

## Shortsighted education reform

The UK government decision to remove the cap on undergraduate student fees is likely to have long-lasting negative consequences for science research in the UK.

For many UK scientists, this holiday season has been one of mixed blessings. Although science research funding avoided many of the deepest cuts that were feared as the new governments attempted to rein in a giant deficit, the government also decided to follow ex-BP chief Lord Browne's recommendation to remove the current cap on undergraduate student fees, simultaneously slashing teaching budgets. The upshot of these changes is that the cost of a science degree from the UK's best universities may nearly triple, making the cost of getting into science very high for future scientists. These proposals will result in short-term savings, but, in the longer term, a drop in qualified science graduates is likely to significantly harm scientific research in the UK and knock the steam out of a major engine for economic growth.

It is clear that budget cuts are required to help rein in the UK budget deficit. However, university teaching budgets have been particularly hard hit; the current spending review proposes cuts of 40% in the higher education budget, slashing spending from £7.1 billion to £4.2 billion per year by 2014. These cuts are offset by the removal of government strictures that limit the amount of fees students are charged. Unlike the current system, where the bulk of the cost for student learning is borne by government grants directly to higher learning bodies, the Browne report recommends a more free market setup, with different courses charging different amounts based on their popularity and the costs involved. Under the new proposals, fees charged to students will be a major source for defraying the costs associated with running these courses. Laboratory-based courses such as biology are especially expensive to run because of additional requirements, such as buying equipment, providing lab space and hiring extra trained staff to run these labs. If these costs are passed on to students, science degrees are going to be much more expensive than comparable qualifications in other areas. Accordingly, annual university fees, currently capped at £3,290, could be as high as £6,000 per year, and in some cases, students can be charged as much as £9,000 per year. It is unclear if the continued growth in student numbers in the sciences will survive a doubling or tripling of the student fees involved.

Such growth is actually likely to be one of the factors driving an economic recovery in the UK, which is what makes the current cuts in the teaching budget particularly short-sighted. As recently as 2006, the Confederation of British Industries warned that UK companies are starting to have to recruit science graduates from overseas because of the shortage of high-caliber candidates from within the European Union. However, it is exactly these high-caliber science graduates who are likely to be targeted by the steepest rise in fees, as the most prestigious universities charge the highest possible fees for their most expensive to run courses. These changes may therefore worsen the shortage of well-qualified science graduates. This is bad news for the

UK's economy, where nearly 30% of the gross domestic product comes from sectors strong in science, technology and engineering.

It is also bad news for students from poorer families, whose participation in higher education has historically been limited. This is an especially vicious circle, as a higher education degree correlates with significantly higher lifetime earnings. The extent of the inequality is startling; in 2002, out of the roughly 6,000 new undergraduates entering the Universities of Oxford and Cambridge, only 45 were eligible for free school meals (offered to roughly 80,000 school-age pupils whose parental income falls below a certain threshold). In recent years, both elite universities and the government have been making overtures to such students to encourage them into higher education, but this steep increase in fees is likely to be especially discouraging for this group of potential students. According to Imran Khan, director of the Campaign for Science and Engineering, "We're concerned that if these costs are passed on in the form of relatively higher fees to students, applicants from poorer backgrounds may be pushed into their second-choice degrees or institutions on financial grounds alone." With their higher fees, science degrees are especially vulnerable to such a loss of otherwise able students, which does not bode well for the future pool of scientific talent, especially as the economics of paying off large student debt may well encourage qualified science graduates away from academia to jobs that pay more from the start.

The government is cognizant of these concerns and it has promised to protect teaching funding for 'priority' areas such as science. It has also promised to provide more scholarships for the poorest students and low-interest loans to offset the fees charged. However, there are currently no details about how such funding will be protected and, under the current proposals, it is certain that future generations of British scientists will start their careers with substantially higher levels of debt.

As the UK struggles with its own national debt, continued investment in science teaching is crucial for a knowledge-based economy. Judging from the past experience of countries such as Finland and Korea, which responded to their economic crises in the 1990's by investing heavily in research and development, such investment can actually be one way out of the current recession for the UK. A recent report from the Organization for Economic Co-operation and Development warned that fostering innovation in science and technology would be crucial for promoting long-term, stable economic recovery and that the immediate response to cutting budget deficits should not be at the expense of this long-term recovery. We would urge the UK government to take such a long-term view. ■

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