Briefing to the House of Commons Standing Committee on Science and Research
Study on Graduate Student Scholarships and Postdoctoral Fellowships

Support Our Science

Submitted by: Support Our Science

Support Our Science (SOS) is a grassroot organization advocating for increased support for graduate students and postdoctoral scholars in Canada. Collectively, SOS represents nearly 300,000 graduate students and postdoctoral scholars.

Undersigned by:

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Witness Statement on May 9th, 2023

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Witness Statement on June 13th, 2023

The Role of Graduate Students and Postdoctoral Scholars

Graduate students and postdoctoral scholars are the workforce making discoveries, conducting research, and creating new innovations at Canada's universities. The term graduate students, or those pursuing a Masters or Doctoral degree, might conjure an image of students passively learning. This is misleading. Graduate students are conducting novel research that pushes the boundaries of their discipline. This requires full time work either in the lab or the field, and often graduate students also contribute to teaching at their university. Graduate students are trained to be leading scientists, engineers, medical professionals, social scientists, economists and artists, to name a small collection of the disciplines they contribute to. Postdoctoral scholars have already earned a Ph.D. and are some of the most highly trained and educated members of our society. In their roles, they are full-time employees continuing to advance research. Graduate students and postdoctoral scholars generate solutions to some of the largest problems facing our society, including creating new treatments for diseases, building equitable societies, improving adaptation and resilience to climate change, finding new uses for artificial intelligence, and much more. Their discoveries improve our well-being and fuel our economy. We need their talent and innovation to help Canada thrive more now than ever before.

How do we currently pay Graduate Students and Postdoctoral Scholars?

Most graduate students and postdoctoral scholars are paid through Tri-Agency federal scholarships and fellowships and through grants given to their faculty supervisors. The value of Tri-Agency (NSERC, SSHRC, CIHR) scholarships and fellowships has not changed in 20 years (since 2003), despite 52% inflation during this same period (Figure 1). Individual research grants have also be stagnant during the past 5 years (Figure 2), despite 17% inflation in the economy.

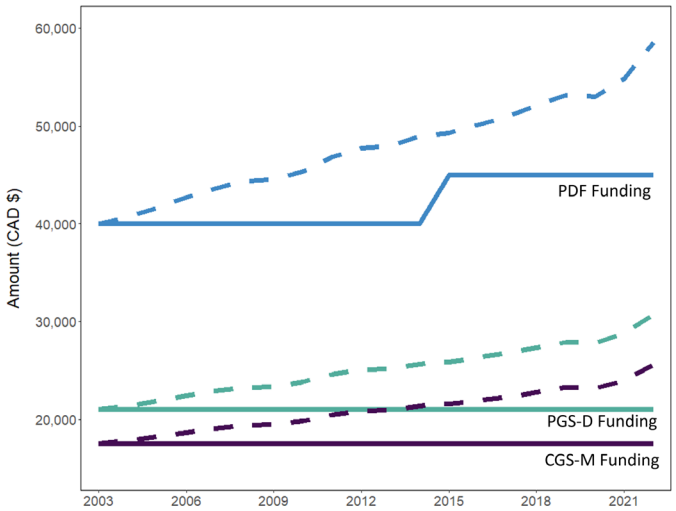

Figure 1. Value of the Tri-Agency scholarships for masters (CGS-M) and doctoral (PGS-D) scholarships and postdoctoral scholar (PDF funding) since 2003 compared to inflation (dashed line) over the same time. Note, most recent numbers from Bank of Canada show 52% inflation since 2003.

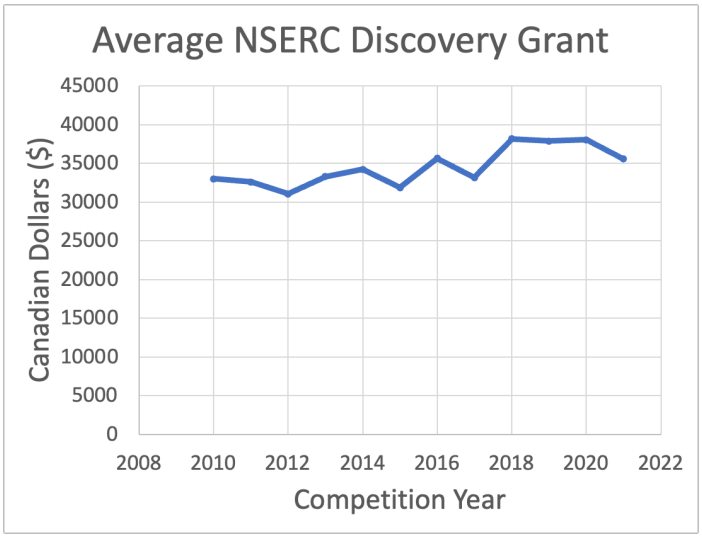

Figure 2. Average NSERC Discovery grant value from 2010 to 2022. Discovery Grants are awarded to the majority of Canadian science and engineering faculty and provide foundational funding used to pay the stipends and wages of graduate students and postdoctoral scholars, and other research expenses.

To offset the stagnation in funding, some universities are increasingly supplementing graduate student pay with teaching assistantships, and university fellowships. In total, with these combined sources the average annual stipend is $23,750 and $19,725 for Ph.D. and M.Sc students, respectively[1]. With these funds, graduate students must pay tuition (average = $7,472[2]), rent, food, and all other living costs (e.g. transportation, clothing, etc.).

A recent report estimates that the average stipend for graduate students should be on average $39,006 annually to meet the current cost of living, with a range of $28,987-$43,377 depending on the city[1].

International Competition for Top Talent

Canada's federal graduate scholarships and postdoctoral fellowships are not competitive among international comparators. For example, in the USA, the equivalent doctoral scholarship provided by the National Science Foundation is valued at $65,000 CAD, compared to the $21,000 for the PGS-D and $35,000 for the CGS-D. Similarly, the NSF postdoctoral fellowship is valued at $106,000 CAD, compared to the $45,000 offered by the Tri-Agency fellowships. A larger list of international comparators is provided in Table 1.

Table 1. Comparison of PhD stipends and postdoctoral wages between Canada and other countries, presented in CAD.

Country	PhD	Post Doc
Canada	$21,000 (PGS-D) annually for 3 years	$45,000 annually for 2 years
US	NSF - $65,500 CDN ($49,000 USD) annually for 3 years NIH - $39,000 CDN ($29,520 USD) annually for up to 5 years	NSF - $106,000 CDN, ($80,000 USD for 3 years)
Denmark	$73,500 CDN (50,000 Euro)	
Germany	$66,000 CDN (45,000 Euro)	
Switzerland	$63,000 CDN (43,000 Euro)	$120,000 CDN (80000 SF)
Sweden	$51,500 CDN (35,000 Euro)	
Australia	$31,200 CDN (34,400 AUD and indexed annually)	$72,500 CDN ($80,000 AUD)
UK	$31,500 CDN (18622 BP)	$52,000 CDN (31,000 BP)

Canada is no longer competitive at retaining and attracting top talent needed to drive Canada's innovation economy. As of 2019, the McGill Trace Report estimated that 38% of newly trained Ph.D.s in Canada leave for better opportunities in other countries, mostly the USA and Europe. Given that it takes 5.75 years to train a Ph.D. student on average, at an approximate cost of $35,000 per year, we estimate that in 2019 this was costing Canada's economy $740,000,000 per year in lost training investments. These investments were intended to benefit Canada's society and economy. When these individuals leave, that investment is lost, including the loss of future opportunities and innovations that would have been gained by retaining these individuals in Canada. Given 15% inflation since 2019, and an increasingly competitive market for talent attraction and retention, it is likely that Canada is now losing over $1B annually in lost talent investments. Making investments in graduate students, postdoctoral scholars and the research and development ecosystem at large are critical to retaining Canada's talent and grow our innovation economy.

Recommendations

To retain and attract the top talent in Canada, with the aim of maintaining Canada's international competitiveness on a global scale, we make the following recommendations:

1) **Increase the value of Tri-Agency graduate scholarships and postdoctoral fellowships by 50%, and index them to inflation moving forward.**

Rationale: This value is based on the Bank of Canada inflation rate between 2003 and 2023. Past recommendations of the SRSR committee of 25% increases are **too low**, and would only take the value of scholarships to 2015 in inflationary terms since the last increase in 2003.

2) **Increase the number of Tri-Agency graduate student scholarships by 50%**

Rationale: The number of graduate and postdoctoral scholarships has decreased since 2010, and been relatively steady during the past 10 years (Figure 3). At the same time, graduate enrollment has more than doubled in the past 20 years (Figure 4).

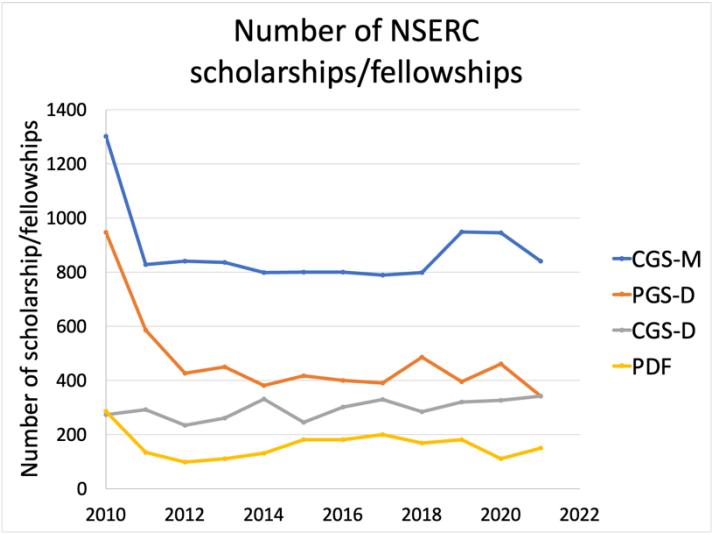

Figure 3. Number of NSERC scholarships and fellowships since 2010 for Master's students (CGS-M), doctoral students (PGS-D, CGS-D) and postdoctoral fellowships (PDF). The number of scholarships and fellowships awarded by SSHRC and CIHR follow similar trends. https://www.nserc-crsng.gc.ca/students-etudiants/cgsallocations-quotasbesc_eng.asp

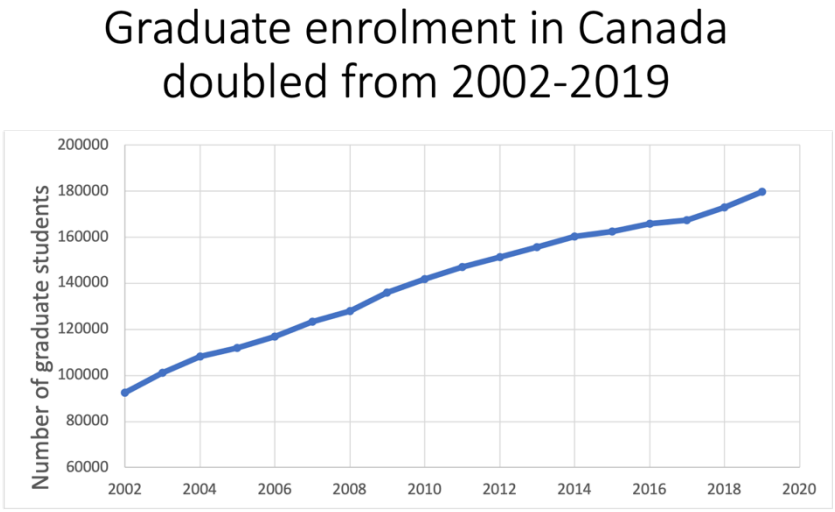

Figure 4. Number of graduate students in Canada from 2002-2019. Source: Statistics Canada.

3) Increase the number of Tri-Agency postdoctoral fellowships by 100%.

Rationale: The number of postdoctoral fellowships has decreased by 40% since 2010 (Figure 3), while the number of doctoral students has doubled. Without an increase in postdoctoral fellowships, Canada cannot retain or attract an adequate number of highly-qualified Canadians with leading scientific and research skills.

4) **Increase the Tri-Agency research grant budget provided to faculty by at least 10% per year for the next five years, to allow for increased graduate student and postdoctoral pay.**

Rationale: Most graduate students and postdoctoral scholars are supported through federal grants to their supervisor. Increased pay for all graduate students and postdoctoral scholars can only be achieved by increasing pay to grants as well as scholarships and fellowships.

All four of these asks are key to improving the retention and attraction of researchers in in Canada. Federal scholarships and fellowships set the national standard for what is considered adequate pay for graduate students and postdoctoral scholars. However, if the scholarships and fellowship values increase without an accompanying increase in research grants to faculty, students who are not directly supported by scholarships and fellowships will not experience any increase in pay. Together these four asks will make Canada more internationally competitive, reduce barriers to education, and increase research output as graduate students and postdoctoral scholars will not have to hold multiple jobs and split their focus.

Footnotes:

1. Laframboise, S. J., T. Bailey, A.-T. Dang, M. Rose, Z. Zhou, M. D. Berg, S. Holland, S. A. Abdul, K. O'Connor, and S. El-Sahli. 2023. Analysis of financial challenges faced by graduate students in Canada. Biochemistry and Cell Biology. https://doi.org/10.1139/bcb-2023-0021
2. Average graduate tuition in Canada in 2021/2022: https://www150.statcan.gc.ca/n1/daily-quotidien/210908/dq210908a-eng.htm#