The postdoctoral system under the spotlight

A European Union Directive regulating fixed-term contracts has focused attention on scientific career structures and could have long-term effects on European science

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If there is one thing that most European life scientists agree on, it is that the academic systems in which they work are far from ideal. Good science requires innovation and creativity, but most European academic organizations and funding agencies have rigid and hierarchical structures that do little to foster intellectual independence among young researchers. Scientists from these countries look with envy at that their colleagues in Britain and North America, where relatively flexible systems offer much greater opportunities for mobility and greater rewards for creativity. Many end up voting with their feet and moving to take the opportunities provided by more flexible academic systems. Senior scientists, together with politicians and funding agencies across Europe, have begun to realize that the current funding and organization of science will need to change if it is to remain competitive with research in other parts of the world (Schatz, 2002).

A key feature of a European-wide approach to scientific career structures is likely to be a postdoctoral system that promotes mobility in the early part of scientists' careers, followed by tenure-track appointments that provide the opportunities to demonstrate their abilities as independent scientists. This is a tried and tested approach that has been shown to enable career progression and promote scientific creativity. Some European countries are already moving in this direction. Spain, for instance, has introduced a tenure-track programme, and France has established a limited postdoctoral system. However, recent changes in European laws governing the employment

of staff on fixed-term contracts present a potential obstacle to the expansion of such systems across Europe. The EU Fixed-Term Contract Directive (EU, 1999) is designed to protect workers by preventing employers from using successive contracts as a means to avoid making employment permanent. To comply, governments in the member states must introduce measures that specify "(a) objective reasons justifying the renewal of such contracts or relationships; (b) the maximum total duration of successive fixed-term employment contracts or relationships; (c) the number of renewals of such contracts or relationships". The Directive also requires that fixed-term workers "shall not be treated in a less favourable manner than comparable permanent workers solely because they have a fixed-term contract or relation unless different treatment is justified on objective grounds". Details, such as maximum lengths of contracts, are not specified in the Directive and have been left to individual member states to decide when they introduce their own regulations.

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Member states were allowed a period of two years to implement the Directive, so it will soon become law in most EU countries. In Britain, the regulations that came into force on 1 October 2002 specify a maximum total of four years for successive

contracts with the same employer and require that a renewed contract automatically becomes permanent once this four-year limit has been passed (Statutory Instrument No. 2034, 2002; for a guide to the regulations see: British Department of Trade and Industry, 2002).

At first glance, the impact of the Directive would seem to be limited by the fact that it only applies once a contract has been renewed. Under the British regulations, a three-year postdoctoral contract could be extended for a further year. Because first contracts of any length are not covered, it should still be possible to have a tenure-track system based on six-year contracts, followed by permanent employment if the scientist's performance is judged to be satisfactory. Another consequence of the regulations is that postdoctoral researchers in Britain — including those on first contracts — will be automatically entitled to the minimum statutory redundancy payment, one week's pay for each year of service, if their contracts have run for more than two years. Although these payments will presumably have to be met by funding bodies, the amounts involved should not present a particular problem.

Nevertheless, there are some good reasons why European scientists should be seriously worried about the effects of the Fixed-Term Contract Directive. In particular, the Directive will make contracts less flexible, and this is likely to create problems when research projects do not proceed according to plan. That extra extension of six months or a year at the end of a contract can be crucial

for finishing a piece of work and moving it through to publication. The flexibility of the US system, and the ease with which contracts can be extended, is already cited by

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European postdocs as a reason for working in the US (Breithaupt, 2000). Although it should, in principle, be possible to argue that the requirements for maintaining scientific excellence constitute objective justification for flexible postdoctoral contracts and also for tenure-track systems, in practice academic organizations might be reluctant to do this. Even more worrying is the fact that the Joint Negotiating Committee for Higher Education Staff (JNCHES), which represents employers and unions in British universities, has drafted new guidelines that seem to be more restrictive than the government regulations, and would require “transparent, necessary and objective reasons for placing a post initially or subsequently on a fixed-term or casual contract” (Joint Negotiating Committee for Higher Education Staff, 2002). Because the JNCHES guidelines also require justification for the first contract, they seem to indicate a trend towards more general restrictions on the employment of postdoctoral researchers on fixed-term contracts. The guidelines are voluntary, but once adopted by a university

they would presumably be binding for any scientist working there.

So are there good reasons for defending fixed-term contracts for postdoctoral researchers? To paraphrase Winston Churchill’s famous comment on democracy, the postdoctoral system has many disadvantages — until you look at the alternatives. If postdoctoral researchers are not employed on fixed-term contracts, it will be necessary to give them permanent appointments immediately after they obtain their PhD. Because there are very few researchers fresh out of a PhD who are ready to run their own research group, they will have to be employed on permanent contracts within existing groups. Such a system has operated for many years in France and the experience there shows the negative aspects very clearly (Goodman, 2001). Faced with a decision to employ a researcher who could be there for life, laboratory heads tend to opt for someone they know, which very often means someone who has completed a PhD in their lab. As a result, French academic institutions have an estimated ‘inbreeding’ rate of 65%, compared with 5% for Britain (Soler, 2001) — inbreeding refers to researchers remaining in the same institution throughout their careers and shows a negative correlation with scientific productivity. Because of the inherent lack of mobility in the system, it is difficult for young scientists to obtain permanent positions in France, and many French scientists end up working abroad.

French researchers also complain about a system that often denies them scientific independence for much of their careers. It would be ironic if this system were to be extended to the rest of Europe at precisely the time when France is considering abandoning it. If this happens, it will not mean the end of postdoctoral contracts; it will simply mean that most of Europe’s brightest young researchers will be spending this productive stage of their careers in North American laboratories. Given that the one-way flow of scientific talent across the Atlantic is already causing serious problems, anything that increases this still further is likely to have a disastrous effect on the quality of European science.

Although experience shows that postdoctoral and tenure-track systems are the best way of managing scientific careers, this does not mean that there is any room for complacency about the way in which they currently operate. The use of fixed-term contracts is open to abuse, and can be justified only if it forms part of a defined career structure. Keeping postdocs in an indefinite ‘holding pattern’ on successive contracts is not something that any sensible person would defend. Neither can it be considered acceptable to employ lecturers and other teaching staff on repeated fixed-term contracts so as to avoid giving them permanent positions. Salaries and benefits are another important problem. Although salaries for postdoctoral scientists have improved in recent years in some EU member states, there are others in which postdoctoral pay is still too low to support a reasonable standard of living (Parker, 2002). Postdoctoral researchers are skilled professionals who make a vital contribution to an enterprise that is essential to the economic future of Europe. They have a right to the same pay and benefits as other professionals with comparable levels of education and training. Another problem is the fact that the mobility between different countries that forms an important part of a scientific career can often mean that researchers do not start paying into pension schemes until they are in their mid-thirties.

To tackle these problems, it is necessary to address a number of different issues. First and foremost, there needs to be a much clearer definition of the postdoctoral period as an important and productive part of a research career. Rather than describing it as

a period of training — a description generally disliked by postdocs as it undervalues their skills and their contribution to research — it would be better to accept it as a career stage, unique to science, during which a researcher develops as a scientist by working in the environment of a research group. Equally, it should be recognized that a post-doctoral fellowship, spent working on an exciting project in a good laboratory, can be a rewarding and fulfilling period when a scientist can engage directly with research problems without having to deal with the administrative and teaching responsibilities of a group leader.

A serious criticism that is levelled at the postdoctoral system concerns the bottleneck that exists at the transition from post-doctoral researcher to group leader or principal investigator. Because there will always be more postdocs than principal

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investigators, it follows that some of them will not make it to this level. This is a problem that needs to be taken seriously by the scientific community if it wants to attract talented young people into scientific careers. The solution is likely to be at two different levels. First, the bottleneck could be reduced by creating an additional grade of permanent researcher below the level of a principal investigator. This would cater for scientists who have spent time on post-doctoral fellowships and demonstrated their research abilities but do not particu-

larly want the additional responsibility of managing a research group. Second, academic science needs to foster links with industry and do everything it can to help in opening up additional career opportunities in areas outside the academic environment. This could require a change of mentality away from the view that regards academic careers as being completely separate from other career options for scientists. Wiesel & Banda (2002) have already suggested such an alternative model for an integrated organization of scientific careers, and this was also the topic of a recent meeting on careers in the life sciences, organized by the European Life Science Forum and EMBO (Moore, 2002).

If there is a lesson that should be drawn from the fixed-term contract issue, it is that scientists need to become more involved in these discussions at the political level. Traditionally, academic researchers have taken the view that these are problems that should be dealt with by administrators, leaving them to concentrate on their science. The danger with this attitude is that it is possible to wake up one day and find that regulations have been introduced that fundamentally change the way in which science is organized. It is essential that scientists themselves make the case that maintaining scientific excellence requires a type of career organization that promotes mobility and scientific creativity while still giving fair treatment to the people who work in academic research. Good science is crucial to the future economic development of Europe, and to the health and well-being of its citizens. If scientists believe that this is something worth defending, they will have to be ready to put the arguments for it at all levels from the

European Commission through to the governing bodies of their own universities.

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