LONDON MATHEMATICAL SOCIETY

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The Lord Krebs Kt, MA, DPhil, FRS,
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Chairman of the House of Lords Science and
Technology Committee
House of Lords Committee Office
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18th January 2013

Dear Lord Krebs

Your letter of 7th December: Request for inquiry topic recommendations

You will have received a letter from Professor Frank Kelly, FRS. The chair of the Council for Mathematical Sciences (CMS) proposing as a topic for inquiry: the inadequate supply of talented and imaginative individuals with a high degree of mathematical training and their engagement with economic opportunities which are vital to the UK economy. The London Mathematical Society enthusiastically endorses this suggestion.

The Deloitte Report, commissioned by EPSRC and published last November, notes the excellence of the UK mathematics research base, and estimates the contribution of mathematical science research to the UK economy in 2010 to be 2.8 million in employment terms (around 10 per cent of all jobs in the UK) and £208 billion in terms of Gross Value Added (around 16 per cent of total UK GVA). Productivity (as measured by direct GVA per worker) is significantly higher in mathematical science occupations compared with the UK average. Sectors contributing to this impact include Research and Development, Computer Services, Finance, Aerospace, Pharmaceuticals, Public Administration and Defence. The mathematical background of heavily-contributing individuals can come from many possible directions – to give one example among very many, the co-chair of President Barack Obama's Council of Advisors on Science, a world leader in the Human Genome project, announces his mathematical credentials on his web site and completed his doctorate in combinatorics and symmetric design, a seemingly remote and abstract area of pure mathematics, at a UK mathematics department.

Professor Kelly's letter gives other sources of evidence for the wide contribution of the Mathematical Sciences.

We are concerned that the UK does not have seem to have an effective mechanism or policy framework to develop appropriate talent on an appropriate scale, or to match it to the increasing opportunities for the talented and mathematically trained to contribute to the strategic challenges faced by the UK. We are concerned that the cost of ignoring these opportunities can easily be forgotten and is most likely substantial even if it is not easy to quantify exactly.

In the USA the NSF has recently expanded their portfolio of mathematical research institutes to 8 and together they support traditional topics (such as combinatorics etc.) but they can also support new and experimental programmes on Data-Driven Decisions in Healthcare, and on Statistical and Computational Methodology for Massive Datasets. In the UK, the budget of the Isaac Newton Institute (INI), Britain's highly respected research institute for mathematics and its applications is under partial threat.

There are several challenges in delivering full impact from mathematically talented people into high value parts of the UK and we believe that an inquiry along the lines suggested by Professor Kelly could expose a number of the issues and facilitate a more effective engagement to the benefit of the UK. We suggest that the training pipeline and underpinning infrastructure leading to such imaginative and engaged mathematicians should be an important element in the inquiry.

Yours sincerely

Graeme Segal FRS
President

Measuring the Economic Benefits of Mathematical Science Research in the UK,http://www.epsrc.ac.uk/SiteCollectionDocuments/Publications/reports/DeloitteMeasuringTheEconomicsBenefitsOfMathematicalScienceResearchUKNov2012.pdf