

# The House of Commons Standing Committee on Finance 2019 Pre-Budget Consultation

Submission by :

Science & Policy Exchange / Dialogue Sciences et Politiques

*Science & Policy Exchange is a non-profit advocacy group run by graduate students and post-doctoral fellows in Montreal, whose mission is to foster the student voice in evidence-based decision making and to bring together leading experts from academia, industry, and government to engage and inform students and the public on issues at the interface of science and policy.*



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## Executive Summary

This brief outlines the importance of funding research and enhancing capacity building programs to support trainees for all career paths. While we are pleased that the recommendations from the Fundamental Science Review was taken into serious consideration in the previous budget, there are key areas where trainees lack critical support for their career development. The future of trainees is heavily tied to funding allocated to research and skill development. This funding will support the next-generation of leaders in Canada.

As emerging scientists and skilled professionals, we believe the following recommendations are essential for training a workforce that will contribute to economic growth and ensure Canada's international competitiveness.

1. Increase direct funding support for trainees
2. Modernize funding criteria of post-doctoral fellows
3. Increase support for development of critical skills, especially through trainee-driven public-facing projects
4. Promote mobility of Canadians and support international trainees



As young researchers training to be Canada's next generation of scientists, innovators, and professionals, we were encouraged to see Budget2018 take significant steps toward reinvesting in fundamental scientific research as recommended by the Fundamental Science Review (FSR)<sup>1,2</sup>. We, along with much of the Canadian research and university community, strongly recommend that this seminal document continue to be consulted as a roadmap for advancing Canadian science. We particularly commend the government's investment of \$925M into open competitions for the Tri-Council Agencies and its commitment to advancing equity, diversity, and inclusion (EDI) in all sectors.

As stated, however, further work is needed to address gaps in direct funding support for trainees (graduate students and post-doctoral fellows) and help Canada reach its potential as an internationally competitive training environment for young scientists.

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“ Over the next year, the Government will be doing further work to determine how to better support students, the next generation of researchers, through scholarships and fellowships.”  
– **Budget 2018** (pg.89)

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We are pleased to see that the government recognizes the role of science and early career researchers in supporting Canada's economic growth and global competitiveness, and that it is committed to exploring ways to improve federal support of trainees through scholarships and fellowships in Budget 2019. Indeed, Canada must support training through forward-thinking scholarships and fellowships that value both academic skills and critical skills that are transferable to other sectors. As key stakeholders in issues regarding funding for training highly skilled professionals, we have proposed key recommendations to address this.

### **(1) Increase direct funding of graduate students and post-doctoral fellows through Tri-Council scholarships and fellowships**

The number of awards provided by federal granting councils has not kept pace with increased enrollment in graduate programs nor inflation<sup>3</sup>. This reduces success rates for trainees who need funding to support not only their research and career development, but also their families. Failure to secure funding can result in job loss or early graduation, particularly for less privileged students and post-doctoral fellows (PDFs) who already face important barriers. These consequences are crippling to the career development of young researchers. Therefore, **we recommend that the government commit to increase spending on scholarships and fellowships funding through the granting councils by \$140 million over 4 years, as recommended by the FSR<sup>2</sup>.**

To guide this recommendation, we propose<sup>4,5,6</sup> the following amendments to the current<sup>4,5,6</sup> graduate and postdoctoral level awards ([Table 1](#)), including harmonization of awards across disciplines ([Table 2](#)) and increasing the total number of trainees awarded ([Table 3](#)).

- **Harmonize all doctoral scholarships to \$35K per year, for 3 years.** This implies equalizing all awards to the value of Canada Graduate Scholarships (CGS) for CIHR, NSERC, and SSHRC. CIHR has no awards of lesser value, but half of all NSERC and SSHRC doctoral awards are Post-Graduate Scholarships (PGS) of \$21K and \$20K, respectively. These are no different from standard doctoral stipends (\$22K); awards should award exemplary trainees rather than reduce the financial burden of personnel on universities and principal-investigator grants. Conversely, the “elite” Vanier CGS awards are of \$50K per year, which is two-fold the stipend of trainees not funded by CGS programs. Abolishing this award would liberate significant capital



towards harmonizing all awards to \$35K. Harmonizing reduces inequalities by providing more trainees with a living wage that reflects their professional development and their role as the workforce of science in Canada.

- **Harmonize all Master’s scholarships to \$22K, for one year.** We consider this to be a fair and overdue increase for all Master’s CGS, which are currently set to \$17,500. Like the doctoral awards, this has not kept up with inflation for the last 15 years.
- **Harmonize all post-doctoral fellowships to \$55K, for 2-3 years.** The status of PDFs has recently changed, as the majority are now considered by institutions as employees. They now pay full taxes on their fellowships and salaries, which reduces their take-home. As PDFs are competing for careers as full-fledged researchers, this is daunting on more than just the professional level; [it significantly impacts women and men who must support young families](#). To reinstate the value of fellowships, we recommend harmonizing them to \$55K per year (2 years at NSERC and SSHRC, 3 years at CIHR, as it is now). Like the Vanier CGS, we recommend that the elite Banting fellowship be abolished.
- **Replace “elite” awards (Vanier, Banting) by distinctive “Impact” awards.** Given that the elite awards confer value by their distinctive title, we propose replacing them with “Impact Scholarships” for doctoral students and “Impact Fellowships” for PDFs. These should be harmonized to \$35K and \$55K respectively and, like the Vanier and Banting awards, should support engaged trainees that bring value to their degree; examples include innovative research, entrepreneurship, or knowledge translation.
- **Increase the total number of scholarships and fellowships awarded to trainees by 25%.** While harmonizing award values is a great step and costs relatively little (\$42M per our calculations, Table 2), it does not address increased enrollment. We propose a 25% increase, where over 1300 additional trainees would receive funding that empowers their research and career progression (Table 3).
- **Follow EDI criteria in the evaluation and allocation of awards.** We encourage considering the assessment criteria of scholarships to evaluate equity, diversity, and inclusion principles, to ensure all types of students have equal access to grants. This is important not only to ensure that women, persons with disabilities, aboriginal persons, and visible minorities are provided equal opportunity, but also to ensure that broader career goals are considered in the evaluation of applicants.

## (2) Modernize the funding criteria and status of post-doctoral fellows

While the above recommendations address salary discrepancies for PDFs, there remains significant heterogeneity in their benefits and work conditions across Canada. Their status should be modernized to reflect their new position as taxpayers.

- **All PDFs should also be eligible for the Canada Pension Plan (CPP), Employment Insurance (EI), paid parental leave, and insurance plans,** per provincial regulations.
- **The 5-year limit on PDF status and eligibility for salary and travel funding support should be abolished.** The limit on the PDF is set to 5 years post-PhD, to prevent supervisors from employing researchers as trainees indefinitely. However, this has disadvantaged many young researchers:



- It is inconsistent with today's timelines of the academic career path, due to increased competition for faculty positions.
  - It disadvantages international graduates, as many European institutions only allow 3-4 years doctoral degrees. Graduates who extend their time in their PhD laboratories to complete projects cut short their 5-year PDF eligibility.
  - PDFs face professional disadvantages when they lose status and become "research associates": they become ineligible for fellowships and travel awards that are essential for networking and career advancement. It also reduces job security as research grants rarely support research associate salaries.
- **Make PDFs eligible to author research grants.** Successful grant writing is a critical skill for early career researchers. PDFs often contribute significantly to writing grants with their supervisor, however they do not receive credit. To foster their career advancement, credit should be given where it is due.

### (3) Support development of diverse critical skills and tracking of career outcomes

Multiple consultations with trainees across disciplines reported their recognition of the changing job market and the need for developing critical skills like communication, management, and entrepreneurship alongside their academic training<sup>7,8,9</sup>. Trainees are actively pursuing projects that drive impact of science in society, which empower them to acquire skills while promoting a culture of science in Canada or tackling issues like EDI. These projects are valuable but are not considered in scholarship and fellowship evaluations; **engaged trainees receive little recognition or financial support**. Evaluation metrics should value these accomplishments alongside academic publications in a portion of, if not all, award competitions. This can include "Impact" awards as previously described, and:

- **Expand funding for knowledge dissemination activities for all research topics, through project-based grants open to trainees.** Currently, the only available grant supporting public engagement is Institute of Health Services and Policy Research Institute Community Support program, which only supports health-related research<sup>10</sup>. This leaves many topics unsupported considering the NSERC Student Ambassadors grant can only be used for community engagement with youth<sup>11</sup>. The SSHRC Connection program only provides 50% of the funds requested and limits eligibility to PDFs<sup>12</sup>.
- **Establish small project grants for trainees.** These would simultaneously empower public engagement by trainees and be great tools for career development as they receive direct credit for the grant's and project's success. We recommend that funding up to \$5,000 be awarded per project, with the option to renew for one to two years to sustainably support valuable projects.
- **Support the creation of platforms that longitudinally track career outcomes of trainees and early career scientists.** This will ensure that skilled workers trained in Canada are properly supported in the long term and will provide data to evaluate the impact of programs like those recommended in this brief. This will also help trainees make informed career development decisions. Notably, the Canadian Association for Postdoctoral Scholars is assembling a national registry to track PDFs over the long-term.

### (4) Promote international training opportunities by increasing award portability and access

As technologies advance, the needs of employers and the global economy evolve. Canada needs a workforce skilled in problem-solving, communication, collaboration, creativity, and adaptability<sup>13</sup>. International experiences improve these skills, as well as "heightened cultural awareness" and higher employment rates<sup>14,15,16</sup>. Canadian students training abroad creates international networks for idea exchange and innovation, broadens Canada's sphere of influence as a leader in scientific



research, and reinforces our values of openness and inclusion. Importantly, students from less-advantaged backgrounds benefit from international training the most in terms of academic outcomes and employment<sup>17</sup>.

- **Make all Tri-Council scholarships portable internationally.** Currently, the only Tri-Council training awards that are portable outside of Canada are the doctoral postgraduate scholarships (PGS-D) and the PDF awards. Allowing students to take their scholarships abroad and actively encouraging this will ultimately increase Canada's economic growth and competitiveness.



Providing students with international experience is a smart investment in their future success – and Canada's."

– 2017 Canadian "Report of the Study Group on Global Education"  
(Ch.2, [goglobalcanada.ca](http://goglobalcanada.ca))

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There are also challenges for international students and PDFs, who are aggressively recruited to Canada but lack adequate support to manage the higher tuition fees and the costs associated with international relocation.

- **Allocate a percentage of scholarships to international students that reflects the proportion of international applicants.** Currently, except for the Vanier Graduate Scholarship, international graduate students are not eligible for Tri-Council training awards. This puts significant financial burden on international students and limits their career development.
- **Provide supplemental funding or tax exemption for the first two years for international PDFs to help defray the costs of relocation and immigration.** Furthermore, information on postdoctoral salaries, benefits, and taxation should be more readily available for international PDFs looking to move to Canada.

## Final Considerations

We commend this government's commitment to improving federal support for trainees through scholarships and fellowships. **We stress that, as the key stakeholders and Canada's next generation of skilled professionals, trainees must be consulted throughout this process.** We hope for continued communication and collaboration, particularly as Science & Policy Exchange intends to conduct a survey to collect trainee perspectives on this matter in Fall 2018.



**Table 1: Value, duration, and number of scholarships and fellowships awarded in 2017<sup>4,5,6</sup>**

|     |               | CIHR           |                |              | NSERC          |                |              | SSHRC          |                |              |
|-----|---------------|----------------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|--------------|
|     |               | Value (yearly) | Number Awarded | Duration (Y) | Value (yearly) | Number Awarded | Duration (Y) | Value (yearly) | Number Awarded | Duration (Y) |
| PDF | Fellowships   | \$45,000       | 158            | 3            | \$45,000       | 199            | 2            | \$40,500       | 151            | 2            |
|     | Banting       | \$70,000       | 27             | 2            | \$70,000       | 44             | 2            | \$70,000       | 51             | 2            |
| D   | PGS           | -              | -              | 3            | \$21,000       | 390            | 3            | \$20,000       | 430            | 3            |
|     | CGS*          | \$35,000       | 174            | 3            | \$35,000       | 329            | 3            | \$35,000       | 430            | 3            |
|     | Vanier        | \$50,000       | 57             | 3            | \$50,000       | 163            | 3            | \$50,000       | 166            | 3            |
| M   | CGS           | \$17,500       | 386            | 1            | \$17,500       | 788            | 1            | \$17,500       | 1280           | 1            |
|     | Michael Smith | \$6,000        | 45             | 1            | \$6,000        | 80             | 1            | \$6,000        | 125            | 1            |

\* CIHR CGS includes DFSA awards of equal value (10 in 2017)

**Table 2: Proposed harmonization of scholarships and fellowships, assuming equal number of recipients**

|               |          | CIHR  |                |              | NSERC            |                |              | SSHRC            |                |              | Total Invested (\$M) |  |
|---------------|----------|-------|----------------|--------------|------------------|----------------|--------------|------------------|----------------|--------------|----------------------|--|
|               |          | Value | Number Awarded | Duration (Y) | Investment (\$M) | Number Awarded | Duration (Y) | Investment (\$M) | Number Awarded | Duration (Y) | Investment (\$M)     |  |
| Fellowships   | \$55,000 | 185   | 3              | 7.79         | 243              | 2              | 2.66         | 202              | 2              | 2.85         | 13.29                |  |
| CGS-D         | \$35,000 | 231   | 3              | (2.42)       | 882              | 3              | 9.05         | 1026             | 3              | 11.88        | 18.51                |  |
| CGS-M         | \$22,000 | 386   | 1              | 1.74         | 788              | 1              | 3.55         | 1280             | 1              | 5.76         | 11.04                |  |
| Michael Smith | \$6,000  | 45    | 1              |              | 80               | 1              |              | 125              | 1              |              |                      |  |
| <b>Total</b>  |          |       |                | <b>7.11</b>  |                  |                | <b>15.25</b> |                  |                | <b>20.49</b> | <b>42.85</b>         |  |

**Table 3: Proposed harmonization of scholarships and fellowships, with 25% increase in number of recipients**

|               |          | CIHR  |           |              | NSERC            |           |              | SSHRC            |           |              | Total Invested (\$M) | Increase in # of trainees supported |
|---------------|----------|-------|-----------|--------------|------------------|-----------|--------------|------------------|-----------|--------------|----------------------|-------------------------------------|
|               |          | Value | # Awarded | Duration (Y) | Investment (\$M) | # Awarded | Duration (Y) | Investment (\$M) | # Awarded | Duration (Y) | Investment (\$M)     |                                     |
| Fellowships   | \$55,000 | 231   | 3         | 15.38        | 304              | 3         | 9.37         | 253              | 3         | 8.46         | 33.20                | 158                                 |
| CGS-D         | \$35,000 | 289   | 3         | 3.68         | 1103             | 3         | 32.25        | 1283             | 3         | 38.87        | 74.79                | 536                                 |
| CGS-M         | \$22,000 | 483   | 1         | 3.87         | 985              | 1         | 7.88         | 1600             | 1         | 12.80        | 24.55                | 614                                 |
| Michael Smith | \$6,000  | 56    | 1         | 0.07         | 100              | 1         | 0.12         | 156              | 1         | 0.19         | 0.37                 | 62                                  |
| <b>Total</b>  |          |       |           | <b>22.99</b> |                  |           | <b>49.62</b> |                  |           | <b>60.31</b> | <b>132.92</b>        | <b>1,370</b>                        |



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