



Driving students into science is a fool's errand

If programmes to bolster STEM education are effective, they distort the labour market; if they aren't, they're a waste of money, argues Colin Macilwain.

The United States spent more than US\$3 billion last year across 209 federal programmes intended to lure young people into careers in science, technology, engineering and mathematics (STEM). The money goes on a plethora of schemes at school, undergraduate and postgraduate levels, all aimed at promoting science and technology, and raising standards of science education.

In a report published on 10 April, Congress's Government Accountability Office (GAO) asked a few pointed questions about why so many potentially overlapping programmes coexist. The same day, the 2014 budget proposal of President Barack Obama's administration suggested consolidating the programmes, but increasing funding.

What no one asked was whether these many activities actually benefit science and engineering, or society as a whole. My answer to both questions is an emphatic 'no'.

Taken individually, of course, these programmes are all very cuddly and wonderful. They are keenly pursued by governments around the world — particularly in countries that fret about their economic competitiveness, such as the United Kingdom and the United States.

But taken together, these schemes — which allocate perhaps \$600 to each child passing through the US education system — constitute bad public policy. Government promotion of science careers ultimately damages science and engineering, by inflating supply and depressing demand for scientists and engineers in the employment market.

Start by asking why no such government-backed programmes exist to pull children into being lawyers or accountants. The obvious answer is that there is no need: young people can see the prospects in these fields for themselves. As a result, places to study these subjects tend to be fiercely competitive. But in many science and engineering disciplines, college places are ten-a-penny after decades of sustained government efforts to render them more attractive.

The dynamic at work here isn't complicated. By cajoling more children to enter science and engineering — as the United Kingdom also does by rigging university-funding rules to provide more support for STEM than other subjects — the state increases STEM student numbers, floods the market with STEM graduates, reduces competition for their services and cuts their wages. And that suits the keenest proponents of STEM education programmes — industrial employers and their legion of lobbyists — absolutely fine.

It's not as if \$3 billion is spent on promoting STEM education each year because US parents

demand it. "I just wish little Mary got the chance to do science at school" is not a phrase, I would submit, that politicians often hear on the doorstep. Nor do universities ask for programmes to encourage more kids to enter undergraduate science.

It is true that some of the larger STEM programmes — notably those at the US National Science Foundation — were backed historically by the Congressional Black Caucus and other organizations in a laudable, but thus far unsuccessful, effort to bring more under-represented minorities into science and engineering.

But the main backing for government intervention in STEM education has come from the business lobby. If I had a dollar for every time I've heard a businessman stand up and bemoan the alleged failure of the education system to produce the science and technology 'skills' that his company requires, I'd be a very rich man.

I have always struggled to recognize the picture these detractors paint. I find most recent science graduates to be positively bursting with both technical knowledge and enthusiasm.

If business people want to harness that enthusiasm, all they have to do is put their hands in their pockets and pay and train newly graduated scientists and engineers properly. It is much easier, of course, for the US National Association of Manufacturers and the British Confederation of British Industry to keep bleating that the state-run school- and university-education systems are 'failing'.

The GAO report on STEM education points out that few of the "complicated patchwork of overlapping programmes" are ever assessed for their effectiveness. Now the Obama administration is proposing, in its 2014 budget, that the existing spread of programmes be consolidated within just three agencies. This proposal sounds eminently reasonable — but is unlikely to happen, given the congressional appropriations process and the sheer impossibility of transferring resources from, say, the National Institutes of Health to the Smithsonian.

Instead of playing political games with the issue, the Obama administration should take a closer look at whether this cluster of activity is worth \$3 billion — especially when essential spending is being cut across the board. The state can't manage or second-guess the labour market, and its efforts to do so are doomed to failure. Government policy should be to tell the education system what most parents tell their own kids: if you love immunology or geophysics, go ahead and do it; if your love is music or investment banking, do that instead. ■

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