OKANAGAN

Funding for Mathematical and Statistical Research in Canada

Dear colleagues,

I write on behalf of the Mathematics and Statistics faculty at UBC Okanagan. Although a part of UBC Vancouver, our department is small, with 13.5 full-time faculty in mathematics and statistics, and it is relatively new: UBC Okanagan came into existence in 2005. In this respect, our situation is not unlike that which many researchers who work in small institutions across Canada face. Our teaching assignment is high, 2+2 not including graduate courses, and our service load quite substantial. Our mathematics graduate program, built from scratch in 2007, presently includes 12 graduate students; and our department also supports 4 additional students pursuing interdisciplinary graduate studies in Statistics, Mathematical Biology, and Optimization.

The ongoing changes in funding at NSERC are having a real impact on our program. Until very recently, eight members of our department were funded by NSERC; two of these have since lost their funding. Even if NSERC were to introduce a formula that differentiates between small and large universities, the result would likely not significantly improve our situation since, as far as NSERC is concerned, we are UBC.

I would like to take this opportunity to address three key issues that are likely to affect our ability to conduct research in the near future: funding for HQP, research networks, and stability.

Funding for HQP

Funding for graduate students at our institution is limited, and the value of an award so small that it cannot alone suffice to support a student. Typically, most of a researcher's NSERC Discovery grant is used to supplement this amount. Moreover, there are very few internal sources of funding for post-doctoral fellows or tech positions. If the funding trend continues to produce larger grants for individuals doing research at larger institutions, then a system should be established to target funding for the training of HQP at smaller institutions. This could be accomplished by creating an institutional grant, similar to the highly successful UFA or even a graduate counterpart to the URA program, whose purpose is to provide funding for small institutions. This would enable small institutions to attract and retain HQP, and in the process, boost their own research productivity.

In addition, undergraduate research often features more prominently at smaller institutions. From its inception, our department has been able to offer many opportunities for students to carry out research. Our success can be measured by the numerous papers published by our undergraduate students and by the fact that many of our graduating students receive Post-graduate Scholarships (PGS). If fewer researchers

receive NSERC Discovery Grants, then our ability to create such opportunities will be negatively impacted. It is therefore essential that the restriction in the URA program to DG grant holders be removed. Instead of the current criteria used in evaluating applications, greater weights could be given to the merit of the research proposals.

Research Networks

Research at UBC Okanagan has benefited from programs such as the MITACS NCE and the many initiatives and activities offered through PIMS and BIRS. They offer excellent opportunities for our researchers to network both regionally and nationally, and provide alternative sources of funding to organize workshops and conferences, in addition to supporting graduate students and post-doctoral fellows. We believe that they can play an important role, and support continued funding for mathematics institutes. In fact, the mandate of mathematics institutes should be extended so that they are specifically directed to support research at smaller institutions. This could be achieved by providing a mechanism for the re-allocation of funds to smaller universities, and by facilitating research exchange between institutions, to help mitigate the disciplinary cloistering and geographic isolation often present in small institutions. Furthermore, because the mathematical institutes are regional, they are fully aware of disparities that occur not only between institutions, but also within, as is the case for UBC Okanagan.

Because small institutions have small graduate programs, it is often difficult for them to attract graduate students both nationally and internationally. At the same time, large graduate programs at well-established institutions usually have more graduate applications than they can absorb. A regional graduate admission program that can redirect surplus applications to smaller institutions could be an extremely useful tool in connecting potential students with researchers, thereby strengthening graduate programs at smaller institutions.

Stability

Stable research funding is necessary to support research and to provide training for HQP. Since overhead costs of doing research in mathematics and statistics are usually small, grants are almost exclusively used to support training of HQP. Therefore, even small grants can have measurable impacts for research at small universities. It is our hope that NSERC will continue to support research at small institutions by allocating Discovery grants to researchers who successfully maintain an active research program, based on their ability to do so within their workload context. Failing this, we would like to see NSERC extend the duration of post-graduate scholarship to two years for Masters and four years for Ph.D. for students who decide to hold their grants at smaller institutions. This would provide stability to our graduate program, and in turn contribute to the training of HQP across Canada.

In summary, research must remain an integral part of scientific education, and therefore, to maintain a strong Canadian mathematical and statistical scientific community, it is

imperative to establish a funding structure that supports research in most Canadian institutions, small or large. Small institutions, by their very nature, are uniquely positioned to offer a dedicated learning experience and research environment for graduate students and post-doctoral fellows. This position can be further enhanced by the creation of effective scientific networks that are both regional and national in scope.

Finally, any change in the funding formula should provide stability for research activities nested within smaller institutions, for any reduction in their level of funding can have tremendous impact on their ability to provide exceptional learning opportunities and to make valuable contributions to the mathematical and statistical scientific communities.

I am grateful to the members of the Long-Range Plan Steering Committee for facilitating the consultation process, and for their continued effort to influence policies on behalf of the mathematical and statistical research community in Canada.

Sincerely,

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