

August 2007

## **Brain Drain Worries and a Fund for Top Scientists**

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It may be a legs drain, but losing David Beckham and Victoria Beckham to the United States does not concern me. Our brain drain to the US does. A recent UniversitiesUK report, The Talent Wars, has painted a reassuring picture of the UK's ability to attract academics. Yet in one way that report is deeply misleading. It does not distinguish properly between the talented and the extraordinarily talented. It is the latter who get stolen disproportionately by the Land of the Free (Market).

I believe the incoming Gordon Brown government ought to put new money into a creative-scientists fund, and spend that, as single-mindedly as it takes, on persuading our most talented young scientists currently in working US universities and research institutes to return to, and settle down permanently in, the United Kingdom.

One reason is what economists would call an externality argument. Scientific genius inspires the young: it rubs off. Creative scientists are worth far more than their salary and lab expenses, because they set a quality standard that lifts the aspirations of dozens or even hundreds of other researchers around them. A second reason for having the most outstanding individuals stems from a remarkable skewness that has long been observed in the productivity of creative people of all kinds. This phenomenon has been studied in the work of, among others, Dean K. Simonton of the University of California at Davis, whose website intriguingly sets out his course grade distributions, a photograph of Mick McManus in an Oswald Boateng suit, and a number of fine research papers. What the research shows is that human creativity is so unevenly distributed that what physicists and mathematicians call a 'power law' describes its pattern in a normal population of people. Just 10% of scholars produce the majority of the research papers in a field, and the impact of the top 1% of scientists is many, many times greater than would be thought a priori.

UUK needs to remember that genius is what we are after. Scientists from American universities won all of the 2006 Nobel

prizes in the natural sciences. Andrew Fire of Stanford University and Craig Mello of the University of Massachusetts were joint winners of the Prize in Physiology or Medicine; Roger Kornberg of Stanford University received the solo award in Chemistry; the prize in Physics went to John Mather of NASA and George Smoot of the University of California, Berkeley. An American, Edmund Phelps, also won the award, although it is not technically a Nobel Prize in the original sense of Alfred Nobel, given in Economics.

I believe we should not sit still in the face of such monopoly power. It would be better if Planet Earth had its scientific talent (and funding) spread around more evenly.

Most people in the United Kingdom remain unaware of the extent of our elite brain drain to other countries. Earlier important work was done by John P.A. Ioannidis and published in the Journal of the Federation of American Societies of Experimental Biology. It makes extraordinary reading. He shows that 56% of UK-born elite scientists have left the United Kingdom and currently live abroad.

To be precise about the source of these data, the calculation is done in the following way. First, study the world's 250 most-cited scientists in each of 21 fields. Then count up all those who were born in the United Kingdom, and compare with that where they now work. In this way, we can get an estimate of the elite UK brain drain. More than half our most brilliant scientists have gone. Admittedly we are talking about a small number of individuals, but these are exceptional people.

As the former president of Harvard, Larry Summers, has pointed out, there may be a good reason to ensure that the world's best people are pushed together in one place to spark off one another in mutually valuable ways. But if one reads the biographies of leading scientists, it is easy to be struck by the fact that great discoveries often came from unconventional ways of thinking. This makes me believe that allowing so many of Planet Earth's scientists into the same American part of the globe is a risk. It may make them worryingly homogeneous in the way they think. That is likely to be bad for scientific progress.

My research group has been working on these issues and has found stark evidence of a youthful brain drain in the field of economics – and it is probably the same in other disciplines. By

collecting the CVs of all the assistant professors at the top-ten American universities, we have discovered that 75% of these brilliant men and women did their Bachelors degree in another country. Currently, in other words, the United States acts like a giant funnel for intellectuals.

The real global war is not for talent. It is for genius.