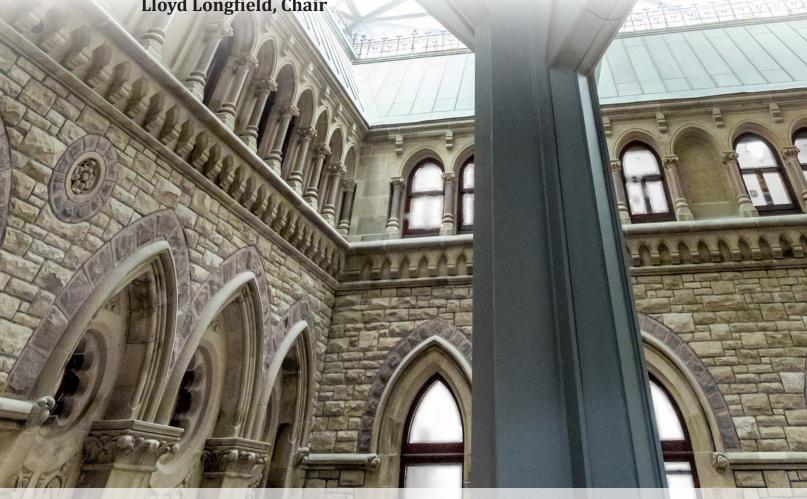


GOVERNMENT OF CANADA'S GRADUATE SCHOLARSHIP AND POST-DOCTORAL FELLOWSHIP PROGRAMS

Report of the Standing Committee on Science and Research

Research

Lloyd Longfield, Chair



DECEMBER 2023 44th PARLIAMENT, 1st SESSION Published under the authority of the Speaker of the House of Commons

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Lloyd Longfield Chair

DECEMBER 2023
44th PARLIAMENT, 1st SESSION

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Reports from committees presented to the House of Commons
Presenting a report to the House is the way a committee makes public its findings and recommendations on a particular topic. Substantive reports on a subject-matter study usually contain a synopsis of the testimony heard, the recommendations made by the committee, as well as the reasons for those recommendations.

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has the honour to present its

EIGHTH REPORT

Pursuant to its mandate under Standing Order 108(3)(i), the committee has studied Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs and has agreed to report the following:

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The Government of Canada, through the three granting councils—the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR)—has developed a set of graduate scholarship programs at the master's, doctoral and postdoctoral levels.

The House of Commons Standing Committee on Science and Research (the Committee) conducted "a study of the Government of Canada's graduate scholarship and post-doctoral fellowship programs, in particular the freezing of funding amounts, the funding system and the impact on graduate students and post-doctoral fellows." ¹

Only a fraction of graduate students benefit from these scholarship programs. The vast majority of students are funded through research grants obtained by their professors or through other scholarships from the provinces, post-secondary institutions and the private sector. However, federal scholarships set the standard for the value of scholarships and funding provided to other students by universities and other organizations.

Most federal graduate scholarships have not increased in value since they were created, some as far back as 2003. When inflation is accounted for, several of these scholarships have fallen in actual value by 50%.

The evidence compiled during this study highlighted the consequences of this situation on students and the next generation of scientists in Canada.

Many students face severe financial hardship, with some of them relying on food banks. Many are forced to find additional sources of income by working part-time jobs, increasing the risk of failure. Students' financial hardship also takes a toll on their mental health.

This also raises the question of the accessibility of graduate school, the risk being that only the wealthiest or most well-off students are able to afford it. Witnesses also raised

House of Commons Standing Committee on Science and Research [SRSR), <u>Minutes of Proceedings</u>, 14 February 2023.

the risk of brain drain if graduate funding in Canada is not competitive with scholarships available in other countries. At stake is training the next generation of scientists.

To address these challenges, witnesses put forward solutions. They called for federal reinvestment in higher education and research. This reinvestment would include an increase in the amount and number of federal scholarships, as well as greater support for the granting councils, so that they can increase the value of the research grants that indirectly fund many students.

Based on the evidence compiled, the Committee made six recommendations to the government.

LIST OF RECOMMENDATIONS

As a result of their deliberations committees may make recommendations which they include in their reports for the consideration of the House of Commons or the Government. Recommendations related to this study are listed below.

Recommendation 1

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research:

- Increase the value of Tri-Agency graduate scholarships and postdoctoral fellowships by 50%, and index them to inflation moving forward;
- Increase the number of Tri-Agency graduate student scholarships by 50%;
- Increase the number of Tri-Agency postdoctoral fellowships by 100%;
 and
- 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.

Recommendation 2

Recommendation 3

That the Government of Canada, through the granting councils—the Social	
Sciences and Humanities Research Council, the Natural Sciences and	
Engineering Research Council of Canada and the Canadian Institutes of Health	
Research—expand the eligibility for Canada Graduate Scholarships (master's	
and doctoral) to international students enrolled in Canadian institutions,	
keeping in mind practices of reciprocity and available funds	41

Recommendation 4

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research, review the criteria for awarding graduate scholarships and consider creating specific supports for under-represented groups at the graduate level.......... 41

Recommendation 5

Recommendation 6



GOVERNMENT OF CANADA'S GRADUATE SCHOLARSHIP AND POST-DOCTORAL FELLOWSHIP PROGRAMS

INTRODUCTION

On 14 February 2023, the House of Commons Standing Committee on Science and Research (the Committee) adopted the following motion:

It was agreed, —That, pursuant to Standing Order 108(3)(i), the Committee undertake a study of the Government of Canada's graduate scholarship and post-doctoral fellowship programs, in particular the freezing of funding amounts, the funding system and the impact on graduate students and post-doctoral fellows, and that it hold a minimum of six meetings on this study and report its findings to the House.¹

The Committee held eight meetings between 4 May and 15 June 2023 for its study. It heard 38 witnesses and received 39 written briefs. The Committee would like to thank all those who took the time to participate in this study, either by appearing or by submitting a brief.

Further to the evidence it compiled, the Committee made recommendations to the Government of Canada on graduate scholarship and postdoctoral fellowship programs.

CHAPTER 1. OVERVIEW OF GRADUATE FUNDING PROGRAMS

The evidence compiled during the study provided an overview of the various sources of funding available to graduate students. The federal scholarship and bursary programs provided through the granting councils actually fund only a minority of students.

House of Commons Standing Committee on Science and Research [SRSR), <u>Minutes of Proceedings</u>, 14 February 2023.



1.1. Federal Programs

1.1.1 Canada Graduate Scholarships Program

The Canada Graduate Scholarships program grants scholarships at the master's and doctoral level (CGS-M and CGS-D, respectively). Both scholarship programs were created in 2003. The CGS-M and CGS-D programs are administered by the three granting councils: the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR).

Each year the CGS-M program provides up to 3,000 scholarships of \$17,500 for one year.² The CGS-D program grants about 1,000 scholarships of \$35,000 per year for three years.³ CGS-M and CGS-D scholarships are valid only in Canadian institutions and are only for students who are Canadian citizens, permanent residents of Canada or protected persons under section 95(2) of the *Immigration and Refugee Protection Act*.

Scholarships are awarded through the institutions where the students are enrolled. For master's scholarships, eligible institutions "are assigned a separate allocation of awards to offer from each agency." ⁴ It is up to the institutions to review the applications and award their allocation of scholarships. ⁵ For doctoral scholarships, the three councils allocate each institution a quota that sets the maximum number of applications it can submit. ⁶ The institutions select the scholarship applications that they forward to the councils, which then review them and award the scholarships. ⁷

1.1.2 Vanier Canada Graduate Scholarships Program

The Vanier Canada Graduate Scholarships (Vanier CGS) program is administered jointly by the three granting agencies. Vanier Canada Graduate Scholarships are for doctoral students. They are valued at \$50,000 per year for three years. Up to 166 scholarships are

Natural Sciences and Engineering Research Council of Canada (NSERC), <u>Canada Graduate Scholarships—Master's program.</u>

³ Government of Canada, <u>Canada Graduate Scholarships—Doctoral program</u>, and SRSR, <u>Evidence</u>, 16 May 2023, 1230 (Ted Hewitt, President, Social Sciences and Humanities Research Council).

⁴ NSERC, Canada Graduate Scholarships—Master's program.

⁵ Ibid.

⁶ Government of Canada, Canada Graduate Scholarships—Doctoral program.

⁷ Ibid.

awarded annually, and up to 500 scholarships are active at any time.⁸ Applications are forwarded by the Canadian institutions where the students are enrolled. Each eligible institution is allocated an annual quota that sets the number of applications it can submit to each granting council.⁹ Vanier scholarships are awarded to Canadian citizens, permanent residents of Canada and foreign nationals.¹⁰

The Vanier CGS program was created in 2008 "to strengthen Canada's ability to attract and retain world-class doctoral students and establish Canada as a global centre of excellence in research and higher learning." ¹¹

1.1.3 Banting Postdoctoral Fellowships Program

Launched in 2010, the Banting Postdoctoral Fellowships program is administered jointly by the three granting councils and provides funding of \$70,000 per year for two years to postdoctoral researchers. ¹² Each year, 70 new fellowships are awarded. ¹³ Banting fellowships are taxable. ¹⁴ They may be awarded to Canadian citizens, permanent residents or foreign nationals. Under certain conditions, they may be awarded to postdoctoral researchers working in a foreign institution. ¹⁵

1.1.4 Granting Councils' Scholarships Programs

In addition to Canada Graduate Scholarships, each of the three granting councils developed their own scholarship programs for doctoral students and postdoctoral researchers.

NSERC awards NSERC postgraduate scholarships (doctoral), valued at \$21,000 per year for three years, and postdoctoral fellowships, valued at \$45,000 per year for two years. SSHRC awards doctoral fellowships valued at \$20,000 per year for one to four years, and

- 8 Government of Canada, *Vanier CGS overview*.
- 9 Government of Canada, Vanier Canada Graduate Scholarships—Eligibility.
- 10 Ibid.
- 11 Government of Canada, Vanier CGS overview.
- 12 Government of Canada, Banting Postdoctoral Fellowships—Fellowship overview.
- 13 Ibid.
- 14 Ibid.
- 15 Government of Canada, Banting Postdoctoral Fellowships—Eligibility.
- NSERC, <u>NSERC Postgraduate Scholarships—Doctoral program</u>; and NSERC, <u>Postdoctoral Fellowships program</u>.



postdoctoral fellowships worth \$45,000 per year for one or two years.¹⁷ In the health sciences, the CIHR Fellowship program provides funding from \$45,000 to \$60,000 per year, for up to five years, to individuals at the postdoctoral level or holding a health professional degree.¹⁸

1.2. Other Sources of Graduate Funding

The Committee heard that federal tri-council scholarships are only available to a fraction of master's and doctoral students and postdoctoral researchers. Paul Davidson, President of Universities Canada, said that "there are 6,000 Canadian graduate scholarship awards. There are 240,000 graduate students. Several institutions wrote in briefs to the Committee about how few of their graduate students receive tri-council scholarships. For example, in University of Quebec institutions, "only 1.3% of graduate students receive a tri-council graduate scholarship."

- 20 SRSR, Evidence, 18 May 2023, 1110 (Paul Davidson, President, Universities Canada).
- École de technologie supérieure (ETS), Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 7; McGill University, Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 6; Université du Québec, In favour of better financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 27 July 2023; p. 4; Institut national de la recherche scientifique (INRS), Brief on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, Brief submitted to the House of Commons Standing Committee on Science and Research, 26 July 2023, p. 4; and Université du Québec à Rimouski, Enhancing Canada's ability to train the next generation of scientists, Brief submitted to the House of Commons Standing Committee on Science and Research, 11 July 2023, p. 2.
- 22 Université du Québec, <u>In favour of better financial support for graduate students</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 27 July 2023; p. 4.

¹⁷ SSHRC, SSHRC Doctoral Fellowships; and SSHRC, SSHRC Postdoctoral Fellowships.

¹⁸ ResearchNet, CIHR Fellowship.

SRSR, <u>Evidence</u>, 4 May 2023, 1140 (Samy-Jane Tremblay, President, Quebec Student Union); SRSR, <u>Evidence</u>, 9 May 2023, 1150 (Justine De Jaegher, Director, Political Action and Communications, Canadian Association of University Teachers); SRSR, <u>Evidence</u>, 9 May 2023, 1225 (Sarah Laframboise, Executive Director, Support Our Science, As an individual); SRSR, <u>Evidence</u>, 16 May 2023, 1130 (Nipun Vats, Assistant Deputy Minister, Science and Research Sector, Department of Industry); SRSR, <u>Evidence</u>, 16 May 2023, 1210 (Ted Hewitt); SRSR, <u>Evidence</u>, 1 June 2023, 1100 (Anna Toneguzzo, Vice-President (Acting), Government and Stakeholder Partnerships, Colleges and Institutes Canada); SRSR, <u>Evidence</u>, 6 June 2023, 1125 (Mona Nemer, Chief Science Advisor, Office of the Chief Science Advisor); Canadian Association of Postdoctoral Scholars (CAPS), <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 2; and Canadian Association of University Teachers (CAUT), <u>Brief to the Standing Committee on Science and Research</u>, June 2023, p. 2.

Students who do not receive a tri-council scholarship can turn to other funding sources.

1.2.1. Funding from Provinces, Universities and the Private Sector

Some provinces provide scholarships for graduate students and postdoctoral fellows. For example, the Government of Quebec provides master's and doctoral scholarships through the Quebec Research Fund.²³ The value of these scholarships was recently increased by \$2,500 for master's students and \$4,000 for doctoral students.²⁴ In 2018, the Government of British Columbia also developed its own graduate scholarship program.²⁵

Funding is also provided directly by universities in a variety of forms, such as grants, top-up awards, research stipends and teaching assistantships.²⁶

The private sector also plays a role in graduate funding.²⁷ Some universities attract contributions from industry "to support projects on a contract basis."²⁸ Mitacs, an organization funded mainly by the federal and provincial governments, awards research scholarships at the master's, doctoral and postdoctoral levels, allowing students to complete internships with partner organizations such as companies, not-for-profit organizations, municipalities and hospitals.²⁹ These scholarships are co-funded by the partner organization hosting the student:

Partnerships are generally applied research projects, where the research is carried out by students and post-doctoral fellows who divide their time between the university and the non-academic partner. The research project is part of the student's academic

²³ SRSR, Evidence, 4 May 2023, 1140 (Samy-Jane Tremblay).

²⁴ Ibid., 1150.

University of British Columbia, <u>Submission to the Standing Committee on Science and Research—</u>
Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 27 July 2023, p. 4.

University of Guelph, <u>The University of Guelph's Submission to the Standing Committee on Science and Research</u>, 28 July 2023, p. 3; and Support Our Science, <u>Briefing to the House of Commons Standing Committee on Science and Research Study on Graduate Student Scholarships and Postdoctoral Fellowships</u>, July 2023, p. 4.

SRSR, <u>Evidence</u>, 15 June 2023, 1125 (Chantel Millar, As an individual); SRSR, <u>Evidence</u>, 15 June 2023, 1210 (David Novog, Professor, Department of Engineering Physics, McMaster University, As an individual); and Dalhousie University, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, July 2023, p. 2.

²⁸ SRSR, *Evidence*, 16 May 2023, 1255 (Ted Hewitt).

²⁹ SRSR, *Evidence*, 15 June 2023, 1210 (John Hepburn, Chief Executive Officer, Mitacs).



research work—a thesis, in the case of most of the graduate students—but it's defined by the non-academic partner's needs, as they pay half the cost.³⁰

According to Canadian Association of Postdoctoral Scholars figures, 7% of postdoctoral fellows are funded by not-for-profit funding agency grants such as Mitacs.³¹

1.2.2. Funding Through Research Grants

The vast majority of graduate students do not receive scholarships; instead, they are funded through research grants obtained by their supervisors.³² The Committee heard that this is the case for 75% to 80% of graduate students.³³ According to the Report of the Advisory Panel on the Federal Research Support System (the Bouchard Report), released in March 2023 and cited by many of the witnesses:

Roughly 35,000 trainees are supported indirectly in this way, totalling an estimated \$726 million annually. This is almost three times the current annual spending by the granting councils for direct support via their scholarship and fellowship programs.³⁴

Consequently, tri-council research grants awarded to university-based researchers are the primary way doctoral students and postdoctoral fellows fund their research.³⁵

This funding from professors is used to compensate the research work carried out by graduate students and postdoctoral fellows. Many of the witnesses stressed how vital a contribution these young researchers make to academic research. According to Maydianne Andrade from the Canadian Black Scientists Network:

In fact, the majority of the hands-on research is being done by graduate students and post-doctoral fellows in our system. I can say without hesitation that in the sciences, this is the pattern of every single major research university and lab in the country, every

- 30 Ibid.
- CAPS, *Brief*, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 2.
- 32 SRSR, <u>Evidence</u>, 9 May 2023, 1150 (Justine De Jaegher); and SRSR, <u>Evidence</u>, 1 June 2023, 1105 (Debby Burshtyn, Dean, College of Graduate and Postdoctoral Studies, University of Saskatchewan).
- 33 SRSR, *Evidence*, 6 June 2023, 1125 (Mona Nemer); and SRSR, *Evidence*, 18 May 2023, 1110 (Paul Davidson).
- Government of Canada, <u>Report of the Advisory Panel on the Federal Research Support System</u>, 2023, p. 47, cited by the Alliance of Canadian Comprehensive Research Universities (ACCRU), <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3 and by University of British Columbia, <u>Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 27 July 2023, p. 3.</u>
- 35 CAUT, <u>Brief to the Standing Committee on Science and Research</u>, June 2023, p. 2; and CAPS, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 2.

single one. It's graduate students and post-docs who spend most of their time at the bench or in the field. They are the backbone of our science and innovation ecosystem now, and they are the potential for us to be successful in the future.³⁶

The amount of funding provided through research grants varies. However, several witnesses pointed out that the amounts of tri-council doctoral scholarships and postdoctoral fellowships serve as a benchmark and set a precedent used to calculate student salaries.³⁷ In some institutions, postdoctoral fellows are unionized and benefit from a salary floor.³⁸ In some cases, students funded by their research institutes are paid more than had they received a Canada Graduate Scholarship.³⁹

In theory, professors who receive a research grant are free to pay the students working for them more than these salary floors or the tri-council scholarship amounts. 40 However, in practice, supervisors have to make a trade-off between the salaries they pay and the number of students they can pay. 41 Increasing salaries paid to students from a research grant also leaves less money available to fund research related to the project in question. 42

This overview shows that federal grants are just one source of funding for graduate students and postdoctoral fellows. In some cases, students can access a number of these sources, for instance by either obtaining a series of scholarships from different sources

³⁶ SRSR, Evidence, 9 May 2023, 1210 (Maydianne Andrade, Professor, Canadian Black Scientists Network).

For example, SRSR, *Evidence*, 4 May 2023, 1110 (Mackenzy Metcalfe, Executive Director, Canadian Alliance of Student Associations); SRSR, *Evidence*, 9 May 2023, 1215 (Julia Messina-Pacheco, Vice-President, Science and Policy Exchange); SRSR, *Evidence*, 16 May 2023, 1205 (Alejandro Adem, President, Natural Sciences and Engineering Research Council); SRSR, *Evidence*, 16 May 2023, 1240 (Ted Hewitt); SRSR, *Evidence*, 6 June 2023, 1130 (Mona Nemer); SRSR, *Evidence*, 13 June 2023, 1135 and 1150 (Marc Johnson, Chair of the Board, Support Our Science); and University of Ottawa, *Brief*, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 2.

³⁸ SRSR, <u>Evidence</u>, 4 May 2023, 1255 (Sébastien Paquette, Union President, Association du personnel de la recherche du Québec).

For example, Université du Québec en Abitibi-Témiscamingue, <u>In Favour of Better Access to Graduate</u>

<u>Scholarships and Post-Doctoral Fellowships Promoting Innovative Research</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 7.

SRSR, <u>Evidence</u>, 4 May 2023, 1255 (Sébastien Paquette); SRSR, <u>Evidence</u>, 16 May 2023, 1250 (Michael J. Strong, President, Canadian Institutes of Health Research); and SRSR, <u>Evidence</u>, 18 May 2023, 1115 (Paul Davidson).

⁴¹ SRSR, <u>Evidence</u>, 4 May 2023, 1255 (Sébastien Paquette); SRSR, <u>Evidence</u>, 9 May 2023, 1150 (Justine De Jaegher); SRSR, <u>Evidence</u>, 1 June 2023, 1105 (Debby Burshtyn); and INRS, <u>Brief on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 26 July 2023, p. 3.

SRSR, <u>Evidence</u>, 16 May 2023, 1250 (Michael J. Strong); and McGill University, <u>Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and <u>Post-doctoral Fellowship Programs</u>, July 2023, p. 7.</u>



for the duration of their degree program or supplementing their income with a second job. However, combining some of these grants is not always permitted. For example, SSHRC president Ted Hewitt said that in Ontario, it is not possible to hold a SSHRC doctoral fellowship and an Ontario Graduate Scholarship at the same time.⁴³

CHAPTER 2. PROBLEMATIC UNDERFUNDING

According to the evidence compiled by the committee, the stagnation in the amount and number of federal graduate scholarships, combined with the difficulties of funding research, are having a very negative impact on some students and postdoctoral fellows, as well as on training the next generation of scientists in Canada.

2.1. Stagnation in the Value and Number of Federal Scholarships

The testimony and briefs submitted to the Committee by the granting councils laid bare the almost complete stagnation in the scholarship amounts paid out by the federal government.

Table 1 shows that the amounts of tri-council grants paid out by the federal government have hardly budged in the past 20 years.

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⁴³ SRSR, *Evidence*, 16 May 2023, 1250 (Ted Hewitt).

Table 1—Changes in the Value of Federal Government Graduate Scholarships Since 2001

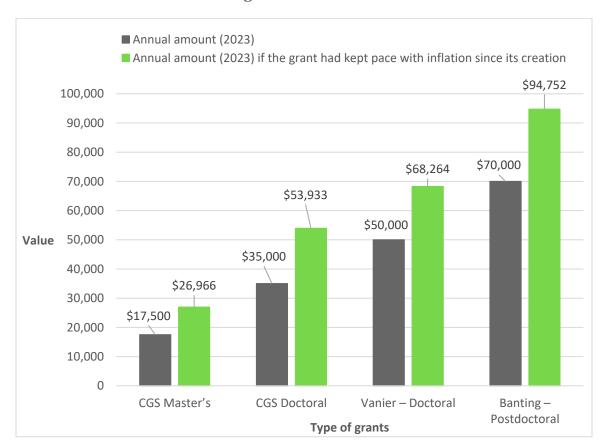
Program	Current Scholarship Amount	Change
Canada Graduate Scholarships— Master's	\$17,500 per year	Unchanged since 2003
Canada Graduate Scholarships— Doctoral	\$35,000 per year	Unchanged since 2003
Vanier Canada Graduate Scholarships—Doctoral	\$50,000 per year	Unchanged since program inception in 2009
Banting Postdoctoral Fellowships	\$70,000 per year	Unchanged since program inception in 2011
NSERC Postgraduate Scholarships (Doctoral)	\$21,000 per year	Unchanged since 2003
SSHRC Doctoral Fellowships Program	\$20,000 per year	Increased from \$19,000 to \$20,000 per year in 2004
NSERC Postdoctoral Fellowships	\$45,000 per year	Increased from \$40,000 to \$45,000 per year in 2015
SSHRC Postdoctoral Fellowships Program	\$45,000 per year	Increased from \$28,428 to \$35,028 per year in 2001, to \$38,000 per year in 2007, to \$40,500 per year in 2014 and to \$45,000 per year in 2018
CIHR Research Fellowships Program	\$45,000–\$60,000 per year	Increased from \$40,000– \$55,000 per year to \$45,000– \$60,000 per year in 2007

Source: Table prepared using data provided to the Committee by Industry, Science and Economic Development Canada (ISED).

The stagnated value of these scholarships has not kept up with inflation over the past twenty years. Figure 1 illustrates the gap between the actual value of the scholarships awarded by the three granting councils and their value had they been indexed to inflation since their creation.



Figure 1—Gap between the Value of Grants Awarded by the Three Funding Councils and Inflation



Sources: Figure created using data provided to the Committee by ISED and the Bank of Canada, <u>Inflation</u> <u>Calculator</u>, accessed 28 August 2023.

Based on figures provided by witnesses, taking inflation into account, the scholarships with amounts that have remained unchanged since 2003 have lost almost 50% of their value over that period.⁴⁴

At the same time, the number of tri-agency scholarships has grown little in recent decades. However, witnesses did note that in 2019, the government funded the distribution of 600 new tri-agency Canada Graduate Scholarships. 46

Figures 2, 3 and 4 show the number of new CGS Master's and Doctoral Scholarships, Vanier Scholarships (Doctoral) and Banting Fellowships (Postdoctoral) awarded by each granting council each year since 2003. For NSERC and SSHRC, the number of scholarships has stagnated since the early 2010s, but increased in 2019. The number of CIHR scholarships rose sharply in 2021 against the backdrop of the COVID-19 pandemic.

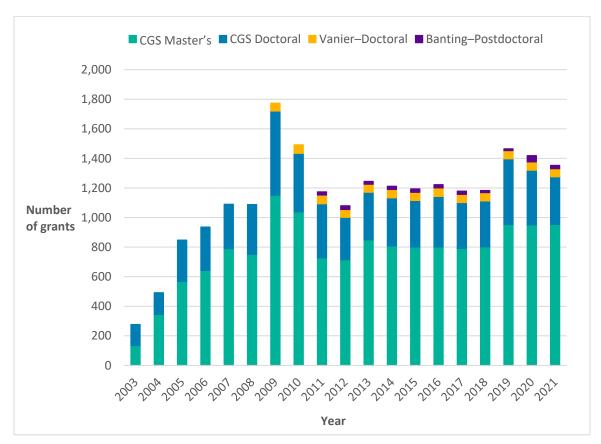
For example, SRSR, Evidence, 9 May 2023, 1215 (Julia Messina-Pacheco); SRSR, Evidence, 4 May 2023, 1115 (Hilary Hennessey, Campaign Coordinator, Canadian Federation of Students); Support Our Science, Briefing to the House of Commons Standing Committee on Science and Research Study on Graduate Student Scholarships and Postdoctoral Fellowships, July 2023, pp. 2–3; Union étudiante du Québec, Improving Support for the Next Generation of Scientists, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 4; Universities Canada, Supporting early career research talent, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 3; SRSR, Evidence, 9 May 2023, 1215 (Gavin Douglas, Co-President, Science and Policy Exchange); John Bergeron and Abraham Fuks, Brief From 166 Concerned Scientists—An Ambition of Excellence, Brief submitted to the House of Commons Standing Committee on Science and Research, 5 June 2023, pp. 2–3; and McGill University, Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 3.

⁴⁵ SRSR, <u>Evidence</u>, 13 June 2023, 1230 (Steven Murphy, President and Vice-Chancellor, Ontario Tech University); and SRSR, <u>Evidence</u>, 16 May 2023, 1235 (Marc G. Fortin, Vice-President, Research Grants and Scholarships Directorate, Natural Sciences and Engineering Research Council).

⁴⁶ SRSR, *Evidence*, 16 May 2023, 1210 (Alejandro Adem).



Figure 2—Number of Grants by Type Awarded by the Natural Sciences and Engineering Research Council of Canada (NSERC), 2003–2021



Source: Figure created using data provided to the Committee by ISED.

Number of grants

1,000

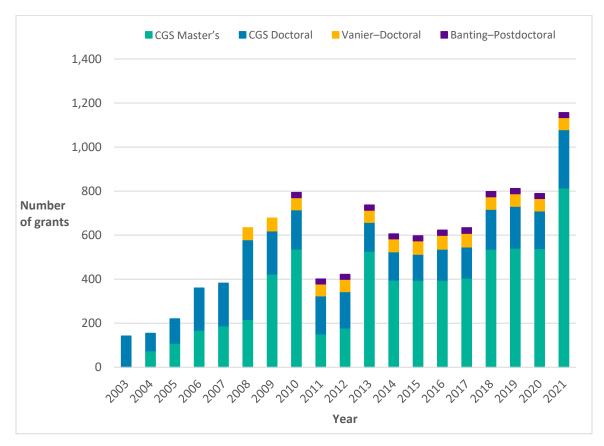
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Figure 3—Number of Grants by Type Awarded by the Social Sciences and Humanities Research Council (SSHRC), 2003–2021

Source: Figure created using data provided to the Committee by ISED.



Figure 4—Number of Grants by Type Awarded by the Canadian Institutes of Health Research (CIHR), 2003–2021



Source: Figure created using data provided to the Committee by ISED.

The number of scholarships awarded has not kept pace with growth in the graduate student population. According to Statistics Canada data, cited in a brief submitted by Universities Canada, between 2002–2003 and 2020–2021, the number of master's students in Canada rose from 99,792 to 167,937, and the number of doctoral students in Canada rose from 29,505 to 58,962.⁴⁷ This means that students face increased competition for funding.

The Committee looked into the causes of this stagnation in the amount and number of tri-agency scholarships. As to why most of the amounts have not changed since the

Universities Canada, <u>Supporting early career research talent</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 6; and Statistics Canada, <u>Table 37-10-0011-01</u>

<u>Postsecondary enrolments, by field of study, registration status, program type, credential type and gender.</u>

scholarships were created, witnesses gave several answers. Some pointed to the complexity of the system and a lack of understanding by successive governments of the needs surrounding university research. 48 Others were unable to explain the stagnation in funding. 49 NSERC president Alejandro Adem said that "[o]ne of the reasons the stipends have not been increased is that the advocacy of the students is not incorporated into the governance councils."50 Nipun Vats, Assistant Deputy Minister for the Science and Research Sector at Innovation, Science and Economic Development Canada (ISED), said that he had explained the issue to the minister and that "the government had not yet found a solution, but that it was discussing this issue."51

The tri-councils were asked if they were able to reallocate funding within their own budgets to increase the value of scholarships. Alejandro Adem from NSERC explained that such an option is limited and that some funds are ring-fenced.⁵² SSHRC president Ted Hewitt explained that for certain programs, the values and number of scholarships were set when the program was created and cannot be changed by the tri-councils.⁵³ The tri-councils also raised the difficulty of making the trade-off between paying out higher amounts and awarding more scholarships.⁵⁴

2.2. **Challenges of Funding Research**

The Committee heard that universities are facing a funding crunch, making it impossible for them to make up for the stagnation of federal scholarships or help ease the financial burden on students.

Justine De Jaegher, Director of Political Action and Communications with the Canadian Association of University Teachers, spoke to the issue of the public underfunding of postsecondary education, saying that "[i]n the early 1990s, it was about 80% of revenues for post-secondary education that came from public sources. Now that number is less than 50%."55 She went on to say that institutions have had to make up this funding cut with

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         SRSR, Evidence, 9 May 2023, 1205 (Sarah Laframboise); and SRSR, Evidence, 9 May 2023, 1220
         (Gavin Douglas).
49
         SRSR, Evidence, 16 May 2023, 1130 (Nipun Vats); and SRSR, Evidence, 13 June 2023, 1135 (Marc Johnson).
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⁵⁰ SRSR, Evidence, 16 May 2023, 1240 (Alejandro Adem).

⁵¹ SRSR, *Evidence*, 16 May 2023, 1125 (Nipun Vats).

⁵² SRSR, Evidence, 16 May 2023, 1245 (Alejandro Adem).

⁵³ SRSR, Evidence, 16 May 2023, 1230 (Ted Hewitt).

⁵⁴ SRSR, Evidence, 16 May 2023, 1210 (Alejandro Adem); and SRSR, Evidence, 16 May 2023, 1210 (Ted Hewitt).

⁵⁵ SRSR, Evidence, 9 May 2023, 1100 (Justine De Jaegher).



higher tuition fees and with private partnerships, some of them with foreign entities. ⁵⁶ Institutions are also facing financial pressures at the provincial level. In Ontario, for example, the provincial government has frozen tuition fees since 2019 and university operating grants since 2016. ⁵⁷ Philippe-Edwin Bélanger, President of the Canadian Association for Graduate Studies, spoke about the very precarious financial situation of universities in Quebec and several other provinces. ⁵⁸ Universities reported that these conditions have made it difficult for them to meet various demands while adequately supporting their students. ⁵⁹ Paul Davidson from Universities Canada said that there is an urgent need for reinvestment in universities. ⁶⁰

Justine De Jaegher said that federal funding for post-secondary education could be increased through the Canada Social Transfer.⁶¹

Witnesses also addressed tri-council research funding. They said that this is a major issue since most graduate students are funded through research grants obtained by their professors. ⁶² Philippe-Edwin Bélanger of the Canadian Association for Graduate Studies mentioned how disappointed members of his organization were with Budget 2023 and "the lack of investment in Canada's university research ecosystem." ⁶³

While most of the witnesses called for increased tri-council research funding support, Chad Gaffield, Chief Executive Officer of the U15 Group of Canadian Research Universities, said that he was extremely concerned by the announcement in Budget 2023 of a 3% cut in eligible spending by departments and agencies by 2026–2027.⁶⁴ Alejandro Adem from NSERC confirmed that the councils were included in this announcement.⁶⁵

56 Ibid.

57 SRSR, *Evidence*, 15 June 2023, 1215 (Steve Hranilovic, Vice-Provost and Dean of Graduate Studies, McMaster University); and SRSR, *Evidence*, 18 May 2023, 1115 (Paul Davidson).

SRSR, *Evidence*, 4 May 2023, 1225 (Philippe-Edwin Bélanger, President, Canadian Association for Graduate Studies).

59 SRSR, *Evidence*, 18 May 2023, 1110 (Paul Davidson).

60 Ibid., 1115.

61 SRSR, *Evidence*, 9 May 2023, 1120 (Justine De Jaegher).

62 SRSR, *Evidence*, 13 June 2023, 1230 (Steven Murphy).

63 SRSR, Evidence, 4 May 2023, 1210 (Philippe-Edwin Bélanger).

SRSR, *Evidence*, 13 June 2023, 1225 (Chad Gaffield, Chief Executive Officer, U15 Group of Canadian Research Universities).

65 SRSR, *Evidence*, 16 May 2023, 1240 (Alejandro Adem).

2.3. Consequences for Training the Next Generation

2.3.1. Student Economic Hardship

Many witnesses spoke about the financial hardship experienced by graduate students. Hilary Hennessey, Campaign Coordinator for the Canadian Federation of Students, told the Committee that "71% of graduate students live below the poverty line, and one in three graduate students lives on less than \$1,250 a month." A 2022 national survey of more than 1,300 graduate students by the Ottawa Science Policy Network found that:

86% of respondents have experienced stress and anxiety about their finances, with 43% of respondents describing their financial situation as "tight" or "struggling". In addition, 31% of graduate students considered leaving their studies solely due to financial concern. Approximately 75% of respondents are not satisfied with their stipends which average to \$19,094 for a MSc. student and \$23,765 for a PhD student. Alarmingly, 52% of respondents have less than 3 months of living expenses in their savings account.⁶⁷

Julia Messina-Pacheco, Vice-President of Science and Policy Exchange, told the Committee that "[a]fter tuition, university fees and insurance, [her] doctoral funding leaves [her] with only \$20,000 per year to live," which is below \$32,535, the minimum amount required for a single person in Montreal to live with dignity.⁶⁸

Witnesses told the Committee that many students are struggling to afford food and a growing number of them are turning to food banks.⁶⁹ Housing is also a major expense that more and more students are struggling to afford.⁷⁰ One witness said that for many students, it comes down to "Am I going to choose between groceries or paying my rent this month?"⁷¹

⁶⁶ SRSR, *Evidence*, 4 May 2023, 1115 (Hilary Hennessey).

Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 3.</u>

⁶⁸ SRSR, Evidence, 9 May 2023, 1215 (Julia Messina-Pacheco).

SRSR, <u>Evidence</u>, 9 May 2023, 1250 (Maydianne Andrade); SRSR, <u>Evidence</u>, 6 June 2023, 1120 (Mona Nemer); SRSR, <u>Evidence</u>, 4 May 2023, 1125 (Mackenzy Metcalfe); SRSR, <u>Evidence</u>, 13 June 2023, 1110 (Marc Johnson); SRSR, <u>Evidence</u>, 15 June 2023, 1115 (Chantel Millar); and University of Ottawa, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 1.

⁷⁰ SRSR, <u>Evidence</u>, 9 May 2023, 1135 (Justine De Jaegher); SRSR, <u>Evidence</u>, 13 June 2023, 1100 (Colin Colterjohn, PhD Candidate, McMaster University); and SRSR, <u>Evidence</u>, 15 June 2023, 1220 (Steve Hranilovic).

⁷¹ SRSR, *Evidence*, 9 May 2023, 1135 (Justine De Jaegher).



Several factors are further eroding the purchasing power of students, including those receiving scholarships. The evidence pointed to the high rates of inflation in recent years. As well, the Committee was reminded that students face ever-increasing tuition fees. One witness told the Committee that "universities often subtract employer expenses and some equipment costs" from the scholarship amounts they pay, "lowering the gross salary amount by about 25%." It's also a factor that some federal scholarships are taxable.

This means that most students are forced to look for alternative sources of income to top up scholarship amounts. Colin Colterjohn, Ph.D. candidate at McMaster University, said, "I cannot think of any students I know of in a master's or Ph.D. role right now who do not either work with a company through their Ph.D. to increase their overall funding or who have not sought additional working hours from their professor." Other witnesses confirmed that many graduate students are forced to find outside work. In some cases, rules cap the number of hours a student can work in addition to studying.

The figures presented in the briefs from the Canadian Alliance of Student Associations (CASA) and the Alliance of Canadian Comprehensive Research Universities (ACCRU) show the following:

[S]ince then, in 2015 graduate students have been taking on increasing levels of debt, with the average student graduating with a debt of \$28,000 (Master's) or \$33,000 (PhD), including 41% of Master's students and 54% of PhD students who graduate with large debt (\$25,000 and above).⁷⁹

SRSR, <u>Evidence</u>, 13 June 2023, 1230 (Steven Murphy); SRSR, <u>Evidence</u>, 4 May 2023, 1125 (Hilary Hennessey); and SRSR, <u>Evidence</u>, 4 May 2023, 1215 (Cynthia Mbuya-Bienge, President, PhD Student in Epidemiology, Syndicat des travailleurs et travailleuses étudiant(es) et postdoctoraux de l'Université Laval).

⁷³ SRSR, <u>Evidence</u>, 9 May 2023, 1135 (Justine De Jaegher); SRSR, <u>Evidence</u>, 4 May 2023, 1145 (Mackenzy Metcalfe); and SRSR, <u>Evidence</u>, 16 May 2023, 1240 (Ted Hewitt).

⁷⁴ SRSR, *Evidence*, 4 May 2023, 1205 (Sébastien Paquette).

⁷⁵ Ibid.; SRSR, *Evidence*, 18 May 2023, 1115 (Martin Normand, Director, Strategic Research and International Relations, Association des collèges et universités de la francophonie canadienne); and CAPS, *Brief*, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 5.

⁷⁶ SRSR, *Evidence*, 13 June 2023, 1115 (Colin Colterjohn).

⁷⁷ For example SRSR, <u>Evidence</u>, 16 May 2023, 1215 (Michael J. Strong); SRSR, <u>Evidence</u>, 13 June 2023, 1135 (Marc Johnson); and SRSR, <u>Evidence</u>, 13 June 2023, 1230 and 1240 (Steven Murphy).

⁷⁸ SRSR, *Evidence*, 15 June 2023, 1100 (Chantel Millar).

Canadian Alliance of Student Associations (CASA), <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, June 2023, p. 2; and ACCRU, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 2.

The government is aware of the precarious financial situation that many students are in. According to ISED Assistant Deputy Minister Nipun Vats, "ISED recognizes that graduate students and trainees are facing financial challenges that can be a barrier to pursuing higher education and that these financial pressures can also impact students' well-being."⁸⁰ The tri-councils also acknowledged the scale of the problem.⁸¹

2.3.2. Mental Health

Financial hardship is taking a toll on graduate student mental health.

The Committee was provided with several figures measuring the scale of the problem. A recent survey by the Canadian Federation of Students reveals that "64% of students ... say that the cost of tuition and student debt they are facing is negatively impacting their mental health." This is nothing new. A 2016 study by the University of Montreal reveals that:

[F]inancial insecurity contributed to alarming rates of mental health problems among university students, from mental illness, alcohol and drug addiction, and an increase in chronic illness and suicide.⁸³

More broadly, another study, this one from 2018 by the Union étudiante du Québec, shows that "58% of the student population has a high level of psychological distress, compared to 20% of the Quebec population."84

Several witnesses shared their personal experiences. For example, Chantel Millar from McMaster University, speaking as an individual, distinguished between the normal stress related to students' research and the added stress of their finances and the cost of housing and food.⁸⁵

SRSR, <u>Evidence</u>, 16 May 2023, 1100 (Nipun Vats).
 SRSR, <u>Evidence</u>, 16 May 2023, 1205 (Alejandro Adem); SRSR, <u>Evidence</u>, 16 May 2023, 12

SRSR, <u>Evidence</u>, 16 May 2023, 1205 (Alejandro Adem); SRSR, <u>Evidence</u>, 16 May 2023, 1210 (Ted Hewitt); and SRSR, <u>Evidence</u>, 16 May 2023, 1235 (Michael J. Strong).

⁸² SRSR, *Evidence*, 4 May 2023, 1125 (Hilary Hennessey).

⁸³ SRSR, Evidence, 4 May 2023, 1210 (Philippe-Edwin Bélanger).

⁸⁴ SRSR, Evidence, 4 May 2023, 1135 (Samy-Jane Tremblay).

⁸⁵ SRSR, Evidence, 15 June 2023, 1100 (Chantel Millar).



There are often long waiting lists for students who need counselling.⁸⁶ Hilary Hennessey of the Canadian Federation of Students said that the counselling services provided by universities are "not effective."⁸⁷

Witnesses believe that better financial support for students would significantly relieve psychological distress.⁸⁸

2.3.3. Risk of Failure

The financial situation of students also impacts their chances of success. Union étudiante du Québec president Samy-Jane Tremblay said that "students who receive scholarships from research granting agencies cannot concentrate on their studies because the amount offered is simply insufficient." Figures provided by McGill University show that "67.9% of Master's and 72.7% of PhD students said that financial pressures were an obstacle to their progress." 90

Cynthia Mbuya-Bienge, Ph.D. student in epidemiology and President of the Syndicat des travailleurs et travailleuses étudiant(es) et postdoctoraux de l'Université Laval, said that graduate students do full-time research work, and the need to combine several contracts in order to support themselves can lead to academic failure. Many students who take on extra jobs are forced to pause or extend their degree program.

2.3.4. Accessibility of Graduate School

More broadly, the lack of student financial support is a major barrier to graduate school. Many witnesses told the Committee that the current system favours students who can rely

SRSR, <u>Evidence</u>, 4 May 2023, 1135 (Hilary Hennessey); and SRSR, <u>Evidence</u>, 4 May 2023, 1235 (Cynthia Mbuya-Bienge).

⁸⁷ SRSR, *Evidence*, 4 May 2023, 1115 (Hilary Hennessey).

⁸⁸ Ibid.; SRSR, <u>Evidence</u>, 4 May 2023, 1135 (Samy-Jane Tremblay); and SRSR, <u>Evidence</u>, 15 June 2023, 1130 (Chantel Millar).

⁸⁹ SRSR, *Evidence*, 4 May 2023, 1155 (Samy-Jane Tremblay).

⁹⁰ McGill University, <u>Brief to the House of Commons Standing Committee on Science and Research Study of the</u> Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 5.

⁹¹ SRSR, Evidence, 4 May 2023, 1215 (Cynthia Mbuya-Bienge).

⁹² SRSR, <u>Evidence</u>, 13 June 2023, 1235 (Steven Murphy); Dalhousie University, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, July 2023, p. 2; University of Victoria, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 25 July 2023, p. 2; and Union étudiante du Québec, <u>Improving Support for the Next Generation of Scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 5.

on family support or access to financial resources, to the detriment of less advantaged students. ⁹³ Debby Burshtyn, Dean of the College of Graduate and Postdoctoral Studies at the University of Saskatchewan, summed up the opinion of several witnesses by stating that research training should not be accessible only to the wealthy. ⁹⁴

Not all students face the same financial pressures. Some groups of students are more vulnerable to a lack of financial resources that could put graduate school out of reach. Sarah Laframboise, Executive Director of Support Our Science, who spoke as an individual, sees the issue this way: "I think it comes down to who we are allowing to do a graduate degree now." 95

Maydianne Andrade of the Canadian Black Scientists Network expanded on the issue:

Our current system is a massive filter. It's a filter that is filtering out people as a function of their finances, not as a function of their excellence and not as a function of the likelihood that they might be the next Canadian Nobel Prize laureate. We are filtering out people who can't take the mental load of living in poverty, those who don't have credit ratings that allow them to take out loans and those who are unable to manage incredibly challenging research agendas while holding down several jobs. We are filtering out mature students who have dependants. We're filtering out anyone whose family can't help support them through this without massive debt. We know that in Canada, Black families, many families in rural communities, Indigenous families and others from marginalized groups simply do not have the financial resources to allow their children to follow this path.⁹⁶

One group facing these challenges was mentioned several times: international students. The Committee heard that international students are not eligible for all tri-council grants. ⁹⁷ They also are charged higher tuition fees than Canadian students. ⁹⁸ These students also find it hard to find housing. ⁹⁹ The Committee heard a number of times that some international students, attracted by the opportunities that Canada has to offer,

⁹³ SRSR, <u>Evidence</u>, 9 May 2023, 1210 (Maydianne Andrade); SRSR, <u>Evidence</u>, 16 May 2023, 1205 (Alejandro Adem); and SRSR, <u>Evidence</u>, 13 June 2023, 1245 (Chad Gaffield).

⁹⁴ SRSR, *Evidence*, 1 June 2023, 1105 (Debby Burshtyn).

⁹⁵ SRSR, *Evidence*, 9 May 2023, 1245 (Sarah Laframboise).

⁹⁶ SRSR, *Evidence*, 9 May 2023, 1210 (Maydianne Andrade).

⁹⁷ SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Hilary Hennessey); SRSR, <u>Evidence</u>, 4 May 2023, 1215 (Cynthia Mbuya-Bienge); and SRSR, <u>Evidence</u>, 15 June 2023, 1245 (John Hepburn).

⁹⁸ SRSR, Evidence, 4 May 2023, 1145 (Mackenzy Metcalfe).

⁹⁹ SRSR, <u>Evidence</u>, 9 May 2023, 1155 (Justine De Jaegher); and SRSR, <u>Evidence</u>, 15 June 2023, 1235 (Steve Hranilovic).



were surprised by the situation they ended up in. 100 According to the Ottawa Science Policy Network, international students are twice as likely as Canadian students to experience financial hardship. 101

Witnesses also spoke about the situation facing students from rural regions¹⁰² and francophone students in a minority context,¹⁰³ who face higher costs due to the distance between where they live and where they study.

The Committee heard that inadequate financial support for students is jeopardizing diversity in science and research. Nipun Vats from ISED recognized that making Canada's research environment more equitable, diverse and inclusive is essential to creating innovative and impactful research. He brought up the dedicated funding for targeted scholarships and fellowships for promising Black student researchers announced in Budget 2022. The granting councils also cited diversity and equity as among their priorities. On this point, Chief Scientific Advisor Mona Nemer felt that it would be worthwhile to review the criteria for awarding a large proportion of the scholarships and research funding to better ensure the representation of students or researchers from under-represented groups.

SRSR, <u>Evidence</u>, 9 May 2023, 1155 (Justine De Jaegher); and SRSR, <u>Evidence</u>, 9 May 2023, 1235 (Maydianne Andrade).

Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 3.</u>

SRSR, <u>Evidence</u>, 18 May 2023, 1115 (Martin Normand); and ACCRU, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 4.

¹⁰³ SRSR, *Evidence*, 18 May 2023, 1100 and 1150 (Martin Normand).

SRSR, <u>Evidence</u>, 9 May 2023, 1100 (Justine De Jaegher); SRSR, <u>Evidence</u>, 13 June 2023, 1245 (Chad Gaffield); SRSR, <u>Evidence</u>, 15 June 2023, 1205 (Saman Sadeghi, Associate Professor, Chemistry and Chemical Biology, As an individual); and Canadian Association for Neuroscience (CAN), <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 June 2023, p. 2.

¹⁰⁵ SRSR, *Evidence*, 16 May 2023, 1100 (Nipun Vats).

¹⁰⁶ Ibid.

¹⁰⁷ SRSR, *Evidence*, 16 May 2023, 1220 (Michael J. Strong).

¹⁰⁸ SRSR, *Evidence*, 6 June 2023, 1120 (Mona Nemer).

2.3.5. Brain Drain and Loss of International Competitiveness

The stagnation in the value of tri-council scholarships is also detracting from the appeal of Canadian post-secondary institutions. Many witnesses pointed to the risk of a brain drain undermining the ability to train the next generation of scientists.

Witnesses presented the Committee with a series of international comparisons, focusing on the general level of support for scientific research, and more specifically on the level of graduate scholarships.

Regarding support for science, witnesses told the Committee that in 2021, Canada spent around 1.7% of its gross domestic product on research and development, which is below the Organisation for Economic Co-operation and Development (OECD) average of 2.7%. ¹⁰⁹ According to this indicator, Canada ranks second to last among G7 countries. ¹¹⁰ Several witnesses pointed out that other countries have announced major investments in research, citing as an example the *CHIPS and Science Act* recently passed by the United States. ¹¹¹

As for talent development, Canada tops the OECD rankings in terms of the number of post-secondary graduates; however, in terms of the number of graduates with advanced degrees (masters and doctorates), Canada ranks 28th.¹¹²

It is difficult to compare the financial support received by graduate students in Canada and other countries, as there are significant differences in tuition fees, the cost of living and

SRSR, <u>Evidence</u>, 9 May 2023, 1240 (Julia Messina-Pacheco); SRSR, <u>Evidence</u>, 18 May 2023, 1105 (Paul Davidson); SRSR, <u>Evidence</u>, 6 June 2023, 1125 (Mona Nemer); SRSR, <u>Evidence</u>, 13 June 2023, 1145 (Marc Johnson); SRSR, <u>Evidence</u>, 13 June 2023, 1230 (Steven Murphy); HealthCareCAN, <u>Submission to the Standing Committee on Science and Research Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, June 2023, p. 4; and Universities Canada, <u>Supporting early career research talent</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 2. See: Organization for Economic Cooperation and Development (OECD), "<u>Main Science and Technology Indicators (MSTI database</u>)," Database, accessed 11 September 2023.</u>

SRSR, *Evidence*, 4 May 2023, 1145 (Mackenzy Metcalfe).

SRSR, <u>Evidence</u>, 18 May 2023, 1105 (Paul Davidson); SRSR, <u>Evidence</u>, 13 June 2023, 1200 (Chad Gaffield); SRSR, <u>Evidence</u>, 13 June 2023, 1230 (Steven Murphy); University of Waterloo, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 2; and Universities Canada, <u>Supporting early career research talent</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 2.

SRSR, <u>Evidence</u>, 13 June 2023, 1220 (Chad Gaffield); and University of British Columbia, <u>Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, 27 July 2023, p. 2.



scholarship terms and conditions.¹¹³ Nevertheless, the evidence generally highlighted that the graduate scholarships available in Canada are not competitive with those available in certain other countries.¹¹⁴ For example, Alejandro Adem said that the U.S. National Science Foundation Graduate Scholarship is the main comparator used by NSERC.¹¹⁵ It amounts to US\$37,000, or about C\$50,000, plus US\$12,000 for research expenses, or about C\$16,000.¹¹⁶ In some countries, such as Australia, scholarships are indexed to inflation.¹¹⁷

Witnesses used these international comparisons to highlight the problem of brain drain. For Samy-Jane Tremblay of the Union étudiante du Québec, "[b]y not investing in the next generation of scientists, Canada is encouraging a brain drain and losing great talent, and this, it must be remembered, in a context of a shortage of skilled labour." Career opportunities and financial support encourage many graduate students to go abroad when completing their master's or doctoral degree, or postdoctoral fellowship. 119

Based on the findings of the McGill TRaCE study, Marc Johnson, Chair of the Board of Support Our Science, estimated that each year 3,700 recent Ph.Ds. are leaving Canada to

University of British Columbia, <u>Submission to the Standing Committee on Science and Research—</u>
<u>Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, 27 July 2023, p. 4.

SRSR, <u>Evidence</u>, 4 May 2023, 1240 (Philippe-Edwin Bélanger); SRSR, <u>Evidence</u>, 9 May 2023, 1250 (Sarah Laframboise); CAPS, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 4; Canadian Society for Molecular Biosciences (CSMB), <u>Written submission to the House of Commons Science and Research committee study: Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, p. 2; Support Our Science, <u>Briefing to the House of Commons Standing Committee on Science and Research Study on Graduate Student Scholarships and Postdoctoral Fellowships</u>, July 2023, p. 5; and Universities Canada, <u>Supporting early career research talent</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 4.</u>

¹¹⁵ SRSR, *Evidence*, 16 May 2023, 1240 (Alejandro Adem).

¹¹⁶ Ibid.

SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay); SRSR, <u>Evidence</u>, 15 June 2023, 1200 (Padmapriya Muralidharan, Postdoctoral Fellow, Canadian Association of Postdoctoral Scholars); and CAPS, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 4.

SRSR, *Evidence*, 4 May 2023, 1115 (Samy-Jane Tremblay).

SRSR, <u>Evidence</u>, 9 May 2023, 1205 (Sarah Laframboise); SRSR, <u>Evidence</u>, 9 May 2023, 1215 (Julia Messina-Pacheco); SRSR, <u>Evidence</u>, 16 May 2023, 1205 (Alejandro Adem); SRSR, <u>Evidence</u>, 15 June 2023, 1140 (Padmapriya Muralidharan); SRSR, <u>Evidence</u>, 15 June 2023, 1255 (John Hepburn); and Concordia University, <u>Enhancing the Effectiveness of Canadian Government Scholarships and Fellowships for Graduate Students and Post-Doctoral Researchers</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, August 2023, p. 2.

pursue careers abroad. 120 He estimates that this represents an annual loss of \$740 million for Canada. However, Nipun Vats (ISED) told the Committee that he did not have any data indicating that there is a genuine brain drain. 122

Graduate student salaries in Canada are also a problem when it comes to attracting new talent. Some witnesses reported trouble recruiting Canadian or international students to their laboratories, ¹²³ and one witness talked about a "breaking point." ¹²⁴

Witnesses warned the Committee about the danger that these trends pose to Canada's ability to train the next generation of researchers. The evidence also highlighted the impact of training and attracting top talent on the economy of the entire country. Chief Science Advisor Mona Nemer said that "[b]y enhancing training and postgraduate job opportunities, we will keep talent at home, attract top international students and amplify the virtuous circle that links research, and training through research, to prosperous societies." 126

CHAPTER 3. NEED FOR GOVERNMENT RE-ENGAGEMENT

Based on these findings, the witnesses suggested a number of ways to improve federal graduate scholarship programs and student support. The first set of recommendations pertains to graduate scholarship programs, and the second relates to the associated research support measures.

¹²⁰ SRSR, <u>Evidence</u>, 13 June 2023, 1105 (Marc Johnson).

¹²¹ Ibid.

¹²² SRSR, *Evidence*, 16 May 2023, 1125 (Nipun Vats).

SRSR, <u>Evidence</u>, 16 May 2023, 1215 (Michael J. Strong); SRSR, <u>Evidence</u>, 13 June 2023, 1135 (Marc Johnson); and SRSR, <u>Evidence</u>, 15 June 2023, 1245 (John Hepburn).

¹²⁴ SRSR, *Evidence*, 13 June 2023, 1135 (Marc Johnson).

SRSR, <u>Evidence</u>, 13 June 2023, 1230 (Steven Murphy); SRSR, <u>Evidence</u>, 9 May 2023, 1210 (Maydianne Andrade); SRSR, <u>Evidence</u>, 18 May 2023, 1105 (Paul Davidson); and SRSR, <u>Evidence</u>, 13 June 2023, 1150 (Marc Johnson).

¹²⁶ SRSR, *Evidence*, 6 June 2023, 1105 (Mona Nemer).



3.1. Improving Federal Support Programs

3.1.1. Increase Scholarship Amounts and Index to Inflation

The one measure heard most clearly in all the testimony and briefs received by the Committee is to increase the amount of federal tri-council graduate scholarships.

The vast majority of witnesses recommended increasing the amounts to catch up with cost of living increases since the various scholarships were established, and to index the scholarships to the consumer price index going forward.¹²⁷ Most of the witnesses who

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For example, SRSR, Evidence, 15 June 2023, 1140 (Padmapriya Muralidharan); SRSR, Evidence, 15 June 2023, 1120 (Chantel Millar); Science and Policy Exchange, Brief submitted as part of the Study of the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 30 May 2023, p. 2; SRSR, Evidence, 9 May 2023, 1205 (Sarah Laframboise); SRSR, Evidence, 4 May 2023, 1115 (Hilary Hennessey); SRSR, Evidence, 1 June 2023, 1100 (Anna Toneguzzo); Canadian Historical Association, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 21 July 2023, p. 1; Federation for the Humanities and Social Sciences, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 17 May 2023, p. 1; INRS, Brief on the Government of Canada's Graduate <u>Scholarship and Post-Doctoral Fellowship Programs</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 26 July 2023, p. 4; John Bergeron and Abraham Fuks, Brief From 166 Concerned Scientists—An Ambition of Excellence, Brief submitted to the House of Commons Standing Committee on Science and Research, 5 June 2023, pp. 2-3; McGill University, Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 3; and Université de Moncton, Brief submitted to the Standing Committee on Science and Research as part of the study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, p. 1.

quantified their recommendations suggested an increase of approximately 50% of the value of scholarships to catch up with price trends since 2003. 128

Other witnesses called for the value of federal scholarships to be set at an internationally competitive level. 129

¹²⁸ SRSR, Evidence, 9 May 2023, 1205 (Sarah Laframboise); SRSR, Evidence, 13 June 2023, 1130 (Marc Johnson); Universities Canada, Supporting early career research talent, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 3; SRSR, Evidence, 15 June 2023, 1140 (Padmapriya Muralidharan); ACCRU, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 2; Canadian Association for Neuroscience, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 June 2023, p. 3; Colleges and Institutes Canada, A Force Multiplier: Support for Graduate Students and Opportunities for Graduate Students in Canada's College Applied Research Enterprise, Brief submitted to the House of Commons Standing Committee on Science and Research, July 2023, p. 4; Dalhousie University, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, July 2023, p. 2; ETS, Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 3; INRS, Brief on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, Brief submitted to the House of Commons Standing Committee on Science and Research, 26 July 2023, p. 4; John Bergeron and Abraham Fuks, Brief From 166 Concerned Scientists—An Ambition of Excellence, Brief submitted to the House of Commons Standing Committee on Science and Research, 5 June 2023, pp. 2-3; Maple League of Universities, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 2; Queen's University, Brief to the Standing Committee on Science and Research, August 2023, p. 2; Ottawa Science Policy Network, Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 4; Toronto Science Policy Network, Brief Submitted to the House of Commons Standing Committee on Science and Research for the Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, p. 2; Université du Québec, <u>In favour of better financial support for graduate students</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 27 July 2023, p. 2; Université du Québec en Abitibi-Témiscamingue, In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 1; Université du Québec en Outaouais, Improving financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 18 July 2023, p. 1; and University of British Columbia, Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 27 July 2023, p. 4.

¹²⁹ SRSR, <u>Evidence</u>, 18 May 2023, 1100 (Martin Normand); SRSR, <u>Evidence</u>, 6 June 2023, 1135 (Mona Nemer); and SRSR, <u>Evidence</u>, 13 June 2023, 1210 (Chad Gaffield).



A series of witnesses also recommended harmonizing the value of tri-council scholarships. As mentioned earlier, current doctoral scholarships range from \$20,000 per year for SSHRC doctoral scholarships to \$50,000 per year for Vanier doctoral scholarships.

The Committee heard that an increase in scholarships amounts should not come with a cut to the number of scholarships awarded. 131

3.1.2. Increase the Number of Scholarships

Along with increasing scholarship amounts, the testimony and briefs received by the Committee clearly show that research stakeholders want to see the government increase the number of graduate scholarships awarded each year. As indicated earlier, the number of scholarships awarded has not kept up with the number of graduate students.

SRSR, <u>Evidence</u>, 4 May 2023, 1130 (Samy-Jane Tremblay); SRSR, <u>Evidence</u>, 9 May 2023, 1105 (Michel Lacroix, President and Treasurer, Fédération québécoise des professeures et professeurs d'université); McGill University, <u>Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 3; Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 4; HealthCareCAN, <u>Submission to the Standing Committee on Science and Research Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, June 2023, p. 2; Toronto Science Policy Network, <u>Brief Submitted to the House of Commons Standing Committee on Science and Research for the Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, August 2023, p. 3; and University of British Columbia, <u>Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, 27 July 2023, p. 4.</u></u></u>

University of Guelph, <u>The University of Guelph's Submission to the Standing Committee on Science and Research</u>, 28 July 2023, p. 2.

Specifically, witnesses recommended increasing the number of Canada Graduate Scholarships (master's and doctoral) by 50%¹³² or 100%.¹³³ Most witnesses also

SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Hilary Hennessey); SRSR, <u>Evidence</u>, 9 May 2023, 1205 (Sarah Laframboise); SRSR, <u>Evidence</u>, 13 June 2023, 1130 (Marc Johnson); SRSR, <u>Evidence</u>, 9 May 2023, 1215 (Gavin Douglas); Science and Policy Exchange, <u>Brief submitted as part of the Study of the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, 30 May 2023, p. 2; John Bergeron and Abraham Fuks, <u>Brief From 166 Concerned Scientists—An Ambition of Excellence</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 5 June 2023, p. 3; Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 4; Support Our Science, <u>Briefing to the House of Commons Standing Committee on Science and Research Study on Graduate Student Scholarships and Postdoctoral Fellowships, July 2023, p. 5; and Toronto Science Policy Network, <u>Brief Submitted to the House of Commons Standing Committee on Science and Research for the Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, pp. 2–3.</u></u></u>

¹³³ SRSR, Evidence, 4 May 2023, 1110 (Mackenzy Metcalfe); ACCRU, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3; Dalhousie University, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, July 2023, p. 2; ETS, Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 3; Université du Québec à Rimouski, Enhancing Canada's ability to train the next generation of scientists, Brief submitted to the House of Commons Standing Committee on Science and Research, 11 July 2023, p. 3; Maple League of Universities, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 2; Queen's University, Brief to the Standing Committee on Science and Research, August 2023, p. 2; Université du Québec en Abitibi-Témiscamingue, In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 1; Université du Québec en Outaouais, Improving financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 18 July 2023, p. 1; Université du Québec, In favour of better financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 27 July 2023; p. 2; Universities Canada, Supporting early career research talent, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 3; University of British Columbia, Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 27 July 2023, p. 4; and University of Victoria, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 25 July 2023, p. 3.



recommended doubling the number of tri-council postdoctoral fellowships. 134
HealthCareCAN also called for "the number of scholarships [to] be adjusted annually to reflect the level of enrolment in graduate programs". 135

3.1.3. Increase the Length of Scholarships

The length of graduate scholarships frequently came up in witness testimony and recommendations. The Canada Graduate Scholarships at the graduate and doctoral levels are for one and three years, respectively. However, in practice, the actual length of study required to obtain these degrees is at least two years for a master's degree and at least four years for a doctorate. Consequently, students see their funding end before their programs do, forcing them to either look for alternative funding sources to complete their research or to interrupt their education.

- HealthCareCAN, <u>Submission to the Standing Committee on Science and Research Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>, June 2023, p. 3.
- SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay); Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate <u>student scholarships and post-doctoral fellowships in Canada</u>, June 2023, p. 5; Regroupement étudiant de maîtrise, diplôme et doctorat de l'Université de Sherbrooke (Remdus), <u>FGA Scholarships and their challenges</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 5.</u>
- SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay); Remdus, <u>FGA Scholarships and their challenges</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 5; and Union étudiante du Québec, <u>Improving Support for the Next Generation of Scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, pp. 5–6.

¹³⁴ For example, SRSR, Evidence, 4 May 2023, 1110 (Mackenzy Metcalfe); SRSR, Evidence, 4 May 2023, 1115 (Hilary Hennessey); SRSR, Evidence, 13 June 2023, 1130 (Marc Johnson); SRSR, Evidence, 9 May 2023, 1215 (Gavin Douglas); Science and Policy Exchange, Brief submitted as part of the Study of the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 30 May 2023, p. 2; ACCRU, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3; John Bergeron and Abraham Fuks, Brief From 166 Concerned Scientists—An Ambition of Excellence, Brief submitted to the House of Commons Standing Committee on Science and Research, 5 June 2023, p. 3; Maple League of Universities, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 2; Queen's University, Brief to the Standing Committee on Science and Research, August 2023, p. 2; McGill University, Brief to the House of Commons Standing Committee on Science and Research Study of the Government of Canada's Graduate and Post-doctoral Fellowship Programs, July 2023, p. 3; Support Our Science, Briefing to the House of Commons Standing Committee on Science and Research Study on Graduate Student Scholarships and Postdoctoral Fellowships, July 2023, p. 5; Toronto Science Policy Network, Brief Submitted to the House of Commons Standing Committee on Science and Research for the Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, pp. 2-3; and Universities Canada, Supporting early career research talent, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 3.

It was noted that Fonds de recherche du Québec graduate scholarships are for two years for the master's degree and four years for a doctorate. 138

Samy-Jane Tremblay pointed out that the 2017 Fundamental Science Review Report (the Naylor Report) already raised this issue. ¹³⁹ NSERC president Alejandro Adem said that the three granting councils increased the duration of doctorate scholarships from two or three years for certain awardees to three years for all. ¹⁴⁰

To align the length of scholarships more closely with how long it takes to complete a graduate degree, witnesses recommended "extending the duration of Canada's graduate scholarships from 12 months to 24 months for master's students and from 36 months to 48 months for PhD students." The Union étudiante du Québec added that it is important that any increase in the duration of scholarships does not result in a cut in scholarship amounts. 142

3.1.4. Scholarship Eligibility and Targeted Programs

Some of the testimony focused on the eligibility criteria for certain graduate scholarships and the possibility of creating targeted programs.

To start, some witnesses recommended making international students enrolled in eligible Canadian institutions eligible for tri-council scholarships.¹⁴³ As mentioned earlier, Canada Graduate Scholarships at the master's or doctoral level are reserved for Canadian citizens,

Union étudiante du Québec, <u>Improving Support for the Next Generation of Scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, pp. 5–6.

¹³⁹ SRSR, Evidence, 4 May 2023, 1115 (Samy-Jane Tremblay).

¹⁴⁰ SRSR, *Evidence*, 16 May 2023, 1210 (Alejandro Adem).

Université du Québec à Rimouski, <u>Enhancing Canada's ability to train the next generation of scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 11 July 2023, p. 3. See also: ETS, <u>Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 3.

Union étudiante du Québec, <u>Improving Support for the Next Generation of Scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 8.

SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Hilary Hennessey); Concordia University, <u>Enhancing the Effectiveness of Canadian Government Scholarships and Fellowships for Graduate Students and Post-Doctoral Researchers</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, August 2023, p. 3; Ottawa Science Policy Network, <u>Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in <u>Canada</u>, June 2023, p. 5; and Université du Québec en Abitibi-Témiscamingue, <u>In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 6.</u>



permanent residents and protected persons under section 95(2) of the *Immigration and Refugee Protection Act* in Canada. Concordia University said that by opening these scholarships to international students, "Canada can tap into a global talent pool and benefit from the valuable contributions of these gifted individuals." ¹⁴⁴

Witnesses also raised the possibility of reviewing the scholarship allocation criteria or creating targeted programs for certain students.

Chief Science Advisor Mona Nemer referred to the 2022 report by her youth council, saying that there should be a review of the criteria for allocating many of the scholarships, since "[m]any of them may favour the establishment and folks who, perhaps, come from certain groups and who are going about advancing their careers in certain ways that others don't have the means and the opportunities to do." 145

Several categories of students were cited as needing support. David Novog, Professor with the Department of Engineering Physics at McMaster University, speaking as an individual, referred to "those with partners, children, dependents or cohabiting family members," and "those who have challenges related to their mobility or learning." ACCRU recommended "that a rural and remote classification and stipend should be added to graduate student scholarships/awards [to enable greater participation] in graduate education by rural graduate students." Martin Normand, Director of Strategic Research and International Relations with the Association des collèges et universités de la francophonie canadienne, said that there needs to be acceptance that "there may be specific measures for francophone students, as well as asymmetrical thinking on granting agency programs, including scholarships." ¹⁴⁸

¹⁴⁴ Concordia University, Enhancing the Effectiveness of Canadian Government Scholarships and Fellowships for <u>Graduate Students and Post-Doctoral Researchers</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, August 2023, p. 3.

¹⁴⁵ SRSR, *Evidence*, 6 June 2023, 1120 (Mona Nemer).

¹⁴⁶ SRSR, *Evidence*, 15 June 2023, 1210 (David Novog).

ACCRU, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 4; and Vancouver Island University, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 2.

¹⁴⁸ SRSR, *Evidence*, 18 May 2023, 1150 (Martin Normand).

Lastly, the Federation for the Humanities and Social Sciences encouraged the granting councils to "continue to monitor applications to assess that success rates are proportionate to population rates." ¹⁴⁹

3.1.5. Review the Scholarship Award System

A final set of recommendations concerning scholarship programs focuses on the way they are awarded, through a system of quotas per institution.

As mentioned earlier, Canada Graduate Scholarships at the master's and doctoral levels, and Vanier Doctoral Scholarships, are distributed by the tri-councils through post-secondary institutions. In the case of master's scholarships, institutions have a quota of scholarships to award. As for doctoral scholarships, universities have a quota of applications to submit to the granting councils for review.

In briefs to the Committee, ACCRU and several universities said that the current quota system disadvantages smaller universities. These quotas are based in part on the overall amount of funding received by each university from the granting councils. These stakeholders recommended that the current quota system be modified or abolished. The University of Quebec at Rimouski and the University of Quebec at Abitibi-Témiscamingue recommended that the current quota system be replaced by a system where "25% of the scholarships available in each program are first distributed equally to

Federation for the Humanities and Social Sciences, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 17 May 2023, p. 2.

ACCRU, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3; Vancouver Island University, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 1; Concordia University, <u>Enhancing the Effectiveness of Canadian Government Scholarships and Fellowships for Graduate Students and Post-Doctoral Researchers</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, August 2023, p. 4; Université du Québec à Rimouski, <u>Enhancing Canada's ability to train the next generation of scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 11 July 2023, p. 2; Université de Moncton, <u>Brief submitted to the Standing Committee on Science and Research as part of the study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, p. 3; and Université du Québec en Abitibi-Témiscamingue, <u>In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 5.</u>

Université de Moncton, <u>Brief submitted to the Standing Committee on Science and Research as part of the study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs</u>,

August 2023, pp. 2–3.



each establishment regardless of the results of previous grant competitions." ¹⁵² ACCRU and the University of Moncton recommended a new formula for distributing master's scholarships that would take into account not only the overall amount of funding obtained by each institution, but also the number of professors funded and the number of students enrolled in master's programs that involve research. ¹⁵³

3.2. Renewing Support for Research

Witnesses stressed that it is important to look beyond graduate scholarship programs. It was clearly established that the vast majority of graduate students do not receive this type of funding and instead rely on research grants obtained by their supervisors.

Chief Science Advisor Mona Nemer said the following:

As I mentioned, I believe that it's essential to remember that 75% of students receive the equivalent of a scholarship through research funding and not directly through scholarships. Fixing this problem for less than 25% of graduate students does not adequately resolve the issue. 154

Michel Lacroix, President and Treasurer of the Fédération québécoise des professeures et professeurs d'université, believes that if only scholarship amounts went up and grant amounts did not, "it would likely create a huge gap between students receiving scholarships and those who depend solely on research grants. It's already hard enough for these students to successfully complete their studies." ¹⁵⁵

This is why many witnesses told the Committee that the budgets of the three granting councils must be increased so that they can award larger research grant amounts.¹⁵⁶

Université du Québec à Rimouski, <u>Enhancing Canada's ability to train the next generation of scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 11 July 2023, p. 2; and Université du Québec en Abitibi-Témiscamingue, <u>In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 5.

ACCRU, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3; and Université de Moncton, <u>Brief submitted to the Standing Committee on Science and Research as part of the study on the Government of Canada's Graduate Scholarship and Post-Doctoral <u>Fellowship Programs</u>, August 2023, p. 3.</u>

¹⁵⁴ SRSR, *Evidence*, 6 June 2023, 1125 (Mona Nemer).

¹⁵⁵ SRSR, *Evidence*, 9 May 2023, 1125 (Michel Lacroix).

For example, Ontario Council on Graduate Studies, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 21 July 2023, p. 2; SRSR, <u>Evidence</u>, 9 May 2023, 1150 (Justine De Jaegher); CAUT, <u>Brief to the Standing Committee on Science and Research</u>, June 2023, p. 4; and SRSR, <u>Evidence</u>, 18 May 2023, 1110 (Paul Davidson).

That "would allow faculty to increase the support they provide to students from their grants." ¹⁵⁷

Many witnesses cited the conclusions of the March 2023 report by the Advisory Panel on the Federal Research Support System (the Bouchard Report). In the report, the advisory panel recommended that the federal government significantly increase its investments in the granting councils: "[a]s an initial step, the government should commit to an increase of at least ten percent annually for five years to the councils' total base budgets for their core grant programming." Many witnesses supported this recommendation by citing the same figures. 159

¹⁵⁷ SRSR, Evidence, 4 May 2023, 1210 (Philippe-Edwin Bélanger).

Government of Canada, <u>Report of the Advisory Panel on the Federal Research Support System</u>, March 2023, p. 46.

¹⁵⁹ SRSR, Evidence, 9 May 2023, 1100 (Justine De Jaegher); CAUT, Brief to the Standing Committee on Science and Research, June 2023, p. 4; SRSR, Evidence, 9 May 2023, 1205 (Sarah Laframboise); SRSR, Evidence, 9 May 2023, 1210 (Maydianne Andrade); SRSR, Evidence, 9 May 2023, 1215 (Gavin Douglas); Universities Canada, Supporting early career research talent, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 3; SRSR, Evidence, 13 June 2023, 1135 (Marc Johnson); SRSR, Evidence, 13 June 2023, 1230 (Steven Murphy); ACCRU, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 19 July 2023, p. 3; CSMB, Written submission to the House of Commons Science and Research committee study: Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, p. 2; ETS, Improving support for graduate studies and research to stimulate Canada's innovation and economic competitiveness, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 3; Maple League of Universities, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 20 July 2023, p. 3; Queen's University, Brief to the Standing Committee on Science and Research, August 2023, p. 2; Ottawa Science Policy Network, Brief submitted to the Federal Government's Standing Committee on Science and Research (SRSR) for the study on graduate student scholarships and post-doctoral fellowships in Canada, June 2023, p. 5; Union étudiante du Québec, Improving Support for the Next Generation of Scientists, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, pp. 7-8; Toronto Science Policy Network, Brief Submitted to the House of Commons Standing Committee on Science and Research for the Study on the Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, August 2023, pp. 2-3; Université du Québec en Abitibi-Témiscamingue, In Favour of Better Access to Graduate Scholarships and Post-Doctoral Fellowships Promoting Innovative Research, Brief submitted to the House of Commons Standing Committee on Science and Research, 28 July 2023, p. 1; Université du Québec en Outaouais, Improving financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 18 July 2023, p. 1; Université du Québec, In favour of better financial support for graduate students, Brief submitted to the House of Commons Standing Committee on Science and Research, 27 July 2023, p. 2; University of British Columbia, Submission to the Standing Committee on Science and Research—Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs, 27 July 2023, p. 5; and University of Toronto, Brief, Brief submitted to the House of Commons Standing Committee on Science and Research, 18 July 2023, p. 1.



3.3. Ensuring Student Representation

Lastly, several student organizations called for better representation on the governing councils of the granting councils. ¹⁶⁰ This would allow students to express their views on the decisions made by the councils. ¹⁶¹ According to NSERC president Alejandro Adem, the fact that student advocacy is not incorporated into the governing councils of the three granting councils is one of the reasons why grant amounts have not increased. ¹⁶²

Alejandro Adem said that NSERC governing council members are appointed by the Governor in Council. He said that while it is possible to appoint students, this has never happened. As stated in the brief submitted by the Union étudiante du Québec, "none of the seats are reserved for a student under the three statutes governing the composition of the agencies." It was therefore recommended that the legislation governing the three granting councils be amended to guarantee student representation on their governing councils. He

RECOMMENDATIONS

In light of the evidence collected during this study, the Committee makes the following recommendations to the government of Canada:

Recommendation 1

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research:

SRSR, <u>Evidence</u>, 4 May 2023, 1130 (Mackenzy Metcalfe); and SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay).

SRSR, <u>Evidence</u>, 4 May 2023, 1110 (Mackenzy Metcalfe); and SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay).

¹⁶² SRSR, *Evidence*, 16 May 2023, 1240 (Alejandro Adem).

¹⁶³ Ibid.

¹⁶⁴ Ibid.

Union étudiante du Québec, <u>Improving Support for the Next Generation of Scientists</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, May 2023, p. 8.

SRSR, <u>Evidence</u>, 4 May 2023, 1110 (Mackenzy Metcalfe); SRSR, <u>Evidence</u>, 4 May 2023, 1115 (Samy-Jane Tremblay); and Canadian Historical Association, <u>Brief</u>, Brief submitted to the House of Commons Standing Committee on Science and Research, 21 July 2023, p. 1.

- Increase the value of Tri-Agency graduate scholarships and postdoctoral fellowships by 50%, and index them to inflation moving forward;
- Increase the number of Tri-Agency graduate student scholarships by 50%;
- Increase the number of Tri-Agency postdoctoral fellowships by 100%;
 and
- 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.

Recommendation 2

That the Government of Canada extend the length of graduate scholarships administered by the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research—from 12 to 24 months for master's programs and from 36 to 48 months for doctoral programs.

Recommendation 3

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research—expand the eligibility for Canada Graduate Scholarships (master's and doctoral) to international students enrolled in Canadian institutions, keeping in mind practices of reciprocity and available funds.

Recommendation 4

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research, review the criteria for awarding graduate scholarships and consider creating specific supports for under-represented groups at the graduate level.

Recommendation 5

That the Government of Canada, through the granting councils—the Social Sciences and Humanities Research Council, the Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes of Health Research—review the quota system used



to award Canada Graduate Scholarships and Vanier Doctoral Scholarships to ensure that smaller institutions are not put at a disadvantage.

Finally, the Committee reiterates Recommendation 6 from its report *Top Talent, Research and Innovation*¹⁶⁷ and recommends:

Recommendation 6

That the Government of Canada amend the *Natural Sciences and Engineering Research Council Act*, the *Social Sciences and Humanities Research Council Act* and the *Canadian Institutes of Health Research Act* to include student representatives on the governing councils of these three institutions.

House of Commons, SRSR, <u>Top Talent, Research and Innovation</u>, Second Report, October 2022.

APPENDIX A LIST OF WITNESSES

The following table lists the witnesses who appeared before the committee at its meetings related to this report. Transcripts of all public meetings related to this report are available on the committee's <u>webpage for this study</u>.

Organizations and Individuals	Date	Meeting
Association du personnel de la recherche du Québec (APRQ)	2023/05/04	42
Sébastien Paquette, Union President		
Canadian Alliance of Student Associations	2023/05/04	42
Mackenzy Metcalfe, Executive Director		
Canadian Association for Graduate Studies	2023/05/04	42
Philippe-Edwin Bélanger, President		
Canadian Federation of Students	2023/05/04	42
Hilary Hennessey, Campaign Coordinator		
Quebec Student Union	2023/05/04	42
Samy-Jane Tremblay, President		
Syndicat des travailleurs et travailleuses étudiant(es) et postdoctoraux de l'Université Laval	2023/05/04	42
Cynthia Mbuya-Bienge, President, PhD student in epidemiology		
As an individual	2023/05/09	43
Sarah Laframboise, Executive Director, Support Our Science		
Canadian Association of University Teachers	2023/05/09	43
Justine De Jaegher, Director, Political Action and Communications		
Canadian Black Scientists Network	2023/05/09	43
Maydianne Andrade, President and Co-Founder		

Organizations and Individuals	Date	Meeting
Fédération québécoise des professeures et professeurs d'université	2023/05/09	43
Michel Lacroix, President and Treasurer		
Science and Policy Exchange	2023/05/09	43
Gavin Douglas, Co-President		
Julia Messina-Pacheco, Vice-President		
Canadian Institutes of Health Research	2023/05/16	44
Christian Baron, Vice-President, Research – Programs		
Michael J. Strong, President		
Department of Industry	2023/05/16	44
Nipun Vats, Assistant Deputy Minister, Science and Research Sector		
National Research Council of Canada	2023/05/16	44
Joel Martin, Chief Science Officer		
Shannon Quinn, Secretary General		
Natural Sciences and Engineering Research Council	2023/05/16	44
Alejandro Adem, President		
Manal Bahubeshi, Vice-President, Research Partnerships		
Marc G. Fortin, Vice-President, Research Grants and Scholarships Directorate		
Social Sciences and Humanities Research Council	2023/05/16	44
Ted Hewitt, President		
Valérie La Traverse, Vice-President, Corporate Affairs		
Sylvie Lamoureux, Vice-President, Research		
Association des collèges et universités de la francophonie canadienne	2023/05/18	45
Martin Normand, Director, Strategic Research and International Relations		
Universities Canada	2023/05/18	45
Paul Davidson, President		
Colleges and Institutes Canada	2023/06/01	47
Anna Toneguzzo, Vice-President (Acting), Government and Stakeholder Partnerships		

Organizations and Individuals	Date	Meeting
University of Saskatchewan	2023/06/01	47
Debby Burshtyn, Dean, College of Graduate and Postdoctoral Studies		
Office of the Chief Science Advisor	2023/06/06	48
Mona Nemer, Chief Science Advisor		
McMaster University	2023/06/13	49
Colin Colterjohn, PhD Candidate		
Ontario Tech University	2023/06/13	49
Steven Murphy, President and Vice-Chancellor		
Support Our Science	2023/06/13	49
Marc Johnson, Chair of the Board		
U15 Group of Canadian Research Universities	2023/06/13	49
Chad Gaffield, Chief Executive Officer		
As an individual	2023/06/15	50
Chantel Millar		
David Novog, Professor, Department of Engineering Physics, McMaster University		
Saman Sadeghi, Associate Professor, Chemistry and Chemical Biology		
Canadian Association of Postdoctoral Scholars	2023/06/15	50
Padmapriya Muralidharan, Postdoctoral Fellow		
McMaster University	2023/06/15	50
Steve Hranilovic, Vice-Provost and Dean of Graduate Studies		
Mitacs	2023/06/15	50
John Hepburn, Chief Executive Officer		

APPENDIX B LIST OF BRIEFS

The following is an alphabetical list of organizations and individuals who submitted briefs to the committee related to this report. For more information, please consult the committee's webpage for this study.

Bergeron, John

Fuks, Abraham

Alliance of Canadian Comprehensive Research Universities

Canadian Alliance of Student Associations

Canadian Association for Neuroscience

Canadian Association of Postdoctoral Scholars

Canadian Association of University Teachers

Canadian Historical Association

Canadian Society for Molecular Biosciences

Colleges and Institutes Canada

Concordia University

Dalhousie University

École de technologie supérieure

Evidence for Democracy

Federation for the Humanities and Social Sciences

HealthCareCAN

Institut national de la recherche scientifique

Maple League of Universities

McGill University

Ontario Council on Graduate Studies

Ottawa Science Policy Network

Quebec Student Union

Queen's University

Regroupement étudiant de maîtrise, diplôme et doctorat de l'Université de Sherbrooke

Science and Policy Exchange

Support Our Science

Toronto Science Policy Network

Université de Moncton

Université du Québec

Université du Québec à Rimouski

Université du Québec en Abitibi-Témiscamingue

Université du Québec en Outaouais

Universities Canada

University of British Columbia

University of Guelph

University of Ottawa

University of Toronto

University of Victoria

University of Waterloo

Vancouver Island University

REQUEST FOR GOVERNMENT RESPONSE

Pursuant to Standing Order 109, the committee requests that the government table a comprehensive response to this Report.

A copy of the relevant *Minutes of Proceedings* (Meetings Nos. $\underline{42}$, $\underline{43}$, $\underline{44}$, $\underline{45}$, $\underline{47}$, $\underline{48}$, $\underline{49}$, $\underline{50}$, $\underline{51}$, $\underline{58}$, $\underline{60}$, $\underline{62}$ and $\underline{66}$) is tabled.

Respectfully submitted,

Lloyd Longfield Chair

Conservative Dissenting Report

Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs

The Conservative Party of Canada disagrees with the recommendations in this report that call for unfunded spending. We do not disagree on the important role that graduate students and post-doctoral fellows play and the challenges they are facing with ever worsening inflation, but it is vital for everyone to remember that for every additional dollar spent the government must first find a dollar that it will save rather than imposing debts upon future generations through reckless spending. Reckless spending leads to runaway inflation which leads to life becoming increasingly unaffordable for more and more Canadians.