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Where's the Money?

It is important to dispel the myth that financial rewards for STEM graduates are poor. There has been a rapid rise in the number of students studying for a degree in the UK, but there is significant variation in the value of different degree subjects. STEM graduates fare considerably better than the average graduate, both in terms of enjoying higher annual earnings and in finding a graduate-level job.

Economic benefit from taking a STEM degree subject

Key findings from research have shown that over a working life:

- The average graduate will earn around 23% more than his/her equivalent holding two or more A levels
- Chemistry and physics graduates will earn on average over 30% more during their working lifetimes than A level holders
- The figure of 30% compares with between 13 and 16% for graduates in subjects including psychology, biological sciences and history

Higher education body Universities UK reported (report carried out by PricewaterhouseCoopers, 2005) that the graduate earnings premium for engineering graduates over a working lifetime to be £219,971, and for maths graduates to be £241,749, whereas an arts graduate can expect only an additional £34,494. The table below shows the additional lifetime earnings for STEM subjects compared with all degrees:

Subject	Additional Lifetime Earnings
Engineering	£219,971
Chemistry	£186,307
Physics	£188,249
Maths	£241,749
Biological Sciences	£109,845
Psychology	£100,479
All degrees	£160,061
Arts degrees	£34,494

(Source: *The Economic Benefit of Higher Education Qualifications produced for The Royal Society of Chemistry and the Institute of Physics by PricewaterhouseCoopers LLP, January 2005*)

Another earnings indicator for STEM graduates is the earnings they command in the labour market. A number of studies suggest that returns for the physical sciences, maths, and engineering are higher than average. The table below shows the average annual salaries by subject for First Degree students who graduated in 2002/03 and who were younger than 25 upon graduation, and were in full-time jobs three and half years after graduation:

Subject of Study	Average Annual Salary
Biology	£19,401
Sports Science	£20,552
Psychology	£19,285
Chemistry	£22,530
Physics	£24,252
Maths	£24,693
Engineering	£25,298

(Source: *Longitudinal Destinations of Leavers from HE, 2008*)

Recent evidence has suggested that around one third of graduates fail to get a graduate-level job (McIntosh, 2005; Chevalier and Lindley, 2007). For STEM graduates, however, the difficulties in getting good pay and a graduate-level job are much less of a problem. The tables below show the top paid degree subjects, compared to the bottom, for men and women respectively. In each case, the wage premium shown is relative to the average earnings of an arts graduate. There is a substantial variation in the earnings of graduates with different degree subjects. For instance, men with electrical engineering degrees earn in excess of 40% more than the average arts graduate. The figures suggest that employers place a higher value on graduates offering a technical or mathematically-based degree. Graduates with weaker numeracy skills tend to fare worse than their more numerate peers.



The wage premium for some degree subjects (compared to an arts degree) for men

Subject	Mark-up from average arts graduate earnings	Rank
Accountancy	42.15%	1
Electrical engineering	40.73%	2
Maths and computing	37.23%	3
Mechanical engineering	33.71%	4
Social sciences	14.20%	21
History	11.69%	22
English	10.84%	23
Sociology	10.83%	24

STEM salaries for non-graduate entrants

For non-graduate entrants into STEM-related occupations, the financial rewards are also above the average. The table below gives some examples by occupational sector:

Occupational sector	Average annual salary
Engineering technicians	£30,930
Electrical trades	£28,029
Science & technology associate professionals (e.g. lab technician)	£27,285
Telecommunications engineers	£27,134
All sectors	£26,020

(Source: Annual Survey of Hours & Earnings, Office for National Statistics, 2008)

The wage premium for some degree subjects (compared to an arts degree) for women

Subject	Mark-up from average arts graduate earnings	Rank
Accountancy	37.12%	1
Medicine and related	27.52%	2
Law	23.97%	3
Education	22.40%	4
Psychology	1.98%	21
Biology	1.60%	22
History	0.95%	23
Politics	-0.91%	24

(Source: Sloane P J and O'Leary N C. 2004)

Note

Advice and guidance on the economic benefits of STEM and higher education needs to take into account changes in the tuition fees.

