October 2017

Education Committee

Value for money in higher education inquiry

Written submission on behalf of the Engineering Professors' Council

Introduction

1. The Engineering Professors' Council (epc.ac.uk) represents the academic engineers in the UK, with 81 university engineering faculties as members comprising over 6,500 academic staff. All branches of engineering are represented within the membership.

2. Our primary purpose is to provide an influential voice and authoritative conduit through which engineering departments' interests can be represented to key audiences such as funders, influencers, employers, professional bodies and Government.

Executive summary

3. The EPC believes that the Industrial Strategy depends on engineering and related disciplines, and that Government should invest in engineering in higher education that will lead to enhanced UK industry capability and competitiveness.

4. The UK desperately needs more engineering graduates and the cost to educate them represents a worthwhile investment providing good value for money for both the taxpayer and the individual. Indeed, any value for money calculation should consider the economic risk of failure to generate an adequate supply of engineering skills.

5. The EPC recognises the need to share costs fairly between the general taxpayer and the individual student, but asserts that engineering courses are currently subsidised at an institutional level, meaning that the lowering of university fees generally would be likely to have a negative impact on the delivery of engineering education.

6. The EPC calls for adequate maintenance support for engineering students, who generally have more contact time than their peers and, therefore, less capacity to earn while studying.

7. The EPC recommends consideration of targeted allocations for all engineering disciplines.

8. We believe it is important to balance any focus on salaries as a key indicator of value for money with softer measures based on whether students achieve goals, learning gain and social mobility.

9. The EPC urges caution if DLHE and/or the Longitudinal Educational Outcomes dataset were to become a proxy measure for quality service either intentionally or unintentionally.

10. We welcome focus on retention, in addition to recruitment, in terms of both HE participation and graduate employment measures.

11. The EPC welcomes efforts to remove barriers to access, especially for the most deprived, and welcomes the introduction of Degree Apprenticeships, which are likely to attract individuals from groups underrepresented elsewhere in HE. However, we have concerns that the funding in this area may prove inadequate.

12. We believe that support for those underrepresented in HE should be directed at early education choices, including Government investment and regulator (OfS) involvement in impartial, sustained and incremental careers education in schools.

13. The EPC would like to draw the Government's particular attention to gender inequalities in engineering, which require focused, funded, interventions.

14. There is scant evidence of poor teaching practice in engineering courses. On the contrary, there is considerable evidence from academic studies, employer demand and student satisfaction to suggest teaching practice is generally highly effective.

15. TEF is unlikely to have a significant impact on engineering, not least because its metrics do not relate to actual learning outcomes that might be influenced directly by better teaching. The EPC believes that it would be better to measure genuine inputs such as the proportion of teaching staff who are qualified to teach.

16. Government and the regulator could do more to incentivise embed work-related and work-based learning into courses.

Value for money

17. Engineering graduates represent good value for money. Engineering graduates have better outcomes than their peers across all years for which data is available.[1]

18. Successful engineering graduates deliver increased societal productivity and engineering students themselves see a greater dividend throughout their careers as a consequence of their degree.

19. However, a shortfall of engineering graduates is well documented, with EngineeringUK quoting a conservative estimated shortfall of 20,000 engineering graduates each year in the UK[2]. Furthermore, the Royal Academy of Engineering cite that, of the 32 standard occupations listed in the Home Office Shortage Occupation List, half are either in engineering sectors such as civil, mechanical and electrical, or in allied professions.[3]

20. The EPC believes that the Industrial Strategy depends on engineering and related disciplines, and that Government should invest in engineering in higher education that will lead to enhanced UK industry capability and competitiveness.

21. We have, in previous consultation responses, cited concerns about the future of engineering in Higher Education and the wider impact on society through research, innovation, skills shortages and economic impact.

22. The EPC agrees that more engineers are needed to address the skills gap. The UK must provide the resources to increase the capacity and to plug the pipeline shortage, either by cutting costs *or increasing* the funding available.

23. The EPC recognises the need to share costs fairly between the general taxpayer and the individual student. However, engineering HE courses are expensive, where the tuition cost of offering a degree in engineering typically outstrips the funding available.

24. While the high cost of engineering courses is nominally reflected HEFCE price group funding, targeted allocations for very high-cost STEM subjects currently only include Chemical engineering, Mineral, metallurgy and materials engineering (generally subject line H8).

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[1] http://epc.ac.uk/destination-of-leavers-from-higher-education-dlhe

[2] http://www.engineeringuk.com/media/1355/enguk-report-2017.pdf

[3] http://www.raeng.org.uk/publications/reports/engineering-a-future-outside-the-eu

25. At present, engineering courses are systematically cross-subsidised in universities by other degree programmes, international student fees or research funding.

26. The EPC recommends consideration of targeted allocations for all engineering disciplines.

27. While the EPC supports measures to reduce the cost and perceived cost of higher education for all students and recognises the need for equitable student maintenance support, the EPC consider the lowering of university fees and introduction of differential fees across disciplines would be likely to have a negative impact on engineering delivery.

28. In addition, there is a particular need for adequate maintenance support for engineering students. On average, Engineering courses involve a workload of 30 hours per week, with contact time – particularly lectures – outranking most other subjects (with the exception of health subjects and the physical sciences)[4]. That leaves engineering students with far less time than most students to supplement their student loans with earned income.

Graduate outcomes and the use of destination data

29. Graduate outcomes data provides helpful evidence to Engineers in demonstrating their value for money with regard to outcomes.

30. However, while engineering graduates tend to earn high salaries, there is a danger in being too focused on salary premiums as the main positive outcome from HE.

31. There is a danger of unintended consequences, such as (a) incentives for engineering students to be steered towards jobs in finance that pay even more than engineering roles and for which they are well qualified; (b) admissions practices that chase after students with high earning potential owing to pre-existing social capital, rather than aptitude or potential; and (c) incentives to move away from research and academic roles on which future growth depend.

32. It is important to balance any focus on salaries as a key indicator of value for money with softer measures based on whether students achieve goals and learning gain, and on social mobility.

[4] http://www.hepi.ac.uk/wp-content/uploads/2017/06/2017-Student-Academic-Experience-Survey-Final-Report.pdf

33. These mechanisms are useful to capture an overview of the impact that higher education has on learners, employers and the wider economy. However, they do not necessarily reflect an individual student's experience while engaged in higher education.

34. The EPC urges caution if the increased significance of DLHE and Longitudinal Educational Outcomes data for measuring teaching quality through the TEF is to be extended to demonstrating the long-term value of the higher education experience for individuals (i.e. DLHE and the Longitudinal Educational Outcomes dataset also become a proxy measure for good quality service).

35. The EPC awaits the impact of new questions and routing in the Graduate Outcomes survey to allow deeper insights into graduates pursuing non-traditional career paths, such as those developing creative portfolios.

36. The EPC welcomes the increased time-lapse following graduation before measuring graduate outcomes. However, we would caution that measuring access to (and level of) employment does not reflect the long-term challenge of retention in the workplace.

37. Consideration should be given to measuring retention over a graduate's career.

Social justice in higher educations and support for disadvantaged students

38. The EPC welcomes efforts to remove barriers to access, especially for the most deprived.

39. We would steer Government to consider initiatives to tackle disadvantaged students non-completion rates, as well as widening access.

40. The EPC is committed to support to members in this area, in particular with our work on Degree Apprenticeships, which are likely to attract individuals from groups underrepresented elsewhere in HE.

41. To this end, we believe that support for those underrepresented in HE should be directed at early education regarding HE choices, including: impartial careers advice, investment in the recruitment and training of career advisors; CPD for teachers on education routes, including engineering.

42. Careers education should be delivered by professional, well informed practitioners in combination with a range of awareness- and aspiration-raising activities. Careers education should be sustained and incremental (building on previous interventions) throughout schooling and beyond.

43. Engineering has a good record in attracting certain ethnic groups and students from less advantaged groups. Black & ethnic minorities represent 24%[5] of engineering & technology undergraduates.

44. Gender, however, is a real problem in engineering. Women only represent 15% of engineering & technology undergraduates and only 6% of the engineering workforce.[6]

45. Graduate outcomes data[7] highlights one of the biggest gender gaps in engineering and technology graduate earnings.

46. Despite this inequality, Government investment in HE engineering continues to represents good value for money.

Quality and effectiveness of teaching

47. There is scant evidence of poor teaching practice in engineering courses. On the contrary, there is considerable evidence from academic studies, employer demand and student satisfaction to suggest teaching practice is generally highly effective.

48. The UK Standard for Professional Engineering Competence (UK-SPEC)[8] sets out the competence and commitment required for professional registration[9] as an Engineering Technician (EngTech), Incorporated Engineer (IEng) or Chartered Engineer (CEng). It also includes examples of activities that demonstrate the required competence and commitment. The requirements for the Accreditation of Higher Education Programmes (AHEP)[10] in engineering are set out in line with UK-SPEC. AHEP sets out the standard for degree accreditation. It also outlines the purpose and application process for universities that wish to secure or maintain accreditation of their

5 http://www.raeng.org.uk/inclusivecultures

6 http://www.raeng.org.uk/inclusivecultures

7 https://www.gov.uk/government/statistics/graduate-outcomes-by-degree-subject-and-university

8 http://www.engc.org.uk/ukspec

9 http://www.engc.org.uk/professional-registration/

10 http://www.engc.org.uk/ahep

programmes. The Approval of Qualifications and Apprenticeships Handbook (AQAH)[11] describes the approval process and required output standards for the purpose of technician registration (EngTech or ICT*Tech*).

49. The EPC is confident that the quality and effectiveness of teaching in engineering is regularly measured using an-outcomes based approach through AHEP.

50. TEF is unlikely to have a significant impact on engineering, not least because its metrics do not relate to actual learning outcomes that might be influenced directly by better teaching.

51. The EPC believes that, in addition to measuring outcomes, teaching would be better enhanced by measuring genuine inputs such as the proportion of teaching staff who are qualified to teach. (This may not necessarily be the same as having a teaching qualification.)

52. The Government and regulator could also do more to incentivise e mbed work-related and work-based learning into courses.

The role of the Office for Students

53. The EPC suggests that the regulator could do more to incentivise embed work-related and work-based learning into courses.

54. Degree apprenticeships may help to address this, but we have wide concerns about various aspects, not least whether the funding may prove inadequate as there is no reason why degree apprenticeships should be less expensive to deliver than other degree programmes. Indeed unit costs may be higher (until programmes become better developed at least) and payment terms for learning providers are less reliable.

55. We support the Office for Students taking an active rol e in the external approval of degree apprenticeships to support efficiency in the sector.

56. The EPC would also urge OfS to support engineering awareness campaigns with advice for career practitioners, students in schools and parents.

11 http://www.engc.org.uk/standards-guidance/standards/approval-of-qualifications-and-apprenticeships-handbook-aqah/