Campaign for Science and Engineering response:
Consultation by the Migration Advisory Committee on the Level of an Annual Limit on Economic Migration to the UK

Introduction

1. The Campaign for Science & Engineering (CaSE) is a membership organisation aiming to improve the scientific and engineering health of the UK. CaSE works to ensure that science and engineering are high on the political agenda and that through the implementation of appropriate evidence-based policies and adequate funding the UK has world-leading research and education, skilled and responsible scientists and engineers, and successful innovative business. It is funded by around 750 individual members and 80 organisations from industry, academia, learned and professional organisations, and research charities.

2. Financial entrepreneurs, investors, and elite sportspeople, are set to be excluded from the cap. Skilled scientists and engineers are intellectual investors and entrepreneurs – looking to invest their knowledge and skills creatively to advance the UK. They have a vital role to play in future economic growth and in solving some of the UK's most urgent challenges, from security threats to meeting energy demands. Research in the UK depends heavily on the global marketplace to advance, in the same way as elite sport does. For instance, out of the 13 Nobel Prizes awarded to scientists from the Medical Research Council's Laboratory of Molecular Biology (MRC LMB), only five went to British researchers[1].

3. We therefore recommend that a method is found to exclude qualified and competent scientists and engineers from the cap. If that is not possible, we recommend that the number of scientists and engineers required by the UK be determined separately from the total number of migrants.

Question 1: What factors should the MAC take into account, in order to inform its recommendations for Tiers 1 and 2 in 2011/12, when assessing the impacts of migration on: the economy; provision and use of public services; and wider society.

Question 2: How should the MAC measure or assess these impacts?

These questions will be answered together.

The economy

4. There are many ways in which migration impacts upon the economy, some of which can be estimated. Attracting and welcoming world-class researchers to the UK is essential to achieve the best possible research and development (R&D). R&D can drive economic growth as well as encouraging industrial investment through the ability to employ the necessary skilled workers.[2] Both the consultation and the impact assessment consider the costs to industry in terms of added bureaucracy, delays in filling positions, and the need to invest more in training. They fail to consider that industry may simply relocate overseas. The UK attracts an unusually high proportion of its investment in R&D from companies that are located overseas - 17% or £4.4 billion in 2007. This investment is highly mobile and likely to leave the UK if it is not straightforward for industries to employ the skilled workers they need.

5. A key determining factor for where to site R&D infrastructure is access to skilled workers, including being able to employ talent from across the globe. 3 A CBI survey found that larger UK firms look abroad to fill their vacancies in science, technology, engineering, and mathematics.[4] Similarly, the Institute of

[1] *Nobel Prizes*, MRC LMB website, May 2010.
[2] e.g., see *R&D and Productivity Growth: Panel Data Analysis of 16 OECD Countries*, OECD Science, Technology and Industry Working Papers, 2001, and *Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK*. MRC, Wellcome Trust & the Academy of Medical Sciences, November 2008, and other work summarised in *Securing our Economic Future with Science & Engineering*, *CaSE, June 2010.*
[3] *Towards a Global Labour Market? Globalisation and the Knowledge Economy*, The Work Foundation, June 2008.
[4] *Education & Skills Survey*, Confederation of British Industry/Edexcel 2008

Directors found that, in 2006, 65% of its members wanted to encourage migration for skills shortages and to widen the labour pool.[5] When an overseas company is seeking to open up new business in the UK, it will typically bring a core staff to be supplemented with local labour. If there is any question over their ability to bring workers from overseas, this could seriously limit their desire to invest in the UK.

6. The UK's world-class universities are an attractor for industry investment, so the quality of those universities is economically important[6,7]. Limiting the number of non-EU economic migrants could damage the quality of these universities (see paragraph 18) relative to international competitors. This would have a negative impact on private-sector investment in the UK.

7. There are clear relationships between migrants and bilateral trade and investment.[8] At a time when our export markets are going to be essential to economic growth, it is vital that trade is promoted. China, India and the US provide the highest number of academic immigrants to the UK and are in the top four for non-EU migrants – these countries provide vital trading partners for the UK. Indeed, in July 2010, the UK Government sent what Downing Street described as "the largest UK trade delegation in living memory" to India, including the Prime Minister, 6 cabinet Ministers and business and university leaders. It would be contrary indeed to put a cap on this relationship.

8. There have been attempts to quantify the impact of immigrants on research and innovation. Various US research demonstrates the important contribution that immigrants have made, evident in their receipt of Nobel prizes, election to the National Academy of Sciences and patent citations. More than half of the high-tech firms founded in Silicon Valley had at least one immigrant founder.[9] Recent estimates suggest that a 10% increase in the number of foreign graduate students in the US (holding the total number constant) would raise patent applications by 4.5%, university patent grants by 6.8% and non-university patent grants by 5.0%.[10]

9. It is difficult to estimate how the cap will affect foreign investment in the UK, economic growth from UK based R&D, and access to export markets. The impact will obviously depend on the level at which it applies, but also on how it affects the perception of the UK as a desirable place to invest and partner for collaboration. It is unlikely to be a linear relationship.

Public services

10. The stated reason for decreasing net migration is to reduce the unacceptable strain on public services in certain local communities. Current proposals are to limit skilled and highly-skilled non-EU migrants that would be coming to the UK with a job already, or looking for work. This sort of migration seems unlikely to centre on the local communities under pressure, questioning the validity of targeting this group for restriction. We are not aware of any data looking at which groups of migrant (by entry category) tend to localise and put pressure on public services.

11. If the inflow of skilled workers is limited, this will shift the balance of skilled to general migrants – meaning that the pressure on public services that concerns the Government will be less compensated for by the increased economic activity of skilled migrants.

Wider society

12. The impact on wider society often seems to be accentuated by the media. The public hugely over-estimates the number of immigrants and refugees in the UK, and probably their impact. For instance, a 'Reader's Digest' survey in 2001 found that the general public thought that immigrants made up about 20% of the population, whereas the true figure was 4%[11]. Another poll found that the public thought

[5] *Immigration - the business perspective*, Institute of Directors, January 2007.
[6] *University cuts will jeopardise Britain's economic future*. The Times (Letter signed by Dr Mike Bushell et. al), 14th June 2010.
[7] *Government strategies to attract R&D-intensive FDI*, José Guimón, March 2008.
[8] E.g., see Jansen, P, & Piermartini, R. (2009). *Temporary Migration and Bilateral Trade Flows.* The World Economy Volume 32, Issue 5, p 735–753.
[9] Discussed in *The Difference Dividend: Why immigration is vital to innovation*, Provocation, NESTA, 2008.
[10] Chellaraj, G., Maskus, K. E., & Mattoo, A. (2008). *The Contribution of International Graduate Students to US Innovation.* Review of International Economics 16, no. 3
[11] Discussed in *The Difference Dividend. Why immigration is vital to innovation.* NESTA, January 2008.

that the UK took 25% of the world's refugees, rather than the accurate figure of 2%.[12] Furthermore, OECD analyses suggest that public fears over the impact of immigration on employment are unfounded; immigration barely affects employment in highly-skilled sectors – those that would be affected most by a cap on non-EU migrants.[13]

13. We are aware of the positive impact of immigration of skilled researchers to solving societal problems from ageing and obesity to climate change and energy security. This work benefits greatly from the contribution of international scientists and engineers, they bring: a diverse range of perspectives, access to and knowledge of different environments and markets, and a network of connections for international collaboration.[14],[15] Such collaborations underlie the success of the UK research base; from 2002-07, nearly 40% of the UK's scientific output involved such international collaborations and such publications have a higher citation rate than papers by only UK authors, showing that work done by international researchers is of a high quality.[16]

Question 3: How should the MAC trade off, prioritise, and balance the economic, public service and social impacts of migration?

14. When considering Tiers 1 and 2, economic and societal gains from having international skilled workers should be prioritised. We are not aware of any evidence of negative impacts of these groups on public services or wider society, and there is an enormous amount of evidence that demonstrates the gains that they bring economically[17].

15. Over 30% of the UK's economy is based on sectors intensive in science and engineering[18], the UK is recognised as second only to the USA in terms of its scientific output[19,20], and much of this work actually contributes to our public services – for instance, better and more efficient treatments in the health sector. There is therefore less of a 'trade-off' required for migrant scientists and engineers.

Question 4: To what extent and how quickly can alternatives to employing Tier 1 and Tier 2 migrants, including training and up-skilling of UK resident workers, reduce reliance on such migration? What can Government and other bodies do to facilitate this?

16. Increasing the number of potential graduates to recruit from would take an absolute theoretical minimum of three years as it would depend on increasing course entrants. In reality, it would take longer still in order to make sure that enough students are motivated and able to take the necessary A level courses that lead to degree areas in which shortages are evident.

17. It could indeed take an indefinite amount of time, given how long it takes to reform the education system and persuade students themselves to respond to the needs of the country. This is evident in the slow (although real) progress that has occurred despite huge efforts to increase the numbers of students taking science, engineering and mathematics courses. In fact, 2010 was the first year, after many years of trying, that saw an increase in the proportion of A level entries in all of the sciences and mathematics.

18. Other problems will arise because universities depend on international recruitment to employ the best researchers and lecturers. In 2007/08, non-EU nationals made up 10.5% of all academic staff, including 22% of engineering staff, 15% of mathematics and computer science staff, and 13% of physical scientists.[21] If universities cannot recruit the necessarily skilled lecturers, this will affect the ability of UK employers to recruit well trained graduates. It is also likely that a higher proportion of graduates in the UK may be from overseas as universities seek to supplement falling public sector investment with

[12] Discussed in *The Difference Dividend. Why immigration is vital to innovation.* NESTA, January 2008.
[13] *The Unemployment Impact of Immigration in OECD Countries*, OECD, 2007.
[14] *The Difference Dividend. Why immigration is vital to innovation.* NESTA, January 2008
[15] *Knowledge Nomads*, Demos, 2008.
[16] *Performance of the UK Research Base*, EvidenceLtd for BIS, 2009.
[17] *Securing our Economic Future with Science and Engineering*. Campaign for Science and Engineering. June 2010
[18] *Engineering: Turning ideas into reality.* IUSS Select Committee, 2009.
[19] *UK second only to US but cannot rest on its laureates.* Times Higher Education, 30 July 2009.
[20] *How the G7 nations compare in research performance*, Times Higher Education, 10 June 2010.
[21] Data from UniversitiesUK

foreign fee income.

19. Further up the skill level, post-graduate training typically takes at least three years and a graduate engineer, for example, usually requires some five years' experience post-graduation before achieving full Chartered registration. But it will simply not be possible to meet all the training needs in the UK. Post-docs are highly-skilled and often at a level of specialisation that it would never be possible for employers to find people with the required skills without drawing upon the world pool.

20. Some of the technical skills required by UK industry are so rare, world-wide, that it is possible the UK could be decades away from being self-sufficient in those areas. For instance, a automotive manufacturer notes that they bring in their Japanese staff to teach skills to UK-based staff, because "Japanese expatriates bring critical expertise, particularly in relation to Japanese machinery and tools... The technical staff have the knowledge to support tool localisation programmes which would be almost impossible to achieve without this valued support. Their skills are so rare, for example, the mould technicians are able to detect 1 micron difference in accuracy on surface of the mould and judge if the mould is good enough."[22]

21. Then there are some skills that the UK could never be self-sufficient in providing – no amount of training replaces having an international perspective and different background. To a certain extent, UK researchers can build some of these skills by collaborating overseas, but this will become increasingly difficult if their overseas counterparts are not welcomed in the UK.

Question 5: What trends do you expect to see over the lifetime of the Parliament in non-PBS migration, including of British and European Economic Area (EEA) citizens?

22. We are more interested in commenting on PBS migration flows.

23. In the consultation you state that "*Lack of data is another issue. For example, we do not know how many migrants leave the UK each year having previously entered via Tiers 1 or 2 of the PBS.*"

24. However, the ONS has provided data on the outflow of non-EU economic migrants, in which Tiers 1 & 2 fall. In 2008, an estimated 66,000 non-EU migrants entered the UK for work-related reasons, while 74,000 left, so there is already an outflow in this group.[23] If there is a significant decline in the number of visas issued to incoming workers, but no decline in the number of workers leaving, the UK will start to experience a serious "brain drain".

25. In fact, there has already been a decline in the migration of skilled and highly skilled workers. This is likely to be partly due to the recession as well as the introduction of the points based visa system in not only turning down applications but discouraging applicants in the first place. 6,685 Tier 1 highly skilled workers visas were issued in the first quarter of 2010, down 44% (or 5,179) compared to the equivalent visas and period in 2009. The number of Tier 2 Skilled Workers visas issued was 16,915, in the first quarter of 2010, up 6% (or 995) from the equivalent visas and period in 2009.[24]

26. It is worryingly possible that skilled immigration of scientists and engineers will decline because of the recession and the fact that many other countries responded to it by investing in science and engineering research and innovation to a much greater extent than the UK. Furthermore, the current visa system does little to encourage applicants. If a limit is enforced, this would be expected to further deter them.

Question 6: The stock of main (non-dependant) migrant workers under Tiers 1 and 2 is determined by (i) new migration from outside the UK and (ii) extensions and switching between routes by migrants within the UK. If migration is to be reduced, do you most favour achieving this via cuts in (i) or (ii)?

[22] DENSO Manufacturing UK Limited
[23] *Hansard*, HC Deb, 28 June 2010, c450W
[24] Migration Statistics 2008, Annual Report, Office of National Statistics

27. Favouring extensions or switching may be less disruptive to people involved and enable the completion of long-term research work. We are aware of many projects being prematurely terminated because of visa problems. On the other hand, it is important to extend the opportunity to work in the UK to as many immigrants as possible due to the many benefits they bring, outlined elsewhere in this response.

28. Providing longer term visas could reduce the need to juggle this prioritisation, facilitate research projects which are typically long-term in nature, and reduce the bureaucratic burden.

Question 7: To what extent should reductions in flows through Tiers 1 and 2 be met through reduced migration of dependants? Should dependant numbers be reduced by proportionately more than those of main migrants?

29. Because applicants bring a variable number of dependents and this number is documented to fluctuate over time, the ability to admit a defined number of skilled workers into the country will only be possible if dependants are not included. It is extremely hard to see how caps could operate independently on applicants and dependents. The Government has asked that the UK immigration system continue to attract the brightest and the best people who can help economic growth. It is purely on this merit that they should be judged.

Question 8: What would be the likely impact on your organisation, sector or local area of reducing (from 2010) the number of main migrants through the Tier 1 general route in 2011/12?

Question 9: What would be the impact on your organisation, sector or local area of reducing the number of main migrants through the Tier 2 shortage, Resident Labour Market Test, and intra-company transfer routes?

30. We have considered the impacts of reducing immigration across Tiers 1 and 2 together – it would be hard to split them out effectively, not least because there would be some swapping between categories if pressure was overly exerted on some but not others.

Question 10: The Government's objective is to lower net migration overall. If you are proposing small or zero reductions in migration through a particular tier or route, through which Tier 1 and 2 routes do you think migration should be reduced instead?

31. Net migration was 163,000 in 2008 and the Government's goal is to reduce this to tens of thousands – presumably no more than 90,000, thus seeing at least 73,000 applicants refused entry to the UK (assuming applications stay constant). The Home Office impact assessment estimates that 39,000 visas eligible for the cap were issued in 2009-2010 in Tier 1 and 57,000 in Tier 2 (or 24,000 if ICTs are excluded). The actual numbers denied access will vary depending on the level of the limit – with the impact assessment looking at 10%, 50%, and 90%. Even a 90% cap on Tiers 1 and 2 would generate a fall of only 57,800 applicants (including ICT), but would undoubtedly have devastating consequences on UK universities, research base, industry and other sectors.

32. We do not believe that any of the Tier 1 and 2 routes should be reduced. Given declining numbers of migrants over Tiers 1 & 2 and that there is actually a net outflow of non-EU economic migrants (see answer to question 5), it does not seem sensible or appropriate to target these areas to counteract net inflows in other areas. This is particularly true given that they will include the brightest and the best skilled workers that the Government has said that it wants to attract.

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