Some Comments on the State of Research Support in Canada

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In this note I would like to discuss the state of research funding offered by NSERC, the Natural Sciences and Engineering Research Council of Canada. NSERC supports scientific activities though several programs including scholarships provided to undergraduate and graduate students, fellowships for post-doctoral fellows, as well as research grants and other programs that target science outreach activities. The amount of funding that NSERC has at its disposal is controlled by the federal government. While various governments have occasionally provided NSERC with new and increased funding, the unfortunate reality is that the funding for grants and scholarships has not kept pace with inflation.

The situation regarding graduate student scholarships has been the focus of media attention in recent months thanks in large part to the grassroots Support Our Science organisation that lobbied for increased support. The argument was an easy one to make, given that CGS-Master’s and PGS-Doctoral graduate student scholarships had remained unchanged at $17,500 and $21,000 respectively for over twenty years. Despite being called ‘scholarships’ in name, these awards function in practice as the primary source of income for the students who hold them. While graduate students could potentially live on $17,500 or $21,000 twenty years ago, today this level of funding falls below the poverty line.

I am pleased to report that the federal budget that was tabled in the House of Commons in April promises substantive changes to graduate scholarships. If it is passed without revision, then Master’s scholarships will increase from $17,500 to $22,000, and Doctoral PGS awards will increase from $21,000 to $40,000 per year. Post-doctoral fellowships will also increase from $45,000 to $70,000 per year. Moreover, the budget pledges to increase the number of scholarships and fellowships, although specific details in this regard are not currently available. These increases in support for graduate students and post-doctoral fellows are very much appreciated. We can hope they are a sign that the federal government values science and the upcoming generation of researchers.

However, that hope may be overly optimistic, as there are other aspects of federal support that still lag behind. One of these is the support provided in the form of Undergraduate Student Research Awards. These awards are often provided to talented undergraduate students who work on summer research projects under the supervision of a professor. The way that USRA funding works is that NSERC provides $6,000, and the supervising professor is required to provide a supplement of 25% from their research grant. This presents an opportunity for students to gain research experience over the 16 week period of the award. But when you do the math, the combined $7,500 that the student receives translates to $468.75 per week. Assuming a 7.5 hour workday, this becomes $12.50 per hour. This is a substandard level of remuneration (indeed, it falls below the minimum wage in several provinces) and creates a systemic barrier that deters underprivileged students from being able to accept and benefit from the intended training and research opportunities. I contend that the federal government and NSERC can and should do better. Of course, so can professors, by providing more than the minimum supplement of 25%.

That is, if the professor has a research grant that is sufficiently flush with cash to do so.

This now brings me to the state of funding of NSERC Discovery Grants, which are the primary (and in many cases the only) source of research funding available to mathematicians at Canadian universities. A strength of the NSERC granting system, and a feature that makes it the envy of mathematicians elsewhere, is that it has practically a philosophy of providing a broad base of support to researchers across the country. Said another way, almost all mathematics researchers who demonstrate genuine strength in areas of research and student training have traditionally been provided support, even if that support has been relatively modest. In other countries, there is a tendency to concentrate support among a small cohort of exceptionally eminent researchers who are provided with considerably large sums of funding, leaving many capable researchers to cope without support.

Similar to the languish experienced over the past decades by NSERC scholarships, Canada’s support for Discovery Grants has also failed to keep pace with inflation. At last Summer’s meeting of the CMS Board of Directors, delegates from NSERC presented alarming news from the 2023 NSERC Discovery Grants competition. Specifically, NSERC chose to not provide funding to established researchers whose applications were placed in Bin J (the “Strong Strong Strong” bin, so called because of the corresponding “Strong” score in each of three evaluation criteria). This decision was applied across all disciplines without prior consultation with the scientific community. The underlying motivation appeared to be a desire to increase the individual value of those grants that were awarded, but in the absence of an overall increase in funding from the government, NSERC chose to achieve this effect by raising the threshold for researchers to obtain grants.

The impact that this change will have on researchers whose NSERC applications fall into Bin J is devastating. Even though Bin J had previously offered only modest support, it enabled researchers to remain active, to travel to a conference, and to support USRA students. Denying support for meritorious researchers has the real potential to end their research careers, and further it will disrupt the talent pipeline that nurtures students who would normally be mentored by the affected researchers.

The CMS Board voiced objections to the NSERC representatives who broke the news to us at our summer meeting in Ottawa. This was subsequently followed up with letters sent directly to Marc Fortin, NSERC’s Vice-President for Research Grants and Scholarships, to further protest and express concerns about NSERC’s decision. In November, Dr. Fortin met with the society’s Board of Directors, who reinforced how NSERC’s decision harms both those directly affected as well as the wider mathematical family. I am aware that several other societies that represent other science disciplines were also taken by surprise, and that they too have responded to express their shock and concern. While our collective dissatisfaction has been acknowledged, it remains to be seen what effect our protests will have.

It is disheartening to hear that the 2024 Discovery Grants competition (for which results have only recently been communicated to applicants) appears to have again left researchers within Bin J without increased support. The argument was an easy one to make, given that CGS-Master’s and PGS-Doctoral graduate student scholarships had remained unchanged at $17,500 and $21,000 respectively for over twenty years. Despite being called ‘scholarships’ in name, these awards function in practice as the primary source of income for the students who hold them. While graduate students could potentially live on $17,500 or $21,000 twenty years ago, today this level of funding falls below the poverty line.

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