impact of this change on the measured output of manufacturing.

The method

The Census of Production contains, apart from the gross output and the gross value added, information on the purchases by manufacturers of industrial and non-industrial services. The latter are shown in some detail: rent and hire of plant, machinery and vehicles (including leasing), commercial insurance premia, bank charges, and all other non-industrial services. Licensing of road vehicles and rates (but not water rates) are also given separately.

If all these purchases of services are expressed as percentages of the value of gross output in manufacturing, the time series indicates the shift towards the service industries; a comparison of the 1983 data with those of 1973 shows the extent of the growth of manufacturers' reliance on outside suppliers for various services.

This growth originated from three sources. First, services that in earlier years (like 1973) were purchased from other manufacturing firms were later performed by service companies. Secondly, services previously performed internally by the manufacturers themselves were later farmed out to, and purchased from, non-manufacturing firms. And, thirdly, new

This note was prepared by George F. Ray.

Table 1. Manufacturing industries: gross output and the cost of services purchased

	1973	1975	1977	1979	1981	1983
Gross output, £ billion	63	93	132	155	165	189
Cost of services purchased as per cent of gross output						
Industrial services	5.5	2.6	2.7	2.9	2.7	2.8
Non-industrial services	4.5	4.9	5.2	6.4	7.7	8.0
of which:						
Leasing ^(a)	0.5	0.5	0.6	0.8	1.0	1.0
Insurance premia	0.4	0.4	0.4	0.4	0.4	0.3
Bank charges	0.1	0.1	(c)	(c)	(c)	(c)
All other services ^(b)	3.0	3.2	3.5	4.5	5.4	5.7
Rates, vehicle licences	0.5	0.7	0.7	0.7	0.9	1.0

Source: Report on the Census of Production, HMSO, various issues.

(a) Rents, hire of plant, machinery and vehicles.

(b) Includes all business and professional services (including advertising, research and development, rents of industrial and commercial buildings, post and telecommunications services, transport within the UK, amounts payable in royalties for the right to use patents, trademarks, copyrights and technical 'know-how', etc.).

(c) Less than 0.05 per cent.

Table 2. Costs of selected non-industrial services to manufacturing industries, 1973, 1979 and 1982
Percentages of gross output

	Leasing ^(a)				Business and professional services ^(b)			
	1973	1979	1982	Growth ^(c)	1973	1979	1982	Growth ^(c)
Extraction & processing of minerals (excl. energy)	..	4.2	3.1	..	..	13.0	13.2	..
Food, drink & tobacco	0.3	0.5	0.6	0.3	2.7	3.8	5.2	2.5
Chemicals	0.5	0.6	0.9	0.4	4.9	5.4	6.5	1.6
Man-made fibres	0.7	0.7	0.7	—	4.1	4.9	6.5	2.4
Metal manufacture	0.5	0.8	0.8	0.3	2.3	2.9	3.9	1.6
Mechanical engineering	0.7	1.0	1.5	0.8	2.9	4.3	5.4	2.5
Electrical engineering	0.6	0.9	1.1	0.5	2.1	4.3	5.1	3.0
Instrument engineering	1.1	1.2	1.5	0.4	3.2	4.9	6.7	3.5
Office machinery, etc.	1.3	1.1	1.1	-0.2	1.3	2.8	3.6	2.3
Motor vehicles	0.4	0.6	0.6	0.2	1.9	3.6	5.4	3.5
Shipbuilding	0.3	0.4	0.6	0.3	1.5	2.0	2.3	0.8
Other transport equipment	1.1	1.0	1.0	-0.1	1.8	2.6	3.3	1.5
Other metal goods	0.5	0.8	1.2	0.7	2.8	4.2	5.5	2.7
Textiles	0.4	0.5	0.6	0.2	2.2	3.0	3.8	1.6
Leather	0.3	0.3	0.7	0.4	1.8	3.4	3.8	2.0
Clothing & footwear	0.8	0.9	1.0	0.2	2.4	4.1	5.0	2.6
Bricks, pottery, glass, cement	0.9	1.1	1.3	0.4	7.7	9.5	9.0	1.3
Timber, furniture	0.5	1.0	1.3	0.8	2.6	4.5	5.9	3.3
Paper, printing, publishing	0.8	1.2	1.4	0.6	4.6	7.6	9.1	4.5
Other manufacturing ^(d)	0.7	1.0	1.4	0.7	3.9	5.3	6.9	3.0

Source: As for table 1.

(a) For definition, see table 1.

(b) Defined as 'all other services' in table 1.

(c) 1982 minus 1973.

(d) Includes rubber and plastics.

types of services started to be purchased from service companies. Of course, some manufacturers might have decided to cater for these new requirements by expanding their internal organisation, thereby avoiding outside services.

It is possible to measure the effect of the change mentioned in the first instance: from industrial to non-industrial services; however, the Census data do not permit adequate distinction in order to identify separately the effects of the second and third points described above.

Manufacturers' spending on purchased services has grown significantly during the ten years to 1983. Yet the conclusion arising from the quantification that follows—that manufacturing output, as measured by value added, would have been proportionately higher had all the services in excess of their 1973 level been performed by the manufacturers themselves instead of outside suppliers—assumes, first, that manufacturers would have been in a position to adapt their internal facilities to the growing (and certainly partly new) requirements; and secondly, that these services, if performed internally, would have raised proportionately the value added by the main manufacturing operations. Neither of these assumptions can be verified from the information available.

Trends in manufacturing

Table 1 indicates the costs to manufacturing of services purchased in 1973–83 as percentages of the value of gross manufacturing output.

The first observation concerns industrial services, that is, purchases of services from other manufacturers. These fell from 5.5 per cent of gross output in 1973 to 2.8 per cent in 1983, almost balancing the rise of 3.5 per cent (from 4.5 to 8) spent on non-industrial services in the same period. It is probably reasonable to assume that the bulk of the decline was the result of two main factors: manufacturers have found themselves in need of new types of services that other manufacturing firms could not offer, and they might also have hived off servicing activities by creating specialised subsidiary companies which have come to be classified outside manufacturing. This latter development is probably of minor importance, as witnessed by the analysis of the data for non-industrial services, the major growth area having been that of business and professional services.

Leaving aside the growing burden of rates and vehicle licensing, the table points to two types of services whose purchases have doubled, as related to gross output in manufacturing, in the ten years to

1983: leasing and business/professional services. Spending by manufacturers on leasing amounted to nearly £2 billion in 1983, and on business/professional services to £11 billion, or 1.0 and 5.7 per cent of gross output. The comparable figures ten years earlier in 1973 were 0.5 and 3.0 per cent respectively.

On these two items of expenditure alone, manufacturers spent 3.2 per cent of the gross value of their output in 1983 in excess of their spending in 1973, the peak production year, in volume terms. Under the very extreme (and probably incorrect) assumption that all this could have been performed by the manufacturers themselves, the level of their production might have been 11.9 per cent below the 1973 peak, instead of 15.1 per cent (as measured by the official index). The real shift was probably much more modest and explains only a small part of the fall in manufacturing output.⁽¹⁾

Changes by industry

As table 1 shows, the major increases in manufacturers' spending in these two growth areas—leasing

and business/professional services—occurred between 1977 and 1981.

Table 2 contains an analysis by industry. Because of the different nature and technology of the industries listed, the level of their purchases varied a great deal. 'Extraction and processing of minerals' appears to have paid five times as much for leasing, as related to output, as some other industries such as food, motor vehicles or textiles. This same industry also leads in purchasing of business and professional services, and the paper-printing-publishing, building materials (bricks, pottery, glass, cement), instrument engineering, chemicals and man-made fibres industries also spent more on these services than other industries.

The growth of payments for business and professional services in the ten years to 1982 was fastest in the paper-printing-publishing industry, followed by motor vehicles, instrument engineering, timber-furniture and electrical/electronic engineering. Leasing fees rose most in the mechanical engineering, timber-furniture and metal goods industries.

⁽¹⁾The definition of manufacturing has been revised in the period 1973–83; to a certain extent this affected the industrial classification as well. It is unlikely that the revision influenced these general statements in any major way, although it might have some impact on some of the detailed figures.



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