Science boom is a job non-starter

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Maths and science graduates have below-average rates of finding work, writes ***Andrew Norton***

The Chief Scientist, Ian Chubb, is an energetic promoter of science and associated disciplines as courses and careers.

In January, Chubb assured summer school mathematics students that demand for their skills outstripped supply, and insisted that we must lift the number of mathematics students.

In February, he lamented flat enrolment numbers in some science disciplines in the 2000s, and argued that we must foster student interest to help solve a range of problems, from food security to climate change. Last month, he claimed that to keep pace with US plans for science, technology, engineering and mathematics graduates, Australia needed a two-thirds increase in graduate numbers.

As it happens, demand for undergraduate science courses has grown strongly in recent years. Applications were up by more than 40 per cent between 2008 and last year, more than for any other broad field of study.

With a demand-driven funding system, this student interest is flowing through to enrolments. In a few years, these extra students will put Chubb's science workforce optimism to an empirical test.

Unfortunately for the graduates of this science boom, employment statistics suggest that the Chief Scientist overstates our need for their knowledge and skills. As the Graduate Destination Survey shows, employers do not rush to employ new science graduates. When 2010 graduates were surveyed four months after completing their courses, those with main fields of study in mathematics, life sciences, chemistry or physical sciences had below-average rates of full-time employment.

It is not that 2011 was an unusually tough year; similar employment underperformance can be seen in surveys going back decades.

However, employment opportunities do improve over time for science graduates, as for other graduates. Last year's Beyond Graduation Survey, released last week, showed that three years after completion 90 per cent of science graduates seeking full-time work had found it. Not bad, but that is lower than for graduates of all other broad fields of study except the creative arts.

The Beyond Graduation Survey also asked its respondents whether or not their degree was important for their job. Among graduates in health and education disciplines, more than 90 per cent said their degree was required or very important, but for science graduates that figure was just 57 per cent. This lack of science relevant employment is consistent with the evidence of skills shortage lists. Some science-related occupations appear, but mostly for school science teachers. Here the problem is more of pay and conditions than numbers of graduates. The main skills shortages are in engineering and health-related occupations.

A shortage of science-specific jobs does not mean science graduates cannot find highly skilled work. Beyond Graduation reports that many science graduates are in professional or managerial occupations. The 2006 Census shows that this is also true of science graduates in general. However, for people with bachelor-level qualifications, a science degree increases the risk of not finding a highly

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skilled job, though with major gender differences. For employed men with science degrees, 71 per cent had professional or managerial employment, compared with 76 per cent of other male graduates. For women, only 60 per cent of science graduates had professional or managerial employment, compared with 73 per cent of other female graduates.

Many science graduates go on to postgraduate education and employment data shows this pays off. Both sexes do better than average in the labour market, with 90 per cent of men and 84 per cent of women with postgraduate science qualifications in professional or managerial employment. This compares with an average of 84 per cent of male and 83 per cent of female postgraduates across non-science fields.

While studying science is not a major employment quality risk except for women with bachelor degrees it takes postgraduate study and diversion to non-science occupations to achieve reliable highly skilled employment. Health and engineering courses draw on similar interests and aptitudes to science, while offering more secure pathways to such employment.

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