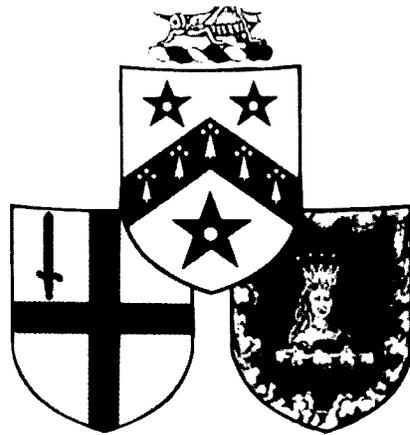


G R E S H A M
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GOVERNMENT STATISTICS

OFFICIAL STATISTICS: COUNTING WITH CONFIDENCE

A Lecture by

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9 February 1994

Official Statistics
(Gresham Lecture, 9 February 1994)

Introduction

1. The Domesday Book of William the Conqueror was a first form of national census, but it was mainly concerned about land, not about individuals.
2. Thomas Cromwell Chancellor to Henry VIII in 1533 ordered that the registers of baptisms, weddings and funerals be kept carefully in all churches. In 1597, by an Act of Queen Elizabeth, transcripts of these registers had to be sent to a diocesan registrar. It was Lord Burghley, Lord Treasurer to Queen Elizabeth who had the vision to see that these registers could be used as the foundation for basic national statistics.
3. In the 17th century, Sir William Petty was pre-eminently the first of a distinguished line of statisticians ; we were in this 20th century the first nation to produce a reliable series of national accounts. Government department's statistics grew by fits and starts, and not always smoothly. Albany Fonblanque who was the head of the statistical division of the Board of Trade in 1847, was also a journalist who ran a paper called the Examiner in which it seems that he was not always complimentary about the politicians of the day. Disraeli, in a letter to the Lord Derby of the time, wrote: 'The office of the chief of the statistical department held by Fonblanque, an imbecile as a man of business and who passes his official hours in writing libels against us, should be suppressed. It would be a delightful arrangement turning him out. We would save £800 per annum and when we read his abuse about us in the Examiner we would have the satisfaction of knowing that we had done something for the distinction.'
4. Statistics was very much a fragmented activity in government for many years and the first stirrings of using statistics as a major tool of government was in 1940 when Churchill brought Lindemann (later Lord Cherwell) into No. 10 and asked him to form a statistical office - later re-christened the Central Statistical Office in 1941.
5. This move proved to be a marvellous bonus, but it bought in its train difficulties,

some of which linger to-day. With some 50 statistical units, in the UK, of varying size and capabilities, answering to nearly 40 ministers, there was and still is, little coordination (legal figures for example sprawl over some 5 departments!). Since the CSO is so large (relatively) and the head of the CSO is the undoubted senior government statistician, it is not surprising that the Treasury gets its man, whilst the others are poor fellow travellers.

Table 1 gives a breakdown of manpower in the Government Statistical Service.

6. The early 80's brought about the Rayner review. The key doctrine in review was that the needs of government should alone determine the work of the Government Statistical Services. The interaction between the Rayner principle and the service's lack of autonomy (giving Ministers total choice over what statistics are collected) created a multiplier effect which compounded the lack of confidence in Government statistics. It was good to see that Norman Lamont 2 years ago dropped (quietly) the Rayner principle. Nevertheless the 80s have been somewhat turbulent for official statisticians.
7. As an example one has only to turn to unemployment figures. I will be giving a more detailed account of this particular series of statistics in my third lecture this semester, but suffice it to say at this stage that I believe the official statisticians have been given a very raw deal by the media and amateur - a point I will return to later.
8. The turbulence I mentioned earlier spilled over - due partly to poor leadership on the CSO, who were not the match of the Treasury and the Cabinet Office - and when I was pre-elected President of the Royal Statistical Society in late 1988 it became very clear to me that Official Statistics would be a major issue of my presidency. Incidentally, about 20 per cent of all professional statisticians in the UK work directly or indirectly for the Government : the Central Statistical Office (CSO) has about 5 per cent of the statisticians, the remainder are split in penny packets across all branches of the economy. The net result is that, if Government statistics are attacked, the morale of government statisticians as a whole goes down, whilst

statisticians at large feel that they are devalued, and recruitment dries up. The totality of statistical services are entitled the Government Statistical Service. The Head of the CSO is the head of the GSS, but only in an advisory role.

9. I decided to hold an open meeting - for all RSS members, but open to the press - on 'Public confidence in the integrity and validity of official statistics.'" Nearly 500 people turned up in December 1989 - a record for the RSS - and there were some 40 speakers, or written contributors. It was difficult to discern a single coherent thread in the contributions, but about two thirds of the contributions related to social statistics, with about one third concerned with economic statistics. The press reports varied enormously, but the Guardian gave the greatest coverage. Unfortunately the reporter - who was present - chose not to report the meeting as such, but to give her views on economic statistics blaming official statisticians when she should really be lambasting politicians!

10. The occasion led to the RSS setting up a Working Party to 'provide an independent review of the criteria and mechanisms for monitoring the integrity and adequacy of, and public confidence in, official statistics'. There was a seven person working party, which I chaired, and a report was published on 30 July 1990. The report concentrated primarily on four issues:
 - (a) Centralisation and Control. The major activities of data definition, collection, processing, primarily analysis and publication were recommended to be centralised in a Central Statistical Service. The Head of the whole Service, here called the Director of Statistics, should be made responsible for the operational and personnel aspects of the entire Service.

 - (b) Methodology. A research unit should be established to strengthen evaluation and methodological research. There should be a continuing programme of evaluation for all the major statistical series. A programme of joint research with academic and other institutions should

be set up, together with the encouragement of visiting appointments from home and overseas.

(c) National Statistical Commission. An advisory National Statistical Commission is required to support the objectivity, integrity, timeliness, and scope of UK official statistics. It should report annually to Parliament, via the sponsoring Minister. Such commissions are in place in Canada and Australia.

(d) UK Statistics Act. An Official Statistics Act safeguarding the autonomy and constitutional position of official statistics and statisticians is in place in most western countries. Such an Act is considered necessary for the UK.

11. The Government rejected the report immediately as they did not accept (a). Misguidedly, they then apparently believed that (b), (c) and (d) were irrelevant. Ironically, the Treasury bulletin also published in July 1990 stated in its first page 'There is no doubt that the quality of UK economic statistic has deteriorated over the last two years'. This result, naturally, was a great disappointment to the RSS but increasing critical commentary in the press and media generally has subsequently forced a number of changes. For example, the Retail Prices Index was transferred from the Department of Employment to the Central Statistical Office; the Labour Force Survey - then annually - was changed to a quarterly basis, Mr Lamont re-defined the Rayner doctrine to read 'official statistics are produced not just for government, but for the benefit of business and the public at large', etc.
12. In March 1991 the House of Lords held a 2½ hour debate on the Quality of Government Statistics - a subject that had never before been held in either of the House of Parliament. It was opened by Lord Donoughe, an academic from LSE and an investment banker. He put together a tough indictment - using quite a lot of material from the RSS report - and argued strongly that the current operational framework was wrong. There were 10 further speakers, with a very powerful speech

by Lord Peston. A government minister, Lord Hesketh, summed up. Most of the latter's speech was a historical re-statement of the statistical system currently used by the government. As his platform he reiterated the mantra 'we believe that the de-centralised system provides an extraordinary cost-effective service for government'. No evidence was offered, to backup the assertion, it remained and remains today an article of faith alone. Whilst Lord Hesketh gave a fair assessment of the usual routine changes that take place from time to time, he gave no hint of any new initiatives in the statistical field.

13. At the end of 1991, a successor for the post of Director of the CSO had to be found. The post was widely advertised - a novel approach - and head hunters both amateur and professional were employed. The result was that Bill Mc Lennan, a bluff Australian and the then Deputy Director of the Australian Bureau of Statistics, was appointed for a five year term. A fresh wind blew through the corridors of Whitehall when he arrived in February 1992. For example, in March 1993, Mr Lamont announced new measures to improve the publication of economic statistics by the CSO and to emphasise the integrity of official statistical data. 'The changes emphasise my (Mr Lamont's) determination to promote openness and transparency in the government's economic decision making, enhance the reputation of government statistics and promote public confidence in their integrity. The measures will also:

- i) fully explain the CSO's publication procedures,
- ii) announce release dates 3 months in advance,
- iii) limit advance access to statistical releases.'

Release of statistical data by the CSO is now governed by three basic principles:

- a) the CSO publishes data as early as possible and always on pre-announced release dates and times,

- b) data are available to all users at the same time with limited exceptions only on a strict need-to-know basis
- c) the CSO is solely responsible for the contents of its press releases, subject to advance consultation with the Chancellor of the Exchequer on changes in format.

14. In late 1992, Bill Mc Lennan gave a talk to the Official statistics section of the RSS after his first six month in office. He started his talk by saying that he had yet to understand fully how the GSS is delimited within the statistical work of 50 departments and agencies. He has responsibility for the GSS and is the government's chief adviser on statistics, but only controls the CSO directly. His priorities were summarised as:

- a) All our data should be available in the public domain
- b) We will listen to users
- c) Our methods will be open to external review
- d) Our code of good statistical practice should cover the release of government statistics.

One RSS member at the meeting summed this up as a commitment to an open, listening, and professional GSS. The Director accepted these commitments and emphasised that he also accepted the need for the GSS to sharpen its image. More methodological work was needed and greater efforts were required to educate the press (and parliament) about official statistics. Greater effort needed to be spent on getting the principles underlying the statistics right. Government statisticians should recognise that the choice of which statistics are presented, and the way in which they are presented and used, both impact crucially on public debate. Improvements to official statistics would come partly from organisational changes

and partly from injections of fresh cash.

15. About the same time as this talk was being delivered the Economist published a plea for relevance in official statistics (December 1992). This was initiated by the change that was being made for European trade figures changing the base from customs dockets (no longer required in the EC) to VAT returns. Balance of payment statistics have been poor, not just in the UK, but elsewhere such as the USA. The Presidential election of November 1992, for example, was not helped by the fact that the Q3 growth figure was announced as 2.7 per cent and revised, after the election, to 3.9 per cent. The Economist argued that statisticians here have failed to keep pace with economic change. They pore over figures relating to iron ore, but tell users little about the fastest growing industries such as computing, financial services and consultancies. Services now account for two thirds of economic activity in most advanced industrial economies, and nearly two-fifths of world trade. GDP figures as a whole have become less reliable as the statistical machinery is still geared up to counting goods rather than measuring services. Official statistics have also failed to keep up with the rapid expansion of foreign investment. The problem is that the switches made have meant a new approach is required to estimating trade. In the USA, three motor companies account for \$150 billion worth of annual output; to get the same coverage in the restaurant and drink industry, you would need to survey more than 150,000 firms. Moreover a unit of output in services is tricky to define - even harder to take account of improving quality.
16. At the end of 1992 Professor Fred Smith, a well respected statistician at Southampton University who was anxious that official statistics were acceptable to the public, argued that a clear line should be drawn between the statistics that the electorate could use to judge the broad performance of their government on the one hand and the broad mass of statistics that governments need to do their jobs properly on the other hand. Accordingly, Smith said, certain key statistics such as the Retail Price Index, the unemployment figures, the distribution of income, and

the balance of visible and invisible trade, should be designated as auditing statistics. Additionally - and very pointedly - the funding, management and control of these auditing figures should be in the hands of Parliament, and not with the government of the day.

17. Smith's point about the need to create greater confidence in official statistics is well made and his proposal is engaging. However, I have some serious reservations. The first is that all statistics are dynamic in the sense that the way they are defined cannot be set out once and for all in concrete or, if the definition is so set, the figures become increasingly divorced from reality. The Retail Price Index is an every day example. The goods and services used will change over time because patterns of expenditure change. The range of inclusions and exclusions is crucial. Is mortgage interest in or out? Should foreign holidays be included or excluded? Since the definition of "official statistics" will change with time, there will have to be a body of "auditors" to decide on what alterations to make. Thirty years ago, 35 per cent of the Retail Price Index was linked to food, today it is 15 per cent; 3 per cent was then linked to motoring, today it is 14 per cent. Nobody actually "spends" the index which is representative, rather than actual. Secondly, if government is unhappy and disagrees with the audited statistics - will it be forced to collect its own statistics, thereby creating two indexes, one from the auditors, and a second from the government? And how would any disagreement between the two be resolved? How much power and money will the auditors have? At present, statisticians working out the balance of trade, for example, have legal powers to obtain the basic information that they need. Some 57 per cent of Britain's trade is within the European Community. For the European countries, all trade figures will now be obtained through a European office, INTRASTAT, primarily based on VAT returns from all trades that are registered for VAT within the Community every month. If the auditors decided to set up a separate system for Britain, outwith the INTRASTAT system, it would be extraordinarily expensive and complicated and would require substantial legal cooperation from all the other countries in the European Community. (Non-European trade will incidentally, still be on the basis of customs returns.)

My third reservation concerns the make-up of the complex and wide-ranging economic framework in which we live. If a few statistics alone are treated as the indicators by which the electorate judge good economic health, governments would surely be tempted to skew their policies to achieve good results on precisely those indicators. In doing this, however, the nation might find that other indicators of economic health outside the RPI, unemployment, etc. were looking rather sick; for example, a large Public Sector Borrowing Requirement, high interest rates, lowered manufacturing output, low rate of growth in the GDP, and so on might be a consequence. A more balanced approach to overall economic policy is surely not just desirable, but essential.

The term "auditing" suggests a looking back on what has happened - an auditor examines a company's financial affairs for the preceding year, while the National Audit Office looks to see whether government money allocated to a project has been well spent or not. Smith seems to envisage an alternative office set up by Parliament which would be given legal powers to collect data, appoint the staff and facilities to process the data, and the right to publish the results. Since much of the data will be needed for other arms of the government, there may be difficulties if government wants the data in a different form from that of the alternative office, the government of the day presumably having a majority in Parliament, and able to force its will.

Is there not some confusion here? We should surely concentrate on getting the best definitions of the statistics that are important to both the public and the government, rather than concentrating on which statistical series is in the government domain and which is the private domain, and the mechanics of who does the collection, processing and analysis.

18. In September last year, the Economist ran two articles under the heading 'The Good Statistics Guide' or, sub-titled, 'Which country boasts the best (or least bad) statistics? This survey was first done in 1991 when 20 international statisticians (which excluded me!) were asked to rank the official statistics agencies in 13

industrial economies. The panel included the chief government statisticians in the 13 countries, the IMF and a few individual statistical experts. The process was repeated last autumn. Canada and Australia came top on both occasions. Britain saw the biggest gain rising from ninth in 1991 to sixth in 1993. (See Table 2 attached).

19. To complement the panel's judgement, the second column of the table looks at the average size of revisions made to GDP growth. (Average annual difference between the initial estimate of quarterly GDP growth and the figure for the same quarter two years on.) Canada leads the league, with Germany, Holland and Japan the laggards. The third column ranks for timeliness - speed with which figures are published for GDP, inflation, industrial output and trade. America is fastest; fastidiously accurate, Canada is one of the slowest along with Japan, Australia, Spain and Belgium. The fourth and fifth columns are self-explanatory. One curiosity of the table is that, overall, Britain and America appear to offer the best combinations of accuracy and timeliness. Nevertheless, the Economist poll rated them only sixth. One reason - the Economist avers - may be the lingering suspicion that statistics in America and Britain are subject to political meddling.
20. Overall the Economist made three suggestions if the UK government statistical machine is to be raised to the top of the pile. First, British (and American) number-crunchers currently lack the formal independence enjoyed by their counterparts at the top three statistical agencies (Canada, Australia and Holland). An obvious remedy is for official statisticians in the UK to be given statutory protection from political pressures, similar to that given in the top three countries mentioned. Second, it is noteworthy that all the top three have statistical service centralised in a single agency. This makes statutory independence plainer to the eye. Britain, in contrast, has a decentralised system with statisticians scattered around departments reporting to a wide array of ministers. To quote from the Economist: 'Cohabitation with a ministry can raise problems of independence.' Centralisation should improve accuracy and aids the pooling of data and ideas. It

also avoids the possibility of relatively junior statisticians being regarded as inappropriate to take part in departmental policy discussions. Thirdly - and the statisticians themselves must here take part of the blame - the shift from manufacturing to services has been all but ignored. This may indeed be the major reason why GDP figures have grown less reliable, as opposed to less trusted.

Overview

21. There is little doubt that a shake-up is going on in UK Official Statistics. But there must be some doubts as to how far this can and will go. We are not a numerate nation and we use statistics badly - viz the well known story of the drunken man leaning on a lamppost in the dark - for support, rather than illumination.

These concerns lead me to add one further change that I would like to see - namely the institution of a widely based National Statistical Commission. Many countries have a National Statistical Commission (NSC). Out of 33 European Community countries, both East and West, and the Americas, 18 countries have NSCs of some form or other. It is commonly seen as one way in which the roles of both government statisticians and government statistics can be enhanced. The most common roles of an NSC are to give:

- (a) advice on issues of public policy
- (b) advice on the efficient and effective collection of data
- (c) advice on priorities of statistical work
- (d) recognition that there is a high level forum for exchanging ideas between government, industry, academia and society generally, and
- (e) encouragement to the more general role of statistics within the general community.

Outside government the idea of a NSC has received a wide measure of assent. There are, however, conflicting views as to whether or not the NSC should be an advisory and consultative body or alternatively, a body that has more teeth and is empowered to determine the ways in which the government statistical budget is used.

22. The following exchange between members of Parliament regarding minimum wage levels, recorded in Hansard in 1992, may be of interest and concern in upgrading the statistical service:

Mr Arbuthnot (Wanstead & Woodford): The Labour Party's suggestions of minimum wage is in itself rather obscure and bizarre. As I understand it, it is tied to the average and would therefore not only be relatively high at £3.40 but would increase as the average wage itself increased. With each increase in the average rate of pay, the minimum wage itself would have to go up and it would be forever chasing its own tail.

Mr Tony Lloyd (Stretford): Perhaps I can help the hon. Gentleman. It will be tied to the median, which is not the same as the average. It is simply a mid-point on the range and would not be affected by changes in the minimum wage.

Mr Arbuthnot: From what I understand, even an amount tied to the median would be affected because if the lowest wage were increased to £3.40 per hour, the median would have to rise.

Mr Tony Lloyd: I shall put the matter in simple terms. The median, the mid-point in a series of numbers such as 2, 2, 5, 6 and 7, is defined as being the difference between 2 and 7, which is 3.5. If we alter the figures 2 and 2 to 3.5, the middle figure of 5 would remain unaltered because it is independent of the bottom figures.

Mr Arbuthnot: I do not understand the hon. Gentleman's mathematics and I slightly doubt whether he does.

Mr Matthew Carrington (Fulham): I am extremely confused. I studied mathematics for some years at school and I have not totally forgotten all of them. The median is not the mid-point between the first number and the last. It is where the largest number of items in a sample comes to, whereas the average is obviously the sample multiplied by the number of items. The hon. Member of Stretford (Mr Lloyd) is obviously extremely confused. The median has a precise mathematical definition which is absolutely right, and my hon. Friend is correct in saying that the median is bound to alter if the number at the bottom on the scale is changed. That will alter the average as well in a different way, but it is bound to alter the median. Perhaps the hon. Member for Stretford wishes to define median in a non-mathematical sense.

Mr Artuthnot: I am grateful to my hon. Friend for sorting out at least the hon. Gentleman's mathematics with obvious skill and knowledge.

23. Furthermore, it seems clear that the limitations mentioned earlier (lack of independence and centralisation) may well put a ceiling to the operational efficiency of the service, given that at the same time the extreme efforts that are being made to achieve economy. An added concern, is whether the service as a whole is collecting - perhaps not very efficiently - too many statistical series with the consequence that each may be of poor quality, and possibly not timely.

25. Summarising the issues that have been raised leads me to make the following points:
 - (a) The Government Statistical Service has within it a large number of able professional statisticians.

 - (b) A continuing review is required, to ensure that the statistical effort available is concentrated on the important current areas of information coverage.

- (c) A National Statistical Commission is needed to marry the needs and usages of both Government and the economy generally for statistical information.
- (d) A stronger legal framework than at present is required to ensure the independence of the statistical service.
- (e) A more robust form of centralisation is needed in order to use statistical manpower and effort in the most effective possible way.

Government number-crunchers crunched

	<i>The Economist</i> poll of statisticians	Revisions* percentage points	Timeliness§	Statisticians‡ per 10,000 population	Government statistics budget† per head. \$†
Canada	1	0.2	9	1.6	8.2
Australia	2	0.6	11	2.0	9.0
Holland	3	1.0	5=	2.0	7.6
France	4	0.3	5=	1.7	6.0
Sweden	5	na	7	na	na
Britain	6=	0.3	2=	0.9	4.2
Germany	6=	0.8	2=	1.9	8.0
United States	6=	0.3	1	0.6	8.8
Japan	9	0.8	10	na	na
Switzerland	10	0.4	4	na	na
Italy	11	0.3	8	1.4	5.0
Spain	12	na	13	1.2	4.2
Belgium	13	na	12	1.3	3.6

* Average absolute deviation between initial estimate of quarterly GDP growth and latest revision, 1989-91. Belgium, Spain and Sweden did not publish figures for the full period. § Average speed of publication of GDP, industrial production, consumer prices and trade (based on latest three published figures). 1 is fastest, 13 is slowest. ‡ EC estimates from Eurostat, updated by *The Economist*, other figures from national statistics offices. † Converted at purchasing-power parity.

Manpower in the GSS from 1979 to 1989

<i>Department</i>	1979	1984	1989-90
Central Statistical Office	263	196	145
Inland Revenue	608	313	166
Customs and Excise	1311	983	526
Employment, etc.	1430	960	314
Environment and Transport	527	360	287
Health and Social Security	517	322	307
Office of Population Censuses and Surveys	1100	791	495
Industry and Trade	1399	1054	837
Others	1846	1472	1151
Total	9001	6451	4228

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