

THE FUTURE OF DUAL SUPPORT

- *Methods of funding university research*
- *Current strains and the Dearing Review*
- *Possible solutions*

Universities have been very successful at winning research customers (now worth £1.7B or more annually). This has however been at the expense of infrastructure investment, and there is a growing sense that things cannot go on as they are. Key to resolving this is to understand the old 'Dual Support' system, where it has gone wrong and what can be done about it. Sir Ron Dearing will report on this in July 1997.

To help Parliament debate this question, POST has published a detailed analysis. This note summarises the findings of the full report¹.

BACKGROUND

The 'dual support' (DS) system evolved as the means of managing public support for research and development (R&D) in universities and Higher Education Institutions (HEIs). Under DS, funds come from two sources. The first from the Education Departments, administered by the Higher Education Funding Councils (HEFCs). The second from the DTI's Office of Science and Technology (OST) administered via the Research Councils (RCs). The original purposes of DS were:

- HEFC money is meant to support a **basic level of research activity** for university academic staff, and the **'well-found laboratory'** in which work supported by RCs and other agencies is undertaken.
- The university general funds also allow academic staff to keep in touch with their subject, enable new researchers to become established, provide continuity of research support, and enable initial and innovative investigations to be carried out.
- RC and other specific support enables the selective support of promising lines of research; provides central facilities; provides access to international facilities; and can give encouragement to particular fields believed to be of national importance.

The full report traces the history of DS in some detail, from the emergence of research in universities from the 19 century onwards and the evolution of the separate Research Councils, to the modern structure of the RCs² and HEFCs today. The founding principle was (the **Haldane Principle**) that RCs (and universities) should choose which research to support on **scientific** criteria, at 'arms length' from political considerations.

1. The full report "Striking a Balance - The Future of Research Dual Support in Higher Education" (65pp) is available from POST, 7, Millbank, London SW1P 3DL (tel 0171-219-2840); free to Parliament; £14 otherwise.



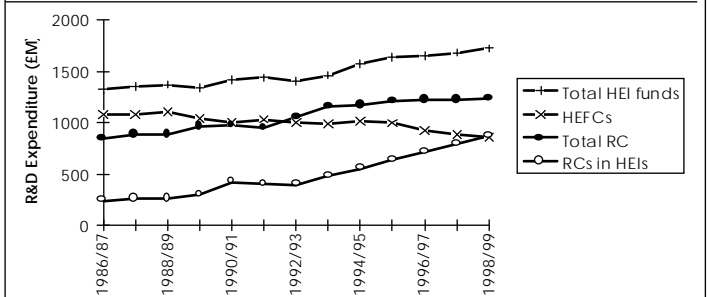
POST
REPORT
SUMMARY

99

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This is a summary of a 65-page report available from the PARLIAMENTARY OFFICE OF SCIENCE AND TECHNOLOGY (extension 2840).

Figure 1
HEFC AND RC EXPENDITURE ON R&D IN REAL TERMS (1994/5)



By the 1980s, the support of university R&D by the twin routes of Funding Council and RC budgets had become well established, but strains were starting to develop. As **universities** grew (especially after the merging of the polytechnics in 1992), it became obvious that not all could expect to carry out research in all subjects. Selectivity thus became the key policy - both to increase quality and accountability, but most of all to ration the available funds to the 'best'. The measures used (Research Assessment Exercises -RAEs) remain a central (and contentious) component of funding policy.

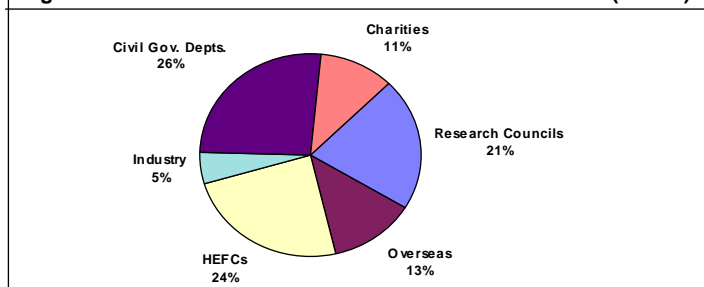
On the other leg, the **Research Councils** faced growing opportunities for research (whether in 'mature' fields such as solids and materials, or wholly new ones such as genetic engineering), while the costs of the increasingly sophisticated scientific techniques rose. RCs wanted to maximise these opportunities, and this led to pressure on universities to fund a larger fraction of the cost of research, squeezing the funds available for the 'well-found laboratory' infrastructure. Partly as a consequence of these strains, the Government transferred £154M from 1992 from the FCs to the RCs so that the RCs could make a more realistic contribution to total costs of the research they supported in HEIs³. The principles through which the dual support system has operated since have remained largely unchanged.

The full report looks at the trends in research funding in HEIs in some detail. Overall trends in the last 10 years are shown in **Figure 1** and show that the balance of funding from both legs of the dual support system has changed significantly. In the late 1980s, HEFC research funds were slightly more than RC funds, but this was

2. The Biotechnology and Biological Sciences Research Council (BBSRC), the Economic and Social Research Council (ESRC), the Engineering and Physical Sciences Research Council (EPSRC), the Medical Research Council (MRC), the Natural Environment Research Council (NERC), and the Particle Physics and Astronomy Research Council (PPARC).

3. The formula was to add 40% of a project's direct staff costs, which has since (1997) been raised to 45%.

Figure 2 SOURCES OF CIVIL RESEARCH FUNDS IN HEIs (1994/5)



reversed with the dual support transfer from 1992 to 1995. Since then, RC funds have increased, while those from the HEFCs have continued to fall in real terms. From the point of view of **research carried out in universities** however, the relative decline in funds coming through the HEFCs has been more than offset by an increase in the proportions of RC budgets spent in HEIs (Figure 1). Together, the HEFC and RC legs will have increased expenditure in HEIs in real terms from a total of £1,374M in 1988/89 to £1,727M in 1998/99.

At the same time as the RC and HEFC funding streams have changed, HEIs have also been increasingly involved in research with other sectors. The EU has become an important source of research funds through its Framework Programmes; government policy has encouraged industrial-university interactions through programmes such as LINK and the more recent Technology Foresight; charities in the biomedical field now have budgets which exceed the MRC's; departments have increasingly used HEIs as internal research in national laboratories has been opened to competition. This has caused the value of research in HEIs to grow and increasingly diversify (Figure 2).

The full report examines in detail the current management mechanisms, policies and priorities of the HEFC and RC legs of the DS system. Key points include:

For the Higher Education Funding Councils:

- the evolution of the RAEs (Box 1);
- how research ratings are converted into funding;
- consequent pressures on selectivity;
- strengths and weaknesses of the system;
- the question of the full costs of research.

For the Research Councils:

- the reorganisation and revised missions following the 1993 White Paper (WP) "Realising our Potential";
- new administrative 'tiers' above the RCs - OST and a Director General of the Research Councils;
- the Technology Foresight (TF) exercise;
- shifts of work from RC institutes, towards more spending via HEIs.
- 'Top-slicing' by OST to programmes before RC budgets are decided (e.g. Realising Our Potential Awards, the Foresight Challenge, the Joint Research Equipment Initiative).
- debate over whether the Haldane Principle has

Box 1

ASSESSING THE QUALITY OF RESEARCH AND FUNDING

The **Research Assessment Exercise** was introduced in 1986 and has been repeated in 1989, 1992 and 1996. Its purpose is to measure the quality of research and to use the resulting rankings to decide HEFC research fund allocation.

The method used has varied over the years and has grown to be a major exercise. It uses panels of experts in subject areas - known as units of assessment (UOAs) - to evaluate each UOA in each HEI. Thus in 1996, 2,896 submissions for assessment were received from 192 HEIs across the UK, listing a total of 55,893 individual active researchers and 69 UOAs. Research quality was rated as follows:

- 1 National excellence in none, or virtually none, of the sub-areas of activity.
- 2 National excellence in up to half the sub-areas of activity.
- 3b National excellence in the majority of the sub-areas of activity.
- 3a National excellence in a substantial majority of the sub-areas of activity, or to international level in some and to national level in others together comprising a majority.
- 4 National excellence in virtually all sub-areas of activity, possibly showing some evidence of international excellence, or to international level in some and at least national level in a majority.
- 5 International excellence in some sub-areas of activity and to attainable levels of national excellence in virtually all others.
- 5* International excellence in a majority of sub-areas of activity and attainable levels of national excellence in all others.

Once the rankings have been resolved, the HEFCs use this to work out the funding which should follow. Since the first RAE, the proportion of the funds allocated on the basis of the quality rating has risen from 40% in 1986 to nearly 97% for 1997/98. The policy of selectivity has thus steadily intensified. Currently no department rated below 3 receive any funds (with some regional exceptions). HEFC funds are thus being concentrated at the top performers in the RAE, although some flexibility and restructuring funds still remain in other FC programmes.

been abandoned and the research shifted too far towards more applied work to contribute to wealth creation and the quality of life, at the expense of fundamental research on which new opportunities will be based.

ISSUES

The Real Problem and its Solution

The full report looks at the reasons why Government supports research through the RCs and universities - to advance knowledge and technological capability, produce qualified manpower, and help achieve economic, social and cultural benefits. The dual-support system, when working properly, provided a flexible framework for achieving these ends, but the environment in which dual-support is supposed to operate has changed fundamentally in the last 10 years because of:

- the removal of the 'binary line' between the 'old' universities the polytechnics, requiring HEFCs to

ration static or declining funds amongst increasing numbers of participants.

- The complexity of organisational control has increased markedly. Instead of one department (the Department of Education and Science) being responsible for university research funding for the whole UK, and for five RCs, there are now four separate FCs, funded by four separate departments (for England, Wales, Scotland, Northern Ireland), and a separate department (DTI/OST) responsible for the second leg via six Research Councils.
- The relative importance of the two legs of the dual-support system as supporters of university research has been declining with the growth of industrial, charities, EU and other external sources of funds, and also the growth in diversity of funding through the PFI and other sources of private finance.

The relative simplicity of the original dual-support system has thus been replaced by a much more complex and devolved system, whose component parts have different owners and priorities, and operate independently with few mechanisms for coordination. **These changes raise fundamental questions about the relevance and role of dual-support today** which are being addressed by the Dearing enquiry.

But parallel to this complexity has emerged the key current issue - the '**research funding gap**' (currently estimated at £670M p.a.) between what all the research carried out in HEIs is costing HEIs and what they actually receive in grants or contract payments from customers. This sum has to be found from the HEFC funds for the 'well-found laboratory', and from the HEI's own resources. As a consequence, funds are not available to keep research equipment infrastructure up to date, nor to maintain and replace buildings and facilities; fundamental research locally is also squeezed, losing the seedcorn for future research and researchers. There is a consensus that such a 'gap' exists and that **too much research is being done for the funds available**.

The full report looks at why this has come about. The key is that **HEIs are operating in a system which encourages research volume**. HEFC funding is related to numbers of researchers; government has increasingly shifted its own research from departmental laboratories to external providers; HEIs have been encouraged to 'win back' UK funds from the EU's Framework Programme; some charities have expanded their research in HEIs; and there are many initiatives to bring together HEIs and industry which increase research demand. Research in HEIs has thus expanded considerably; in 1994/5, nearly £1500M was funded there - up 60% on 5 years earlier; now it is over £1.65B. RCs account for only one third of the externally contracted research carried out, and since much of the research is not bearing the full economic costs (FEC), the infrastructure provided through the HEFC leg has to 'stretch'

to cover the rest. **The key policy question is how to fill this gap.**

If all research funders paid the FEC of the work they support, there should not be such a gap, but it has proved difficult to achieve this. Part of the problem is that charities, departments, etc. **are naturally resistant to paying for a research infrastructure which they see as a national resource**. In the EU case, there is a standard rate of 'overheads' payment which can be below FEC. **The parallel problem is that many universities have yet to introduce accounting systems which allow them to properly cost research work - even where the FEC is properly assessed, the HEI may feel it will not get the contract in the highly competitive research market if it charges FEC**. Resolving this thus needs **partnership between all parties** - there needs to be a consistent understanding (e.g. via 'concordats') between the HEIs and government departments, charities and industry on what is the basis on which research costs should be calculated, and acceptance by customers of the need to pay those costs. On the university side, there needs to be much better accounting and transparency in accounting for those costs. If such an understanding were implemented, it would remove pressure for universities to turn away research contracts out of concern that they cannot really afford it.

Many doubt however whether a clearer policy on FEC can solve the research gap overnight, if at all, in view of others' rules over what some contractors (e.g. charities and the EU) can pay. **The choice (at least in the interim) then becomes whether to discourage research from these sources or accept that it is in the National interest to continue to provide the infrastructure through HEFC funds**. Some argue that in view of the wider social and economic benefits of research (see full report), there is a case for a return to the old concept of public funds providing the 'well-found' laboratory for such work. Observers (including the Council for Science and Technology (CST) point out that expenditure on the science base in the UK is below the G7 average and is falling, while its importance to future growth and competitiveness, and attracting inward investment, is increasing. Such analyses lead to **the policy option of re-strengthening the HEFC leg to improve research infrastructure, allied to measures to ensure such funds are used for this purpose**.

This to many is the nub of the problem - funding for infrastructure needs to be brought into balance with the amount of research. Without addressing this, some see **the more prominent debate over the exact boundary between RCs and HEFCs as a distraction** from the primary problem and unlikely to offer substantive solutions. Nevertheless the Dearing Review is expected to consider proposals for such further change. The full report looks a number of options which are under discussion.

In support of the *status quo*, the main argument is that retaining HEIs' flexibility and local freedom to allocate some funds to individuals or projects is essential to a pluralistic system, and avoids becoming wholly reliant on the OST/RC route where the Royal Society and others see a danger of "*an increasingly short-term and dirigiste attitude towards fundamental research*". Indeed, that pluralism is credited with the high international status and productivity of UK science recently analysed by the OST. The *status quo* option needs however to be accompanied by improvements in several aspects of the current system - primarily in the ways universities account for and control the HEFC funds, in coordination between the two legs of DS (the government's Science and Engineering Base Coordinating Committee (SEBCC) appears not to work effectively in this area), and in other ways affecting both RCs and HEFCs and covered in the full report.

There is also debate over a DS support transfer Mark II. As discussed in the full report, the contribution made by the RCs to indirect costs was recently increased to 45%. But FEC would suggest more like 90-110%. As already mentioned, one policy option would be to make RC funding cover this, but this is capable of being applied in two very different ways. In one, RCs could pay the revised rate out of current budgets, thereby reducing the research gap by cutting the volume of research. In the other, the volume of research would be maintained by diverting dual-support funds from HEFCs to the RCs, but **this would not reduce the funding gap**. Opponents thus see this doing nothing to solve the basic problem of inadequate infrastructure; moreover, there would be extra costs in terms of disruption, and questions whether (in view of the experience of the last such transfer) whether such a transfer might even exacerbate the erosion of research infrastructure. Such a transfer could **also reduce to an unworkable level some of the regional and local flexibility**, still retained under current arrangements, for HEFCs to build up the research base for local social and economic reasons.

A final option would be to dispense with the dual support system altogether, and disburse all the current HEFC research funds through the RCs. The full report points out that, were such a shift to take place, the attractive elements of the HEFC leg would have to be reintroduced via the RCs. More attention would have to be given to the longer term issues of ensuring teams and specialist areas were given some continuity. There would need to be some 'head-room' for ideas development before formal proposals could be submitted. RCs might have to accept a more general duty of care to the national and regional capabilities in different fields than they do at present, and also to the longer term health of the HEIs reliant on their grants. **All in all, such a shift could imply the re-invention of dual**

support via another, not necessarily more efficient or effective, means.

Measuring and Ensuring Research Quality

The full report also looks at the challenges still remaining in quality control and assessment to ensure the best value for money in both HEFCs and RCs. The RCs' administrative costs of ~5% allows a detailed approval and accounting system which controls funds distribution to the individual project but is less effective at measuring output. The HEFC RAE is much less expensive, but gives only a broad measure of output quality for all work whether funded through the FCs or RCs. **Together they can be seen as a complementary parts of a single system meeting national needs.**

Although conceptually sound, there remain many areas of detailed concern which are explored in the full report. Among the most important (for both RC and HEFCs) is the need to find **better ways of facilitating interdisciplinary research**.

Turning to the HEFCs' RAE, most accept this has helped in motivating and organising academic research to general benefit, but there are concerns that the **RAE distorts the HEI research system** - 'gamesmanship' can exploit the rules and researchers may also adapt their publications strategy to the latest formula. Such effects need to be taken into consideration when designing the exercise to overcome remaining shortcomings, including its alleged detrimental effect on teaching, the lack of industrial and international involvement in the assessment panels, the weaknesses in the treatment of non-academic work (e.g. industrial research), and inter-panel standards.

In addition, there is a danger that the RAE's formulaic approach leads to outcomes detached from more strategic policy considerations. For instance in the last RAE, because there was an increase in the numbers of drama researchers and a decrease in maths researchers, funding shifted from maths and towards drama - amplifying these trends whether or not they reflected the country's strategic and competitive needs. HEFCs may thus need to apply a '**priority**' factor to allow some strategic steer based on broader societal objectives.

The full report addresses other aspects, such as the effects of the RAE on the balance of teaching and research, how selective the system should be, and the ways in which priority exercises such as Technology Foresight are integrated into both HEFC and RC systems. It is hoped that this analysis will be useful to Parliamentarians wishing to participate in the debate over the future of research in the UK Higher Education sector.