



ADDING IT UP

IMPROVING ANALYSIS & MODELLING IN CENTRAL GOVERNMENT

A PERFORMANCE AND INNOVATION UNIT REPORT – JANUARY 2000

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FOREWORD



BY THE PRIME MINISTER

The job of government is to meet the needs and aspirations of the people. That depends on deciding on the right policies and then delivering them effectively.

Getting policies right depends on accurate data and analysis. There are about 1,800 specialists in Whitehall, including economists, statisticians, researchers and actuaries, who provide that analysis and modelling. They do an excellent job. But as everywhere else in government, there is always room for improvement in how they work and the way the rest of government makes use of the information they provide.

This means learning from mistakes, seeing what works best, and making comparisons to the highest benchmarks in the rest of the UK and internationally.

The Modernising Government White Paper we published last year set out this Government's commitment to policy-making based on hard evidence. And as in education, or NHS reforms, or fighting crime, we must always be looking at the outcomes of policies – the benefits in people's lives – not the process.

That is why I asked the PIU to examine how we could achieve this, as part of the wider reforms of the Civil Service now under way. Their report not only shows the size of the potential benefits. It also sets out new ways to ensure that analysis and modelling is given due weight in policy advice to ministers and senior managers, and that analysis, like policy itself, is properly joined up.

The conclusions in 'Adding it up' constitute a major programme of reform. Putting this into practice successfully will mean better decision-making and better government in the years ahead.

A handwritten signature of Tony Blair in black ink, with a horizontal line underneath.

Tony Blair

1. EXECUTIVE SUMMARY

Key messages

1.1 This report forms an integral part of a series of reviews and initiatives to prepare the public service for the 21st century. Its conclusions set out a comprehensive and coherent programme for creating the conditions in which rigorous analysis is routinely demanded and delivered. Implementation of this programme will be a key step towards the commitment to evidence-based policy made in the **Modernising Government White Paper (1)** and developed in the Cabinet Office paper on **Professional Policy Making (2)**.

1.2 A great deal of good analytical work is carried out in central Government. But there is also considerable scope for improvement, to bring analysis in the UK up to the highest international standards. There needs to be a *fundamental change in culture* to place good analysis at the heart of policy-making. This will require:

- *leadership* from Ministers and senior officials;
- *openness* from analysts and policy makers;
- *better planning* to match policy needs and analytical provision;
- *spreading best practice* across departments and professions;
- innovative solutions to *recruit and retain the best people*.

Leadership

1.3 Better analysis requires commitment throughout Government. Ministers and senior civil servants have a crucial leadership role in expecting and demanding soundly based analysis in support of policy. They need better understanding of the importance of analysis and how it can contribute to good decisions and policy outcomes.

1.4 Policy makers in central Government also need a better understanding of what analytical colleagues can offer. Such an approach is operated successfully in the Treasury where all policy makers are required to have reached minimum standards of proficiency in analytical skills if they wish to pursue opportunities for promotion.

1.5 This report concludes that:

- training for new Ministers and for senior civil servants run by Centre for Management and Policy Studies (CMPS) should emphasise the importance of analysis for evidence-based policy;
- individual departments should define the need for training for policy makers and pursue this intensively to redress any bias against quantification and analysis.

Openness

1.6 Openness is a very powerful incentive for encouraging the highest standards of analysis in support of policy making because the results then have to be publicly defensible.



1.7 This report concludes that:

- each department should produce an (annually reviewed) analytical strategy as part of its normal business planning process to encourage input, challenge and feedback from experts and stakeholders outside Government;
- long-term quantitative models should be published and subject to external audit.

Planning

1.8 Analysis needs to be jointly planned by policy makers and specialists to ensure the Government's key policies, now and in the future, are underpinned by the right analytical effort. The Treasury and the Cabinet Office are well placed to spot gaps or deficiencies in departments' analytical strategies. These central departments have a crucial "challenge role" to play in ensuring that key policies and programmes are underpinned by good analysis.

1.9 The report concludes that:

- as part of the Spending Review process, the Chief Economist in the Treasury Spending Directorate should review departmental analytical strategies to identify deficiencies, gaps and overlaps;
- to perform their challenge role effectively, central departments should undertake a review of their analytical capability.

Spreading best practice

1.10 Government should know what it knows. Better management and organisation of knowledge within Government – one of the roles to be taken forward by the CMPS – would help to communicate analytical results and techniques across departments and specialisms.

1.11 The report highlights a number of areas where disseminating best practice would improve the quality of analysis:

- more and better use of pilots to test the impacts of policies before national roll-out;
- making better use of the large amounts of data Government routinely collects;
- communicating clearly across Government what data are available;
- better networking between specialists in Government.

Employing the best people

1.12 To obtain the best analysis, Government needs to employ or to access the best analysts. The market place for good analysts is, however, highly competitive and increasingly international.

1.13 The report concludes that Government should take steps to make itself more attractive to high quality analysts through a variety of routes:

- greater use of personal promotion to show that high quality expertise is valued;
- more movement between generalist and specialist posts within the Civil Service and greater use of secondments;
- an urgent examination of the case for rewarding good analysis with higher pay.

Implementation

1.14 The changes set out in this report will be overseen by an Implementation Group, chaired by the Head of the Government Economic Service (GES). This group will monitor the progress made by those with the primary responsibility for implementing the report's conclusions. There are three key players:



- the **CMPS** will promulgate better use of analysis in policy formulation. The development and implementation of analytical strategies in departments will be a key element in its programme of departmental peer reviews of policy making;
- an expanded **central microeconomics team in the Treasury**, which will provide the secretariat for the Implementation Group;
- **Permanent Secretaries**, who as part of the **Civil Service Reform process** will take forward the proposals about better business planning and bringing in and bringing on talented specialists.

2. INTRODUCTION

Summary

There are many examples of good analytical work in Whitehall. Some are explored in detail in the case studies prepared for this report.

But there is also considerable scope for improvement – to embed the demand for and supply of high quality analysis more firmly into the Whitehall culture.

This report aims to establish the framework for analysis that central Government needs to take it into the next century.

What is analysis and modelling and why does it matter?

2.1 In the context of the activities of Government, analysis involves the examination and interpretation of data and other information, both qualitative and quantitative, to provide insights to improve the formulation of policy and the delivery of services. Modelling (a subset of analysis) is about establishing causal and formal mathematical relationships between variables.

2.2 Rigorous analysis and, where appropriate, modelling is in the best interests of both Ministers and senior officials. They lead to better decisions and improved policy outcomes. Without soundly based analysis and modelling, those involved in the formulation of policy and the delivery of services will work in the dark. As a result, the pace of reform may be slow.

What are we trying to do?

2.3 The **Modernising Government** White Paper (1) and the Cabinet Office report on **Professional Policy Making** (2) emphasised an evidence-based approach to policy making. The use of soundly based analysis and (where appropriate) modelling is a key step towards this goal.

2.4 It was originally intended that this project should focus on the use of microeconomic modelling in central Government. But – as became evident during the project – microeconomics is only one among several analytical disciplines that bear on policy development. And modelling represents just one form of analysis. All forms can be equally critical to evidence-based policy. These considerations led to a broadening of the original remit for the project.



Box 2.1. How Was the Project Carried Out?

In compiling this report the PIU team has drawn on:

- **questionnaires sent to all departments** to gather information on areas of policy priority in the immediate past and over the next few years; the analytical support underpinning these areas of policy; use of and access to data; long-term models; details of numbers of analytical staff and how they are organised;
- **discussions with policy makers**, economists and analysts in departments and at the centre (Treasury, Cabinet Office, No. 10 and the Office for National Statistics (ONS));
- **discussions with outside experts** familiar with Government drawn from, for example, think tanks such as the Institute for Fiscal Studies (IFS), academia and the private sector;
- **a series of detailed case studies** from which lessons may be learned – details are at Box 2.2.;
- **a review of best practice** in the private sector, in the academic and “think tank” sectors, and overseas.

2.5 The present report covers the work of microeconomists in Government in detail and in depth. It discusses the work of statisticians, actuaries, and social researchers, operational researchers and, on occasion, scientists where this overlaps with or touches on the work of economists. It also covers issues that are common to specialists, such as recruitment and retention of staff and joint working with policy-makers.

2.6 But the report does not discuss the use of techniques specific to social research (such as the design of social surveys), Operational Research (such as cognitive mapping, soft systems analysis and much scenario modelling) or actuarial analysis. Macroeconomic modelling and policy in the Treasury also fall outside the scope of the project.

2.7 The report excludes the policies and activities for which the devolved administrations in Scotland, Wales and Northern Ireland are responsible. However, officials in the devolved administrations have been made aware of the PIU study and kept in touch with its emerging conclusions.


2.8 Against this backdrop, the objectives of the project have been:

- to map departments’ capabilities for analysis and modelling and their access to and use of existing data in key policy areas;
- to identify areas of strength and weakness (best and worst practice);
- to identify the reasons for those strengths and weaknesses;
- to assess what links are needed between analytical work in different policy areas to ensure consistency of methods and data and thus a coherent overall evidence base for decision-making;
- to make cost-effective recommendations for change.

How is the report structured?

2.9 This report is structured as follows:

- **Chapter Three** identifies the main problems surrounding analysis and modelling in central Government, making a distinction between problems arising from the lack of demand for good analysis and the problems contributing to inadequate supply;

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- **Chapter Four** sets out a 'vision' of the role of analysis in an ideal world. It identifies the conditions which would need to be satisfied for there to be both a vigorous demand for and a high quality supply of analysis;
 - **Chapter Five** looks at the steps that might be taken to ensure Ministers and senior policy makers demand good analysis to support major policy decisions;
 - **Chapter Six** addresses how best to plan the supply of good analysis. The proposals are aimed at ensuring that the right priorities for analysis are set between different policy areas, that economist and other professional resources are efficiently and effectively deployed within and between departments and that cross-cutting analysis is carried out where necessary;
 - **Chapter Seven** considers what practical steps need to be taken to promote effective joint working of various kinds – between professionals and policy makers, between different kinds of professionals; and between different departments;
 - **Chapter Eight** considers the recruitment and retention of good analysts, the role of secondments and rewards and remuneration;
 - **Chapter Nine** sets out a series of proposals for improving the data available for modelling and analysis. This includes measures to encourage the improved use of data, to identify and fill data gaps and to define better the role of the centre (the Treasury, the Cabinet Office, No 10 and ONS);
 - **Chapter Ten** looks specifically at what can be done to improve the quality of modelling across Whitehall. A key theme of this chapter is openness – a willingness to expose modelling to external scrutiny;
 - **Chapter Eleven** explores how Government might make better use of the external knowledge pool through strengthening links between Government and academia, learning from the private sector and contracting out analytical work whilst retaining an intelligent customer capability in-house;
 - **Chapter Twelve** sets out an Implementation Strategy;
 - **Annexes** summarise the role of the PIU; give details of the project team and of the Steering Group which oversaw the project; summarise the findings from overseas visits; give a full list of those interviewed; and summarise the case studies. The detailed case studies underpinning this report have been made available on the PIU web-site (www.cabinet-office.gov.uk/innovation).

Links with other initiatives

2.10 This study is an integral part of a series of reviews and initiatives to prepare the public service for the 21st century. In addition to the **Modernising Government** White Paper (1) and the Cabinet Office paper on **Professional Policy Making** (2), two key developments are:

- the PIU report **Wiring It Up** (3), which examines how current accountability arrangements and incentive structures can be reformed to facilitate more joined-up policy making and delivery. This study helps to put in place more joined-up analysis in support of joined-up policy;
- the new Centre for Management and Policy Studies in the Cabinet Office, which will act as a repository for all that is known about policy making and the delivery of services. It will play an important role in the implementation of this report.



Box 2.2 List of Case Studies

Case Study 1	DETR National Road Traffic Forecast Model
Case Study 2	OFWAT Efficiency Models
Case Study 3	DETR Household Formation Model
Case Study 4	GAD Population Projection Model
Case Study 5	DSS Pensions Policy
Case Study 6	DSS Pensions Model (PENSIM)
Case Study 7	PSSRU Long Term Care Cost Model for DH
Case Study 8	DH Waiting Times Model
Case Study 9	LCD Civil Legal Aid Spending Model
Case Study 10	DfEE Labour Market Policy
Case Study 11	HMT Tax Benefit Model (IGOTM)
Case Study 12	DSS Policy Simulation Model (PSM)
Case Study 13	C & E Impact of Tobacco Smuggling
Case Study 14	DETR Model of Restructuring Social Rents
Case Study 15	DETR Air Quality Strategy
Case Study 16	FCO/DCMS Formulation of PSAs
Case Study 17	CO Electronic Delivery of Government Services
Case Study 18	HO Property Crime Models

2.11 The themes of all these reports – openness, joint working and the importance of getting the role of the centre right – are echoed throughout this report.

3. WHAT ARE THE PROBLEMS?

Summary

This Chapter identifies the main problems surrounding analysis and modelling in central Government. These problems can be divided into two categories: those arising from the lack of demand for good analysis and those relating to inadequate supply.

On the demand side, the key issues are: the external constraints on the policy process stemming from e.g. international agreements or detailed manifesto commitments; an occasional lack of interest in cross-cutting questions; more local disincentives to analysis e.g. where departments have a sponsorship role; and the tight deadlines associated with policy development.

On the supply side, the key issues are: shortcomings in business planning; inefficiencies in joint working; and difficulties in recruiting and retaining the best analysts.

These problems are reflected in the demand for and supply of both data and modelling in central Government.

3.1 This Chapter sets out the main problems that fieldwork for the project has discovered with analysis and modelling in central Government. It makes a distinction between problems arising from the lack of demand for good analysis and those arising from inadequate supply.

evidence. This means policy should be supported by good analysis and, where appropriate, modelling. This study has found, however, that demand for good analysis is not fully integrated in the culture of central Government. There are number of constraints on the use of analysis.

There is weak demand for good analysis

3.2 The government is fully committed to the principle that policies should be based on

External pressures can constrain the scope for analysis

3.3 The outcome of European Union (EU) and international negotiations can constrain



domestic policy. For example, the UK now has a target to reduce carbon emissions by 12.5% by 2008–2012 as a contribution to an EU target of an 8% reduction. Once such agreements or targets are set, the role of analysis is largely to work up detailed policy options for implementation.

3.4 Detailed manifesto commitments can also constrain a Government's scope for manoeuvre. They are usually seen as binding on the Government.

3.5 More often – and more helpfully – manifesto commitments do not take the form of specific pledges but are couched in broad strategic terms (e.g. to develop a stakeholder pension). The role of analysts and policy makers in Government is then to translate these broad goals into detailed and workable policy options.

The political timetable doesn't match the timetable for analysis

3.6 Ministers can set very tight deadlines for the delivery of analytical work. They can themselves be under intense political pressures to develop quick solutions to policy problems. At best, policy will generally be developed across a 6-9 month timespan. But research programmes and the development of microeconomic models can take much longer to complete.

A reluctance to collect and analyse data

3.7 The direction of policy will often be driven by a strong *a priori* conviction. This is beneficial when strong convictions are harnessed to rigorous and detailed analysis of policy options. It can be less helpful if it leads to a lack of interest in research and evidence. In departments where all research that is commissioned is published, there is a disincentive to embark on research that may yield unwelcome results.

A lack of demand for fundamental and comparative analysis

3.8 There may be also a lack of demand for fundamental analysis where, for example, departments have a "sponsor" relationship with a particular industry. The research a department carries out may depend to a significant degree on its main stakeholders.

3.9 Sometimes the political process gives Ministers the incentive to set up a range of **good** initiatives rather than to evaluate where Government can **best** focus expenditure. In such cases comparative analysis can be lacking.

Where's the big picture?


3.10 No one department may have sufficient incentive to carry out analytical work where an issue cuts across several departments. For example, Housing Benefit reform involves three departments (DSS, DETR and HM Treasury). Environmental issues, such as air quality or global warming, involve even more. In these cases, the requirement is to establish and analyse the "big picture". Such demands are not always met in full.

The supply of analysis also needs improving

3.11 Even when demand is present, there is a range of obstacles to the supply of good analysis.

Planning and prioritisation for the long-term is weak...

3.12 Failures in analysis can arise through shortcomings in planning for the long-term. Long-term work can be crowded out by short-term priorities.



Box 3.1. PENSIM – A Failure of Supply

PENSIM is the DSS model that predicts pensioner incomes over the long term and the reliance of the pensioner population on Income Related Benefits. It is discussed in case study 6.

Demand from the Treasury for the outputs from such a model existed over a long period. The Treasury takes a close interest in the impact of pension policy changes on income-related benefits. The outputs from the model were also keenly anticipated as a key input to the new administration's review of pensions.

But over a number of years DSS analysts gave higher priority to more urgent work, such as answering Parliamentary Questions, over trying to make the PENSIM model work. This reflected the day-to-day priorities of their policy customers. And when, more recently, a specialist analyst was recruited to help improve the model he was diverted to work on long-term care of the elderly: a Ministerial priority of the day.

The result has been a model that did not work at all for several years and which, even today, has significant limitations. DSS is now committed to a rolling programme of improvements to the model over the next 2 years while a replacement model, PENSIM II, is under development.

...as is planning for cross-cutting issues

3.13 There are also problems with planning the analysis of cross-cutting issues:

- analysis of the trade-offs between departmental goals may not be fully planned for or provided;
- gaps in analysis can arise if issues fall between the responsibilities of different Government departments and are not planned for;
- there may be poor central co-ordination of the work of departments.

Box 3.2. Cross-Cutting Analysis: Trade-Offs, Gaps and Co-ordination

Trade-offs. Competing Government goals where responsibilities span departments include: raising tax revenues while promoting competitiveness; encouraging the efficient use of water whilst ensuring no adverse distributional consequences of domestic water charging policies; and promotion of the tourist industry whilst conserving the environment.

A gap: analysis of the socially excluded. A former special adviser told the Project Team of the difficulties he had encountered in interesting administrators or analysts in issues about young unemployed people who are not registered as unemployed – people who are so socially excluded that they fall outside normal support mechanisms and the usual run of departmental responsibilities. He has since developed and published an influential analysis of this client group based on Government statistics drawn from the Labour Force Survey. The issues are now being taken forward by the Social Exclusion Unit (SEU).



Co-ordination: tax/benefit modelling and data sources. The Inter Governmental Tax Benefit Model (IGOTM) was originally launched collaboratively as an interdepartmental model. But DSS has preferred to rely on its own Policy Simulation Model (PSM) and not to adopt IGOTM. Similarly, difficulties agreeing changes to the Family Expenditure Survey (FES) with other users and with ONS led to a decision by DSS to go it alone and set up the Family Resources Survey (FRS). The FRS provides a much better basis for modelling DSS policies. Similarly PSM is better geared than IGOTM to DSS priorities. But in both cases, the outcome involves a degree of overlap and duplication of effort. It was certainly not consciously chosen by Government as a whole as the best overall way forward. Despite this overlap, efforts have been made by both departments to co-operate.

3.14 The interests of the “whole of Government” can also be left out of the equation. Shortcomings in analysis can result from:

- failure to plan or carry out “whole of Government” analysis, e.g. to explore the synergies between different departments’ activities;
- failure to manage systematically the prioritisation of analytical resources across Government.

3.15 The clearest example of this relates to the distribution of specialist resources within Whitehall. Table 3.1 shows the distribution of specialist resource – in the realms of economics, social research, operational research and statistics only – across Whitehall departments. The table compares the Government’s spending on different policy

areas with the numbers of staff engaged in analytical work in each area.

3.16 This is a partial picture. It does not include the work of actuaries in the Government Actuary’s department, which currently employs 38 actuaries and one statistician. Nor does it include the work of other specialists or take account of the economic benefits to the UK of analytical work, which can be very significant. Nonetheless, it suggests that relatively small amounts of economic and statistical analysis are devoted to some high expenditure areas. There is no mechanism to confirm whether these allocations, which have emerged from individual decisions by departments, give the right balance between specialisms or between departments or accord the right overall level of resource to analysis and modelling.

Box 3.3. “Whole of Government” Analysis and Prioritisation

Electronic delivery of Government services. Government is now undertaking intensive study of the synergies between electronic delivery of Government services across Government as a whole. But for some years, analysis was carried out within departments alone. See case study 17.

Prioritisation of data availability. Data on inflation and employment are available after a much shorter time-lag than data on poverty. This may to some extent represent a Governmental decision about priorities. But in fact the Government has no clear mechanism for determining whether the prioritisation that emerges from departmental decisions accords with overall Government priorities.

Table 3.1: Distribution of economists, statisticians, social researchers and operational researchers by department

	Total	Economists	Operational Researchers	Social Researchers	Statisticians	Government Spending (%)	Specialists ¹ (%)
MoD ²	326	5	300	2	19	8.9	18.2
ONS	275	3		102	170	0.1	15.4
DETR	162	64	5	38	55	17.5	9.0
DfEE	147	35	28	42	42	6.6	8.2
DSS	130	35	37	26	32	39.2	7.3
HMT	114	101	1	1	11	0.1	6.4
HO	110	4	17	63	26	2.9	6.1
DTI	101	54	11		36	1.3	5.6
DH	96	25	23	2	46	16.0	5.4
DFID	53	45			8	1.0	3.0
MAFF	51	26			25	1.5	2.8
IR	47	9	17		21	1.3	2.6
C&E	31	7	10		14	0.4	1.7
ECGD	22	9	13				1.2
OFGEM	21	21					1.2
HSE	16	5			11		0.9
CO	15	9		4	2	0.1	0.8
FCO	15	14			1	0.4	0.8
OFT	15	15					0.8
National Savings	10	0	1	7	2	0.1	0.6
LCD	8	1	3		4	1.0	0.4
Competition Commission	7	7					0.4
OFTTEL	7	7					0.4
SSRA	7	5	1		1		0.4
OFWAT	6	4			2		0.3
ORR	4	4					0.2
Forestry Commission	4	2			2	0.0	0.2
DCMS	4	2			2	1.4	0.2
Total	1804	518	467	287	532	100.0	100.0

Source: Government Statistical Service Annual Report; Economist Group Management Unit; Government Social Research Annual Report and Chair of Government Operational Research Service

¹ Percentage of specialists employed in Government.

² The number of OR staff shown against MoD is an indicative estimate only, since, within the defence environment, OR merges imperceptibly into weapon system assessment work which is not directly comparable with anything undertaken in civil Departments. In total, the Centre for Defence Analysis (a sector of DERA) employs about 500 civilian specialists.



Joint working is patchy; analysts don't always have enough influence

3.17 **Effective joint working between analysts and policy makers** is one of the keys to anticipating the policy agenda, and to making full use of the analytical capacity of Government. But joint working is patchy. Sometimes analysts are seen as mere “number-crunchers”. Within policy commands, little use may be made of small scale modelling or of spreadsheets or graphs in everyday policy work and in the presentation of such work to Ministers.

3.18 Measures that may be employed to counter these problems have not (yet) been that widely adopted in Whitehall:

- some departments “bed out” their specialists into the policy management line (to greater or lesser degrees) to help promote joint working. Departments that have bedded out analysts agree that this has improved joint working. Other departments believe there may be a price to be paid if it leads (possibly in the longer-term) to the erosion of specialist skills;
- some departments train policymakers in analytical skills and analysts in the skills of generalists (public policy administration, management etc.). But this is not widespread in Whitehall.

3.19 The synergies between specialists may also be under exploited. There are often close links between analysts from different specialisms within departments. But the Government Economic Service (GES) and the Government Statistical Service (GSS) each have their own management arrangements and annual conferences. The Government Operational Research (GORS) and Government Social Research communities (GSR) also have their own separate annual conferences. There is scope for more extensive joint working between specialists at Government level.

Specialist skills are in short supply


3.20 Analysis in central Government will ultimately only be as good as the people recruited and retained to do this work (or commissioned to do so through contracting-out).

3.21 It is particularly difficult to recruit economists at the moment:

- at the Civil Service Selection Board (CSSB), the main entry route to the GES for graduate economists, it has proved possible over the last year to recruit only around 75 candidates in response to bids from departments for around 120 new entrants. Demand was distinctly higher last year than in the past, but it has never proved possible to recruit the full numbers bid for by departments;
- departments can recruit short-term provisionals (casual staff who have not passed CSSB but may get through a future competition) or turn to direct recruitment at the higher Grade 7 – middle manager – level. But not all departments meet their requirements for direct entrants at this level either.

3.22 There are also varying degrees of difficulty in the recruitment of other specialists. Details are in Chapter 8.

3.23 For all specialists, there are issues around **lack of career opportunities**. The ratio of those at Grade 6 and 7 in the GES to the number of Grade 5 posts (the lowest rung in the Senior Civil Service) has increased from 3.5 to 1 in 1991 to 4.9 to 1 in 1999. Many senior Chief Economist posts (at Grade 3/Grade 2 level) have disappeared in recent years. For social researchers, the post of Head of Profession in a Whitehall department (where this exists) is normally at SCS Grade 5 level. In the case of operational researchers, there has also been significant down grading of posts in recent years. Only



MoD, DSS and DH now have a Head of Profession within the Senior Civil Service.

3.24 This in turn places a premium on **job satisfaction**. This can be low when analysts feel isolated from the mainstream of the policy-making process.

3.25 There are, finally, a number of **specific skill shortages** within the analytical community as a whole:

- **in-depth statistical understanding.** More sophisticated data require richer and deeper numerical and statistical understanding on the part of the user. An Economic and Social Research Council (ESRC) working paper on social statistics suggests that these skills are not widely available even within the academic community;
- **IT skill shortages.** Developments in computing power have pushed back the limits of the possible in analysis by offering more rapid ways of manipulating large data sets. For example, a single run of the DSS PENSIM model once took 8 hours to complete but can now be carried out in around 20 minutes. Computing power is not a limiting factor on analytical development, but does imply the need for greater sophistication by modellers;
- **keeping up to date.** Analysis need not be ground breaking to be an effective input to policy. But there is a constant need to renew professional skills. This is not always easy for analysts outside academia.

More data, better used...

3.26 A vast array of data is available to policy makers. But this is not always the data that are most needed. Two particularly valuable forms of data which are often absent – or unused – are those derived from pilots and longitudinal studies.

Box 3.4. The Government's Use of Pilots

Pilots allow evidence of the effects of a policy change to be tested against a genuine counterfactual (such as is provided by the use of control groups in a medical trial). This gives the strongest possible evidence of what works.

The Government trials many policies before full implementation, but often as a way of exploring the practicalities of implementing policy rather than as a means of gaining early data about the impacts of policy interventions.

Often Ministers will announce a pilot at the same time as dates for national implementation of a policy. This limits the timeframe within which lessons can be learned. Even so, more thought could be given to the design and evaluation of trials so that they can be used as pilots to improve policy prior to national roll-out.



Box 3.5. Longitudinal Studies

Longitudinal studies trace the life-histories of individuals across time. They enable unobserved differences between individuals to be accounted for in analysis and causal links to be established.

The UK is a world leader in birth cohort studies. In some ways this is fortuitous. Many studies created for a particular time-limited purpose have in the event been extended. But sometimes funding for extensions of surveys has been difficult to obtain. And in other longitudinal studies, e.g. of ageing, the UK lags behind countries such as the US.

There is scope to make more use of longitudinal data. Use within Government may be limited in part because the data sets are complicated to work with – so research and analysis tend to be contracted out to the private sector.

3.27 There are also shortages of data relating to small geographical areas. And sample sizes in surveys may be too small to assess the effects of policy on subgroups of the population to the extent that Ministers require.

Box 3.6. Difficulties in Collecting Small Area Data

Sometimes a statistically significant sample at the local level would be too expensive to collect. In the case of the British Crime Survey, a survey which generated useful data at the level of police forces would cost £14 million pa (by comparison with a £1.5 pa cost for an annual national survey). But this would not yield information that was useful at police command level or for small geographical areas.


3.28 Some kinds of information (e.g. income data) are not sought in surveys because of possible adverse effects on the response rate. This happens, for example, in both the Census and British Social Attitudes Survey. The absence of data of this kind in survey can impede analysis, e.g. of the distributional consequences of a policy reform. There is a technical solution to some gaps (the technique of “imputation” discussed in Chapter 9) but it is little used in departments.

3.29 There is also scope to make more use of administrative data. Even where Government has extensive administrative data sources, these are often not widely known within or outside Government. Ignorance about DSS administrative records is an example of this – though this is an area where confidentiality can be a barrier to making data more widely available.

...better planned and of better quality

3.30 The GSS carries out a central co-ordinating role on data issues through its committee network. These arrangements are widely appreciated by statisticians working in departments. But difficulties have occasionally arisen, raising two questions:

- whether the central co-ordinating body needs more authority to impose a solution on departments that has benefits for the whole of Government but disadvantages for individual departments;
- whether decisions should be taken by a body of users of statistics or by GSS as chief suppliers.



Box 3.7. Co-ordination Between Surveys...

The number of surveys has grown rapidly in recent years as new surveys have been established to meet the policy agenda of the day. It is not clear that the present set of surveys gives ideal coverage.

...and Uniformity of Definitions

ONS has worked to establish uniformity in definitions of key concepts used in surveys run by departments (e.g. what is a “household”). It has also examined the extent to which it may be possible to obtain more uniformity across administrative data sets. But information is still not always stored by departments in a uniform manner – whether this relates to survey data, data from administrative systems or details of spending. Not all departments were, for example, able to provide details of spending on 0-3 year olds to the Sure Start programme. Administrative data collected by local authorities are also, perhaps almost inevitably, not all collected or stored in a uniform way.

3.31 Finally, there are sometimes doubts about the quality of recorded data. Police administrative data (the basis for the Home Office property crime model), for example, may exaggerate clear-up rates. Survey data also have pitfalls. People may not understand fully their financial affairs (e.g. their pension entitlements) and misreport their position to researchers. The running order of questions in a survey may influence the replies recorded. For example, a change in the running order of the Labour Force Survey (LFS) in 1997 resulted in a 25% change in the response to one question on disabilities.

It is important that possible limitations are clearly understood by all users of data.

Models don't get out enough....

3.32 Where models are a necessary part of policy analysis, there is a risk that they take on lives of their own, gathering a priesthood around them for their defence against an uncomprehending external world of policy makers within the department, other analysts in Whitehall or outsiders.

3.33 The extent to which external review is sought for models is patchy. Most modellers in Whitehall do actively seek comment on their models and review by colleagues. But the position varies between models and arrangements are informal and *ad hoc*. And there is a general unwillingness amongst departments to make the running of models more open to others inside or outside Whitehall.

...and modelling needs to be better planned and of higher quality

3.34 The priority accorded to models varies over time. For example, the Treasury's IGOTM model has in recent years had more resources devoted to it. Some models, such as PENSIM and National Road Traffic Forecasting model (NRTF), have long gestation periods. Consistent investment over several years is required to achieve results. A key issue is the extent to which longer-term work is squeezed out by the short-term.

3.35 The big picture is not always modelled. While individual departments may find their own modelling needs are adequately addressed, the totality of the policy area may not be captured.



3.36 In principle, there is a case for the “big picture” to be modelled by a single, central department. The case study of the Government Actuary’s Department (GAD) population model (see Box 3.8 and case study 4) suggests that sometimes it is indeed helpful for a single central department to “hold the ring”. But the tendency in recent years has been for individual spending departments to develop their own modelling capability. For example, DSS have taken over modelling of some disability benefits from GAD. And upkeep of IGOTM, which was for a number of years run by ONS on behalf of the Treasury and IR, is now undertaken in-house by the Treasury.

Box 3.8. Population Modelling

The Government Actuary’s Department has, since 1954, provided population projections for the whole of Government. In this case, there are clear advantages to Government in the existence of a single central model. There is no risk of work on this model being crowded out by more urgent departmental concerns. And all departments are constrained to use a single set of figures for population in their own policy work. The inevitable consequence of such an arrangement is that not all Whitehall customers are always content with the assumptions used in the GAD model, or with its outputs.

3.37 Where more than one department is involved in modelling, failure can take the form of competing analyses as well as absence of analysis. For example, when policy options were being developed for splitting pension entitlements between married couples on divorce, it took the Lord Chancellor’s Department (LCD) and DSS the best part of a year to agree what the impact would be on legal aid bills.

3.38 Finally, models often can’t take account of behaviour. This problem is highlighted in the projection of benefit spending. Departments (DETR, the Treasury and DSS) can calculate the cost of policy proposals if they lead to no behavioural change. But the whole point of most reform is to change behaviour. The Government does not know how much policy options will cost or save if they work.

3.39 Chapters 5-11 discuss ways to address the problems set out in this Chapter. The next Chapter offers a vision of the role of analysis and modelling in central Government in an ideal world.

4. ANALYSIS IN AN IDEAL WORLD

Summary

This Chapter sets out a vision of analysis and modelling in central Government inspired by best international practice. Key elements are:

- vigorous demand for good analysis supplemented by strong planning mechanisms for long-term and cross-cutting issues;
- closer working between policy-makers and analysts;
- good and plentiful data on tap;
- better models open to external scrutiny;
- analysts of the highest calibre.

4.1 The purpose of this Chapter is to set out a vision for analysis and modelling in central Government and the conditions needed to achieve it. It is informed by wide ranging discussions inside and outside Whitehall, and in particular by a visit to the United States (see box 4.1) which provides a benchmark for best practice.

In an ideal world...

4.2 In an ideal world, we would expect to see:

- a vigorous demand for good analysis fully embedded in Government. Ministers would routinely demand rigorous analysis to support decisions on all policies and programmes. Senior civil servants would see it as a key aspect of their job to ensure a reliable supply of such analysis;
- a culture in Whitehall that rewards Ministers and senior officials for good analysis and holds them to account when policy is not evidence based. Ministers would publish details of the models used in government and the data that support them. This would help foster an external climate in which, as in the US, academics and think tanks compete with analysts in Government in all forms of analytical work and improve its overall quality;
- planning mechanisms to ensure the supply of good analysis where demand is likely to be weak – e.g. when issues are cross-cutting or long-term. Responsibility for the provision of analysis would rest with departmental Accounting Officers. But an enhanced central challenge role would help ensure sound planning and prioritisation. Heads of Profession would also have a key role to play in this process.

4.3 A number of elements would need to be in place to support this vision.

Policy makers and analysts working closely together

4.4 Soundly based analysis can only be supplied by economists, actuaries, statisticians, social researchers and operational researchers if there is:

- a responsive capacity for analysing new and existing initiatives;
- a shared understanding between policy makers and analysts across departments about what is required;
- an agreed analytical and modelling strategy in each department as part of the business planning process, with research commissioned early in the policy formulation process;
- an understanding by policy makers of the uses and limitations of analysis and models in the policy formulation process.

Good and plentiful data on tap

4.5 In an ideal world high quality data would be readily accessible and used across Whitehall. More specifically there would be:

- no obvious data gaps;
- routine use of data description to assist both policy making and decision-taking;
- widespread availability and use of large household surveys across departments;
- routine use of administrative data across Whitehall;
- more creative use of data and different data sources;
- use of panel and birth cohort surveys to show the long term impacts of policy;
- more use of pilots to help shape policy design before national implementation.

Better and more open modelling

4.6 In the case of modelling, there would ideally be:

- models in place in all appropriate policy areas;
- models which were published, debated and regularly audited;
- models which were shared across departments and which were capable of demonstrating the trade-offs between conflicting objectives.

The right skills

4.7 Ideally there would be:

- recruitment and retention of both the best, and the right mix of, specialists within the Civil Service;
- the best use of external expertise;
- more flexible structures in place for those who would add value but do not necessarily have the attributes to reach the Senior Civil Service (one of the key criteria for recruitment to e.g. the GES).

The United States provides a benchmark

4.8 The United States is consistently cited as a world leader in analysis and modelling. Members of the project team visited Washington with a view to learning wider lessons. The team found that the US was some way ahead of the UK both in the general thirst for analysis in Government and in the use of data and modelling. A summary of the findings is in Box 4.1 and a full report is at Annex 4.



Box 4.1 The US – Higher Quality Data and Debate

Some of the reasons for US superiority in analysis, notably the nature of the US constitution which pits administration against Senate and generates a competitive interest in modelling, are not directly transferable to the UK. But four fundamental lessons are of wider applicability:

- a strong willingness to invest in gathering the necessary data. The culture of thorough prior analysis and *ex post* evaluation means that data are valued highly in the US and resources are devoted to its collection;
- imaginative and widespread use of administrative data. Although faced with similar confidentiality obstacles to the UK there appears to be a greater willingness on the part of the US Government to make available administrative data, once they are suitably anonymised, for use within and outside Government;
- outside expertise is transmitted easily to Government. Relations between Government and the academic sector are much closer than they typically are in the UK;
- a richer environment for analytical debate. The volume of analysis inside and outside Government creates an assumption amongst analysts that excellence is necessary for credibility. When supported by better data sources this makes for more technically advanced modelling.

5. STIMULATING THE DEMAND FOR GOOD ANALYSIS

Summary

The demand for good analysis can be increased by:

- stronger leadership from Ministers and senior officials, stimulated by training and dissemination of best practice protocols;
- increased openness;
- peer review of departments' analytical strategies, with a central Treasury team drawing together the "big picture" on the economic and social agenda;
- improved financial incentives for cross-cutting analysis through the setting up of a seed-corn fund;
- increased emphasis on the quality of *ex ante* analysis and *ex post* evaluation of policy based on "Green Book" principles.


5.1 The purpose of this chapter is to review the means by which the demand for good analysis can be increased. The package of measures proposed should bring about a profound change to the culture in which civil servants operate. The key ingredients in such a package are:

- improved training and best practice protocols;
- increased openness;
- increased use of peer review;
- improved financial incentives for cross-cutting and long-term analysis;

- increased emphasis on analysis in evaluation processes.

Ministers and senior officials must want good analysis

5.2 Ministers and senior officials can make a real difference to the quality and quantity of analysis supplied in individual departments.



Box 5.1. Ministers Can Make a Difference: The “Castle Effect”

Significant differences in departmental culture and practice can be observed across Whitehall. In some cases this reflects a conscious effort to increase the profile of specialists or particular kinds of specialist expertise in individual departments. For example, Barbara Castle was responsible in the 1960s for the introduction of significant numbers of economists into the (then) Ministry for Overseas Development and later the (then) Department of Transport. These economists took strong root in both departments: their descendants are today well embedded in the policy process in both departments (now DFID and DETR).

- a “full systems” analysis which identifies and analyses likely behavioural impacts of policy options may improve decision-taking. For example, Ministers would want to be aware of the extent to which duty increases against a backdrop of open fiscal borders would lead to increased incentives for cross-border shopping and smuggling;
- good analysis can bring benefits internationally as well as domestically. For example, work on the balance of costs and benefits in setting domestic air quality targets has enabled Ministers to influence the development of EU and international policy on air quality targets.

Conclusion 1: training courses for Ministers and senior officials run by the CMPS should in future include a session on the importance of good analysis for the policy-making and decision-making processes.

Raising expectations through training and sharing best practice

5.3 The CMPS runs training courses for new Ministers and is planning joint training for Ministers and senior officials. These courses provide an opportunity to:

- emphasise the importance of leadership from Ministers and senior officials in raising standards of analysis;
- demonstrate how analysis and modelling can improve policy development and decision-making.

5.4 Case studies might be used to illustrate the usefulness of good analysis. For example:

- rigorous analysis can help Government set targets for public services that are challenging but capable of delivery;

5.5 CMPS will also be responsible for the dissemination of policy making best practice across Government. This will support evidence-based policy. It is important that guidance include advice on data and modelling issues. For example, Chapter 9 concludes that CMPS should establish and disseminate best practice on the use of longitudinal studies and pilots in policy development.

5.6 There is already best practice guidance for technical experts in Government departments about how to carry out *ex ante* appraisal and *ex post* evaluation of policy: the Treasury Green Book (5).

5.7 The Green Book is presently being revised. As currently drafted it is directed primarily at economists. But best practice protocols issued by CMPS might include worked examples of best practice in the conduct of appraisal and evaluation and be issued to a much wider audience: to Ministers and to all policy makers and

professionals across Whitehall to help demonstrate the practical application of Green Book principles.

5.8 A further ready-made source of best practice advice lies in the value for money (vfm) studies of the National Audit Office (NAO) (considered in more detail later in this Chapter). There is scope for more widespread dissemination of NAO findings. The NAO is proposing to make available its reports on its web site. There may also be scope for CMPS to help with dissemination and for NAO reports to become an integral part of the knowledge pool that helps guide policy development.

Conclusion 2: CMPS should include guidance on the use of analysis in best practice protocols and circulate it to Ministers and officials. Such guidance should help disseminate “Green Book” principles in non-technical terms (e.g. through the use of worked examples) as well as the findings of NAO vfm studies.

Being open improves the quality of analysis

5.9 Transparency promotes the demand for good analysis. The more that Government is obliged – or obliges itself – to defend policy decisions by publishing the underlying data and analysis, the more emphasis the Government will place on getting analysis right. Freedom of Information legislation will increase transparency in Government by providing new statutory rights of access to information.

5.10 Government can, in the extreme, **legislate** to require open disclosure of analysis. In the US, the General Audit Office is required by legislation to provide a cost-benefit analysis and a distributional impact assessment of any proposal that will cost more than \$100 million pa.


Box 5.2. Legislating for Openness in the UK

In the UK legislation dating from the mid 1970s requires the Government Actuary (GA) to report on the level of the contracted out rebate (for pension schemes and, more recently, individuals contracted out of SERPS) at least once in every five years. Responsibility for setting the rebate rests with Ministers, but the GA's report is published. This assures employers and pensions industry analysts of the Government's good faith in setting a level of rebate that is underpinned by rigorous analysis.

5.11 Less formal Government mechanisms can also help to ensure that rigorous analysis is carried out. There is a requirement to publish a Regulatory Impact Assessment (RIA) with all new legislation which sets out impacts on business. The RIA must also be produced by departments as a condition of Cabinet endorsement of any policy. Similar requirements to publish impact assessments apply in relation to the environment, health, gender, race and older people. Such requirements are not legislative, but have been agreed by Cabinet Committees.

5.12 These mechanisms stimulate demand for analysis of the impact of policy options. Their force derives in part from the simple requirement that such analysis is carried out and in part from the requirement to make public the results of the analysis.

5.13 There is an initiative underway within the Cabinet Office to align the various impact requirements. A pilot study is being conducted in DETR. Subject to the outcome of the current review, there is a strong case for requiring departments to carry out and publish a single comprehensive impact



assessment. This should cover all the relevant impacts and the trade-offs between them.

Conclusion 3: subject to the outcome of the present review, departments should carry out and publish a single comprehensive impact assessment of all new policies, programmes and projects.

5.14 A significant step towards greater openness for statistics is proposed in the White Paper **Building Trust in Statistics** (4). The intention is that a National Statistician should develop and publish a forward programme of statistics covering the whole of Government. This would then be subject to published evaluation and comment from an independent Statistics Commission.

5.15 There is a case for extending this approach to cover the full range of research and analysis within Government. This would provide a vehicle for eliminating overlaps and spreading information across departmental boundaries. This task sits best with the existing functions of the Central Operational Research and Economics (CORE) command in HM Treasury.

5.16 In the first instance, such an overview might be confined to the economic and social agenda. The CORE team might present a set of rolling thematic reports to either the proposed Academic Panel for Analysis and Modelling (see Chapter 10) or to the Implementation Group charged with overseeing the implementations of this report (see Chapter 12). A decision could be taken at a later date whether to extend this across the entire field of Government research and analysis.

Conclusion 4: the CORE team in HM Treasury should review annually departmental plans for analysis and research and present a report setting out the main findings to the Implementation Group charged with overseeing the implementation of this report.

Peer review can help spread best practice

5.17 A regular published audit of departments' programmes of analytical work would serve as a further incentive to departments to carry out high quality analysis. This could form part of the independent peer review of departments' business planning processes proposed in the context of the reform of the Civil Service. The review team would need to include suitable expertise, possibly from within CMPS or Treasury spending teams or outside the Civil Service.

5.18 In addition, CMPS has a remit to develop a broader programme of peer reviews across departments, including examination of policy-making processes. Those are likely to include a look at the use or absence of data, the quality of analysis, the use of professionals, relationships between them and generalists and openness to external knowledge.

Conclusion 5: CMPS-led peer reviews of business planning and policy-making should examine the quality of analysis and modelling with a view to spreading best practice and stimulating improvement.

Financial incentives can strengthen analysis

5.19 The establishment of a small seed-corn fund for analytical work would also help stimulate the demand for good analysis.

5.20 In some instances no one department has sufficient incentive to do work that is clearly justified in terms of its overall benefits to Government and is a public good. In other instances, the pay offs are long term and departments are unwilling or unable to invest to secure the resulting benefits.



Box 5.3. Work That a Seed-Corn Fund Might Promote

Examples of the work a seed-corn fund might help include:

- **further longitudinal studies:** the lack of longitudinal data gives the UK much poorer modelling of long-term care of the elderly than the US. But longitudinal studies are an expensive and long-term commitment. Their full value, across Government as a whole, is often clearer to those in the centre than to individual departments. But the centre has no research funding and cannot at present lead or even contribute towards a funding consortium to launch new longitudinal cross-cutting surveys;
- developing a **multi-modal national transport model:** the costs of developing such a model within DETR would be large and the opportunity costs would be larger. Such a project would exclude most other items from the DETR work programme. In such a case, the high upfront costs will always militate against such work being carried out. In this case, DETR have, in the event, identified ways of meeting most of the policy analysis requirements that such a model would address, building on the National Road Traffic Forecasting Model.

5.21 The case for a central fund is clear where the requirement for analytical work is cross-cutting. Where the requirement for analysis sits firmly within the remit of a single department, the standard mechanism to ensure that this work takes place should be the Spending Review and Public Service Agreement processes supplemented by improved business planning in departments. However, in the case of long-term research, analysis or model development, requiring unusually substantial amounts of initial funding, there may be a case for using the fund to intervene. It would be important for departments to be able to demonstrate that central funding would not lead to any “crowding out” of work that would have been undertaken anyway.

5.22 The CORE team in the Treasury is the natural home for the administration of such a seed-corn fund. It has the best overview of the work of individual departments through the Treasury expenditure teams. It is important, however, that any committee to disburse funding should include representation from the Cabinet Office and analysts (of different specialisms) from other departments. Additionally, the CORE team might itself draw on secondees from departments or from the private sector.

5.23 Bids for funding should be welcomed for analytical work in any specialist discipline. The fund will work most effectively if departments are required to match or more than match any central funding. This should help instil a sense of ownership for such research beyond the centre.



Box 5.4. How Much Will a Seed-Corn Fund Cost?

To provide an indication of the resources that might be required to establish a seed-corn fund, the project team has analysed the kinds of improvements that can be made for given sums of money. The indicative costings are based on discussions with the project's Steering Group members, information on costs of existing models, and external consultants.

- Construction of a new household formation model. The present model used by DETR is contracted out through the Building Research Establishment to Anglia Polytechnic University at a cost of £150,000 per year. A project of 6 person months (the minimum required to build a new model from scratch) would cost around £200,000 if conducted by external consultants.
- A new PENSIM pensions model – the original model (commissioned in January 1988) cost around £60,000-£70,000. Other countries – notably Canada and Australia – have spent around ten times that amount. DSS has indicated that the new PENSIM will largely be developed in house and is expected to take up around 1-2 years of Grade 7 time.
- The London School of Economics (LSE) is currently developing a model covering low-income pensioners and long term care of the elderly with a budget of £0.5 million over a period of 5 years.
- The economic assessment of the costs and benefits of different options for the electronic delivery of Government services. A three-month project to provide some baseline estimates might cost in the region of £50,000-£100,000.
- Construction of a model to show the distributional effects of different methods of charging for domestic water services – a model provided by outside consultants for DETR in 1998 cost around £30,000 for three months' work.

The seed-corn fund might also provide departments with help for the funding of data collection. Examples of the type of costs that might be involved include:

- a module of 40 questions in the British Social Attitudes Survey costs £40,000 for 1/3 of the sample (1,100 respondents), £42,400 for 2/3 of the sample and £53,000 for the whole sample. That is substantially cheaper than a stand-alone survey would be;
- the Census rehearsal currently being undertaken at a cost of £2 million covering 147,600 households across the United Kingdom.

These examples suggest that the appropriate magnitude for a seed-corn fund would be around £3-4 million pounds *pa*.

Conclusion 6: a seed-corn analysis and modelling fund should be established from the financial year 2000/2001. This would be subject to a successful bid on the Reserve for 2000/2001 and in the present Spending Review for future years. The fund should be administered by the Treasury with bids considered by a committee drawn from different specialisms and different departments.

Evaluate to learn

5.24 The *ex ante* development of policies, programmes and projects can benefit from the results of *ex post* evaluation studies carried out within departments.



Box 5.5. Learning the Lessons from Policy Evaluation

Within a continuous cycle of policy development, evaluation is a key input to the appraisal of new policies. Evaluation of past policies enables the design and delivery of current and future policies to be improved in the light of experience.


A Treasury initiated review of evaluation within DoE in 1997 concluded that the use of systematic practices across the department was patchy. A more recent Cabinet Office study looking at evaluation across Whitehall reached similar conclusions. But the report found that there have also been a number of high profile policy initiatives which have been the subject of careful monitoring and evaluation, conducted in a context which is tuned in well to learning lessons and applying the results of pilot work. Examples included Pathfinders for the New Deal for Young People. In this case, three evaluation reports in December 1998 identified gaps in the provision for the most marginalised and disadvantaged, with subsequent corrections to remedy those deficiencies.

And in some departments the lessons from evaluation are valued and systematically embedded into the policy formulation process. For example, DfID has a detailed set of office instructions, used by specialists and administrators alike, which sets out the role of evaluation within project cycle management. This guidance describes how evaluation can be integrated into the process of project management, from the point of drawing up the project proposal, through to implementation and monitoring to the point of completion of the project.

5.25 The National Audit Office (NAO) examines the economy, efficiency and effectiveness of departmental administration. Departments can learn lessons for the future from NAO value for money (vfm) studies. They can also increase incentives for the use of rigorous analysis. Indeed, such studies may themselves include consideration of the extent to which decisions have been demonstrably informed by good analysis and, where appropriate, modelling. This was a feature of a report on the sale of railfreight distribution (see Box 5.6).

Box 5.6. The Sale of Railfreight Distribution

The NAO study of the sale of railfreight distribution found that DETR relied on point estimates of the relative costs of privatisation, retention in the public sector and closure supported by a subjective assessment of risk. DETR did not conduct any quantified risk analysis. NAO believed that a quantified risk assessment would have helped to give greater confidence in the DETR decision to privatise and therefore commissioned such a risk analysis from external consultants. In the event, this suggested that in the light of the possible range of costs, the decision to privatise was sound.



Judges and Accounting Officers can help promote analysis

5.26 The threat of Judicial Review and the system of Ministerial Directions to Accounting Officers also provide incentives for sound analysis.

5.27 Judicial Review has risen in prominence in recent years. This trend is likely to increase further as the incorporation of European Human Rights legislation into domestic law widens the interpretation of the grounds on which review can be sought. There are three possible grounds for Judicial Review:

- illegality: that the executive does not have the power to act;
- irregularity: that the executive failed to follow proper procedures;
- irrationality: that the executive did not reach the decision in a thorough enough way.

5.28 Soundly based analysis, as long as it is given proper consideration in the policy process, is a bulwark against Judicial Review under the last of these headings. Courts may review the processes by which decisions are reached and will rule against a decision if it is deemed that no one, sensibly advised, could have come to such a decision.

5.29 Accounting Officers (usually the Permanent Secretary or the Chief Executive of an Executive Agency) have a responsibility to ensure that full analysis is supplied whenever a decision is taken that has financial implications. Where a Minister contemplates an action which involves a transaction which an Accounting Officer considers would infringe the requirements of propriety or the Accounting Officer's wider responsibilities for economy, efficiency and effectiveness, it is the duty of the Accounting Officer to notify the Minister of his or her dissenting advice. If the Minister overrules this advice, the Accounting Officer must seek an instruction – a “Ministerial Direction” – from the Minister to proceed with the course of action in question.

Box 5.7. The Pergau Dam

Both Judicial Review and a Ministerial Direction were involved in the case of the Pergau Dam, which offers a good example of how these processes can bolster the importance of economic analysis in policy development. In that instance, analysis by the (then) Overseas Development Administration (ODA) showed that the project would offer poor value for money. The (then) Secretary of State for Foreign Affairs decided to go ahead with the project on wider grounds and gave a Direction to the ODA Accounting Officer to proceed.

NGOs sought a Judicial Review of the decision. The Courts ruled that to spend aid funds on the Pergau Dam was illegal when the ODA Act of 1980 and ODA appraisal guidelines made clear that the primary object of aid spending was further development of the country and that projects had to offer vfm to fulfill this objective.

This was a watershed. Since then, Ministerial Directions which have instructed Accounting Officers to pursue public spending on wider grounds have been made public through Parliamentary Questions and in response to press enquiries.



5.30 The Directions given over the years 1997-1998 are listed in the Table 5.1.

Table 5.1 Ministerial Directions 1997 and 1998		
Date	Case	Dept
1997	Channel Tunnel Rail Link: scheme of redress for those who experienced exceptional hardship as a result of blight from the Channel Tunnel Rail Link	DETR
1997	Millennium Exhibition Expenditure to regenerate the Greenwich Peninsula and to provide a site for the Millennium Exhibition	DETR
1998	Benefits Agency/Post Office Counters Limited (BA/POCL) Automation project	DSS
1998	Secondment: remuneration arrangements for seconded official	Northern Ireland
1998	Cadet Property Moffat: Sale of Territorial Army Volunteer Reserve Association Cadet Property to Moffat Childcare (Community Group)	MoD
1998	Review of Disability Living Allowance under the Benefits Integrity Project – handling overpayments.	DSS

6. PLANNING AND IMPROVING THE SUPPLY OF GOOD ANALYSIS

Summary

The Spending Review process and Public Service Agreement targets should be used to provide the framework within which the analytical needs of Government and individual departments are planned. The Treasury should provide and implement guidance in this area.

The Treasury and Cabinet Office need sufficient dedicated analytical capacity to provide analytical support to 'whole of Government' policy making and to facilitate cross-departmental working where necessary.

An analytical strategy should be an integral part of departmental business planning. Specialists and administrators should plan departments' analytical requirements together.

6.1 The conclusions in Chapter 5 should help to stimulate the demand for analysis. But demand for analysis is not enough. Planning is required to ensure that analysis is supplied when it is needed even if demand may be weak, particularly in relation to long-term and cross-cutting issues.

6.2 The proposals in this chapter are designed to ensure that:

- the right priorities for analysis are set between departments and policy areas;
- professional resources are efficiently and effectively deployed across policy areas within and between departments;
- cross-cutting analysis is carried out where necessary.

6.3 In developing detailed proposals, it is important to recognise that:

- departmental Accounting Officers should retain ultimate responsibility for analysis and modelling work undertaken within the department;
- the PIU report **Wiring It Up** (3) establishes a presumption that central intervention in the everyday work of departments is justified only where joining-up is difficult and the issues are important;
- any recommendations need to fit with the wider Civil Service reform plans under discussion by Permanent Secretaries.



Public sector leaders must plan for the long term

6.4 Public sector leaders are responsible for the supply of good analysis. This requires planning, particularly where demand is likely to be weak.

6.5 The two key strands to successful planning at Governmental level are:

- a clear path for future policy development. This could take the form of the election manifesto at the start of an administration or of the outcome of a Spending Review in mid-term;
- a response to the policy agenda from the analytical community (in conjunction with policy colleagues). The Heads of Profession – Head of GES, National Statistician, Government Actuary and the Chairs of Management Groups for operational and social research – have a valuable role to play in confirming that the Government agenda is being fully covered by analysis and in safeguarding professional standards.

Leveraging Spending Reviews and Public Service Agreements

6.6 The key mechanisms for setting priorities for policy work between departments, at a high level, are the Spending Review (SR) and the Public Service Agreements (PSAs). The SR determines the level of funding each department will receive over the next three financial years. The PSA targets set out the improvements to public services which the Government will deliver over the period covered by the financial settlement.

6.7 The SR process already supports cross-cutting work:

- the 1997-98 Comprehensive Spending Review featured a cross-cutting review of spending on children, which gave rise to the Sure Start Initiative (cited as an example of excellent policy-making in the Cabinet Office report on **Professional Policy Making (2)**);
- the next SR will review a greater number of cross-cutting topics and will encourage cross-cutting analysis to be supplied (and co-ordinated) in support of the review.

6.8 But there is scope for the process to give further support to analysis by:

- issuing guidance to departments on the analytical work which should underpin the SR and PSAs;
- publishing analytical work underpinning PSAs. Case study 16 on the development of the first round of PSA targets in DCMS and FCO found that they had not invariably been well-supported by analysis. This is hardly surprising given the severe time constraints under which initial PSAs were developed. But a commitment to publishing future analytical work would increase the incentives for good analysis.

6.9 Not all government objectives, however, will be covered by PSA targets; and not every cross-cutting issue can be reviewed in a single Spending Review. And resources may need to be allocated to policy areas where analysis is presently lacking. So the SR and PSA processes alone will not deliver all that is required by way of long-term or cross-cutting planning. Other mechanisms are needed to supplement these processes – notably an extension of the challenge role of central departments and better business planning within departments.

Conclusion 7: the Treasury should use the SR and PSA processes to support and promote the use of analysis and modelling through: (i) issuing guidance to departments and (ii) publication of analytical work underpinning PSA targets.

Stretch, link and learn: the role of the centre

6.10 Central departments should play a wide range of roles in supporting the demand and supply of good analysis. Table 6.1 gives a synopsis of the conclusions in this report.

6.11 In the planning context, the challenge function is particularly important.

6.12 Much of the everyday work of Treasury expenditure teams involves the shadowing and monitoring of policy and expenditure by departments. The Cabinet Office performs a similar function, but over a narrow range of areas. Both departments can play an important challenge function. This can help ensure that analytical work is well planned by departments, particularly where issues are cross-cutting.

Table 6.1: The Role of the Centre

Role	Central Unit	Conclusions	Comments
Facilitation	CMPS	Training for generalists (conclusion 10)	Conclusion for departments; CMPS interest as supplier
	CMPS	Knowledge management/ spreading best practice (conclusion 2)	Core aspect of CMPS role
	CMPS	Peer review of departmental business planning (conclusion 5)	Extension of civil service reform proposals
	HMT	Seedcorn fund for analysis (conclusion 6)	New proposal
Co-ordination	HMT	Modelling Panel to oversee publication of models (conclusion 34)	New proposal
	HMT	Cross-cutting look at departmental analytical strategies (conclusion 4)	Builds on proposals for National Statistics
	ONS	Data co-ordination (conclusions 29-32)	Extension of existing role
Challenge	HMT/ Cab Off	More specialists in the centre (conclusion 8)	Extension of existing role



Box 6.1. The Treasury Can Prompt Successful Interdepartmental Working

There are now no fewer than four inter-departmental groups on costs and benefits in which DETR plays a part. Two (one on climate change, one on air quality) have been established in recent years in part as a response to pressure from the Treasury to ensure a full and proper cost/benefit analysis of environmental policy measures.

6.13 However, to carry out the challenge role effectively, both departments may need to expand their analytical capacity.


6.14 The centre does not have a monopoly on the co-ordination of cross-cutting policy and analytical work. But it does generally need to be involved. There are a number of mechanisms in Whitehall today, each of which requires a degree of central involvement:

- lead departments can successfully facilitate co-ordination. Work on analysis to support policy on climate change and air quality, for example, is presently led from DETR. Indeed, in general, this method of co-ordination should be the preferred approach. Case study 15 on air quality suggests that it works well, up to a point, but still needs a Cabinet Committee to resolve interdepartmental disputes. The central department may then require the analytical capability to understand complex analytical issues;
- sometimes central units (SEU and WU in Cabinet Office) have led interdepartmental groups to take forward cross-cutting policy issues and the associated analysis;
- in other cases a central unit such as the Regulatory Impact Unit can give additional momentum to a central requirement, while the lead responsibility remains with departments;
- the creation of a central knowledge pool – proposals for which are presently being developed by CMPS – is a role best taken forward by the centre but working closely with departments.

Box 6.2. Analysis in Central Government Departments

The role of central departments is changing as they take on new responsibilities. This has partly involved the setting up of new free-standing units such as the SEU and the Women's Unit (WU) in the Cabinet Office. It is also a matter of a greater involvement by the centre in some key policy issues, such as the labour market.

This has already led to the recognition that more analysts and a wider range of professional skills are required in central departments. For example, social researchers have entered the Cabinet Office through the WU and SEU. Economists have entered the Cabinet Office in larger numbers via the PIU. A greater presence of specialists in the centre can help discharge traditional functions more effectively – e.g. identifying the need for and commissioning at an early stage “whole of Government” analysis, where appropriate. A wider range of specialist skills (for example in operational research and social research as well as economics and statistics) may also be required in these central departments to identify opportunities for cross-cutting work in these specialisms.



Conclusion 8: the Cabinet Office and the Treasury should carry out a review of the role, numbers and types of specialists they need to support an enhanced “challenge” function to promote better planning of analysis by departments by end June 2000.

Better business planning within departments could improve the provision of analysis

6.15 There is also a need to ensure effective prioritisation of analytical work within departments. Priorities for analysis should be set in parallel with departmental objectives and PSA targets.

Box 6.3 Analytical Business Planning in Departments

The responses to the project’s questionnaire suggest that most departments have an annual planning process, but also have the flexibility to carry out *ad hoc* research or analysis to much shorter deadlines.

Occasionally research and development of models is longer-term. For example, DfEE have published a focussed long-term research strategy. This was developed after direct discussions with all departmental Ministers and intended to elicit the **long-term** information requirements of the department. The department has issued a prospectus intended to improve the way in which it commissions, disseminates and uses research. The aim is to align academic research priorities more closely to departmental needs by outlining developing policy areas in which research is needed.

6.16 It is important that departmental business planning fully integrates a strategy for analysis and research. One of the strands of the proposed peer review of departmental business planning processes (discussed in Chapter 5) should be confirmation that analysis has been well integrated into medium and long term business plans.

6.17 To achieve this, departments may need to set up cross-cutting units (or teams) to take an overview of policy areas (as the Treasury has done in relation to productivity) and which can ask difficult questions and call for the use of analysis where appropriate.

6.18 There may be scope to link the report’s conclusions on business planning to the work that departments already undertake in issuing departmental reports, which set out details of expenditure plans and policy initiatives. But detailed work on this area needs to await further development of the package of Civil Service reform.

Conclusion 9: as part of the “better business planning” strand of the Civil Service reform process, analytical strategies should be developed by government departments.

7. INTEGRATING ANALYSIS WITH POLICY MAKING

Summary

Joint working between specialists and policy makers is central to ensuring the integration of analysis with policy making.

There is no one right way of organising and managing specialists. Different models suit different types of policy area and departmental circumstances.

Policy makers and specialists need to talk a common language and each group needs training to do this. The ability to commission and use appropriate analysis should be a condition of promotion for policy makers.

The different specialisms need to work more closely and effectively with each other.

7.1 The conclusions in previous Chapters should help ensure that there is a vigorous demand for analysis and that analysis is well planned in areas where demand may be weak. Even where analytical capability exists, it needs to be fully integrated with the policy process and to act as a driver of policy development.

7.2 This Chapter considers what practical steps can be taken to promote better joint working of various kinds – between professionals and policy makers and between different kinds of professionals.

7.3 The chapter is premised on the assumption – borne out by the interviews and other evidence gathered for this study –

that successful analysis is a joint enterprise. Virtuous circles arise from successful joint working. The provision of data and analysis leads to more policy questions being asked. This in turn leads to the demand for further data and analysis.

7.4 There are two main dimensions to more effective joint working:

- structural changes within departments to encourage closer working;
- improved training for policy makers and analysts.



Policy makers and specialists should work more closely together

7.5 The organisational structures within which analysts ply their trade differ very significantly from one department to another. They range from full integration of specialists into the policy line – “bedding out” – to their location in separate management units or separate government departments. The trend in recent years has been towards increased “bedding out”. DTI, for example, went down this route some five years ago (for economists and statisticians). IR is at present actively considering the merits of doing the same. Within the DfEE, labour market economists have recently been bedded out under a Senior Civil Service (SCS) Grade 5 command, but other specialists continue to work in a central unit.

7.6 The evidence gathered by this study strongly suggests that there are some kinds of work that specialists do most effectively when huddled together in a corner but others that are best done sitting face to face with policy makers and as part of a unified team. The “huddled together” work is at the more technical end of the spectrum. Face to face structures help ensure that policy-makers “think like specialists” and make full use of analysis when developing policy. A framework for deciding what works best is in Box 7.1.

Working in mixed teams

7.7 The simplest model of joint working is one in which there are no distinctions between analyst and policy maker: the two have become one.

7.8 HM Treasury comes closest to such a model. In the Treasury, there are only postings – in each case filled by someone who has the required blend of skills for a particular set of responsibilities. Some posts

are filled by economists or other specialists, others by former generalists. The same post may be filled in turn by generalist, economist and generalist – without changing in character. There remains a small core of micro-economists, looking principally at cross-cutting areas.

7.9 This structure is supported by a training programme, designed to ensure that all Treasury staff have the full range of skills required to deliver excellent performance. Both generalists and specialists have had to learn a more rounded set of skills. This has required significant investment in training and large opportunity costs (each member of staff may need to give over several weeks of the year to training). No formal cost/benefit analysis has been carried out of the impact. But the view of senior managers is that the new regime has significantly improved the quality of analysis in submissions to Ministers.

7.10 The Treasury model serves the department’s needs very well. But this model may not be readily applicable elsewhere, e.g. if the range of skills that must be brought to bear on policy issues is wider. Different departments require different specialist skills.

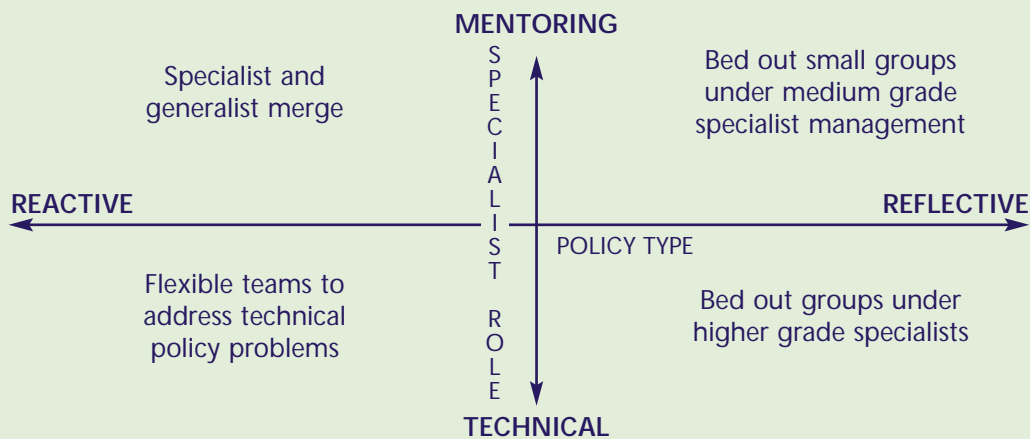
Specialists working alongside policy-makers

7.11 A wide variety of arrangements for bedding out is found in different departments. Within DETR, for example, economists working within a specialist SCS Grade 5 division form part of SCS Grade 3-led policy directorates. So too do statisticians and social researchers in the DETR Housing Directorate, facilitating close and multidisciplinary joint working. In the air quality division, around 10 scientists are bedded out into a Grade 5 policy division under a Grade 6 head, while environmental economists are bedded into the policy line under a Grade 5 division.



Box 7.1. Bedding Out – a Schema

This chapter describes the different organisational models for specialists operating in Whitehall today. The purpose of any particular structure must be to create the optimal flow of information and analysis between policy makers and specialists. For this to occur each group should have a clear conception of the needs and capabilities of the other. In many cases this will mean integration of specialists into the policy management line at the appropriate level. One simplified way of thinking about which level is appropriate is shown in the diagram below:




The y axis shows the type of specialist advice on a range from technical (the application of highly specific techniques to problems) to mentoring (implying the general application of reasoned argument and analysis to problems). The x axis shows policy areas on a range from reactive (short term fire-fighting) to reflective (medium to long term work). Broadly speaking, the more day to day the pressures the more necessary it is to ensure that specialist advice is immediately available. The reverse is true for highly specialised advice developed over a long period of time.

Any abstraction is necessarily a simplification and other dimensions will play a role. The number of specialists in a department will be a key factor in determining whether bedding out is appropriate. And in some cases there are issues which are inherently 'central' in nature e.g. appraisal and evaluation. Different models could be appropriate in different policy areas within the same department.

More generally:

- departments will wish to retain some central capacity for specialists to provide specialist advice in those areas where the level of demand would not be sufficient to justify a dedicated resource;
- specialists would expect a variety of types of job within this schema during their career in order to ensure that the full range of professional skills are maintained.

As technology advances, the debate over bedding out may become less central to the organisation of specialists. For example, an increase in home working will tend to blur the distinction between bedding out and centralisation.



7.12 There is still a central core of economists in the Chief Economist's Directorate. This is inevitably further removed from the policy process, but this team services policy areas which are too small to sustain their own dedicated economist and can also take forward cross-cutting issues which would not otherwise be picked up. The involvement of specialists in the policy making process is maximised under full bedding out (e.g. with scientific input to work on air quality). But other arrangements in DETR (e.g. in the Housing Directorate) also lead to successful cross-disciplinary working.

Maintaining professionalism and integrity

7.13 Other departments maintain a fully centralised structure for specialists (economists, statisticians, social researchers and operational researchers), based around Analytical Services Divisions or Directorates (e.g. DSS and Home Office). This promotes close joint working between professionals, but leaves the link with policy colleagues in need of good management.

7.14 More extreme is the position of GAD and ONS: central units which are at a distance from the users of their services, both in structural terms and physically. Professional advice in such cases is (slightly) harder to seek and (somewhat) easier to ignore. GAD charges departments for the actuarial advice they commission, which gives departments an additional disincentive to seek actuarial advice. But on the other side of the balance stand the manifest independence, perceived integrity, professional competence and *esprit de corps* of these central units.

7.15 Physical propinquity also clearly matters. The DSS Medical Policy Group, for example, have been more closely involved in policy making since moving into the same building (and occupying the same floor) as

policy colleagues. Policy makers see medical specialists more as part of the team, less as stakeholders who need to be consulted.

There's no single right answer on joint working

7.16 It seems unlikely that there is any single "right answer" that will achieve the ideal measure of professionalism alongside the ideal arrangements for "joint working". There may, however, be a spectrum of right answers that vary with the business needs of departments. In general, the best balance may be obtained through some combination of a central specialist unit alongside a more or less extensive "bedding out" of specialists to policy teams.

7.17 Where central units exist, it is important to ensure that analysts liaise closely with policy teams – that they are invited to team planning meetings, team awaydays etc. And that, where arrangements are less long-lasting, cross-cutting project teams are formed in which analysts participate on a consultancy basis. In short, that arrangements are in place within departments to secure the maximum benefits of joint working and the maximum input from specialist expertise.

7.18 Conversely, where analysts are bedded out, it is important that strong professional links are maintained between analysts and the Head of Profession and that appropriate training and development programmes are in place to ensure that professional identity and skills are maintained.



Conclusion 10: departments should:

- review policy on bedding out once per Parliament with a view to maintaining the right balance between central expertise and bedded-out effectiveness;
- ensure that where analysts continue to form part of central specialist units, they also form an integral part of the work of policy teams; and that where analysts are bedded out, appropriate professional training and development programmes are in place.

Conclusion 11:

- other departments should put in place training arrangements for policymakers similar to those of the Treasury by end 2001;
- demonstrated proficiency in analysis should become a requirement of promotion to the SCS from April 2001.

Making policy makers better analysts

7.19 Training for policy makers can help joint working by improving:

- their knowledge of specialist disciplines;
- the use of analysis in everyday work such as submissions to Ministers;
- their understanding of what specialists have to contribute to the policy process.

7.20 There are, of course, risks in piling an increasing number of requirements on generalists. The list of requirements for promotion to the Senior Civil Service is already long and growing. There is, nonetheless, a case for adding to it competence in analysis. Part of the Treasury's recent success in improving analysis is that demonstrated competence in analysis along with other key skills has become a condition of promotion. Departments will of course need to determine in each case what form of training best suits their business needs: those working on pensions policy, for example, will need more of an understanding of actuarial issues (and less knowledge of accountancy) than counterparts in the Treasury.


Training specialists to be better policy makers

7.21 There is also a case for training specialists more in the policy process to enable them to become more skilled in selling their wares to policy makers and more knowledgeable about the policy process. Specialists who make themselves known and advertise what they can do for policy colleagues are more likely to be valued.

Conclusion 12: new forms of training for specialists should be developed to support joint working (e.g. courses on "partnership working") and introduced by the CMPS from end 2000.

Specialists need to work together – and often do

7.22 Many departments brigade all their specialists together in Analytical Services Divisions. This gives strength in numbers and the potential to challenge aspects of the policy process from a combined analytical perspective. It also promotes closer working between specialists. Even where specialists are not brigaded together, they can also co-operate closely. For example, the Department of Health (DH) model for NHS waiting lists discussed in case study 8 is maintained jointly by economists, statisticians and operational researchers. Sometimes the Chief Economist in a department will also serve as the Chief Statistician.



7.23 There is some overlap of professional skills. Work that is done by an economist in one department may equally well be carried out by a statistician in another. Across Whitehall, many different kinds of specialist manage external research contracts. This is also the case in the outside world. For example, at the IFS it is economists rather than statisticians who tend to perform data related tasks such as ‘cleaning’ and manipulating data sets. It clearly makes sense in a large department for individuals to specialise in different roles. But this overlap of specialist skills reinforces the desirability of close joint working within departments.

Leaders of specialists must work more closely together

7.24 The arrangements for joined-up working between specialists in departments are not paralleled at an institutional level or between Heads of Profession.

7.25 Heads of Profession (or, where these do not exist, Chairs of Management Groups) are in a unique position both to oversee developments across their own professional domain and to promote cross-cutting working between professionals.

7.26 Periodic joint conferences and joint meetings between Heads of Profession, who never routinely congregate at present, would give a further mechanism for taking an overview of analytical work within Whitehall. Such a forum could act as a further mechanism to help ensure that the necessary analysis to support policy development is undertaken. Where gaps were identified, these might become the subject of bids to the seed-corn fund recommended in Chapter 5.

7.27 The Heads of Profession most closely affected by the recommendations of the present report are the Heads of GES, GSS, GORS, GSR and the Government Actuary. But other Heads of Profession in Government, such as the Chief Scientist or Chief Medical Officer, might also have an interest and wish to attend.

Conclusion 13: there should be periodic joint meetings of Heads of Profession. Heads of Profession should consider the case for occasional joint conferences between specialists groups (i.e. GSS, GORS, GES, GSR).

8. BRINGING IN AND BRINGING ON TALENTED SPECIALISTS

Summary

There are particular difficulties at present in the recruitment and retention of economists (and to a lesser degree other specialists). The Government has already responded to this by raising the entry level rates of pay – and the internal market within the Civil Service may bid up rates of pay further (as may external competitors for good quality entrants). Rates of pay are, however, already attractive to academics.

There is scope to amend the entry requirements for economists, so that not all entrants need be potential members of the Senior Civil Service. There is also scope to offer more personal promotions to those with specialist expertise.

Departments need to sell more strongly the attractions of the public service as a career – the sense of making a valued contribution to important questions of public policy as well as the flexibility in working patterns offered by the Civil Service (by comparison with, say, consultancy). There is scope also to offer more varied careers to specialists, offering academic secondments and specialist careers in technical modelling work.

8.1 Chapter 7 discussed ways of ensuring that analysts work closely with policy makers. A related requirement is that there is a supply of good quality analysts available to Government. The purpose of this chapter is to discuss how problems in the recruitment and retention of good analysts impact on analysis and modelling and what might be done about them.

It's increasingly difficult to attract and retain specialists

8.2 Most departments currently have excess demand for economists. Although, historically, there has always been a shortfall in the supply of economists, the position has deteriorated in recent years. Much of this is due to the increased demand for micro-economists (and particularly those with knowledge of the regulated industries) from private sector economic consultancies.



8.3 Results from the 1999 Civil Service Selection Board (CSSB) process for recruiting graduate economists illustrate the scale of the problem. Despite initial bids from departments for 120 candidates in February (and 60 bids in July) only 54 appointments (and 8 in July) were made. The recruitment problem is generally common across departments, although in some (such as DFID) the non-financial rewards make it relatively easier to fill posts – many entrants have a strong commitment to the DFID policy agenda.

8.4 As with economists, there has also been a significant shortfall between the number of bids for Assistant Statisticians and the numbers recruited through CSSB competitions. In 1999 the total number of bids was 122 and the number of offers made to applicants was 85. (In 1998 57 Assistant Statisticians were appointed through the annual competition and there were 72 bids.)

8.5 The demand for social researchers has increased across Whitehall. For example, both the CO and the Home Office have recently increased their social research capacity. Recruitment is slightly easier than for economists and statisticians. It is carried out directly by departments. For example, DfEE had 160 applicants for 15 social research posts in their most recent recruitment round and filled them all. Retention within departments is a bigger problem as Whitehall departments compete on pay to attract the best people.

8.6 Recruitment of operational researchers is also at present very problematic. 164 professional OR staff are currently in post in departments other than MoD. Those same departments declared 30 vacancies in the April/May recruitment round, of which 21 were filled, but in August they again declared almost the same number of vacancies (26) and filled only 11.

8.7 Actuaries are centrally recruited by GAD. This, together with GAD's "hard charging" regime – which involves charging departments for staff costs incurred when advice is given – gives greater flexibility on pay. New recruits are offered starting salaries in line with market rates. But those in more senior posts are offered considerably lower salaries than their private sector counterparts. There are accordingly some difficulties of retention. As with other specialists, however, the attractions of government service (e.g. the sheer variety of subject matter) outweigh the financial prospects of the private sector for some high quality performers.

We should be more flexible in recruiting graduate economists

8.8 The main method of graduate "fast stream" recruitment to the Civil Service for nearly all economists and many statisticians is through CSSB. The criteria used in the selection process focus on all-round skills (e.g. management, technical and interpersonal skills) to evaluate whether each candidate has the potential to reach the Senior Civil Service (Grade 5 and above).

8.9 The present criteria for entry unduly narrows the potential stock of successful applicants. Some analysts may have particular skills such as a detailed knowledge of cutting-edge techniques within their chosen field of expertise. A diverse range of skills is needed in most organisations. For example, there is no evidence that private sector companies only recruit people who are management material. Indeed, the GSS no longer recruits graduate new entrants solely to "fast stream" posts. The GES should follow this example.

Conclusion 14: GES should recruit some people who have a strong aptitude for quantitative methods suitable for some Grade 7 posts but who do not necessarily have the all-round potential to reach Grade 5.



Departments should make more use of direct entrants at all levels

8.10 The overall scale of direct recruitment of Grade 7 (middle manager) economists had not changed significantly over the past 20 years at the time of the last review of GES in 1994. Between 1978 and 1994 the number of economists recruited directly into the Civil Service at this grade has been around half those internally promoted (see Figure 1). Direct recruitment of economists to the Senior Civil Service has been and remains very rare.

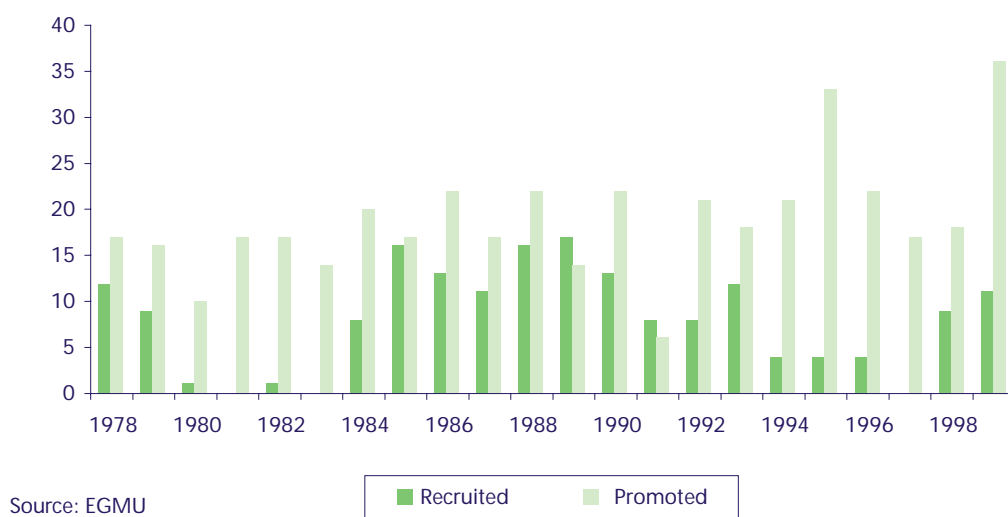
8.11 Government service can offer a range of non-financial rewards to potential Grade 7 direct entrants. The GES offers opportunities to contribute to big issues in a way that matters and a more flexible balance between working and home life than is offered by, say, consultancies or the City. These considerations can outweigh salary differentials for some people. And in the case of academics, civil service rates of pay may themselves be an attraction. The Treasury and ONS have recently recruited economists

successfully at Grade 7 level from academia and the private sector.


8.12 Increased recruitment of economists at Grade 7 level is not a panacea. The entry conditions for Grade 7 level tend to be less rigid than those of CSSB (a 45 minute interview rather than 2 day's worth of tests at an assessment centre). This results in a higher risk of recruiting poorer performers. And good induction programmes are required to ensure that direct entrants can become effective quickly. But direct entry at Grade 7 level is a valuable supplement to the entry route through CSSB which departments should explore further. Indeed the GES is at present making a concerted effort to attract external applicants at all levels (6).

8.13 Direct entry at Grade 7 is more common for social researchers. For social researchers the pay differential between the Government and the private sector is less significant (at least for less experienced people) and it is possible to attract people from academia and, to a lesser extent, market research companies. There is evidence of recent successful recruitment to Whitehall

Figure 1: GES Promotions and Direct Entrants to Grade 7 Posts, 1978 – 99



Source: EGMU



from outside Government. For example, the head of research at the Home Office is a new recruit to the Senior Civil Service from academia. There are also examples of successful direct recruitment within the operational research community. DH, for example, has recruited people from industry. Actuaries are recruited by GAD from the private sector at Grade 7 level on a fairly regular basis.

Conclusion 15: departments should recruit more external applicants directly into specialist (and particularly economist) posts, both at Grade 7 level and above.

Restrictive nationality rules are outdated

8.14 The available pool of labour is crucial in determining how many good quality analysts can be recruited into the Civil Service. However, regulations on nationality can prevent non-UK nationals entering the Civil Service, resulting in a much smaller pool of labour on offer. This is particularly important given the decline in the number of British economics students enrolling on PhD courses in UK universities. The top economic departments are averaging less than two new British PhD students per year (7).

8.15 These nationality restrictions are outdated. Indeed the Cabinet Office is currently attempting to change them. However, to do this will require legislation at a time when the Parliamentary timetable is tight. There is, though, nothing to prevent departments from employing more Commonwealth and European Community citizens without contravening current requirements for non-reserve³ posts. DFID, the Treasury and ONS have started to do so.

Conclusion 16: departments should seek to broaden the pool from which specialists are recruited to include foreign national specialists wherever possible.

More varied career structures would help to retain good specialists

8.16 Promotion prospects for specialists are limited. Many economist Grade 7s leave the GES around one year after promotion. Lack of promotion prospects to the Senior Civil Service is one of the main reasons cited for leaving. On average 5 people a year have been promoted to SCS Grade 5 posts since 1978 (see Figure 2). For the period 1978-1994, the median age of those recruited was 41. (More recent statistics are not available on age of promotion.)

8.17 This pattern of promotion can send out undesirable signals to those currently within the GES. It may create the perception that promotion within the GES is based on length of tenure rather than merit. Above Grade 5 there are even fewer opportunities for promotion mainly because of the removal of numerous SCS Grade 3 and Grade 2 economics posts during the 1980s. Currently, there are 10 GES members at Grade 3 and above. This compares with 17 posts in 1992.

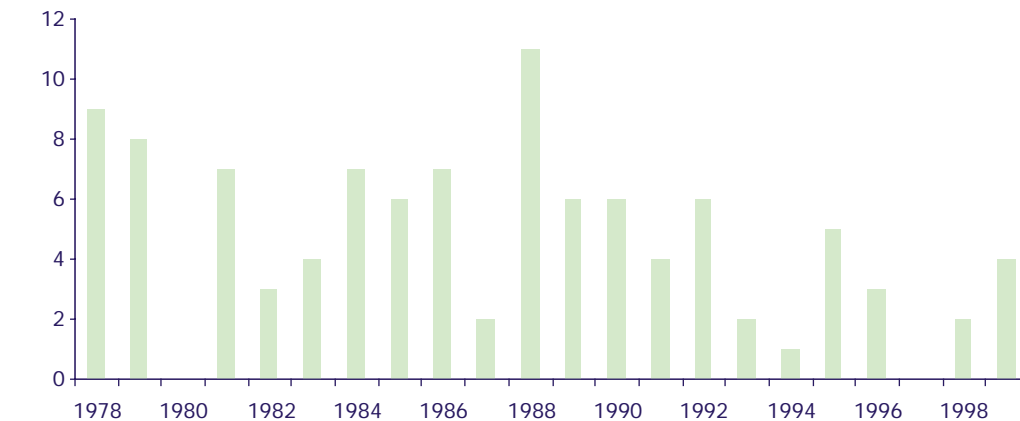
8.18 For statisticians, an indication of promotion prospects within the GSS is given by Figure 3, although the graphs do not reflect internal promotions within departments. The figures reveal that the potential opportunities for promotion to the SCS at Grade 5 level are limited.

8.19 Within GORS, promotion opportunities to Grade 5 are even more limited than in the GES or GSS, as the Head of Profession role has been downgraded or has disappeared in several departments. Any OR specialist who

³ Reserve posts are those which only British citizens can apply for because of security and other reasons.



Figure 2: Promotion to Grade 5 Posts, 1978 – 99



Source: EGMU

wishes to progress beyond Grade 5 must change career direction and work as an administrator. Similarly, the small number of senior posts within the GSR (a Head of Profession post at Grade 5 level in most departments with a strong interest in social research) encourages some experienced researchers to leave the Civil Service.

8.20 There is a case for making more use of personal promotion for specialists. This would give them a greater incentive to remain within the Civil Service and in specialist grades if that is where their talents are best deployed. Long-serving analysts can act as the collective memory of a department and build up unrivalled expertise in a particular area. There are already some examples of personal promotion among professionals in the Civil Service (e.g. in the Home Office). Civil Service reform should enable and encourage other departments to follow this path.

Conclusion 17: departments should introduce more personal promotion to allow individuals to choose between specialist and generalist career progression paths.

8.21 More varied career paths need to be offered to specialists to show that their contribution is valued.

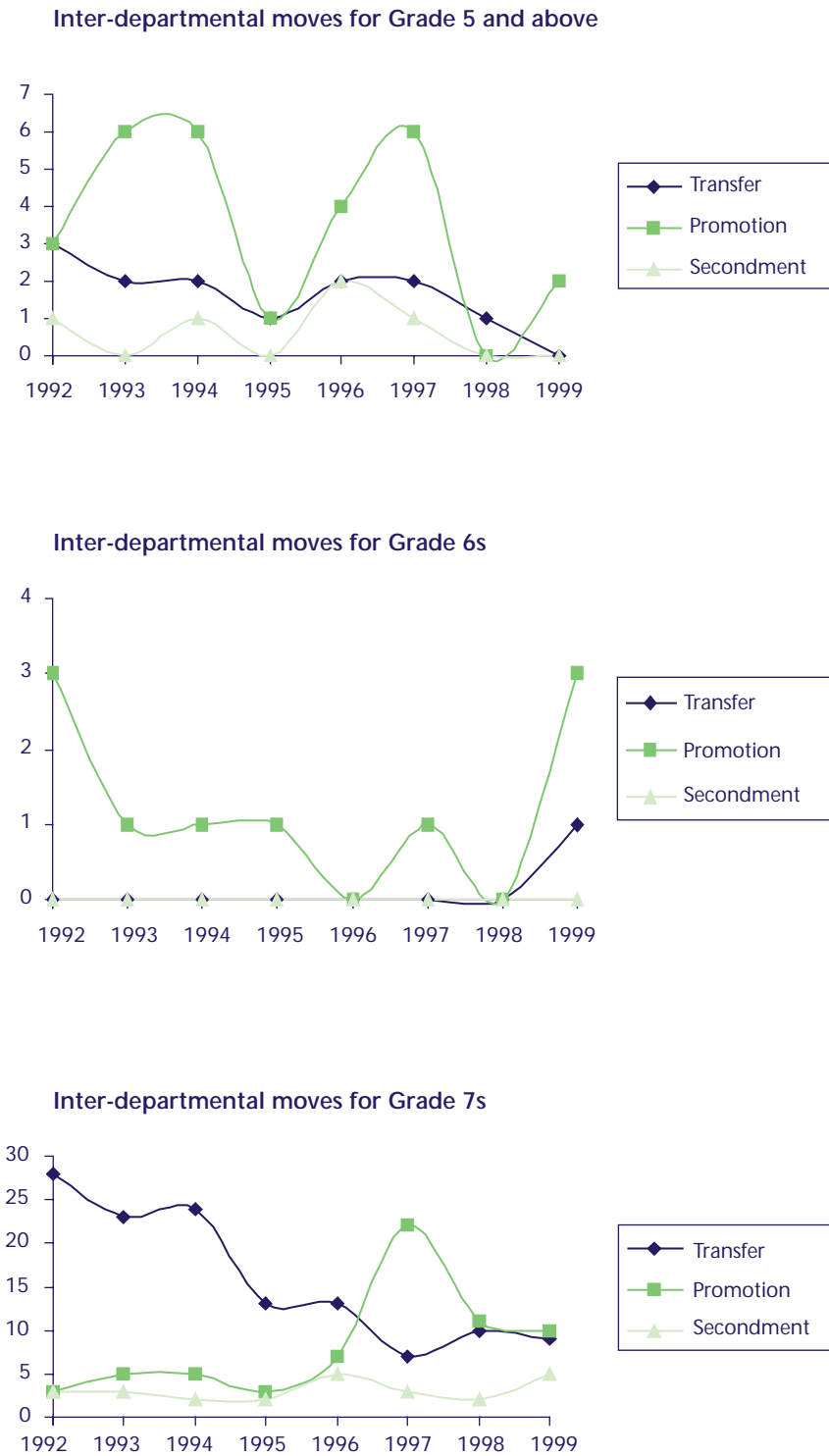
8.22 The number of secondments and other links to academia could be increased. Secondments to academia help to update specialists' skills and should be part of normal professional development in posts where technical skills are important. Links with academia also heighten a sense of professional identity – an important factor for many specialists.

Box 8.1. Ways of Keeping Up To Date

Departments have found a range of ways to help keep staff up to date with academic thinking. DSS run a regular lunchtime seminar series for analysts and policy makers jointly with John Hills at LSE. And many departments run academic panels which meet regularly to discuss papers on research and modelling. Customs and Excise believe that, because the number of academics working in the field and the range of topics for discussion has proved too small to run an effective panel, one way forward might be to establish a joint HMT/IR/CE forum focusing on tax issues. There may similarly be scope for joined-up working in other academic panels.



Figure 3: Inter-departmental moves for statisticians



Source: GSS



Box 8.2. Increasing Human Capital and a Sense of Professional Identity

There are examples of departmental links with academia which not only lead to an increase in specialists' human capital, but also heighten specialists' professional identity:

- sponsorship of specialists to undertake second degrees is widespread, although normally MScs (the case for sponsoring PhDs is less strong);
- economists in the Home Office and the former DoT have been encouraged to publish research in a personal capacity, and to speak to academics about their work;
- DH is seconding an analyst part time to academia to develop its long-term care model;
- the Women's Unit in the Cabinet Office employs two academics on a part time basis to oversee their research on gender issues.

8.23 Chapter 11 discusses links with the outside world in more detail. But within the specific context of encouraging retention, it may also be worth encouraging:

- analysts to publish their work in academic journals/speak at conferences;
- more collaborative work with academics.

Box 8.3. FCO Secondment to BP

In 1997 the FCO seconded a Grade 7 economist to the oil company BP. The benefits were:

- for BP, the secondment not only provided an insight into the Whitehall machinery but also an extra well-qualified employee at less than the market wage;
- for the FCO, it provided an opportunity for one of its employees to increase his skill set at no cost to the department;
- for the individual it was an opportunity to broaden his experience and develop his career further whilst remaining in the public sector.

Conclusion 18: departments should promote more vigorously secondments to and from the private sector and academia; and should continue to promote other links with academia.

8.24 Secondments to and from the private sector can bring benefits to all parties.

8.25 Skills in modelling and quantitative techniques are transferable between departments. There is scope for individual analysts to improve the diversity of careers through movement between departments. For statisticians (see Figure 3) and economists, the movement between departments is already considerable. This should be maintained.

Higher pay may need to be offered to good analysts

8.26 For all the non-financial rewards of government service, it may ultimately prove necessary to offer higher pay to recruit and retain good analysts.

8.27 Responsibility for pay is delegated to individual departments. This has resulted in a range of different pay incentives being used across Whitehall to improve recruitment and retention. Some specific examples include:



Box 8.4. Frontier Economics Secondment to the Cabinet Office

Earlier this year, Frontier Economics, an economic consultancy, seconded a member of staff to the PIU in the Cabinet Office for a period of three months. The benefits were:

- for the individual, an opportunity to become acquainted with the workings of Government and to obtain considerable knowledge across a number of policy areas;
- for the Cabinet Office, a way of accessing technical expertise over a continuous period of time and less costly way of buying in consultancy time;
- for Frontier Economics, an invaluable set of contacts in an industry where reputation is all-important.

- higher pay for Assistant Economists within C&E;
- a recruitment and retention allowance of around 20-25% to junior staff in DSS;
- individual additional allowances in DfEE to analysts who have been offered higher paid posts in other departments;
- wide variation in pay for social researchers. The pay scales for Research Officers have scale minima and maxima in National Savings that are both around 25% higher than in DfEE.

8.28 Departments face a number of problems in using pay to tackle difficulties in recruiting and retaining staff:

- departments' current running cost budgets are unlikely to be able to bear a significant increase in specialists' pay (unless the number of specialist posts is reduced to ensure that the total salary bill remains the same). A Society for Business Economists' Survey suggested that in 1999 the median salary difference between the whole sample and Government was around £8,500. To come close to matching this differential would place significant burdens on departments;
- marginal changes in pay might be ineffective. There is a risk that the private sector would just increase pay to restore differentials.

8.29 In some specialist areas, however, such as regulatory economics, difficulties of recruitment within Government are now very severe. If the Government wishes to employ economists directly (and this is likely to be cheaper than contracting advice out) there may ultimately be no alternative to increasing pay for specialists to near market levels.

8.30 Such a development would have knock-on consequences. It might discourage analysts in future from applying for generalist posts, if these became significantly less well paid. The scheme might thus only work if there were opportunities for generalists to earn similar salaries – perhaps if they demonstrated that they were analytically competent. The implications of such a step (and the alternative of accepting a diminished exchange between specialist and generalist postings) would all need careful consideration. The first step, however, must be to consider further the ways of improving the recruitment and retention of specialists where the Government faces a severe shortage.

Conclusion 19: professional groups should immediately review the impact of devolved pay structures on retention and inter-departmental moves and consider whether a Government wide increase in pay is required to ensure a satisfactory supply of high quality analysts.

9. HOW TO GET MORE AND BETTER DATA

Summary

Soundly based analysis and modelling requires access to and use of good data. The uses of data range from simple descriptive analysis to detailed modelling based on complex longitudinal data sets.

Relatively simple improvements in the access to and use of data could pay big dividends: e.g. greater use of basic descriptive statistics, more use of administrative data, greater matching of different data sets; and more use of imputation within data sets. In many of these areas, the ONS is already doing valuable work.

There is scope for data in key policy areas, such as poverty and social exclusion, to be released more quickly, and for greater use to be made of panel and birth cohort studies. More use should be made of pilots in policy development to test what works before options are rolled out nationally.

The White Paper Building Trust in Statistics (4) sets out the Government's plans to establish improved arrangements for the accountability, governance and quality of official statistics and the future role of ONS.

9.1 Previous Chapters have set out the foundations for ensuring good analysis in Whitehall: a vigorous demand supplemented by improved business planning; high quality analysts who work alongside policy makers and help drive the policy process; and who are recruited across specialisms in sufficient numbers.

9.2 The present Chapter addresses problems specific to data collection, access and use.



Better use could easily be made of existing data

9.3 Departments should be encouraged to make more use of basic data description in the policy formulation process. The mechanism for this should be dissemination of good practice by the CMPS.

9.4 Powerful insights can be obtained from simple tabulation or graphical representation of key data. Simple analysis of survey data can reveal, for example, the pattern of spending on energy across different household types, or levels of car ownership. Sometimes the data required to set the context for policy development may need to be assembled from a variety of different data sets.

Box 9.1. Bringing Data Together

We All Need Pensions

The Pension Provision Group (PPG) report **We all need pensions** (8) was published in April 1998, around 6 months before the Government's Pensions Green Paper (9). It covered a wide range of basic issues in pension provision, ranging from "incomes in old age" to "the labour market context" to "risk and efficiency in pension provision".

This work helped set the context for subsequent policy development. None of the information was new to policy makers but the publication provided chapter and verse for the stylised mental map of the pensions world with which policy makers in DSS need to equip themselves. It represented a very helpful assembly of different data sources in a single place. The existence of the PPG also caused DSS to give higher priority to basic data collection than otherwise would have been the case (because it would have been crowded out by the pressure of more urgent work).

Drawing Together the Big Picture on Smuggling

A range of methods has been used to measure the overall extent of smuggling of tobacco and alcohol:

- the drinks industry has conducted (and continues to conduct) quayside surveys of loaded vans in Calais to give a broad indication of the volumes of alcohol being brought into the UK from the EU. This focuses on cross Channel smuggling of alcohol;
- Customs officers conduct surveys measuring the extent of smuggling by stopping a random sample of vehicles returning to the UK from the Continent;
- the International Passenger Survey (run by the ONS) provides time series survey data on movement of passengers in and out of the UK and data on cross-border shopping;
- C&E run an Air Passenger Survey to pick up smuggling by air. Customs officers determine through covert surveillance high risk luggage on particular flights. This is then examined on a 100% basis for contraband;
- although freight is a growth area for cigarette smuggling, it is impossible (for practical reasons) to do a sample survey. Seizures are intelligence-led and the success rate is increasing, which in itself provides useful information. (Around 0.1% of freight traffic is estimated to carry contraband.)



9.5 There also needs to be better access to large data sets across departments.

A wide range of survey and other data sources is already used by departments. However, both the availability and use of official Government surveys across departments are not as widespread as they could be. Improvements in computing technology will make it increasingly straightforward to store and access data from, for example, the Family Resources Survey (FRS) or the General Household Survey (GHS). Providers of data should design, document and structure them to facilitate a wide variety of possible uses, and not simply to meet the immediate policy demand.

9.6 Some investment may be required to increase specialists' familiarity with manipulating large data sets. And ONS will need to make its own surveys, such as the Family Expenditure Survey (FES), as accessible as possible to attract new users unfamiliar with the database (e.g. in terms of supporting documentation). Departmental statisticians might also play an advisory role if other specialists lack the skills required.

Conclusion 20: departments should review, by June 2000, whether they need the capability to access and use large Government surveys such as the FRS and, if so, put in place the necessary capacity by June 2001.

9.7 More effective use could be made of administrative data. Government collects vast amounts of administrative data, ranging from information on social security claims to data on the work of the courts and claims for legal aid. Whilst administrative data of this kind feed into specific models, little use is made of such data beyond the departments which collect it. (The ONS JUVOS⁴ data set on the claimant count appears to be an exception to this but is difficult to obtain and

complex for non-ONS analysts to use). This is in stark contrast to practice in North America where use of administrative data is widespread.


9.8 An important barrier to wider use of administrative data is confidentiality. This is already being addressed:

- the SEU Policy Action Team 18 (set up to devise a strategy for small area data) met with the Data Protection Registrar to explore whether it would be possible to make more use of administrative data at a small area level. It was concluded that the Data Protection Act is not of itself a barrier to information sharing, but only requires data controllers to think much more carefully about how they collect and use data;
- the GSS Committee on Social Statistics is exploring how the potential for administrative data might be unlocked. In particular, efforts are being made to identify what use of administrative data can legitimately be made within the present legal framework.

9.9 An alternative approach would involve the more widespread sharing of secondary sources based on administrative data. This is an approach that has been adopted in Japan where there are also strict confidentiality regulations applying to the analysis of primary sources of administrative data. As a result, the Japanese labour ministry is able to make detailed employment statistical series based on administrative data available for secondary analysis.

Conclusion 21: ONS and SEU should disseminate more widely their work on administrative data to specialists, for example at the GES conference or through the proposed Modelling Network (see Chapter 10), by the end of 2000.

⁴ The JUVOS (Joint Unemployment and Vacancies Operating System) cohort is a five per cent sample of computerised claims for unemployment-related benefits going back to 1983.



Conclusion 22: departments collecting administrative data should consider releasing secondary sources based on it.

Different data sources could be used more creatively to derive the big picture

9.10 Data sets could be used more creatively by matching different sources.

9.11 In addition to pooling survey and administrative data, there is potential for linking information from surveys of businesses, individuals and households.

9.12 A GSS task force is already tackling the issues involved in matching data sets. It is looking at issues such as common identifiers across data sets at an individual and regional level and the barriers to linking data sets. Outside Government, a team at the Department of Applied Economics at Cambridge University is currently investigating the potential for matching the FES with the FRS.

Conclusion 23: ONS should promulgate widely the recommendations of the GSS task force on matching data sets to all specialists involved in modelling work and data analysis. ONS should do this through workshops and seminars to be held before the end of 2000 and periodically thereafter.

9.13 Gaps in data sets can be filled by imputation⁵. This technique was the subject of a GSS Task Force which produced a report in 1996 (10). It reviewed the range of methods that have been proposed and gave examples of their use. Nonetheless, imputation remains little used in Whitehall. This suggests that there may be scope to disseminate the Task Force's conclusions more thoroughly and to a wider audience.

9.14 One example of how imputation might have been used is suggested by the case study of long term care of the elderly (case study 7). Instead of using Council Tax bands as a proxy for property values, it would have been possible to impute property values within the FRS more explicitly by drawing on other information included in the survey such as the region, and number of rooms.

Conclusion 24: ONS should encourage specialists to be more creative in their use of data to help fill specific data gaps within surveys. Through seminars and workshops examples of best practice should be exposed to a wider audience.

Data should be released more rapidly

9.15 The academic community can only help with the analysis of data sets after they are released. In comparison with the release of data on the macro economy, there are often significant time lags between micro data being collected and its availability for analysis. This means, for example, that there will be no external analysis of changes until around 2001 in low incomes following the major policy changes being made now to help alleviate poverty.

9.16 One way of minimising the time lags might be through the more frequent release of household and other survey data, where sample sizes permit and demand is present. Another option would be to continue to release data on an annual basis but to make it available more quickly.

Conclusion 25: departments responsible for surveys covering income should carry out a review by end June 2000 of the costs and benefits of more frequent and timely data release.

⁵ Imputation involves estimating missing variables or observations within a data set, using variables for which there is information to help predict the missing data.



Testing what works

9.17 More use should be made of panel data and birth cohort studies. Cross-sectional data can provide descriptive statistics at a point in time, but more powerful conclusions can be drawn from longitudinal surveys where information from survey respondents is collected over a period of years (see Box 9.2).

9.18 Longitudinal data can be used to analyse the potential impacts of policies over time. They permit analysis of how policy interventions may affect future outcomes. Birth cohort studies are useful when determining the impact of early interventions on key transitions in later life.

9.19 The UK is fortunate in having one of the most long-established birth cohort

studies – the National Child Development Study (NCDS) – as well as a number of good panel data sources like the British Household Panel Study (BHPS).

9.20 ONS and other departments are working on a strategy for longitudinal data. This will both bring together Government's needs for longitudinal data about people, families and households and identify priorities for funding across departments.


9.21 However, to draw successfully on such surveys, policy makers and specialists need to be aware of the available data sources and helped with their use. This is not only a matter for statisticians. All analysts should be aware of these studies in order to influence the future design of such data sources on an ongoing basis.

Box 9.2. IFS Analysis Of Pensions

The IFS report **Partnership in Pensions: An Assessment** (11) provided a commentary on the Government's Green Paper on pension reform. The IFS analysis used longitudinal data from the British Household Panel Survey to estimate the size of the market for Stakeholder Pensions. Its analysis showed that:

- the majority of full-time employees earning between £9,000 and £18,500 (the target group for Stakeholder Pensions) on a regular basis already have a private pension. Many of these might be ill advised to switch to a Stakeholder Pension if they have paid up-front charges for their current pension;
- people earning between £9,000 and £18,500 who do not have a private pension are less likely to have stable employment and earnings than those who do. People whose earnings fluctuate are likely to be better off with the State Second Pension (SSP) than with a private pension unless the Government continues to make a contribution to their pension fund as an alternative to credits for a SSP;
- people who earn between £9,000 and £18,500 and do not have a private pension are less likely to have any other form of savings. The IFS concluded that, given they may have less stable employment patterns, these people may prefer to hold any savings in a more liquid form than a pension.

The Government's view was that the dynamic aspect, whilst important, was not critical to the success of the policy. The aim of stakeholder pensions is to put people in a position where they can save when they can afford to do so, while ensuring that they are properly protected if they have to stop paying in (see case study 5 for a discussion of the DSS analysis).



Conclusion 26: ONS and lead departments should promulgate their strategy for longitudinal data to analysts across Government through a series of workshops and seminars.

Conclusion 27: GSS should disseminate best practice in the use of longitudinal data.

Conclusion 28: CMPS should set up a working group, by June 2000, to exchange experiences between departments and explore the future role of pilots. Best practice guidance should set out the expectation that departments should use pilots, as part of the policy appraisal process, wherever appropriate.

9.22 Pilots can play an important role in policy formulation and help evaluate policies before national roll-out. Pilots can work through:

- random assignment, which involves placing individuals at random in a control group and deliberately sheltering them from the policy change. After the intervention they can be compared with the ‘treatment’ group who receive the policy, much like a clinical trial;
- geographically limited trials, which involve changing policy in limited geographical areas. This enables the outcomes in those areas to be compared with those in matched “control” areas where policy did not alter.

Identifying and filling the data gaps

9.23 There are few areas where there is a complete lack of data. But there are some subjects on which it would be desirable to have more information. The main gaps relate to:

- company accounts data;
- information on individual assets and wealth (particularly for the elderly);
- small area data.

9.24 Of course data gaps emerge over time, and it is likely that more will emerge as policies change and new issues rise up the policy agenda. Data gaps emerge as social circumstances change. For example, registration of marriages is no longer sufficient to build up a good picture of the process of family formation. It is therefore important that there are ongoing structures to ensure that data gaps are picked up as they arise.

Box 9.3. Use of Pilots

There was a **random assignment** element within the DSS pilots for the New Deal for Lone Parents. Within the geographical areas where the pilots were run, only claimants with low National Insurance Numbers (NINOs) were invited to interview and to participate in the programme during the pilot period (leaving those with high NINOs as a control group).

A **geographically limited pilot** has been adopted for **Educational Maintenance Allowances**. The aim is to test whether financial incentives will encourage more young people from low-income families to stay in education beyond 16. Young people living in the pilot areas will be eligible, depending on parental taxable income, to receive an Educational Maintenance Allowance (EMA) if they attend full-time courses at school or college. Another example, the **Earnings Top Up** (which extended Family Credit to those without children), was trialled over several years to assess its impact on local wage-setting by employers.



9.25 There are several ongoing initiatives which should help address these gaps:

- ONS runs a formal “gaps” exercise to underpin its own work programme. A one-off CSO exercise conducted around six years ago led to collaboration between the Economic and Social Research Council and a number of departments on time-use statistics (covering leisure time activities and the role of non-traded activities in the household). The exercise has since been repeated by various GSS committees. Some, such as the GSS committee on Regional Statistics, have formally reviewed the earlier findings every two years;
- the SEU PAT 18 group on Better Information is co-ordinating an exercise to bring together small area data. The objective of the group is to prepare a coherent cross-Government strategy to collect, on a consistent basis, more up to date information on deprived areas. As part of its work the group has drawn up a list of small area social exclusion indicators and the data sources that might be used in the compilation of the indicators. These indicators (around 60-70 in total) cover all dimensions of social exclusion, from economic deprivation to the physical environment.

Conclusion 29: ONS should carry out a review, by June 2000, to establish whether they should set up a team to co-ordinate the compilation of local area data outside the social exclusion arena.

Conclusion 30: ONS should bring together interested departments, by June 2000, to assess whether there is a business case for a regular survey of individual wealth and assets.

Conclusion 31: the National Statistician should ensure that regular review of gaps forms an integral part of the new National Statistics planning process, from April 2000.

The role of the centre – co-ordination, oversight and ownership

9.26 In the context of data collection and analysis, the ‘centre’ includes the ONS as well as the Treasury, the Cabinet Office and No. 10. Its role is essentially one of:


- co-ordination;
- oversight of cross-cutting issues;
- encouragement of departments to work together where appropriate;
- ensuring that statistical information is seen as a national asset and collected, managed and disseminated as such.

9.27 ONS has a particularly crucial role to play:

- providing advice about the availability of data sets;
- acting as a central holder of Government data;
- providing data quality assurance;
- setting priorities for future data collection.

9.28 There is a mix of ownership of surveys across departments and the centre. In some cases, ONS is responsible for holding and developing official surveys (e.g. the FES). In other instances, surveys originating from one department’s needs are run by that department (e.g. DETR runs the Survey of English Housing).

9.29 An early task for the National Statistician, in conjunction with departmental Heads of Profession, will be to review the extent to which the principles on location of responsibilities set out in **Building Trust in Statistics** (see Box 9.4) are reflected in the current distribution of ownership of data sets across Whitehall.



Box 9.4. Building Trust in Statistics

The September 1999 White Paper **Building Trust in Statistics** (4) set out arrangements for developing public confidence in official statistics. In particular it outlined the accountability and governance arrangements which the Government intends to introduce. A Statistics Commission, which will be independent of both Ministers and the producers of National Statistics, will play a key role in quality assurance and priority setting, ensuring that official statistics are trustworthy and responsive to public needs.

The White Paper advocates that the distribution of National Statistics activities across departments should be determined on a case by case basis, weighing up the advantages and disadvantages of their being centralised in the ONS or left in other Government departments or other public bodies. It proposes that any assessments should take account of the breadth of the customer and the supplier base, the knowledge base and synergies with other activities.

Box 9.5. Models for Joint Working to Deliver Cross-cutting Data

Social Exclusion Unit Policy Action Team on Better Information (PAT 18)

PAT 18 is made up of a group of experts on local area data from Whitehall, academia and the private sector. It has been asked to report on:

- the scope for a coherent cross-Government strategy to get more up to date and consistent information on deprived areas;
- how this could be done without generating undue bureaucracy;
- evidence on good practice by individual local authorities and how this could be spread more widely;
- the role of Regional Development Agencies in aggregating area information.

Their draft report sets out a vision for encouraging the use of information in analysing options for neighbourhood renewal.

Interdepartmental Group on Costs and Benefits

As the Government's Air Quality Strategy crosses a number of departmental boundaries, an interdepartmental approach to analysis and policy formulation is crucial. Whilst the DETR is the lead department, it relies on analysis from other departments. For example, DTI provide forecasts of future energy demand and DH feed data in on health.

9.30 Problems can arise when the data to be collected spans a number of departments. There are a number of ways of tackling this. Two examples are set out in Box 9.5.

Conclusion 32: as part of the new National Statistics planning process, ONS/GSS should review, by June 2000, whether more cross-departmental data collection should be undertaken along the model of the SEU and IGCB.

10. IMPROVING THE QUALITY OF MICROECONOMIC MODELLING IN GOVERNMENT

Summary

The key to the successful use of models is to understand their limitations. They can only be as good as the data on which they are based. They must not be impenetrable “black boxes” to analysts or to policy makers. The outputs of models need to be seen as information which helps improve understanding of e.g. the impact of policy options, not as yielding definitive predictions about the future.

Fundamental reviews of departmental models are necessary periodically to ensure that models remain relevant to the uses to which they are put and that there are no unfilled gaps in modelling work.

Models open to external scrutiny are better because outside feedback helps improve the quality of modelling. Contestability between model outputs and their underlying theory helps to build a climate in which excellence in modelling flourishes. An academic modelling panel should be established to oversee this process and provide an audit facility for long-term models.

The Economic and Social Research Council should expand its existing research programme to ensure that the UK becomes a centre of applied modelling expertise. Within Whitehall, a modelling network should be established to exchange best practice.

The case for a central modelling unit is unproven. But there is scope for departments to work more closely together in developing models of mutual interest.

10.1 The conclusions in earlier Chapters should establish the conditions in which analysis can flourish. The present Chapter

considers the final piece in the jigsaw – how to improve the quality of modelling in Whitehall.



10.2 An important strand of the fieldwork for the project has been to identify what microeconomic modelling is done in Government, to form a view about how good it is and how far it meets the needs of policy makers. The conclusion of that examination is that there is extensive modelling work across Whitehall. Much is of good quality. But each model examined in the case studies does have limitations.

10.3 The conclusions of this Chapter build on best practice to help fulfil the vision outlined in Chapter 4. The right models need to be available to Government and used appropriately. The twin themes informing the conclusions are **openness** in the development of models and **contestability** of advice based on applied microeconomic modelling.

Policy makers and analysts need to use models intelligently

10.4 Microeconomic models offer potentially important and valuable insights across a range of Government policies.

10.5 But models must be used intelligently. Analysts and policy makers should always remember that:

- **models are not the only tool in the analyst's armoury.** As emphasised in Chapter 9, basic data description alone can offer powerful analytical insights. And new policies need to be fully thought through at a conceptual level before they are modelled;
- **models are only as good as the data upon which they are based.** One of the key differences between the UK and the US is a willingness of the US to invest in data collection for policy evaluation and appraisal which in turn permits more extensive modelling in support of policy making;
- **models must not become 'black boxes'** either to the analysts who create them or to the policy customers who use their outputs;
- **the limitations of models need to be clearly understood.** Models do not give answers, they give insights. Models help define the areas of doubt, but they can never be definitive in all areas and their results should be interpreted with care;
- **the process of modelling itself is as important as the outputs of the models in informing policy.** Developing a model forces a rigorous understanding of markets or systems as well as policy and its possible impacts (see Box 10.1).

Box 10.1. Policy Insights from Modelling – Lord Chancellor's Department

The Lord Chancellor's Department runs a number of statistically based models for forecasting Legal Aid expenditure. Full details of one of these are contained in case study 9. A variant of the methodology used in that model helped support the proposed move from an hourly based system of remuneration for solicitors to a 'stage based' system. This change is designed to reduce the potential incentive to solicitors to spin out the time spent on a case – so called 'hour creep'. In the process of the detailed modelling work it became clear that some cases lent themselves to being split into multiple cases to maximise solicitor revenue. This set in train work to minimise this loophole.



Box 10.2. Where Are the Modelling Gaps?

The case studies have necessarily concentrated on those areas where models already exist. But identifying policy areas where modelling would be valuable but is not taking place is just as important. This study has revealed several such areas of potential gaps in modelling:

- a well-founded econometrically based model of both internal and external migration would be of use to a number of departments notably Home Office, Foreign Office and DETR. It would also be of value in assessing the work of GAD and ONS in producing national and sub national population projections;
- modelling in support of target setting, whether operational (in the case of the electronic delivery of Government target) or PSAs;
- modelling of financial services;
- modelling of transport use other than roads and the interaction with road use.

There is no straightforward benchmark for determining what the priorities for modelling across Whitehall should be. Without a detailed understanding of individual policy areas it is impossible to judge where the distribution of limited modelling resources should go. Instead the aim should be to open up departmental choices to peer review and to carry out analyses of modelling needs with policy makers. Doing so would help identify gaps and provide a mechanism for judging whether they should be filled.

Government needs to ensure it has the right models

10.6 Government needs to check periodically that it has all the models that it needs and only the models that it needs.

10.7 Long-term models can develop a life that is independent of the policy area they were originally designed to support. The DETR Household Formation model is one model whose role is being reassessed in the light of current policy developments (see case study 3 and Box 10.3). This closely parallels the experience of the National Road Traffic Forecasting Model, examined in case study 1. In that case a change in the philosophy of the road building programme has led to the development of a more flexible policy tool.

Conclusion 33: departments should review their modelling capacity from first principles to make sure that their modelling work remains appropriate to the current range of departmental objectives.

Greater openness and access to models will help

10.8 To be useful to policy makers a microeconomic model needs to be:

- soundly based in theory;
- statistically or econometrically robust;
- appropriate to the questions it is trying to address.

10.9 These conditions are more likely to be fulfilled if:

- models are more open to external scrutiny;
- models are more widely available for use outside their department of origin;



Box 10.3. Proposed Revisions to the DETR Household Formation Model

The DETR Household Formation Projection Model was developed to underpin regional and local planning guidance for new housing provision. To date it has been a sophisticated, but purely statistical, projection of past trends in demography and regional/local migration. There is no attempt within the model to evaluate the impact of alternative economic scenarios or policy options on household formation.

However, the departmental press release in March 1999, which published the latest projections, contained, for the first time, a sensitivity analysis showing the impact on household formation of different economic assumptions. And the department is currently in the process of tendering for the development of a new model which will project household formation as a function of economic as well as demographic variables and allow the impact of policy changes to be exemplified under a range of scenarios.

- the development process involves outsiders.

10.10 The conclusions are not designed to ensure that all Government models should be at the technical leading edge of microeconomic modelling. Models need to be 'fit for purpose'. Sometimes it is indeed important for models to be state of the art (e.g. much if not all of the OR modelling for the Centre for Defence Analysis falls into this category). But often an informal "back of the envelope" model will be all that the policy process requires. In general, there is a proper division between pure research undertaken in universities, testing new or unproven techniques, and the need for defensible estimates required in Government.

10.11 Openness improves modelling through two channels:

- **openness in outputs** generates a richer and better informed policy debate. In this context it is striking how the policy of the Bank of England in publishing its own suite of models and actively explaining their role in interest rate policy making has raised the sophistication of that public debate (see Box 10.4). Publication of results from microeconomic models in Government would have a similar effect;
- **openness in operation and workings** encourages dialogue between Whitehall and the specialist community which helps to enhance the standard of modelling. One of the lessons to learn from the models of the water regulator (see Box 10.5) is that greater transparency leads to more robust modelling.

Box 10.4. Bank Of England Macroeconomic Models

The Bank of England has undertaken a policy of aggressive openness with its macroeconomic modelling. The full suite of models has been published in a book called 'Economic Models at the Bank of England' (Bank of England 1999). The philosophy underlying their use has been promoted through speeches by Bank officials (for example, John Vickers' Speech to the Governors of NIESR, March 1999). The impact of the debate is seen in the sophisticated use of complex Bank of England data in public debate throughout the media.



Box 10.5. OFWAT Efficiency Models (Case Study 2)

OFWAT have a suite of 17 models which are used for calculating the relative efficiency of water companies as part of the price setting process. Outside scrutiny is intense. The water companies have a powerful incentive to test the limits of OFWAT's models. The Regulator knows that water companies can seek an investigation by the Competition Commission or ultimately judicial review.

As a result OFWAT has consulted widely in the development of the models. The original suite was developed in association with academics at the University of Warwick. Throughout the process the models have been well documented and open to public scrutiny to secure feedback and encourage collaboration. As a result of this transparency the models are defensible in the public domain.

10.12 Modellers in Whitehall have shown a widespread willingness to seek advice and expertise from outside Government. Often there are external models with which Government models compete. The position varies between models:


- models can have private sector competitors. The DTI energy model has rivals run by private sector energy consultants against which it has performed well, historically;
- the academic sector presents challenge in other areas. For example, both the Treasury and the DSS run tax/benefit models. So too do the Institute for Fiscal Studies (IFS) and the Department of Applied Economics (DAE) in Cambridge. The IFS has recently audited the Treasury Inter Governmental Tax Benefit Model (IGOTM – see case study 11). Similar exercises in the past have also included the DSS Policy Simulation Model PSM (see case study 12);
- sometimes the relevant comparators are international – there are no private sector analogues to the DSS PENSIM model but there are similar models in Canada (based on a model developed at Cornell University) and Australia. The DTI energy model also has competitors in international organisations (the International Energy Agency and the European Commission);

- the National Road Traffic Forecasting model has no rivals or direct comparators, but is open to external scrutiny and overseen by a steering group of stakeholders and experts. The results and workings have been published in Working Papers and presented internationally. But there are no similar models elsewhere because the UK has different data sets from other countries;
- the Home Office model of property crime is still under development but early versions have been published with a view to gathering feedback from the wider academic community.

10.13 There would be gains in formalising this openness and establishing the presumption that long-term models should be published and externally audited.

Conclusion 34: a Modelling Academic Panel should be established to define and supervise the process of publication and external review of long term models used in Government. This Panel should be chaired by the Chief Economist in the Treasury Public Services Directorate. It should include both civil servants and academics.

10.14 Microeconomic models in Whitehall need to be readily available for others to use.



10.15 The experience of shared models in Whitehall is limited. It is generally the case, with the exception of IGOTM, that models are developed and understood in only one department, even where their outputs are used in others. Technological advance has made open access to models easier. The IFS Tax Benefit model (TAXBEN) and the Warwick macroeconomic model can be run over the World Wide Web; the DAE's model for tax benefit calculations (POLIMOD) is available in the House of Commons library. Portability fits well with the wider aspirations of transparency outside Government and greater awareness of modelling within Government.

10.16 As one of its first tasks, the Modelling Academic Panel should consider ways to help departments to make their models 'portable' so that others within and outside Government can use them.

10.17 *Ex post* audit and publication of models is not sufficient. Outside expertise needs to be involved from the outset in the development of new models.

10.18 There is a range of ways of accessing external advice:

- an external steering group is a minimalist approach to obtaining outside input, although closer technical collaboration with a subset of members can provide closer engagement;
- secondment of Government analysts to academic institutions in order to build specific models (see Box 10.6) allows external input to the modelling process;
- full contracting out represents the most complete use of the external world, but needs careful management. For a fuller discussion see Chapter 11.

Conclusion 35: outside expertise should be involved in model development from the outset through an external steering group or other mechanisms.

Box 10.6. Reaching Out

Close Engagement with Academics

One model of closer engagement is that used by the Department of Health in the development of its Long-Term Care of the Elderly Finance Model. In this case DH seconded an analyst one day a week to the London School of Economics (LSE) to work specifically on the model. This approach had the effect of both shielding the modelling work from the immediate pressures of being in the office and generated close contact with academics working in this and related fields. This has the advantage of ensuring full departmental ownership of the workings and outputs of the model in the future.

Modelling "Clinics" In Economic Consultancies

Both Frontier Economics and London Economics, two private sector economic consultancies involved in the supply of analysis and modelling to government departments, obtain advice on the technical aspects of modelling from academics. In each case, they hold 'econometric surgeries'. These operate in the same way as GP appointments. Consultants are able to book appointments with a Professor of Econometrics who is available at specific times to discuss any problems they may have with their current project.



Creating a wider culture in which modelling flourishes

10.19 Openness in Government modelling needs to be complemented by an environment where applied microeconomic modelling is widely taught and understood. Openness has no advantages if there is not the expertise in the outside world to provide a challenge to Government analysis.

10.20 Among the existing Economic and Social Research Council (ESRC) centres of research, only the IFS explicitly includes using microeconomic and microeconomic techniques in its outline objectives. The ESRC's macroeconomic modelling research programme, which has recently come to an end, is widely regarded as having pushed the UK to the forefront of technical modelling. A similar programme in microeconomic modelling would have the advantages of:

- establishing a bigger pool of experienced modellers;
- promoting more rapid technical advances;
- enhancing the policy debate through greater competition between models ("contestability");
- creating a larger constituency for improved data.

10.21 An ESRC programme would generate the microeconomic modelling, data manipulation skills and in-depth knowledge of large data sets which are all in short supply both in Government and in the academic sector. The narrowness of this seam of talent has three broad causes:


- the declining numbers studying economics at both undergraduate and postgraduate level;
- the bias against applied economic work established through the Higher Education Funding Council's Research Assessment Exercise which pushes talented students away from applied microeconomics;

- a lack of interchange opportunities. A broader microeconomic profession would open opportunities for greater interchange between the academic and governmental sectors. Experience, highlighted in the development of models in the US and in case study 7 on long-term care, shows that this is probably the most effective way of spreading best practice between the two sectors.

10.22 Such a programme would also improve the quality of modelling where this is presently being held back through lack of theoretical understanding. One common theme arising in relation to most models across Government has been the difficulty of modelling the behavioural implications of policy. Progress towards greater behavioural modelling is still at rudimentary stage in the outside world, but a concerted effort could help bring to fruition developments which seemed promising in the 1980s. Such a stirring seems to be happening in the US where dynamic microsimulation models, with some behavioural elements, are becoming more widely used within Government.

10.23 Additional external centres of expertise in modelling would help keep Whitehall modellers on their toes. Evidence from Canada and the US suggests competition between models is a force for their improvement. In addition, greater attention paid to microeconomic modelling leads to a higher quality policy debate.

10.24 Additional modelling in academia and think tanks would also increase the demand for data. Modelling depends on data and the greater the demand for better and more readily available data, the greater the incentive to collect them.



Conclusion 36: the Chief Economist in the Treasury Public Services Directorate should encourage the ESRC to adopt the aim of making the UK a centre of international excellence in applied microeconomic analysis by 2005.

Conclusion 37: a modelling network chaired by the Chief Economist in the Treasury Public Service Directorate should be established by March 2000 for specialists in Government to promote exchange of good practice at technical level and to signal the importance of modelling within Government.

Pooling knowledge

10.25 There is a case for strengthening links between modellers within Whitehall through the development of an informal technical network of specialists, supported perhaps by use of the Government secure intranet (GSI). (Some technical level links do already exist within the Operational Research and statistical communities.)

10.26 Such links would help to enhance the quality of modelling in Government in a number of ways:

- modelling within departments is done by statisticians, economists and operational researchers. Exchanging information and good practice between specialists would help break down professional demarcation lines and raise the standards of modelling. In particular, establishing clearer links between professions might help with the analysis (if not the formal modelling) of behavioural changes, where the operational and social research communities have also been active;
- they would allow techniques and knowledge to be shared more effectively;
- a cross-departmental network might be one channel through which external technical expertise is accessed informally;
- better cross-departmental linkages of this sort could provide the infrastructure for the support of specialist modellers. Greater knowledge and familiarity with activity in other government departments could help the flow of modelling talent between departments.

10.27 There is a need for more joint development of models between Whitehall departments.

10.28 The Government's objective setting framework increasingly emphasises the need for cross-cutting objectives with a consequent demand for cross-cutting analysis, and within that, joint modelling. Box 10.7 highlights this in relation to tax/benefit modelling. Other areas where cross-departmental modelling might enhance joint understanding of policy issues include vehicle CO₂ emissions and company taxation. As in the case of portability of models, technology now makes more feasible the joint development of models with a view to their being used independently within departments.

Conclusion 38: the review of analysis to be conducted by the CORE team in HM Treasury (see conclusion 4) should address explicitly the need for and provision of jointly developed microeconomic models.

The case for a central modelling unit is not proven

10.29 Locating modelling capacity away from direct departmental responsibility has some attractions:

- modelling is a specialist business and there is much that can be learned from sharing common experience;



Box 10.7. Joint Working in Tax/Benefit Modelling – a Case for Revisiting?

The interaction of the tax and benefit system is an area of clear policy overlap, with several departments having an operational and policy interest in the area. This joint analytical need was recognised in the late 1980s with the development of the Inter Governmental Tax Benefit Model (IGOTM). At the time it proved impossible to meet the needs of all interested departments, and as a consequence DSS retained its own model (Policy Simulation Model – PSM).

Policy developments now mean that the Government is channelling more of its support for those on low incomes through the tax system. As a result departments are having to learn new skills and gear themselves up to analyse and implement new policy options. In this environment there may be a case for a new interdepartmental group to examine the feasibility of developing a new comprehensive tax benefit model to be used by all departments.

- a central modelling unit could be ring-fenced from the day to day concerns which can often crowd out developmental work on economic models. Several long-term models in Government have gone through periods of neglect as analysts have been assigned to other work. A central unit might offer shelter from such pressures;
- the head of such a unit might be given responsibility to report directly to Parliament (as is the case with the Government Actuary at present), thereby enhancing the perceived professionalism, integrity and independence of advice;
- a career in a central unit, perhaps with stronger links to the academic sector, might offer an alternative career path to that of the 'generalist economist' in departments which might be more attractive to those with particular modelling skills. It might also provide an environment to address the problems of developing plausible career paths for specialists in this field.

10.30 However, the counter arguments are more compelling:

- experience with the provision of analysis from existing central units – such as GAD and ONS – is mixed. Remoteness from the policy process can mean a loss of feel for the concerns of policy among specialists while policy makers can lack an appreciation of the limitations of modelling;
- there is evidence that ring-fencing can be achieved within departments if sufficient priority is given to modelling work. This is the approach which has been used in DSS with the establishment of a dedicated modelling division in the Analytical Services Division to carry forward developmental work.

10.31 On balance, while there are real specialist skills in manipulating complex data sets which it might be both economical and practical to centralise, the need for policy-relevant and timely modelling in departments will probably always militate against a central modelling unit.

11. MAKING BETTER USE OF THE EXTERNAL WORLD

Summary

Government should make better use of links to the academic world. Academic research can bear on practical policy questions. One of the roles of specialists in Government is to interpret the significance of academic debate for policy-makers and Ministers.

There are a number of ways in which departments can influence and draw on academic work. These include effective use of departmental research budgets; the funding of applied research through the payment of “summer money” as in the US; and the secondment into the Civil Service of internationally recognised experts.

Getting the right balance between internal and external work will vary from one policy area and specialism to another. More contracting-out for modelling and other analytical work may be required in the future if it becomes increasingly difficult to attract sufficient high quality analysts into government service. But Government will always need to retain some specialist capacity to manage external projects and, more critically, to act as an intelligent customer.

11.1 The conclusions in Chapters 5-10 should put in place high quality analysis and modelling in Whitehall. But Government does not have a monopoly on wisdom. It should take advantage of the work of academics and think tanks to confirm its own analysis and to supplement it where necessary. The existence of these strong links between Government and the outside world is one of the key differences between the experience of the US and the UK in the use of analysis.

Strengthening links between Government and academia

11.2 Government has to be able to communicate its needs and priorities clearly to the academic sector if the research agenda in academia is to reflect its requirements. It can do so through:



- direct access to the academic research agenda through its representation on the Economic and Social Research Council (ESRC). The mission statement underpinning the ESRC's Thematic Priorities exercise in 1995 had support for policy relevant research as its foundation⁶;
- departmental research budgets – and the publication of research strategies. The example of DfEE has been discussed in Chapter 6;
- more core funding of research institutes. The UK cannot aspire to follow precisely the example of the US in the variety and quantity of its independent research institutes. However, redirection of research budgets towards core funding for research institutes may go some way towards enriching the environment for policy development.

11.3 Three more specific practical ideas drawn from the US could also strengthen links with academia:

- a *'Summer Money' scheme*. Through this academics are paid an additional two ninths of their salary by Government departments to work on specific research projects of direct relevance to Government. The benefit is that the academics also tend to gear their ongoing research programmes to similar topics, establishing a direct link to the academic research agenda. There is a strong case for piloting a summer money scheme in the UK;
- *interchange promoted through the Inter Governmental Personnel Act* under which a fixed number of academics are seconded to Government for a year to work jointly on specific research projects with Government analysts;

- *use of experts to run departmental research programmes*. The US Labour Department employs an outsider (*not* a political appointee), usually an eminent labour economist, as its director of research on a rotating basis. There may be scope for something similar in the UK.

Conclusion 39: a 'challenge fund' of £50,000 (administered by the CORE team in the Treasury) should be established, from July 2000, to fund five academic summer placements in Whitehall each year.

Conclusion 40: the Civil Service reform plans to identify 100 key tasks to be carried out by private sector secondees should include a number of placements for internationally recognised specialists.

11.4 As well as ensuring that academic research is available, Government needs to be able to ensure its dissemination and use in the policy process. This has two aspects:

- analysts in Government need to be up to date with the academic debate on contentious issues that bear on policy development and interpret these for policy makers and Ministers. Departments do not always have the luxury of waiting for an academic consensus to be reached before formulating policy. Where a pragmatic judgement about the way forward needs to be taken – for example, in measures to reduce structural unemployment – the policy process must, so far as possible, be informed by an understanding of academic debate. These issues are explored in more detail in case study 10 on the development of policy on the labour market;

⁶ The statement said that the mission is to "fund high quality research and training which meets the needs of users and enhances the UK's competitiveness, quality of life, and the effectiveness of public services and policy."



- the creation of Whitehall knowledge pools. The CMPS is taking forward the Government strategy for knowledge management. Departments may also need to prepare strategies. For example, the DfEE has developed a strategy that is geared around building an accessible body of research in house. And the Cochrane Centre for Medical Research in DH already does this for medicines. Turning these repositories of information into valuable tools will require management. These moves by individual departments should form stepping stones towards the more wide-ranging and ambitious CMPS aspiration to establish a Whitehall wide knowledge pool.
- there may be areas of overlapping interest that could be exploited more. For example, modelling of the costs and benefits of contraception by Durex was valuable in work by the Social Exclusion Unit on teenage pregnancy. But opportunities may be limited. There will inevitably be some areas where overlaps in modelling between the private and the public sector are non-existent. No company, for example, attempts to estimate the future population in England and Wales.

Conclusion 41: departments should explore with the private sector the feasibility of accessing and using private sector data sources.

Strengthening links between Government and the private sector

11.5 There may be scope for further collaboration with the private sector. This applies to both data and modelling:

- few references to private sector data sources emerged from departments' responses to the project questionnaire or from work on the case studies. However, some instances where data are collected from the private sector do exist. For example, a 5% sample of mortgages is collected from mortgage lenders and provides useful information about house prices. There may be scope for departments to do more of this. For example, individual water companies have detailed information about the impact of water metering on water use. This would be useful evidence to have in the formulation of domestic water charging policies;

The balance between external and internal analysis

11.6 There is an important role for contracted-out analytical work but it needs to be carefully defined and managed.

11.7 The advantages of contracting-out are:

- it allows one-off projects to be carried out without a permanent expansion of staff numbers;
- it gives access to specialist expertise;
- it draws on the increasing range of academic and private sector organisations that can undertake such work.

11.8 There are also potential disadvantages:

- contracting-out may offer less good value for money than work done in house where analysts need to be close to the policy process;



- knowledge transfer – which should be the aim when work is contracted-out – may be difficult to achieve. This is more likely to be the case where the work contracted-out is the development of a sophisticated model such as PENSIM, than in the case, say, of studies to evaluate policy implementation or basic scientific or social research.

11.9 The balance of work contracted-out tends (unsurprisingly) to vary significantly between specialist disciplines. Box 11.1 describes some experiences of contracting-out analytical work in the data and modelling spheres.

11.10 Overall, contracting-out is likely to play an increasingly important role, particularly if it becomes more difficult to recruit high quality specialists to work in Government. Government will, as a minimum, need the specialist capacity to exploit it fully and to act as an intelligent customer in commissioning and managing contracted-out work.

Box 11.1. Contracting Out – a Mixture of Experiences

Data

- The Social Exclusion Unit (SEU) commissioned Southampton University to undertake, at short notice, an analysis of teenage pregnancy using the NCDS when Government departments were unable to supply information in this field.
- Basic data cleaning and reconciliation is contracted out with success by the US Government.

Models

- Successes in the UK include DETR's contract for maintaining and developing models of Household Formation both with Anglia Polytechnic University and the Department of Applied Economics at Cambridge.
- Some departments of the US Government use a tax benefit model supplied by the Urban Institute (a social think tank).
- Australian Government departments buy in source code for models developed by the National Centre for Social and Economic Modelling at the University of Canberra and then manipulate it themselves.
- A comparative failure in both the UK and Australia was the contracting-out pensions modelling. In neither case did this lead to efficient knowledge transfer to Government.

12. IMPLEMENTATION STRATEGY

Summary

This report will lack value unless its conclusions are implemented.

Key players for the implementation are CMPS (responsible for training and the dissemination of best practice), Permanent Secretaries (responsible for the supply of analysis in departments) and the Treasury (responsible for looking more closely at departmental analytical plans in the context of the SR and PSA processes, and, together with the Cabinet Office, for a “challenge” role vis-à-vis departments).

Implementation will be overseen by an Implementation Group (with a membership drawn from the Project Steering Group). This will meet periodically to assess progress with implementation.

A table summarises the conclusions in the report and gives a preliminary estimate of cost. This will need to be further refined by the Implementation Group. The Group will also need to commission further work on the prioritisation of the report’s conclusions.

12.1 The success of this report depends on the implementation of its conclusions. However, as the report suggests, improving the demand for and supply of analysis and modelling is a complex issue. There is no one proposal that would lead to better analysis and no one agent of change. It is therefore crucial that clear roles are allocated to the key players responsible for each cluster of conclusions.

12.2 This Chapter therefore:

- identifies the main players responsible for key strands of conclusions;
- describes how the report’s findings will be disseminated to analysts and policy makers throughout Whitehall;
- assigns a responsibility to key players for each individual conclusion and a timetable for taking action.



A range of players will have responsibility for implementation

12.3 The key players involved in implementation of the reports' findings will be:

- an Implementation Group chaired by the Head of GES. The Steering Group for this project has agreed to meet twice a year (and perhaps more often initially) to oversee implementation and check progress against the proposed timetable. The Implementation Group will be serviced by members of the CORE team in the Treasury;
- CMPS, which will be responsible for spreading best practice and training for Ministers and senior officials. They will also be involved in bringing together information relevant to policy formulation, from both within and outside Whitehall;
- Permanent Secretaries, who will be charged with implementation of the conclusions addressed to departments, within the context of the Modernising Government agenda;
- the Treasury, whose role will be: to ensure sound analysis supports the Spending Review and PSA process; to identify cross-cutting issues and make sure they are supported by analysis; to administer the seed-corn fund for cross-cutting analysis; and to service the Implementation Group and the modelling Academic Panel;
- Heads of Profession and Chairs of Management Groups who will play an important role in overseeing developments across their own professional domains, challenging the distribution of analytical capabilities within and across departments (where appropriate), promoting better joint working between professionals and ensuring that high quality specialist staff are available across departments;
- ONS and the National Statistician who will be involved in ensuring, where appropriate, that the initiatives being undertaken through the GSS are communicated to all specialists involved in analysis and modelling.

The findings of this study need to be widely disseminated throughout Whitehall

12.4 Dissemination of the report's conclusions will form an important component of implementation. Spreading awareness of the conclusions will help to ensure that the importance of analysis and modelling is instilled in the consciousness of officials and Ministers at the highest level.

Timetable for Implementation

12.5 Table 12.1 assigns responsibilities for each of the conclusions to the key players, as well as a date by which the conclusion should be acted on.



Costs...

12.6 Table 12.1 gives a preliminary costing and assessment of the impact on departments for each of the detailed conclusions.

12.7 The most expensive are likely to be: the establishment of a seed-corn fund; additional training for policy-makers in analysis; and, if accepted, increased pay for analysts in Whitehall. If the proposals, when implemented, lead to the demand for a greater analytical capacity across Whitehall or for new data sources, that too would lead to additional costs.

12.8 Implementation of some of the conclusions might lead to increased administrative effort on the part of the Treasury CORE team or their analogues in departments. The preliminary costings propose an additional 2/3 staff for the Treasury CORE team.

12.9 Finally, a number of conclusions in Table 12.1 are allocated to the CMPS to take forward in the context of civil service reform. These proposals have not been separately costed as they will form an integral part of other programmes. It should be noted, however, that funding plans have not yet been agreed for those programmes. The remit of the CMPS has expanded since the original plans for the organisation were drawn up.

12.10 Further work will be required to refine the costings. The Implementation Group will also need to commission more work on the prioritisation of the conclusions in this report.

...and benefits

12.11 The benefits of improved analysis are also hard to quantify.

12.12 But the case studies make clear the scale of **potential sums at stake** in decisions supported by analysis. For example:

- revenue lost through smuggling of tobacco is presently £2.5 billion pa;
- population modelling helps determine the affordability of long-term pension provision. The original State Earnings Related Pension Scheme introduced in the mid-1970s became increasingly less affordable as the size of the likely rise in dependency ratios in the early part of the next century became clearer. In a series of reforms in the 1980s, the value of SERPS benefits was reduced.

12.13 Sometimes the value of analysis is that it can help change a Ministerial decision. For example, within weeks of the 1997 General Election, the new administration called a Water Summit and subsequently embarked on a review of water charging. One of the policy options considered was moving from a system of domestic unmeasured charges based on rateable values to a system based on Council Tax bands. Contrary to the initial expectations of Ministers, analysis of the proposal revealed that such a system would be more regressive than the existing arrangement.

12.14 Even when analysis does not alter Ministers' decisions, it may nonetheless have a value. For example, analysis of the information about take-up gathered from pilots for the New Deal for the disabled did not affect Ministers' decision to move on to national roll-out. In such a case, Ministers will have a clear idea how a policy will work at an early stage of its implementation. Such information has a value, albeit one that is hard to quantify.

Table 12.1: Summary of conclusions

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
Conclusion 1: training courses for Ministers and senior officials run by the CMPS should in future include a session on the importance of good analysis for the policy-making and decision-making processes.	CMPS	June 2000	To form part of CMPS funding.	
Conclusion 2: CMPS should include guidance on the use of analysis in best practice protocols for circulation to Ministers and officials. Such guidance should help disseminate "Green Book" principles in non-technical terms (e.g. through the use of worked examples) as well as the findings of NAO vfm studies.	CMPS	According to existing CMPS schedule	To form part of CMPS funding.	
Conclusion 3: subject to the outcome of the present review, departments should carry out and publish a single comprehensive impact assessment of all new policies, programmes and projects.	Dependent on outcome of review	Dependent on outcome of review	Dependent on outcome of review	Depending on outcome of review, should lead to more coherence between impact assessments
Conclusion 4: the CORE team in HM Treasury should review annually departmental plans for analysis and research and present a report setting out the main findings to the Implementation Group charged with overseeing the implementation of this report.	HMT	First report 2001	Increase in staffing of CORE team (e.g. 1 new G5 and 2 new G7s) in HMT. This role to be part of the job of this new group.	Need to define Dept analytical strategy and liaise with CORE. Builds on existing business planning procedures
Conclusion 5: CMPS led peer reviews of business planning and policy making should examine the quality of analysis and modelling with a view to spreading best practice and stimulating improvement.	CMPS	In existing peer review timetable	To form part of CMPS funding.	Builds on existing peer review plans
Conclusion 6: a seed-corn analysis and modelling fund should be established from the financial year 2000/2001. This would be subject to a successful bid on the Reserve for 2000/2001 and in the present Spending Review for future years. The fund should be administered by the Treasury with bids considered by a committee drawn from different specialisms and different departments.	HMT	FY 2000/01	£3-4m Part of expanded CORE role	

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
<p>Conclusion 7: the Treasury should use the SR and PSA processes to support and promote the use of analysis and modelling through: (i) issuing guidance to departments and (ii) publication of analytical work underpinning PSA targets.</p>	<p>HMT GEP team Departmental PFOs</p>	<p>In current Spending Review</p>	<p>Small marginal cost on existing publication of PSAs</p>	<p>Increase work on Spending Review, by 0.5 G7 year (£25,000 per dept)</p>
<p>Conclusions 8: the Cabinet Office and the Treasury should carry out a review of the role, numbers and types of specialists they need to support an enhanced “challenge” function to promote better planning of analysis by departments by end June 2000.</p>	<p>HMT CO</p>	<p>June 2000</p>	<p>Review to take 0.3 G7 year. Cost: £12,500 Result: up to 6 new G7 specialist posts (e.g. 3 each in CO & HMT). Cost: £300,000 per annum</p>	
<p>Conclusion 9: as part of the “better business planning” strand of the civil service reform process, analytical strategies should be developed by government departments.</p>	<p>All Perm Secs</p>	<p>As per implementation of better business planning in Civil Service reform process</p>	<p>Part of Civil Service reform</p>	<p>To be incorporated in existing plans to improve business</p>
<p>Conclusion 10: departments should:</p> <ul style="list-style-type: none"> review policy on bedding out once per Parliament with a view to maintaining the right balance between central expertise and bedded-out effectiveness; ensure that where analysts continue to form part of central specialist units, they also form an integral part of the work of policy teams; and that where analysts are bedded out, appropriate professional training and development programmes are in place. 	<p>All Perm Secs</p>	<p>Review during current Parliament on a cycle appropriate to dept business planning</p>	<p>No central resources</p>	<p>1 G7 year each Parliament per dept (£50,000 every five years)</p>

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
<p>Conclusion 11:</p> <ul style="list-style-type: none"> • other departments should put in place training arrangements for policymakers similar to those of the Treasury by end 2001; • demonstrated proficiency in analysis should become a requirement of promotion to the SCS from April 2001. 	All depts	End 2001 April 2001	Total cost of the region of £2,000 per head per year (based on HMT figures). But may not all be additional to existing training budget. FCO estimate £380,000 each year for three years to 'skill up' existing workforce.	Training Review in each Dept cost 1 G7 year (£50,000) in addition to increase in training budget
<p>Conclusion 12: new forms of training for specialists should be developed to support joint working (e.g. courses on "partnership working") and introduced by the CMPS from end 2000.</p>	Depts/CMPS	End 2000	Total cost around £800 per analyst trained (assuming 4 days training). Maximum of 50 a year for three years = £40,000 per year.	Increment to normal training obligation
<p>Conclusion 13: there should be periodic joint meetings of Heads of Profession. Heads of Profession should consider the case for occasional joint conferences between specialist groups (i.e. GSS, GORS, GES, GSR).</p>	Specialist Management Groups	At latest by end 2000	Minimal cost	
<p>Conclusion 14: GES should recruit some people who have a strong aptitude for quantitative methods suitable for some Grade 7 posts but, who do not necessarily have the all-round potential to reach Grade 5.</p>	EGMU	Modalities to be reviewed for operation by 2001 competition	Not additional to allocation for existing recruitment competition	
<p>Conclusion 15: departments and professional management groups should recruit more external applicants directly into specialist (and particularly economist) posts, both at Grade 7 level and above.</p>	Depts and specialist management groups	2001	Substitution for existing recruitment procedures	Any changes in personnel Departments to be part of the Civil Service reform process

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
Conclusion 16: departments should seek to broaden the pool from which specialists are recruited to include foreign national specialists wherever possible	Depts	2001	Substitution for existing recruitment procedures	
Conclusion 17: departments should introduce more personal promotion to allow individuals to choose between specialist and generalist career progression paths.	Depts	In line with progress on Civil Service Reform	Small incremental cost	
Conclusion 18: departments should promote more vigorously secondments to and other links with academia and the private sector.	Depts	2001	Costs dependent on precise modalities of operation	
Conclusion 19: professional groups should immediately review the impact of devolved pay structures on retention and inter-departmental moves and consider whether a Government wide increase in pay is required to ensure a satisfactory supply of high quality analysts.	GES/GSS/ GORS/GSR to review jointly	By end 2000	Dependent on outcome of review	Potential impact on payroll going forward
Conclusion 20: departments should review, by June 2000, whether they need the capability to access and use large Government surveys such as the FRS and, if so, put in place the necessary capacity by June 2001.	All depts	By June 2000	Likely to be low thousands of pounds through additional computing resources	
Conclusion 21: the ONS and SEU should disseminate more widely their work on administrative data to specialists, for example at the GES conference or through the proposed Modelling Network (see Chapter 10), by the end of 2000.	ONS/SEU	Over next 12 months	None required	
Conclusion 22: departments collecting administrative data should consider releasing secondary sources based on it.	Relevant depts	To fit in with data collection cycle	Cost estimates to be developed based on publications of other data series	Ongoing production of data for publication. Should be incremental to existing procedures
Conclusion 23: by the end of 2000 and periodically thereafter, ONS should promulgate widely the recommendations of the GSS task force on matching data sets to all specialists involved in modelling work and data analysis, through workshops and seminars.	ONS, CMPS, Modelling Network	Throughout 2000	No additional resources over those involved in managing the Modelling Network.	

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
Conclusion 24: ONS should encourage specialists to be more creative in their use of data to help fill specific data gaps within surveys. Through seminars and workshops examples of best practice could be exposed to a wider audience.	ONS	End 2000	None required	
Conclusion 25: departments responsible for surveys covering income should carry out a review by end June 2000 of the costs and benefits of more frequent and timely data release.	Relevant depts	June 2000	Cost of review = 0.5 of G7 for one year per department	
Conclusion 26: ONS and lead departments should promulgate their strategy for longitudinal data to analysts across Government through a series of workshops and seminars.	ONS	End 2000	Part of White Paper implementation.	
Conclusion 27: GSS should disseminate best practice in the use of longitudinal data.	GSS using specialist networks	Ongoing	None	
Conclusion 28: CMPS should set up a working group, by June 2000, to exchange experiences between departments and explore the future role of pilots. Best practice guidance should set out the expectation that departments should use pilots, as part of the policy appraisal process, wherever appropriate.	CMPS	June 2000	To form part of CMPS funding	
Conclusion 29: ONS should carry out a review by June 2000 to establish whether they should set up a team to co-ordinate the compilation of local area data outside the social exclusion arena.	ONS	June 2000	4 months of G7 time (£17,500)	
Conclusion 30: ONS should bring together interested departments by June 2000 to assess whether there is a business case for a regular survey of individual wealth and assets.	ONS	Part of CSR review	To be determined by business case	
Conclusion 31: the National Statistician should ensure that regular review of gaps is an integral part of the new National Statistics planning process.	ONS	March 2000	3 months of G7 time (£12,500)	
Conclusion 32: ONS/GSS should, as part of the new National Statistics planning process, review by June 2000 whether more cross-departmental data collection should be undertaken along the model of the SEU and IGCB.	National Statistician/ Statistics Commission	June 2000	6 months of G7 time (£25,000)	

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
<p>Conclusion 33: departments should review their modelling capacity from first principles to make sure that their modelling work remains appropriate to the current range of departmental objectives.</p>	All Depts	Part of definition of analysis in support of PSA targets	No additional costs above those in the business planning process	Part of general business planning
<p>Conclusion 34: a Modelling Academic Panel should be established to define and supervise the process of publication and external review of long term models used in Government. This Panel should be chaired by the Chief Economist in the Treasury Public Services Directorate. It should include both civil servants and academics.</p>	Implementation group and depts	June 2000	Direct cost: £20000 (5 outsiders; 1 day, 4 times a year) Research budget (for audit) = £150,000 – dependent on work programme	Co-operation and liaison with modelling panel. Precise impact dependent on terms of reference for model review set by panel.
<p>Conclusion 35: outside expertise should be involved in model development from the outset through an external steering group or other mechanisms.</p>	All depts	With immediate effect	No cost above the costs of model development	
<p>Conclusion 36: the Chief Economist in the Treasury Public Services Directorate should encourage the ESRC to adopt the aim of making the UK a centre of international excellence in applied microeconomic analysis by 2005.</p>	Chief Economist in the Treasury Public Services Directorate	End 2000	Cost likely to be equivalent to the establishment of a new research centre on average around £500,000 annually	
<p>Conclusion 37: a modelling network chaired by the Chief Economist in the Treasury Public Service Directorate should be established at technical level by specialists within Government to promote exchange of good practice and to signal the importance of modelling within Government the by March 2000.</p>	HMT	Mar 2000	Ongoing administrative cost of identifying and inviting appropriate individuals	
<p>Conclusion 38: the review of analysis to be conducted by the CORE team in HM Treasury (see conclusion 4) should address explicitly the need for and provision of jointly developed microeconomic models.</p>	HMT (CORE)	Annually from 2001	Part of conclusion 4	

Conclusion	By Whom	By When	Additional Resources Required	Impact in Depts
<p>Conclusion 39: a 'challenge fund' of £50,000 (administered by the CORE team in the Treasury) should be established to fund five academic summer placements in Whitehall each year starting from July 2000.</p>	All depts	Jun 2000	Up to £50,000	
<p>Conclusion 40: the Civil Service reform plans to identify 100 key tasks for private sector secondees should include a number of places for internationally recognised specialists.</p>	CO	To fit in with civil service reform agenda	No additional resources	
<p>Conclusion 41: departments should explore with the private sector the feasibility of accessing and using private sector data sources.</p>	All depts	End 2000	Charging implications to be considered as part of the review process	

ANNEX A1. THE ROLE OF THE PERFORMANCE AND INNOVATION UNIT

A1.1 The creation of the Performance and Innovation Unit (PIU) was announced by the Prime Minister on 28 July 1998 as part of the changes following a review by Sir Richard Wilson of the effectiveness of the centre of government. The PIU's aim is to improve the capacity of government to address strategic, cross-cutting issues and promote innovation in the development of policy and in the delivery of the government's objectives. The PIU is part of the drive for better, more joined-up government. It acts as a resource for the whole of government, tackling issues that cross public sector institutional boundaries on a project basis.

A1.2 The Unit reports direct to the Prime Minister through Sir Richard Wilson and is headed by a Senior Civil Servant, Mr Suma Chakrabarti. It has a small central team that helps recommend project subjects, manages the Unit's work and follows up projects' recommendations with departments. Work on the projects themselves is carried out by small teams assembled both from inside and outside government. About half of the current project team staff are drawn from outside Whitehall, including from private sector consultancies, academia and local government.

A1.3 The first set of PIU projects was announced by the Prime Minister in December 1998. These were:

- Developing Electronic Commerce in the UK – how to make the UK the world's best environment for electronic commerce, ensuring that the UK benefits fully from the single fastest growing marketplace in the global economy – published September 1999;
- a small working group separately considered the issue of Encryption and Law Enforcement. The report, published in May 1999, sets out the issues surrounding encryption, e-commerce and law enforcement, and recommendations to achieve better balanced government policy in this area;
- Objectives for Rural Economies – examining the differing needs of local rural economies, and the key factors affecting performance, so as to establish clear objectives for government policies influencing the future development of rural economies – published December 1999;
- Active Ageing – how to improve the well-being and quality of life of older people by helping them to remain active. The study will identify ways of increasing the employment opportunities for older people, by examining the incentives for businesses to employ and retain older people and for individuals to remain in paid or voluntary work (due to report early 2000);



- Central Government's Role at Regional & Local Level – getting the right institutional arrangements and relationships in place for joined-up delivery of central government policies in regions and communities (due to report by early 2000); and
- Accountability and Incentives for Joined-Up Government – examining how current accountability arrangements and incentive systems can be reformed to facilitate joined-up policy making and delivery, for example by promoting achievement of joint objectives which require co-operation between departments (due to report early 2000).
- The Pursuit and Seizure of Criminal Assets – to evaluate the effectiveness of following the money trail and seizing criminal assets as a technique in fighting serious and organised crime and, in the light of the analysis, develop a new strategy to exploit this approach more vigorously; and
- Strategic Options for the Electronic Delivery of Government Services – this study will, in the light of developments in technology, take a strategic view of which public services should be delivered by electronic means, and look at the options for securing delivery of these services, including the respective roles of the public and private sectors.

A1.4 The Unit is also separately identifying the key long-term Strategic Challenges that government will have to face, as referred to in the government's Modernising Government White Paper, published in April 1999. This work will help departments and other organisations to look beyond their existing policies towards the government's long-term goals.

Further projects

A1.5 A further set of projects has since been announced:

- The Post Office Network – to develop a strategic view of the Post Office network following the Post Office White Paper, including picking up the commitment in the White Paper to develop minimum criteria access to Post Office services;
- Trade and Social, Health and Environmental Objectives on the Global Stage – to identify a coherent set of principles for handling social, health and environmental issues in international fora, with a particular focus on the WTO but taking also account of other international institutions such as United Nations agencies;

ANNEX A2. MEMBERS OF THE PROJECT STEERING GROUP AND TEAM

Steering Group

Gus O'Donnell – Director of Macroeconomic Policy and Prospects (HMT) and Head of the Government Economic Service. Chair of the Steering Group

Norman Glass – Deputy Director, Public Services Directorate, HMT

Melanie Dawes – Work Incentives and Policy Analysis Team, HMT

Sharon White – No 10 Policy Unit

Andrew Dilnot – Director, Institute for Fiscal Studies

Alan Woods – Policy Director, Department for Social Security

Dennis Roberts – Group Director for Finance and Corporate Services, Office for National Statistics

Andrew Burchell – Director of Environmental Protection Strategy, DETR

Paul Gregg – Economic Adviser, HMT

John Vickers – Director and Chief Economist, Bank of England

Paul Johnson – Financial Services Authority

Professor Ron Amann – Centre for Management and Policy Studies, Cabinet Office

Penelope Rowlatt – Director, European Economic Research

Stephen Aldridge – Senior Economic Advisor, Performance and Innovation Unit

Project Team

William Jordan – Team leader, Performance and Innovation Unit

Jonathan Ockenden – Team member, Performance and Innovation Unit

Najma Rajah – Team member, Performance and Innovation Unit

The project team are also grateful for additional help from Stephen Aldridge and Stephen Gifford from the PIU Central Economics team and Dennis Roberts from ONS.

Project Sponsor

Sir Richard Wilson, Head of the Home Civil Service

ANNEX A3. MAIN FINDINGS FROM THE CASE STUDIES

A3.1 This Annex sets out the main conclusions from the individual case studies and draws some overall conclusions. The full text of the case studies is published on the PIU website (www.cabinet-office.gov.uk/innovation).


A3.2 The case studies fall into two main types:

- modelling case studies: these look closely at particular models as part of the policy making process. They consider the technical strengths and limitations of the models as well as the institutional and policy setting in which the models are used;
- policy case studies: these examine more widely the extent to which analysis has underpinned past policy formulation.
- the DETR household formation model is a statistical model that works on the basis of demographic data and sophisticated trend extrapolation techniques. In the past, it has been used to set the agenda for land-use planning, but is now only advisory. It would be more helpful as a policy tool if it took account of economic variables. There are plans to develop the model in this direction;
- the Home Office property crime models explain the level of property crime in terms of demographic and macro-economic factors. They do not include variables to reflect policy because of the difficulties of obtaining a time series of these type of variables. The models are useful in providing a baseline against which the impacts of policies can be measured. But a micro-model which captured the response of individuals' behaviour to economic, policy and other changes would be more helpful as a tool to help assess the impact of policy options. Home Office are drawing in external academic advice to help incorporate other relevant factors into the analysis. Their approach will therefore aim to take into account policy impacts in appraisal and evaluation frameworks, to which their crime modelling is only one input;
- the DETR National Road Traffic Forecasting Model is a statistical representation of the capacity of the road system. It is based on extensive data and with a sound technical basis, takes account of behavioural responses to supply side constraints (i.e. the clogging up of the

Case study findings

A3.3 A thumbnail sketch our findings from the modelling case studies suggests that:

- HMT and DSS tax/benefit modelling is proficient within its limitations. Tax/benefit modelling takes place in a competitive environment and the Treasury model has recently been audited by IFS. However, neither model can model all behavioural impacts of policy (there are technical difficulties to overcome) or take-up (the DSS model is calibrated against take-up through an off-model adjustment);



road network). It helps policy makers understand the potential impact of a wide range of options. A work programme is in place to develop the model further. In particular, there are plans to build a “geographical” model to complement the existing “statistical” model (i.e. to find out, amongst other things, where capacity is being fully used);

- LCD modelling of civil legal aid expenditure gives an indicative rather than precise estimates of future spending on legal aid. But the model is sufficient for departmental needs, especially given that the present system is shortly to be changed. The present model compares favourably in terms of accuracy with its immediate predecessor;
- GAD modelling of population is sophisticated. Details of the model are public and open to external scrutiny. UK modelling compares favourably with that of other countries. But outputs are uncertain: there is no way to tell whether a country is in the midst of a baby boom or has a rising trend in fertility or for how long improvements in mortality will continue. Forward projections on migration rates are particularly uncertain;
- OFWAT efficiency models are sophisticated, externally audited, and designed to be capable of withstanding scrutiny by the Competition Commission. Off-model adjustments are made to model outputs in setting efficiency targets for water companies;
- DETR’s model of restructuring social rents works well within strictly defined parameters. But the lack of small area data and of behavioural modelling means that the real-world impacts of policy change are unmodelled – and unknown;
- NHS waiting list modelling is based on a straightforward spreadsheet. The model itself is sound. But it is limited by uncertainties over inputs and the behaviour underlying the basic data. Work is being undertaken to reduce these uncertainties. The first results of a literature survey on the likely behavioural response of GPs to changes in waiting list numbers are due with the department in early 2000;
- DSS PENSIM modelling of pensioner incomes took 7 years to get operational after external contractors delivered a model whose workings were unclear to departmental analysts. The model is based on survey data now 10 years out of date, does not model all sources of pensioner income and has difficulties in producing sensitivity analysis. DSS has plans to improve the model on a rolling basis and to replace it with a revised version, PENSIM II;
- PSSRU’s long-term care modelling for DH is technically sound, but is much less advanced than comparable US modelling due to a shortage of data. For example, the UK has a lack of longitudinal data on ageing and there is no data on how disability benefits affects spending on long-term care;
- Customs and Excise analysis of revenue from tobacco duty was based around a reliance on a model which had given very accurate revenue predictions in a closed market but was not well suited to the open borders introduced by the Single European Act. The model has now been adapted to allow explicitly for cross-border shopping and smuggling.

A3.4 The policy case studies provide a fuller picture of the role that analysis and modelling play in the formulation of government policy. The policy case studies suggest the following conclusions:



- the DFEE labour market policy case study highlights the relationship between economic theory, the analysis carried out in Government departments and the data on which that analysis rests. It also shows how a change in policy arising from a Ministerial initiative was subsequently explained by analysis of how the labour market works;
- the DSS Green paper on pensions highlights the difficulties in formulating policies in areas that are complex and relate to the long term. In particular, this case study demonstrates the strengths and limitations of PENSIM and the impact on the policy process of the Pensions Provision Group, which comprised external experts whose role was to gather together background information to support the reforms;
- DETR analytical support to policy development on air quality highlights a comparative success. Policy is closely informed by a team of bedded-out scientists working in the policy line and by a DETR-led interdepartmental group on costs and benefits. The Group's work was in time to influence EU targets but not the initial development of provisional domestic targets. Further work is required on monetisation of health benefits and on the impacts of industrial emissions on air quality;
- FCO and DCMS PSA targets were not fully backed by analysis in the 1997-98 Comprehensive Spending Review. The position should improve in the present Spending Review;
- Cabinet Office CITU targets on the electronic delivery of government services were based on benchmarking against the private sector and international comparisons. They were not underpinned by any detailed dynamic analysis of achievability. Nor at the time of the initial

case study work had there been any appraisal of which services can be delivered most effectively, of the costs and benefits of electronic delivery at the level of "whole of government" and which clients wish to receive in this way. This work has, however, since been commissioned.

Overall conclusions

A3.5 In relation to long term models the case studies suggest:

- models are not a panacea. Even where the technical standard of modelling is very high, models are limited in their contribution to important policy questions. For example, the OFWAT models of efficiency cannot explain the role of company-specific factors in determining water company expenditure levels;
- some behavioural effects are unmodelled. This applies, for example, to the LCD model of legal aid certificates (with respect to the behaviour of solicitors), the DSS model of housing benefit, the DETR model of social rents and both tax and benefit models;
- external scrutiny does play a role in model development, although no department has systematic procedures for ensuring this occurs. GAD, DSS, in particular, the Home Office and OFWAT have exposed their models in a variety of fora;
- evaluation of model outputs is rarely undertaken. This is in contrast to the modelling of the macro economy. The exception to this is the context of the GAD model where the model predictions are published and compared with actual outcomes on a biennial basis.



A3.6 On model building the case studies suggest that:

- there appears to be no systemic pattern in the use of particular kinds of specialists for building models. The LCD model was developed by operational researchers; the GAD model by statisticians and actuaries; the OFWAT and DETR social housing model by economists; and the PENSIM model by outside consultants. In the case of the LCD model, it is not clear that either statisticians or economists could have contributed much. Conversely, there may be a role for economists in the development of the GAD model;
- the evidence on contracting-out model building is mixed. The PENSIM case study reveals the problems that can arise from contracting out the building of models to external consultants. On the other hand, OFWAT have had a wholly successful liaison with academic consultants.

A3.7 On data issues:


- many different types of data sources are drawn on in the course of analysis and modelling. Models are not only based on household surveys (IGOTM, PSM and the DETR social rents model) but also administrative data (LCD models of legal aid and Home Office property crime model). However, there appear to be no instances where attempts have been made to link up different data sources. Longitudinal data was drawn on only in the case of long-term care;
- in nearly all cases data availability limited the range of questions that analysis and models could usefully answer.

A3.8 On support for the policy formulation process:

- there was not much evidence the models were used in a wider context to enhance understanding. There were a number of examples where models were largely viewed as tools which produced numbers. e.g. PENSIM and PSM. There appeared to be little evidence of use of models to increase understanding about the underlying factors influencing policy;
- the use of models to explore the impacts of policies has been relatively limited. This applies to the GAD population projections model. The HO office model includes no policy variables, largely reflecting data limitations. The C&E revenue model also used not to include policy variables as the impact of the increase in tobacco duty on smuggling was not fully captured. Steps have now been taken to correct this;
- there is a mixed picture about the extent to which policy customers understand the limitations of the outputs of analysis and modelling. In some cases the limits of analysis are well understood. This is the case for the costs and benefits of meeting particular air quality targets and the outputs of the DH waiting list and waiting times models. In other cases, policy customers may be less clear about the limitations of models. To some extent there is some correlation between policy customers' understanding and the location of analysts.

Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
Tax and benefit modelling (DSS).	Static microsimulation model.	Family Resources Survey good size sample, but suffers undersampling at the upper end of the income distribution. There are also significant time lags.	Models output used by other depts (HMT and IR). Some comparison with other models in the past. More planned for the future.	Modelling of take-up (not entitlement) is crude. Lack of behavioural modelling.	User friendly with some useful basic dynamic effects (Identification of floaters).	Possible merger with HMT tax benefit model. Improved modelling of behavioural relationships, demographic and economic changes between surveys and low income households. Two stage analysis would be appropriate: the first stage would show first round impacts based on the model output and the second would show the off-model impacts of potential behavioural effects.
Population projections.	Demographic projection model.	Census, statistics from Registration of Births Marriages and Deaths.	Methodology is discussed at EU level through Eurostat. Outputs used by DETR, HO, DSS, DH, ONS.	Migration is a problem area for all population models, but the approach is relatively sophisticated in comparison with other EU countries. No ability to forecast turning points. Consistent under-prediction.	Provides consistent numbers across govt. Internationally well regarded. Good use of sensitivity analysis.	Methodological issues including arbitrary mortality assumptions to be improved. More transparent off-model process might be adopted to show how e.g. medical improvements are factored into changes in the mortality rates.






Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
Explaining property crime.	Two time series econometric models.	Recorded crime statistics which are widely regarded as a poorer series than the British Crime Survey, but which provided a longer data source. Reliable demographic and macroeconomic statistics.	Peer review by academics and econometricians. Published November 1999 for external scrutiny and review. Seminars from 1999 to draw in external expertise and incorporate other factors.	Models do not contain policy variables nor do they provide much understanding individual drivers of crime. Possible decline in predictive power of the model. Home Office recognise that policy impacts can only properly be taken into account in appraisal/evaluation framework.	Provides some understanding of the exogenous macroeconomic pressures on criminal behaviour.	Should look more closely at integrating micro and macro economic factors.
Analysis of impact of smuggling on tobacco revenues.	Econometric modelling of expected revenue and subsequent analysis of shortcomings of that model. Also uses survey to capture smuggling.	Data gathered from: International Passenger Survey; Air Passenger Survey; Various survey based methods of assessing smuggling and GHS. All data subject to problems of recording illicit and illegal activity and problem of survey data.	Consultation with Essex University on price elasticities.	Analysis, based on a model estimated from data prior to the introduction of the single market in 1993 has become progressively less reliable with the growth of smuggling.	Attempts to respond to the developing shortfall have shown good use of data and combining specialist knowledge.	New analysis – data collection and modelling work – with a view to improving understanding and assisting combat of smuggling has been undertaken. Will need to be reassessed in the light of new evidence.

Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
NHS Treatment Waiting Times.	Spreadsheet model.	Administrative data on admissions and waiting times. More complete data in a number of areas would allow more precise model to be developed.	No formal scrutiny, but the model has been presented at conferences and operates in competition with private sector models.	Model heavily dependent on the quality of its inputs. Lack of second round and behavioural effects in the model. Limited range of uses for policy evaluation.	Consistent framework. Effective negotiating tool.	Research programme for strengthening quality of model inputs in place.
National Air Quality Strategy.	Combination of scientific, economic and engineering inputs to assess costs and benefits of improving air quality.	Data on emissions collected through extensive monitoring programme. Data on health effects less firm, especially at the local level.	External research commissioned from SPRU and ETSU. Initial findings went to consultation with productive feedback gained from various lobby groups.	Precision of estimates limited by data considerations. Weaknesses in impacts on industry reflecting some (inevitable) differences of departmental view.	A good news story. Different parts of the analytic community combined well. The analysis was influential at the EU level. Departments worked reasonably well together.	Further evidence is being gathered to refine the analysis further.






Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
National road transport forecasts.	Statistical and econometric model.	NTS and Census data – overall the quality of the data is high and better than that found in other countries.	The model was developed with the input of a steering group of academics and transport professionals.	The model of road capacity is only a statistical representation. The model offers no insights into what causes switching between alternative modes of transport; hence it does not offer answers to all the interesting policy questions.	The model is unique in that no other country has such a well-developed model capable of answering a wide range of policy questions, for example congestion taxes.	The department has a well-developed forward plan for future development covering better modelling of demand growth, trip length, the link between vehicle fuel efficiency and fuel prices, speed-flow assumptions, linking in urban policy models, and improving national network data in the base year.
Legal Aid expenditure.	Statistical projection model.	The model is based on administrative data from the Legal Aid Board. Until recently this was of a high quality, but the introduction of a new computer system appears to have reduced the data quality.	The model is not exposed to external scrutiny. The output of the model is checked against that of the Legal Aid Board's less sophisticated model.	The model does not accurately forecast individual programme spending, cannot model patterns of issuing legal aid certificates and does not capture regional variation. Number of policy questions which can be answered are consequently limited.	The model produces relatively accurate short term forecasts. It can also be used to help increase understanding of potential behavioural impacts such as lawyers responses to changes in policy.	The basis on which Legal Aid payments are made is going to change soon (with a shift to block contracting). In view of this further development of the model would not be appropriate.

Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
Setting of targets for electronic delivery of government services.	Comparator information from private sector and overseas.	Not relevant.	None in the past, although a group of Information Age Government Champions has been established chaired by E-envoy Alex Allan.	Limited analytical input into the setting of the target. CITU has no economists or operational researchers.	The analysis made use of overseas evidence.	There are a number of areas for further development – analysis of costs and benefits of overall programme and specific elements within it, modelling the future course of technological progress and appraisal of different routes for achieving targets.
Formulation of PSA targets.	Analysis of departmental data.	Not relevant.	Developed in tandem with HMT.	There were a number of problems surrounding the analysis underpinning PSA targets including the tight timescale, the evolution from OPAs to PSA targets created difficulties as did the unfamiliar and evolving process.	The process of setting PSA targets for the first time usefully revealed many of the hitherto unidentified problems.	The development of the second set of PSA targets should be a more familiar process and consequently better. Further thought will need to be given, however, to the problem of establishing baselines.






Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
Social housing rents.	Static micro-simulation model used to assess the distributional and final implications of reforming rents in the social housing sector.	The model uses data from the English House Condition Survey.	The model is exposed to no external scrutiny.	The model is hampered by lack of local area data. The model cannot show behavioural impacts i.e. changes in housing demand in response to rents. The model has no links between the social and private rented sector.	This model has been used to quantify the first round effects of policy reform on the distribution of income. This would not have been possible in the absence of the model. The model is fairly easy to use despite being developed over a short time scale.	There are a number of areas where further development could be undertaken. In particular, consideration might be given as to how better use of the research on price elasticities might be incorporated into the analysis. Similarly linking up PSM and the DETR model might allow a firmer assessment of the interaction between private and social rents to be made.
Pensions policy.	Economic modelling (PENSIM) with bespoke analysis of various options.	Sources as for PENSIM Also FRS and GHS for analysing potential client groups.	Consultation still ongoing through Green Paper. Analysis bought in from DEMOS. Pensions Provision Group brought together large amounts of analysis.	Lack of distributional analysis. Criticism of client group numbers.	Good basic marshalling of the known facts.	PENSIM II to be built in response to criticism.

Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
Labour market policy in relation to job search activities.	Analysis of flows on and off the unemployment register.	Administrative data.	Advice from Professor Richard Layard, special advisor.	Analysis played a complementary role to political judgement but did not in itself lead to a change in policy direction.	Strong interaction between economic theory and analysis. Good use of administrative data and pilots.	DfEE does not believe that is possible to identify at an early stage those who will be liable to a long spell of unemployment on the basis of a few indicators. But other countries do. It would therefore be useful for the department to monitor whether this approach works, and if it does, to ensure that the relevant data is available for this approach to be pursued.





Policy area	Type of Analysis	Data sources and quality	External input	Limitations	Strengths	Suggestions for improvement
HMT tax and benefits (IGOTM).	Static micro-simulation model.	FES – suffers from usual problems of under-sampling at both ends of income distribution: small sample size compared with FRS. Very recently been adapted to run off the FRS.	Model used by other depts – IR, ONS, C&E and SO (but not DSS); external audit with IFS model.	Not all of behavioural responses modelled. Cannot be used to model all aspects of budgetary changes.	User – friendly and is relatively open to public scrutiny.	<p>Could build on FRS data to capture benefits side more accurately, perhaps merged with DSS model?</p> <p>Modelling of tax credits will need to be incorporated into model.</p> <p>In long-term, additional labour supply responses to be modelled. In short term, a two stage approach could be used. The first round effects could be modelled as at present. A second stage would be a sensitivity analysis centred around different behavioural assumptions.</p>

ANNEX A4. LESSONS FROM OVERSEAS

(i) USA

A4.1 The team visited Washington to explore the lessons that can be learned from the use of modelling and analysis in the US. The trip included visits to:

- Congress – General Accounting Office, Congressional Budget Office;
- Administration – Office for Management and Budget, Department of Health and Human Services, Social Security Administration;
- think tanks – The Urban Institute, The Brookings Institution;
- IFIs – World Bank and IMF.

A4.2 This note outlines the key observations from the visit.

Findings


A4.3 The team found that the use of analysis and modelling in the US is more extensive than in the UK and of much better overall quality. In particular, data is more complete and the use of data more sophisticated. The modelling done in government seems much closer to the leading edge of technical and academic advance, and the staff are better qualified, typically holding PhDs rather than Masters degrees. There are three general reasons for these differences:

- the conflictual nature of the US constitution which places a premium on the legislature providing well-founded examination of the executive's proposals. The legislative requirement that every proposal which is estimated to cost more than \$100m annually undergoes a formal cost benefit analysis is a powerful tool for ensuring that the underlying analysis is accurate. Each side consequently has an incentive to seek the very best possible advice;
- the level of resource devoted to the full range of analysis from data collection and publication to modelling within government;
- the rich environment in which the analysis and modelling takes place. External scrutiny of results is extensive, with a wealth of well-endowed think tanks as well as a vibrant consultancy sector providing challenge and support to all analysis including that within government.

Direct lessons

A4.4 The US experience does not offer a precise analogue to the UK but there are a number of important points of direct applicability:

- use of existing data sources. The US relies on a similar mix of survey and administrative data. The difference lies in access and the linking together of existing sources of information. Electronic access to survey information is straightforward encouraging use by researchers. And the



links to administrative records are very good, even outside government. This is most clearly seen in the development of MINT (the US equivalent of PENSIM) developed by the Urban Institute outside government uses survey data linked to income data for participants from 1951 to 1996. This gives a particularly strong source for modelling retirement incomes. This process is receiving a new legislative push from the Office for Management and Budget which is seeking to open up departmental data bases to allow greater cross linkages and trying to increase harmonisation of definitions and standards;

- interaction with the academic sector. Government and academics have a good dialogue. This is partly an unintended by-product of the number of political appointees at the higher levels of the US civil service. As a result there is a group of people in the academic world with an ongoing interest in keeping in touch with applied analysis to inform their political ambitions and constant interchange between the academic and the political world. Beyond this, government is active in maintaining channels to the academic world in a number of ways:
 - i. more use of contracting out both in data manipulation and modelling. This is partly a result of the greater number of bodies working in these fields;
 - ii. inward academic secondments through schemes under the government wide Inter-Government Personnel Act. There also seems to be a greater willingness to second in academics in specific areas, for example to the Council of Economic Advisers where the current secondees are doing modelling themselves;

- iii. Departmental sponsorship of academic activity, for example, the Department of Health and Human Services (DHHS) sponsorship of two 'consortia' to improve research on old age issues. This is in its early stages but offers a source of academic support the department can call upon;
- iv. some of the departmental analysts are part of the academic world in a more formal sense, for example the Congressional Budget Office modellers are encouraged to publish in outside journals.

- anticipation of the forthcoming policy agenda. The system seems particularly responsive to gathering the data needed for future evaluation and modelling work. This is seen both in preparing the ground for future welfare reform (at the DHHS) and in developing surveys to understand behavioural responses (Social Security Administration). On the social policy side this may reflect a longer experience of policy which emphasises the assessment of life transitions;
- the benefits of debate. The culture surrounding the publication and availability of data is a symbol of the openness of the policy process. US policy makers and analysts see exposure of findings to debate as a positive benefit to the development of the policy process. However, although willing to consult widely inside and outside government in the development of models and setting their assumptions, departments seem surprisingly unwilling to expose their models to formal external scrutiny.



Common problems

A4.5 Although there are lessons to be learned from differences of experience, there are also some common problems on both the technical and the institutional side:

- behavioural modelling is not significantly more advanced in the US (yet). However, some tentative steps are being made to deal with the data gaps, which underlie the modelling difficulties. In a number of areas there is more use of dynamic micro-simulation modelling in government, but results are currently tentative;
- there are small area data problems notably in modelling the impact of many national policy changes below the state level. This is because both state data are not always adequate and because surveys contain too few observations for an individual state;
- the nature of models' output is not always well understood. The demand is for point estimates of policy changes not ranges. This can be a problem since the numbers attached to proposed policy changes by the Congressional Budget Office often carry a disproportionate weight in the policy process;
- time lags. Perhaps not unsurprisingly the US is afflicted by the same problems as the UK with respect to measuring the impacts of welfare reforms. The problem arises because of the time lags between implementing a reform and having suitable data to analyse the impacts of the policy.

A4.6 Specifically in the modelling area:

- there is little *ex post* evaluation of models once a policy has been implemented. As in the UK, the impacts of an individual policy change could not generally be separated from other effects;

- models go in and out of fashion. The tax benefit model run at the Urban Institute for a number of departments has had some periods when its funding was under close scrutiny. Research and modelling budgets were also under constant pressure at times of budgetary stringency. This is particularly important since there is little understanding of the lead times involved in constructing a model;
- there is little external scrutiny of the modelling itself. There is little external scrutiny of the modelling techniques; most debate, for example, in the CBO context focusses on the assumptions and the outputs, but not on the modelling itself.

Conclusion


A4.7 The overwhelming impression is of an analytical community that is valued and necessary to the policy process. Although there are similar issues in detail on the technical side, the context in which the quantitative analysis takes place is completely different.

(ii) OECD

A4.8 Team members also visited the OECD to develop an overview of the ways in which other governments organise and access information and analysis in a number of policy areas.

A4.9 The main lessons to be learnt from the visit were:

- the issue of information availability and analytical capacity in government is common across OECD countries;
- there is no one way of delivering advice to the policy process. The precise organisational structure depends on the political traditions of any particular country;

- 
- contestability in advice is a vital part of the policy process. Only by combining and considering several different points of view can the advice to underpin Government policy be fully tested;
 - the Canadian approach to improving social statistics provides a practical example of how the centre of government can enhance or inhibit the improvement of the evidence base for policy (see box A4.1);
 - joint planning of data collection, modelling and analytic needs is essential.
 - in the employment sphere, the UK's data sources are very much in line with normal practice, although some other countries are better;
 - the US experience of profiling the unemployed with a view to targetting labour market assistance has both practical and organisational interest.
- A4.10 The US showed well in terms of the standard of data and analysis and Canada's commitment to improving the information available to policy makers at all parts of the process was particularly worthy of note.

Box A4.1. Planning for Modelling in Canada

Canadian modelling is very highly regarded. The key to recent success in Canada has been to develop a joint strategy for data and modelling. This was in the first instance drawn up by a small group of high ranking civil servants – and the vision was initially unconstrained by technology or practicality. Steps towards the vision were taken as opportunities arose, however, and in October 1996, a concrete and coherent forward programme of work was described in a paper by the policy group of Statistics Canada. This will include analysis of areas as diverse as business performance and employee outcomes as well as labour incomes and family trends.

ANNEX A5.

INTERVIEWS

Adrian Gault – DTI
Amanda Rowlett – ONS
Andrew Burchell – DETR
Andrew Dilnot – IFS
Andrew Oswald – Warwick University
Andrew Young – GAD
Bruce Calderwood – DSS
Caroline Rookes – IR
Charles Tallack – PIU (DH secondee)
Chris Shaw – GAD
Creon Butler – FCO
Dan Murphy – DSS
Daniel Instone – PIU (DETR secondee)
Daniel Storey – HMT
Dave Barnbrook – DSS
Denise Bagge – RIU, CO
Dennis Roberts – ONS
Edgar Jardine – Northern Ireland Statistics and Research Agency
George Kidd – Women’s Unit, CO
Graham Parker – Inland Revenue
Holly Sutherland – Department of Applied Economics, Cambridge
Hilary Jackson – HO
Jeff Jones – NAO
Jeremy Heywood – No 10
Juanita Roche – CITU
John Ashcroft – NAO
John Bynner – Centre for Longitudinal Studies, Insititute for Education
John Hills – LSE
John Gieve – HMT
John Thorpe – NAO
John Vickers – Bank of England
Jonathan Tross – CMPS
Judith Littlewood – DETR
Julian Jessop – LCD
Katy Peters – HMT

Louise Dominian – SEU
Malcolm Bradbury – Economist Group Management Unit
Martin Weale – National Institute of Social and Economic Research
Michael Whitehouse – NAO
Nick Buck – UK Longitudinal Studies Centre
Nick Lacey – NAO
Norman Glass – HMT
Patricia Leahy – NAO
Paul Gregg – HMT
Paul Johnson – FSA
Paul Randall – HMT
Penelope Rowlett – European Economic Research
Peter Short – Inland Revenue
Peter Waller – DTI
Peter Grant – DFID
Philippa Morgan – HMT
Richard Bartholemew – DfEE
Richard d’Souza – DSS
Richard Layard – LSE/DfEE
Roger Forder – MoD
Ron Amman – CMPS
Sharon White – No 10 Policy Unit
Stephen Jenkins – UK Longitudinal Studies Centre
Tom Bentley – DEMOS
Ursula Brennan – DSS
William Price – HMT
William Kingsmill – DFID

Overseas

Andrew Dawson – Washington Embassy
Christian Vergez – OECD
Daniel Blume – OECD
Don Oellerich – DHHS
Edward Whitehouse – World Bank/Axia Economics

Josh Weiner – Urban Institute
 Graham Hatch – IMF
 Henry Aaron – Brookings Institute
 Joseph Minarik – OMB
 Justine Rodriguez – OMB
 Linda Bilheimer – CBO
 Loren Yager – GAO
 Lynn Squire – World Bank
 Mark Pearson – OECD
 Myles Wickstead – DFID (World Bank)
 Norman Bowers – OECD
 Paul Van de Water – SSA
 Peter Hicks – OECD

Case Studies

C&E Smuggling – Derek Hodgson/Sue Roper
 CO Electronic delivery of Government services -Jeremy Crump
 DETR Air Quality – Martin Hurst
 DETR Household projections – Bruce Oelman/Dorothy Anderson
 DETR Rent restructuring model – Philip Cox/Ray Kershaw/Luke Brander
 DETR National Road Traffic Forecasting – Tom Worsely
 DfEE Labour markets – Bill Wells
 DH Long term care – Raphael Wittenburg
 DH Waiting lists and times model – Stuart Knight/John Halsall
 DSS PENSIM – John Ball/Chris Curry
 DSS pensions Green paper – Margaret Peirson/Guy Fiegehen/John Hughes/Philip Morgan
 DSS PSM- Jo Cockerham/Trevor Huddleston
 FCO/DCMS PSA – Martin Williamson/Asif Ahmed/Fiona Moore/Michael Seeney
 GAD population projections- Chris Shaw/George Russell
 HMT IGOTM – Mark Wardell
 HO crime model – Richard Price/Paul Wiles
 LCD Legal aid model – Simon Hayllar/Andy Maultby
 OFWAT efficiency models – Fiona Pethick/John Simpson

GLOSSARY

BHPS	British Household Panel Survey
CO	Cabinet Office
CITU	Central IT Unit
CORE	Central Operational Research and Economics
CMPS	Centre for Management and Policy Studies
CSSB	Civil Service Selection Board
CSR	Comprehensive Spending Review
CBO	Congressional Budget Office
C & E	Customs and Excise
DfEE	Department for Education and Employment
DFID	Department for International Development
DAE	Department of Applied Economics
DCMS	Department of Culture, Media and Sport
DETR	Department of Environment, Transport and the Regions
DH	Department of Health
DHHS	Department of Health and Human Services
DSS	Department of Social Security
DoE	Department of the Environment
DTI	Department of Trade and Industry
ESRC	Economic and Social Research Council
EGMU	Economist Group Management Unit
EER	European Economic Research
EU	European Union
ECGD	Export Credit Guarantee Department
FES	Family Expenditure Survey
FRS	Family Resources Survey
FSA	Financial Services Authority
FCO	Foreign and Commonwealth Office
GEP	General Expenditure Policy
GHS	General Household Survey
GAD	Government Actuary's Department
GES	Government Economic Service
GORS	Government Operational Research Service
GSR	Government Social Research
GSS	Government Statistical Service



HoP	Head of Profession	OFGEM	Office of Gas and Electricity Markets
HSE	Health and Safety Executive	OMB	Office of Management and Budget
HMT	Her Majesty's Treasury	OFTEL	Office of Telecommunications
HO	Home Office	ORR	Office of the Rail Regulator
IR	Inland Revenue	OFWAT	Office of Water Services
IFS	Institute for Fiscal Studies	OR	Operational Research
IGOTM	Inter Governmental Tax and Benefit Model	OECD	Organisation for Economic Cooperation and Development
IGCB	Inter-departmental Group on Costs and Benefits	OPA	Output and Performance Analysis
IFI	International Financial Institutions	PQ	Parliamentary Question
IMF	International Monetary Fund	PIU	Performance and Innovation Unit
JUVOS	Joint Unemployment and Vacancies Operating System	PSSRU	Personal Social Services Research Unit
LFS	Labour Force Survey	PAT	Policy Action Team
LSE	London School of Economics	PSM	Policy Simulation Model
LCD	Lord Chancellor's Department	PSA	Public Service Agreement
MAFF	Ministry of Agriculture Fisheries and Food	RIA	Regulatory Impact Assessment
MoD	Ministry of Defence	RIU	Regulatory Impact Unit
MINT	Model of Income in the Near Term	SPRU	Science and Technology Policy Research
NAO	National Audit Office	SO	Scottish Office
NCDS	National Child Development Study	SCS	Senior Civil Service
NHS	National Health Service	SSRA	Shadow Strategic Rail Authority
NIESR	National Institute for Social and Economic Research	SEU	Social Exclusion Unit
NINO	National Insurance Number	SR	Spending Review
NRTF	National Road Traffic Forecasting Model	SERPS	State Earnings Related Pension Scheme
NTS	National Travel Survey	SSP	State Second Pension
ONS	Office for National Statistics	vfm	value for money
OFT	Office of Fair Trading	WU	Women's Unit
		WTO	World Trade Organisation

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