Appearance before the House of Commons Standing Committee on Science and Research

May 16, 2023
12:00 pm - 1:00 pm

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Remarks to the

House of Commons Standing Committee on Science and Research

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President, CIHR

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Thank you, Mister Chair.

I would like to thank the Committee for the invitation to appear before you today.

I consider it a great privilege, both as CIHR's President and as a scientist, to address this committee. Moreso as this committee has drawn attention in your first two reports to the issue of the underfunding of graduate students in Canada, and in particular to the fact that we have graduate students and postdoctoral fellows in Canada living below the poverty level. Many often hold down multiple jobs in order to attain their graduate degrees and the experience necessary to join the workforce – whether that be in academia or the private sector.

As the President of CIHR, I have the unique opportunity to meet with graduate students across this country as I regularly visit University campuses. Uniformly, graduate students and postdoctoral fellows clearly express their dedication to research and making lasting impacts on the health of Canadians. But I have also heard their concerns that the failure of support at this most crucial moment in time as they embark on meaningful and engaging research careers, sends a strong signal of what the future may hold. When I speak with their supervisors, many of whom, like me, have had rich and rewarding careers as Canadian researchers, they speak openly of the difficulties in recruiting Canadian students into the pathway of a researcher. And why many are beginning to consider training outside of Canada.

As the Government of Canada's health research funding agency, our mandate is to support peer-reviewed research of the highest calibre. We have a bold 10-year strategic plan that speaks to attaining "the best heath for all powered by outstanding research", a vision that is dependant on talented research teams based at universities, hospitals, and other research and community organizations in all corners of this country. In this plan, we make the commitment that we "will foster both health research capacity in Canada and sustainable careers for individual researchers" and we are clear that this commitment to career sustainability includes our training programs.

The vast majority of CIHR's budget is devoted to funding research through peer-reviewed research grants on a topic selected by the individuals or teams of researchers or in support of strategic research directions deemed critical by the Government. This direct research investment has resulted in some of Canada's—and the world's—greatest scientific advancements. We need only to look to the discovery of lipid nanoparticles over 20 years ago by a Canadian, Peter Cullis, to understand how important our contributions continue to be. Or to the discovery of novel methods of developing CAR-T cells that will save the Canadian health system literally tens of millions of dollars while making available this crucial cancer therapy across all corners of our country. The Canadian research ecosystem is rife with such examples.

But these same funds are also the main source of financial support for masters and doctoral scholarships and post-doctoral fellows in that these trainees are paid directly through the grants of their supervisors. In fact, we estimate that $129 million in support was invested through stipends to graduate students and post-doctoral fellows paid through operating grants last fiscal year alone.

Along with our sister agencies, CIHR participates in the Canada Graduate Scholarship program at both the doctoral and master's program, investing over $192 million over five years. We also see it as a critical step in our support of the development of our next generation of researchers to provide fellowship training programs – programs that provide support for highly qualified

applicants in all areas of health research at the post-PhD degree or post-health professional degree stages. These fellowships support the development of their leadership potential and position them for success as research leaders of tomorrow in a tangible manner. In the last five years, CIHR has invested over $121 million in post-graduate fellowships.

By way of example, in early 2021 at the height of the pandemic, CIHR launched the Health Research Training Platform Pilot Funding Opportunity, with over $28M in funding. In addition to providing financial support for trainees, the 12 platforms funded by this program provide the necessary support for the experiences and skills needed to lead high-impact, interdisciplinary health research careers in a rapidly evolving research landscape.

This pilot provides access to interdisciplinary, inter-jurisdictional, and intersectoral training environments. Canada's next researchers can thereby benefit from high-caliber mentors and gain the skills required for academic and non-academic careers.

More recently, we invested over $4M in an innovative Health System Impact program that provides highly qualified PhD candidates, postdoctoral researchers, and early career researchers in health services and policy research fields with financial support and allowances. It provides the opportunity to develop embedded research programs that address the most pressing problems faced by health system organizations. Because of this program, there are 245 Health System Impact Fellows that have been or are currently embedded within 115 health system

organizations in our country to accelerate evidence-informed health system improvement.

In each of these programs, CIHR is focusing on strengthening the research talent pipeline in accordance with the principles of equity, diversity, inclusion and anti-racism. Our goal is to remove systemic barriers to accessing research funding and to embrace diverse perspectives. We are enhancing the participation and retention of outstanding scholars and researchers from all under-represented groups to ensure that we are capitalizing on the full extent of Canada's tremendous scientific talent.

For example, we are currently piloting an initiative that we are exceptionally proud of called the *CIHR Research*

Excellence, Diversity, and Independence (REDI) Early Career Transition Award. This ground-breaking award is an early career transition award for black and marginalized female scholars that provides significant research support in their training programs and, in partnership with universities, funding in the early parts of their research career. This unique partnership between the academic sector and CIHR signals a significant change in the philosophy of CIHR to ensure that the transition to a meaningful career for marginalized and under-represented populations is robust and sustainable.

In conclusion, Mister Chair, investing in health research and training is at the core of CIHR's mandate. We know that to ensure a strong and robust health system, we must invest in the researchers of tomorrow. We are doing all

that we can to do, but as this committee has well recognized, there is so much more to be done.

I look forward to taking your questions. Thank you.

CIHR Masters' Programs

QUESTION

How does CIHR support masters' students across Canada?

KEY MESSAGES

- Over the last 5 years, CIHR has invested $45 million directly in masters' scholarships supporting 2594 unique applications.
- In the last year alone, CIHR estimates that it has invested an estimated $38.7 million indirectly in masters students, through stipends paid by researchers' grants.
- These trainees are supported through a core tri-agency program called the Canada Graduate Scholarships – Master's program, which is administered by the Natural Sciences and Engineering Research Council on behalf of the three federal granting agencies. These scholarships are valued at $17,500 and last for 1 year.
- Budget 2022 committed $40.9 million over five years and $9.7 million ongoing to the federal granting councils to support scholarships and fellowships for Black student researchers. This funding will flow this fiscal year.

IF PRESSED ON RESEARCH IN FRENCH

- CIHR encourages applicants to all funding opportunities to submit applications in the official language of their choice.
- CIHR provides support to applicants in both official languages, and encourages research and scientific publication in French.
- Over the past five years, approximately 13% of Masters' awards were awarded to students who applied in French or who identified French as their language of choice in their funding applications.

BACKGROUND

Granting agency support for graduate students (masters, doctoral) and post-doctoral fellows takes two main forms: direct support via scholarships and fellowships and indirect support via stipends and salaries paid from research grants awarded to faculty researchers.

CIHR's mechanism for direct support for Masters trainees occurs exclusively through a core tri-agency program administered through the Natural Sciences and Engineering Research Council (NSERC) called the Canada Graduate Scholarships – Master's program.

Between 2017-2021, CIHR invested $45M on Masters trainees through the Canada Graduate Scholarship (CGS) Masters program supporting 2594 unique applications.

The number of the trainees has increased over the years from 400 per year in 2018, to 540 per year in 2019, to 795 per year in 2020, 2021, and 2022 and now 815 per year which includes the Black Scholars initiative supporting an additional 20 trainees per year. This compares to the CGS-Masters program funding 840 NSERC and 1365 Social Sciences and Humanities Research Council scholarships annually.

This program operates with a fixed institutional allocation of grantees. As a result, CIHR is unable to 'add capacity' through priority announcements to support more masters' trainees through this tri-agency program.

CIHR Doctoral Awards

QUESTION

How does CIHR support doctoral scholars?

KEY MESSAGES

- Thank you for the question, Mr. Chair. Over the last 5 years, CIHR has invested over $141 million directly in 1641 doctoral scholars through scholarships, awards, and training programs.

- In the last year alone, CIHR estimates that it has invested an estimated $39.3 million indirectly in doctoral scholars, through stipends paid by researchers' grants.

- CIHR, along with the other federal granting agencies, invests directly in students through the Canada Graduate Scholarship (CGS) program, which is a federal program of scholarships awarded through national competitions.

- CIHR's CGS Doctoral program, as well as CIHR's separate program, the Doctoral Foreign Study Award, provide recognition and support to students who are pursuing doctoral degrees in health-related fields in Canada and abroad, respectively. These awards provide $35,000 per year for up to 3 years.

- CIHR's support for doctoral scholars also includes investments made through the Vanier CGS program, a prestigious award created to attract and retain highly qualified doctoral students and brand Canada worldwide as a nation known for quality research and research training. It is valued at $50,000 per year for 3 years.

- Finally, Budget 2022 committed $40.9 million over five years and $9.7 million ongoing to the federal granting councils to support scholarships and fellowships for Black student researchers, which will increase diversity in Canada's research community, leading to better science and improved health outcomes.

IF PRESSED ON RESEARCH IN FRENCH…

- CIHR encourages applicants to all funding opportunities to submit applications in the official language of their choice.

- CIHR provides support to applicants in both official languages, and encourages research and scientific publication in French.

- Over the past five years, approximately 10% of Doctoral awards were awarded to students who applied in French or who identified French as their language of choice in their funding applications.

BACKGROUND

Granting agency support for graduate students (masters, doctoral) and post-doctoral fellows takes two main forms: direct support via scholarships and fellowships and indirect support via stipends and salaries paid from research grants awarded to faculty researchers.

CIHR Doctoral Awards

In 2021-2022, CIHR invested over $30 million in doctoral award programs, supporting approximately 700 doctoral scholars.

CIHR, along with the other granting agencies, the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC), invests in students through the Canada Graduate Scholarship (CGS) program, which is a federal program of scholarships awarded through national competitions.

CIHR's Canada Graduate Scholarships – Doctoral program as well as CIHR's separate program, the Doctoral Foreign Study Award, provide special recognition and support to students who are pursuing doctoral degrees in a health-related field in Canada and abroad, respectively. These awards provide $35,000 per year for up to 3 years.

CIHR leads the delivery of the Vanier Canada Graduate Scholarship doctoral program - one of a suite of elite federal research capacity development programs - on behalf of the tri-agencies. A Vanier Canada Graduate Scholarship is a prestigious award valued at $50,000 per year for 3 years. The program was announced in the 2008 federal budget as part of a broader strategy to increase the supply of highly-qualified research personnel in Canada and brand Canada worldwide as a nation known for quality research and research training.

Canadian graduate students who hold a Canada Graduate Scholarship – Doctoral Award or a Vanier Canada Graduate Scholarship and are interested in building global linkages and international networks are also eligible for the Michael Smith Foreign Study Supplement award, which is valued at up to $6000 and helps to offset the costs of undertaking research studies outside of Canada for up to 6 months.

Post-Doctoral Fellowships

QUESTION

How does CIHR support post-graduate fellowships?

KEY MESSAGES

- Thank you, Mister Chair. In the last year alone, CIHR estimates that it has invested an estimated $51.4 million indirectly in post-graduate fellows, through stipends paid by researchers' grants.
- Additionally, CIHR invested over $121 million in the last 5 years to directly support 1322 post-doctoral fellows.
- These include both academic researchers and health professionals, who are uniquely positioned to use research and practical experience to contribute to health innovations.
- For instance, investments in CIHR's annual **Fellowship Program** and institute-specific awards support highly qualified post-doctoral or post-health professional degree trainees in all areas with additional funding from CIHR institutes for research in high-priority topics.
- This also includes investments made in the next generation of health researchers through the **Banting Postdoctoral Fellowships** program, a prestigious award created to increase the supply of highly-qualified research personnel in Canada and brand Canada worldwide as a nation known for quality research and research training.
- These awards, valued at $70,000 per year for 2 years, are administered by CIHR on behalf of all tri-agency partners.

IF PRESSED ON SUPPORT TO FRANCOPHONE POST-DOCTORAL FELLOWS…

- CIHR encourages applicants to all funding opportunities to submit applications in the official language of their choice.
- CIHR provides support to applicants in both official languages, and encourages research and scientific publication in French.
- Over the last 5 years, 9.9% of all post-doctoral fellows supported by CIHR indicated French as their official language of choice.

IF PRESSED ON EXAMPLES OF BANTING FELLOWSHIPS…

- For example, **Dr. Eno Hysi** from **St. Michael's Hospital in Toronto** received an NSERC Vanier Graduate Scholarship to study photoacoustic imaging for cancer treatment monitoring.
- As a Banting Fellow, Dr. Hysi worked on imaging tools that will help make better use of the scarce supply of donor organs by determining degree of fibrosis and selecting appropriate donor kidneys for transplant. For his work, he was recognized with a 2021 Polanyi Prize in Physics.

BACKGROUND

Granting agency support for graduate students (masters, doctoral) and post-doctoral fellows takes two main forms: direct support via scholarships and fellowships and indirect support via stipends and salaries paid from research grants awarded to faculty researchers.

Between 2017 and 2021-22, CIHR invested over $121 million in postgraduate fellowships. This includes investments of over $80.6 million through **the CIHR Fellowship Program**. The values and duration of awards are determined as follows:

- Post-doctoral researchers: $45,000 per year over 3 years.
- Health professionals: $26,000 to $55,000 over 3 to 5 years depending on availability of Canadian licensure, years of research or clinical training experience since completion of professional degree and desire to pursue a graduate degree.
- Additional $5,000 are available for awards held outside of Canada.

CIHR Institutes contribute funding to the program through **priority announcements**, supporting post-graduate researchers' projects in specific areas. The duration and value of awards vary depending on the availability of funding. Some institutes also create incentives for outstanding trainees. For example, CIHR Institute of Aging invested $285,000 to support 3 fellowships in the framework of 2021 Fellowship program and recognized the highest ranked postdoctoral trainee in the field through the **Fellowship Prize of Excellence in Research on Aging**.

CIHR leads the delivery of the **Banting Post-Doctoral Fellowships** – one of a suite of elite federal research capacity development programs – on behalf of the tri-agencies to top-tier post-doctoral research fellows in Canada and internationally. A Banting Fellowship is a prestigious award valued at $70,000 per year for 2 years. The program was announced in the 2008 federal budget as part of a broader strategy to increase the supply of highly-qualified research personnel in Canada and brand Canada worldwide as a nation known for quality research and research training.

In partnership with the International Human Frontier Science Program Organization, CIHR and NSERC partner to provide the **Human Frontier Science Program Postdoctoral Fellowships**, launched in 2022 to support novel, transformative, interdisciplinary research in life sciences. These fellowships encourage early career scientists to broaden their research skills by moving into new areas of study while working in a new country.

In December 2022 this funding allowed CIHR and partners to launch the first round of **Research Excellence, Diversity, and Independence Early Career Transition Awards**, intended to facilitate the transition of researchers who self-identify as Black of any gender or racialized women into independent research faculty positions in academia or health system institutions. The decisions are anticipated to be announced in September 2023.

CONSIDERATIONS

Budget 2022 committed $40.9 million over five years and $9.7 million ongoing to the federal granting councils to support scholarships and fellowships for Black student researchers at the undergraduate, Master's, Doctoral and Postdoctoral levels

The new funds are to be implemented from 2023–2024 through graduate scholarships and fellowship programs as well as the new Undergraduate Student Research Awards (USRA) program. The funding will support, per year:

- 90 USRA for NSERC
- 95 USRAs each for NSERC and SSHRC
- 20 new Canada Graduate Scholarships – Master's (CGS M) for each agency
- 10 new Canada Graduate Scholarships – Doctoral (CGS D) for each agency
- 6 new postdoctoral fellowship awards each agency.

These new funds will help address the disproportionate underfunding of Black scholars at all stages of their careers and help strengthen efforts to break down barriers and address inequities as laid out in the Tri-agency EDI Action Plan for 2018–2025.

Indirect Support to Scholars and Fellows

SYNOPSIS

In addition to the direct support provided through scholarships and fellowships, the Government of Canada also invests indirectly in scholars and fellows.

QUESTION

How does CIHR indirectly support scholars and fellows?

KEY MESSAGES

- Mister Chair, through our strategic plan, the Canadian Institutes of Health Research (CIHR) is working to strengthen Canadian health research capacity by focusing on strengthening investigator-initiated research and enhancing training and career support, both of which will benefit Canadian trainees.

- In addition to supporting scholars and fellows directly through scholarships and fellowships, CIHR invests in this talent indirectly through research grants that employ them to carry out research.

- In fact, in 2021-22, CIHR invested an estimated $129M to indirectly support scholars and fellows through stipends paid through operating grants.

- The compensation of individuals working on the funded research must be in accordance with the administering institution's relevant policies, so some institutions choose to supplement these stipends.

- As articulated in the Advisory Panel on the Federal Research Support Systems' report, support for highly qualified personnel, including scholars and fellows, typically consumes the majority of research grant funding awarded.

- The Advisory Panel also highlighted the important function that indirect support to trainees through research grants provides to Canada's future researchers.

BACKGROUND

By involving scholars and fellows in their research projects, grant holders help trainees gain research experience and skills and develop greater health research capacity in Canada.

Since 2009-10, CIHR has invested $2.48B in support of health research scholars and fellows (direct and indirect training) which represents an average of 20% of CIHR's annual investments.

CIHR's Strategic Plan 2021-2031 identifies "strengthen Canadian health research capacity" as a priority. To support the implementation of this priority, the plan specifies that CIHR will focus on strengthening investigator-initiated research and enhancing training and career support, both of which will benefit Canadian trainees.

In fact, the Advisory Panel on the Federal Research Support System's Report, publicly released on March 20, 2023, noted the important function that indirect support to trainees through research grants provides to Canada's future researchers. The Report estimated that roughly 35,000 trainees are supported indirectly in this way, totaling an estimated $726 million annually, which is almost three times the current annual spending by the granting councils for direct support via their scholarship and fellowship programs.

Priority-Driven Research

SYNOPSIS

CIHR's Institutes support trainees by building capacity in priority areas identified by their research community stakeholders.

QUESTION

How does CIHR support trainees through its priority-driven research programs?

KEY MESSAGES

- One way that CIHR builds capacity in priority areas is by investing in research grants and awards. Many of these investments are championed under the scientific leadership of CIHR's Institutes.
- For example, the *Health System Impact Fellowship* program, run annually under the leadership of CIHR's Institute for Health Services and Policy Research, provides trainees with financial support and career experience in health system organizations across Canada allowing them to employ their research skills to support evidence-informed decision making in a non-academic setting.
- By the end of 2022, the annual Health System Impact Fellowship embedded 245 PhD and post-doctoral fellows within 115 health system organizations across Canada.
- CIHR also collaborates with its Tri-Agency partners, the Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council to engage trainees and build capacity in interdisciplinary research.
- For example, the Tri-Agencies are collaborating on the Healthy Cities Training Platform led by **Dr. David Ma** out of the **University of Guelph** builds Canadian research capacity to design, implement and scale innovative, solution-based interventions in a variety of urban contexts.
- Finally, CIHR is actively supporting the career development of equity seeking groups: in 2022 CIHR launched the first round of **Research Excellence, Diversity, and Independence Early Career Transition Award** to facilitate transition of racialized post-doctoral researchers, associates and clinicians to independent faculty positions.

BACKGROUND

Granting agency support for graduate students and post-doctoral fellows takes two main forms: direct support via scholarships and fellowships and indirect support via stipends and salaries paid from research grants awarded to faculty researchers. These forms of support can occur in CIHR's investigator-initiated programs as well as through CIHR priority-driven funding opportunities. It is difficult to estimate the number of trainees supported through priority-driven investments. This is in part due to the fact that they may be indirectly supported through research grants and in part due to the fact that CIHR does not track trainees reached through each of its priority-driven investments.

CIHR Institutes can allocate funding to support research in priority areas highlighted by their community indirectly or directly through existing CIHR programs. These investments are known as **priority announcements**. The duration and value of grants and awards vary depending on the availability of funding. Some Institutes use this vehicle to create incentives for outstanding trainees. For example, CIHR Institute of Aging invested $285,000 to support 3 fellowships in the 2021 Fellowship program and recognized the highest ranked postdoctoral trainee in the field through the Fellowship Prize of Excellence in Research on Aging.

Many priority-driven funding programs are specifically designed to **develop capacity**. The Health System Impact Fellowship program, for example, provides career experience for trainees in health system organizations across Canada allowing them to employ their research skills to support evidence-informed decision making in a non-academic setting. A 2023 peer-reviewed study on the program found that employment stemming from this program spans several sectors, including in academic (37%), public (29%), healthcare delivery (17%), and private (14%) sectors, and also reports high ratings from fellows in the extent to which the program is believed to support their career preparedness and readiness (4.49 out of 5). The recipients of these prestigious awards have transitioned into impressive research-related leadership careers that span the academic and non-academic sectors. In another example, CIHR launched the Patient-Oriented Research Transition to Leadership Awards in 2019 to support the career readiness of graduate and post-graduate trainees by providing them with salary and allowance to start independent careers in patient-oriented research.

Finally, some offerings target **skills development** in particular areas. For example, the Healthy Cities Research Initiative Training platform offers an annual *Summer Institute* that hosts educational webinars and engages researchers, trainees and stakeholders and build capacity across the country. Lastly, under the leadership of CIHR's Institute of Aging, a *Summer Program in Aging* has been hosted on annual basis for many years. This program targets scholars and fellows either working with or learning more about a particular topic area related to aging. It provides research and professional skills building including grant writing, research communication, incorporating the perspective of those with lived experience in research and the importance of knowledge mobilization.

Research Security

SYNOPSIS

On February 14, the government asked the federal research ecosystem to adopt a further enhanced posture regarding national security related to sensitive research areas where any of the researchers working on the project are affiliated with a university, research institute or laboratory connected to military, national defence or state security entities of foreign state actors that pose a risk to national security.

QUESTION

How does CIHR protect the security of the research that it funds?

KEY MESSAGES

- CIHR recognizes the shared responsibility of the Government of Canada, federal granting agencies, research institutions, and researchers to take appropriate measures and remain vigilant in protecting Canada's investment in research.

- In coordination with federal government partners and university organizations, CIHR and its federal granting agency partners provide tools for the academic community to self-evaluate and take actions to mitigate risks associated with their research, their research partnerships and their international travel through the *Safeguarding your Research* portal.

- In addition, researchers are expected to follow the best research practices in accordance with agency policies to maintain the highest levels of research excellence and integrity, academic freedom and openness, and the proper stewardship of public funds.

- CIHR is working closely with federal partners on the implementation of the enhanced posture, as well as the establishment of a Research Security Centre announced in Budget 2022 to provide advice and guidance directly to research institutions.

BACKGROUND

CIHR has been working in partnership with federal partners, including the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council (SSHRC), and the Canada Foundation for Innovation (CFI) since 2018 to advance Canada's approach to research security, including the development of the *Safeguarding Your Research* portal and the development and implementation of the *National Security Guidelines for Research Partnerships*. This work has been facilitated by a government-university collaborative effort to improve security awareness in the research community.

The *Safeguarding Your Research* portal provides tools for the academic community to self-evaluate and, when necessary, take actions to mitigate any security, safety, economic, or geopolitical risks associated with their research, their research partnerships and their international travel.

The *National Security Guidelines for Research Partnerships* integrates national security considerations into the development, evaluation, and funding of research partnerships. The Guidelines better position researchers, research organizations and Government funders to undertake consistent, risk-targeted due diligence of potential risks to research security. NSERC has begun implementing these guidelines, which are being expanded to all granting councils and CFI in the near term.

Budget 2022 announced an investment of $34.6 million over 5 years, starting in 2022-23, and $8.4 million ongoing, to enhance Canada's ability to protect our research, and to establish a Research Security Centre that will provide advice and guidance directly to research institutions. CIHR is working with its federal partners on the implementation of these investments.

On February 14, 2023, the Minister of Innovation, Science and Industry, in conjunction with the Ministers of Health and Public Safety, requested that the federal research funding agencies and CFI "adopt a further enhanced posture regarding national security."

CIHR is working closely with its federal partners on the implementation of this posture, specifically, the requirement for grant applicants seeking to conduct research in a sensitive research area to attest that none of the researchers working on the project are affiliated with a foreign military research institute, university, or laboratory of a hostile state actor.

In addition, researchers should continue to follow the best research practices in accordance with the *Tri-Agency Framework on Responsible Conduct of Research* and other Agency policies to maintain the highest levels of research excellence and integrity, academic freedom and openness, and the proper stewardship of public funds.

Health Research in Official Languages

QUESTION

Recent media coverage discusses the decline of scientific research in French in Canada. Can you please update this committee on how CIHR is supporting health research in French?

KEY MESSAGES

- Mr. Chair, CIHR has taken specific actions to support equitable access to its programs and services across both official languages.

- For instance, there is evidence that documents written in French require approximately 20% more space than those written in English, and that is why CIHR increased the application page limit for research proposals submitted in French.

- CIHR has also increased the availability of translation services for peer reviewers and researchers so that information is available in both official languages at all stages of the research funding process, from application to peer review.

- In 2021, CIHR put in place equalization measures for its Project Grant program, CIHR's largest competition for research grant funding, to ensure that the proportion of French grants funded is at least equal to the proportion of applications submitted in French, in order to address historic disproportions in funded research across both official languages.

- As part of the Tri-Agency Equity, Diversity and Inclusion Action Plan (2018 – 2025) CIHR has implemented data collection tools to better monitor the impact of our actions on the proportion of researchers applying in the language of their choice.

- CIHR remains committed to working with its Tri-agency partners to identify areas for improvement and implement actions to further support health research in both official languages in Canada.

IF PRESSED ON OVERALL APPLICATION PRESSURE AND SUCCESS RATES…

- There has been a slight decline in the proportion of French applications received over time at the Canadian Institutes of Health Research (CIHR). Across all its programs, the average proportion of French applications submitted from 2000-2010 was approximately 8% of applications (7.8% to be precise), while the average proportion from 2011-2021 was just over 6% (6.1%).
- Across all CIHR's competitions from 2000-2021, the average application success rates for applications submitted in French is 26.5%, while the average success rate for English applications is 29.7%.

BACKGROUND

CIHR recognizes that there are ongoing challenges concerning scientific research and publication in French. These include a dearth of French-language journals in the health sciences in Canada; lack of research grant support in French for Francophone researchers within English-speaking institutions; collaborative research teams that may operate in English; and overall lack of trust from researchers that their applications will be considered equally, if they are submitted in French.

Since 2012, CIHR has led a series of action plans to better fulfill its obligations under the *Official Languages Act* and support the development of French language research programs in health. The action plans included measures to support health researchers' equitable access to CIHR programs and services, such as increased space for applications in French and equalization.

These actions are consistent with CIHR's policy statement on official languages which, among other things, aims to encourage the appropriate inclusion of official language considerations in health research design, conduct and application to improve health outcomes.

These commitments are also reflected in CIHR's Strategic Plan 2021-2031. CIHR has undertaken a range of interventions to improve equity, diversity and inclusion in the research system, some of which have been aimed at addressing barriers faced by the Francophone research community. CIHR operationalizes these commitments through both investigator-initiated and priority-driven research funding programs across the entire research lifecycle, from application through research and knowledge mobilization. For example, as part of the Tri-Agency Equity, Diversity and Inclusion Action Plan (2018 – 2025) along with the other federal funding agencies, we have updated the Tri-Agency self-identification questionnaire to include a question for applicants to identify which language they first learned, and which language is used most often at home. This will allow better data-tracking related to research funding in French.

In April 2018, CIHR also implemented a targeted recruitment strategy to expand its pool of experts capable of reviewing applications written in French. CIHR's College of Reviewers systematizes reviewer recruitment to identify and mobilize the appropriate expertise for the review of all funding applications. Ongoing analyses are conducted to ensure that approximately 25% of College of Reviewer members can review applications written in French. This helps to ensure that all applications submitted in French are appropriately reviewed.

CIHR will continue to monitor research funding data to ensure equity in health research funding for French-speaking researchers; work with key stakeholders, such as universities and community organizations, to identify areas for improvement; and implement actions to further support health research in both official languages in Canada.

CONSIDERATIONS

- The Standing Committee on Science and Research (SRSR) is currently preparing the report on its study of *Research and Scientific Publication in French*.
- In November 2022, CIHR submitted a brief to this study outlining actions CIHR has taken to support research in French.
- The SRSR study often refers to a report released in June 2021 by Acfas, *Portrait and Challenges of Research in French in the Minority Context in Canada*, which provides recent data on the situation of French-speaking researchers in Canada.

APPENDIX A: SRSR Member Bios

Lloyd Longfield, LPC (Chair) (Guelph)

Mr. Longfield has been working in manufacturing and community benefit organizations in Guelph for 30 years, including as a President of the Guelph Chamber of Commerce.

Since his election in 2015, he served as a member of the House of Commons Standing Committee for Industry, Science and Technology, Standing Committee for Agriculture and Agri-Food, Standing Committee on the Environment and Sustainable Development and a Vice-Chair of the Standing Committee on Public Accounts.

Mr. Longfiend's interests include local collaboration on environment, housing, mental health, Indigenous reconciliation, early learning, childcare, entrepreneurship and economic development.

He was elected as a Chair of SRSR on April 25, 2023.

Maxime Blanchette-Joncas, BQ (Vice-Chair) (Rimouski-Neigette—Témiscouata—Les Basques)

A graduate of business administration from L'universite du Quebec a Rimouski Mr. Blanchette-Joncas has held administration positions at BDC and in the municipal public sector.

Since his election in 2019 Mr. Blanchette-Joncas has taken particular interest in the fight against climate change, improving the quality of life of older adults, protection of the agricultural center and social housing.

In the 43rd Parliament Mr. Blanchette-Joncas introduced bill C-295 to incentivize recent graduates to seek employment in rural regions. The bill died on the order paper with the election announcement.

Mr. Blanchette-Joncas supported the May 1, 2023 nationwide walkout led by Support Our Science to demand more funding for federally-sponsored fellowships and scholarships in a joint press conference with the organizers and Mr. Richard Cannings (NDP).

Valerie Bradford, LPC (Kitchener South—Hespeler)

Ms. Bradford spent 15 years supporting small businesses and bringing jobs and investments to Waterloo Region as an economic development professional for the City of Kitchener and is the former Chair of the Workforce Planning Board.

Ms. Bradford is passionate about universally affordable and accessible childcare, to allow parents and particularly women, to fully participate in the workforce.

Richard Cannings, NDP (South Okanagan—West Kootenay)

Mr. Cannings a graduate in zoology from Memorial University in Newfoundland taught for 17 years at the University of British Columbia prior to a career as a consulting biologist. Mr. Cannings spent 8 years on the Committee on the Status of Endangered Wildlife in Canada and was a board member of the Nature Conservancy of Canada. In 2015, Mr. Cannings entered Federal politics and has been an MP representing British Columbia since.

Mr. Canning's interests have been heavily focused on the impacts of climate change and conservation in Canada. Prior to sitting on SRSR he has been on the Natural resources committee for six years. Since 2015, Mr. Cannings has introduced three private member's bills on topics such as the use of wood in public projects, lakes and rivers and on the species at risk registry.

Mr. Canning supported the May 1, 2023 nationwide walkout to led by Support Our Science to demand more funding for federally-sponsored fellowships and scholarships in a joint press conference with the organizers and Mr. Blanchette-Joncas (BQ).

Chad Collins, LPC (Hamilton East—Stoney Creek)

Mr. Collins a longtime municipal ward councilor in Hamilton was elected to the House of Commons for the first time in the 2021 election. As a municipal councilor he remained passionate about addressing the City's aging affordable housing stock.

Lena Metlege Diab, LPC (Halifax West)

Ms. Diab a graduate in political science, economics and law from the Universities of Saint Mary and Dalhousie has had a career and law and was a small business owner prior to a political career in the Nova Scotia legislature. She has subsequently been a Nova Scotia cabinet minister for Immigration and Labor and Advanced Education.

She was elected as a liberal MP for Nova Scotia in the 2021 Federal election.

Ms. Diab sees SRSR as an opportunity to shine the light on Canada’s strong research sector which often goes unnoticed.

Stéphane Lauzon, LPC (Argenteuil—La Petite-Nation)

A pervious city councillor for the municipality of Gatineau Mr. Lauzon was elected as a federal MP in the 2015 federal election.

Ben Lobb, CPC (Huron—Bruce)

Mr. Lobb holds a Bachelor of Science in Business Administration from Lee University in Cleveland, Tennessee and previously worked in the Finance Department for Desire2Lean (D2L) and Wescast Industries in Wingham, Ontario.

Mr. Lobb was first elected to the House of Commons in 2008.

Dan Mazier, CPC (Dauphin—Swan River—Neepawa)

Prior to the 2019 election Mr. Mazier was the President of Manitoba's largest general farm organization, Keystone Agricultural Produces. His political interests have long focused on improving rural connectivity with better internet and cell phone service and supporting seniors and families living on fixed-incomes.

Gerald Soroka, CPC (Yellowhead)

Mr. Soroka served as a Division one Councilor and Mayor of Yellowhead County before making the jump to federal politics. During his time as Mayor, he was also elected as Vice President of the Alberta Association of Municipal Districts and Counties from 2008 to 2010.

Mr. Soroka comes from a long line of farmers and has farmed for the majority of his life where his grandparents homesteaded in the 1930s.

Charles Sousa, LPC (Mississauga—Lakeshore)

Mr. Sousa was elected to Ontario Provincial Legislature in 2007 and served as a Minister of Finance for Ontario. Prior to elected office, Charles enjoyed a 20-year commercial banking career with RBC Royal Bank and in capital markets at RBC Dominion Securities. He has been a member of the Canadian Chamber of Commerce, a director with the United States Chamber of Commerce and a member of the Toronto Board of Trade.

Beyond SRSR Mr. Sousa serves on the House of Commons Standing Committee on National Defence.

Corey Tochor, CPC (Vice-Chair) (Saskatoon—University)

Prior to entering politics, Mr. Tochor was a local Saskatoon entrepreneur who owned and operated Health Conveyance, a communications company that provides electronic messaging in health facilities across Saskatchewan.

Mr. Tochor was first elected to the Saskatchewan Legislature in the 2011 provincial election. His legislative responsibilities began early in his first term when he served as Deputy Chair of Committees. He served as Deputy Whip and was later appointed Deputy House Leader by Premier Wall. Re-elected in 2016 he was elected Speaker of the Legislature.

APPENDIX B: RECENT SRSR DISCUSSIONS RELATED TO THE SUPPORT TO STUDENTS

Standing Committee on Science and Research (SRSR)

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

The government commenced the consideration of this study on May 4, 2023. At the time meeting material preparation, the members have met on 2 occasions and heard from 12 witnesses.

May 4, 2023

The representatives of the student unions and associations recommended to **increase investment in graduate scholarships and post-doctoral fellowships by 48%** to match inflation and **double the number of graduate scholarships and post-doctoral fellowships**, **have student representation on tri-agency governing councils**, extend the eligibility to Canada Student Grants to graduate students by $25 million per year and **invest $30 million per year in dedicated research fellowships for Indigenous and international students, awarded by the tri-councils**. Ms. Samy-Jane Tremblay from Quebec Student Union added that the government needs to implement the Bouchard report and **increase investment in research** as well as Naylor report **aligning the scholarship terms with program durations**. She also noted that the **scholarships are not harmonized and suggested redistribution of funding from large scholarships, such as Vanier scholarship**.

When pressed by MP Lobb (CPC) and MP Sousa (LPC) on the exact number and values of fellowship and scholarship increase, Mr. Philippe-Edwin Bélanger from the Canadian Association for Graduate Studies noted that **this is a question for granting councils**. On a question of MP Mazier (CPC) whether professors could pay the students working on projects more, Mr. Bélanger noted that the sum is at their discretion. Sébastien Paquette from the Association du personnel de la recherche du Québec (APRQ) made a point that scholarship recipients are often not aware of reduction of the amount for equipment.

May 9, 2023

The Committee will hear from representatives of the Canadian Association of University Teachers, la Fédération québécoise des professeures et professeurs d'université, Support Our Science, Canadian Black Scientists Network, and Science and Policy Exchange.

Successes, Challenges and Opportunities for Science in Canada

The committee started the consideration of this study on February 8, 2022. The members had a total of 8 meetings, received 16 briefs and heard from 46 witnesses.

February 8, 2022

Dr. Roseann O'Reilly Runte, President of the Canada Foundation for Innovation, and Dr. Mona Nemer, Chief Science Advisor, stated that the government policy needs to be guided by science. Their recommendations for boosting Canadian innovation included:

- Increasing spending on Canadian research and development.
- Investing in the next generation of researchers.
- Supporting cross-disciplinary research fostering cross-sectoral collaboration.
- Investing in manufacturing and commercialization of innovations.
- Investing in cutting-edge research.
- Investing in small institutions in the regions.

Dr. Gilles Patry from U15 Group of Canadian Research Universities stressed the **need to invest in innovation leaders of tomorrow** and urged to **invest in granting councils** and Canada Graduate Scholarship Program. Dr. John Pomeroy, testifying as an individual, and Dr. Vivek Goel from the University of Waterloo noted that having separate granting agencies supporting different areas poses a challenge.

February 10, 2022

The witnesses made a case for supporting and hiring talent, recommended **investment in universities and researchers of tomorrow, optimized use of shared infrastructure** and **cooperation** between academia, government and industry. MP Diab (LPC) asked questions about talent retention and the way diversity enriches research. MP Cannings (NDP) was interested in policies to facilitate cross-sectoral collaborations. MP Blanchette-Joncas (BQ) raised the subjects of brain drain and brought and reduced investment of Canada in research and development. MP Williams (CPC) focused on what Canada can do differently to lead in innovation.

February 15, 2022

The **tri-agency presidents** appeared before the Committee, discussing the programming of each agency; challenges and the way councils address them as well as opportunities to strengthen the research ecosystem. The President of CIHR answered questions on research to decrease healthcare costs, downstream innovation and overcoming the “valley of death”, the promotion of research commercialization, enhanced coordination through the Canada Research Coordinating Committee (CRCC), and COVID-19 vaccine research. The witnesses also discussed with members the support for early career researchers, equity, diversity, and inclusion, and enhancing support for innovation and fundamental science. In the second part of the meeting, Dr. David Naylor, testifying as an individual, underscored the need to invest in the **next generation of researchers, excellence** and **diversity**.

February 17, 2022

Dr. Nipun Vats from Innovation, Science and Economic Development Canada (ISED) described the way agency supports research and Dr. Danial Wayner from National Research Council of

Canada (NRC) presented the role and programming of NRC. MP Blanchette-Joncas (BQ) asked about the reasons for the delay in creation of the national advisory council on research and innovation in accordance with the Naylor report recommendation.

In the second panel Dr. Robert Annan from Genome Canada recommended **stable research investment** and supporting mission-driven initiatives. Mr. Paul Davidson from Universities Canada once again recommended to **increase investment in research and graduate students**.

March 1, 2022

Dr. Baljit Singh from the University of Saskatchewan noted the needs to create an alternative funding model for large, national research science facilities, partnerships with Indigenous communities, advancing One Health research and investment into social sciences and humanities. Dr. Rémi Quirion, Chief Scientist of Quebec recommended investment in **fundamental research** and the need to **attract talent**. MP Torchor (CPC) raised the question of the impact of crises on research and ways to increase resilience of research facilities. MP Collins (LPC) used the example of the lack of public trust in scientific evidence during the pandemic to ask about investments to combat misinformation.

March 22, 2022

Dr. Ken Coates, testifying as an individual, recommended ensuing equitable access to benefits from science and technology, improving the speed of government decision-making, investment in polytech and scientific literacy. Dr. Alan E. Winter, testifying as an individual, recommended encouraging big science, using science to develop measures to ensure the security of supply chains, developing a science foresight system and reducing silos. Ms. Rachael Maxwell from Evidence for Democracy spoke of the need to protect the office of the chief science adviser and the witnesses from the Colleges and Institutes Canada reiterated the importance of investment in college research.

MP Blanchette-Joncas (BQ) raised the issue of the **lack of progress on Naylor report recommendations**. MP Collins (LPC) asked about the ways to **retain and attract talent** and MP Cannings (NDP) – about increasing scientific literacy of decision-makers and support to citizen scientists.

March 31, 2022

Dr. Stéphanie Michaud from BioCanRx outlined the ways the Networks of Centres of Excellence program helped meet the cancer patient needs. Mr. François Deschênes from the University of Quebec made a case for supporting small research institutions. Dr. Allan Eaves from STEMCELL Technologies Inc. urged to invest in **research investment on par with G7 nations**.

During the second panel Dr. Jessie-Lee McIsaac testifying as an individual stressed the need for supporting knowledge mobilization and co-production of research, ensuring equity of funding for Early Career researchers and smaller-sized institutions outside of big cities. Dr. Victor Rafuse from Brain Repair Centre recommended **supporting hypothesis-driven research**, ensuring

geographical diversity and developing a neuroscience policy. Dr. Nigel Smith from TRIUMF focused on ways to support major research facilities having significant scientific impact.

Top Talent, Research and Innovation

The committee commenced the consideration of this study on April 28, 2022. The members met on 6 occasions to discuss the study, received 11 briefs, including a CIHR written submission published on June 21, 2022, and heard from 43 witnesses.

April 28, 2022

The witnesses made the following key point about investment in research, attraction and retention of top talent in Canada:

- Top scientists are attracted by leadership in research, innovation and world-class research infrastructure.
- Funding is also important, and Canada needs to **increase the funding amounts, number and variety of funding opportunities** to attract and retain talent.
- Funding opportunities for research chairs, support to **early career researchers** and **investigator-driven research** are important for talent retention.

Mr. Jonathan Deroches from Quebec Student Union and Dr. Edris Madadian from the Canadian Association of Postdoctoral Scholars noted the **significant underfunding for graduate scholarships and of post-doctoral fellows**, recommending to:

- Increase the **number and value of graduate scholarships**.
- Increase **scholarship terms** to **match program durations**.
- Ensure **student representation** on federal granting council boards.
- Protect post-docs, recognizing them as researchers, harmonizing the legislation allowing them to access workplace benefits and providing career opportunities.

Other key topics discussed included **attracting talent to institutions in the regions and rural areas**, gendered impacts of limited funding for researchers, barriers to equitable access to funding opportunities, immigration policies for attracting global talent and recognition of foreign academic credentials.

May 5, 2022

The Committee heard from witnesses with lived experience about negative impacts of insufficient funding for scholarships and **low salaries for post-doctoral fellows** on pursuing research careers in Canada. The witnesses representing business made a case for removing barriers for attracting global talent through expedited visa and work permit processing. The committee also heard from researchers who described how **insufficient investment in certain research areas,** namely glycomics and endometriosis**, leads to brain drain and negative outcomes for patients**. Key discussion topics included **keeping talent in Canada, francophone student retention**, university and college-business partnerships, eliminating barriers for

attracting global talent, **disproportionate effect of scholarship underfunding on marginalized groups**, matching public and private funding to support research and support to centres of excellence.

May 12, 2022

The NSERC President Alejandro Adem, and Dr. Danika Goosney, Vice-President, Research Grants and Scholarships Directorate, highlighted the following:

- NSERC has been working hard to harmonize and streamline their approach to talent development amongst research funders;
- **award values** offered by tri-councils set the bar for student compensation provided by post-secondary institutions through research stipends and other funding sources;
- disadvantaged and international students are more likely to accumulate debt during their undergraduate degree, making the pursuit of higher learning more difficult.

The witnesses also highlighted the need to invest in both applied and fundamental research, end the exemption across tri-council funding formulas of the college and community innovation program, and increase investment in graduate scholarships and innovation. Dr. Kevin Smith, testifying as an individual recommended increasing investment in research in clinical care.

May 19, 2022

The witnesses discussed with the members the need to invest in commercialization to bridge the innovation gap. Mr. Gordon McCauley from adMare BioInnovations spoke about the **shortage of the life sciences talent** in Canada suggesting creating programs to attract international students, tuition subsidies and investment to scale in universities, colleges and supporting organizations including tri-councils. Dr. Catharine Whiteside from Banting Research Foundation recommended investing in **early career researchers**, noting that federal granting agencies do not provide competitive funding. She also mentioned that **CIHR discontinued its early-career research award program in 2014** and that since 2014, **35% of CIHR Banting post-doctoral fellows were recruited to faculty positions abroad**. The topics of simplified immigration measures for international students and investing in **equity, diversity and inclusion** featured prominently in the discussion.

September 22, 2022 & October 3, 2022

The committee began the consideration of the draft report and ordered the Chair to present the report to House.

October 24, 2022

The committee tabled its **second report** comprising 13 recommendations, which, beyond simplified visa, work permit and immigration measures for international students, harmonization of legislation and encouraging creation of employment opportunities for post-docs, better

funding for applied research and creation of experiential learning opportunities for students included:

- Reviewing and **increasing investments in fundamental research through increasing granting council budgets** (#3).
- **Increasing the number of scholarships and fellowships** to graduate students and post-doctoral researchers, **increasing their value by 25%** to reflect increases in cost of living and **indexing the amount to the consumer price index** and considering other compensation mechanisms (#4 & 5).
- Amending the tri-agencies' Acts to **include student representatives on the governing councils** (#6).
- Developing a new tri-agency **funding program for early-career researchers** (#9).
- Expand and assessing efforts to advance equity, diversity and inclusion in research (#10).
- Reviewing federal research funding criteria and remedying any regional disproportionality (#11).

CIHR informed the drafting of the Government Response tabled on February 17, 2023.

APPENDIX C: RECENT DISCUSSIONS RELATED TO RESEARCH AND SCIENTIFIC PUBLICATION IN FRENCH

Standing Committee on Science and Research (SRSR)

Research and Scientific Publication in French

The government commenced the consideration of this study on October 3, 2022. In total the committee met on 7 occasions, heard from 28 witnesses and received 24 briefs on this study.

October 3, 2022

Members were interested to hear about the role of the Federal government in the support of the promotion of French language publications in the areas of science, social science, humanities, **health** and engineering, and the issues facing Canadian Francophone researchers. Members were also interested in hearing what the federal government can do to support grants for Francophone researchers through **federal grant systems** and whether the protection of French language research and publications in academia and scholarly journals can be enhanced through amendments within the *Officials Languages Act*. Witnesses called for the establishment of a **French research support service** similar to the one implemented in Québec to support Francophone researchers in applying for funding and receiving funding in French.

Laura Pelletier and Jean-Pierre Perreault from Acfas expressed the **difficulty of publishing in French** given the lack of scholarly journals available to Francophones. They further discussed that the areas of engineering and **health sciences** had even less publishing opportunities than the social sciences and humanities.

October 17, 2022

Members were interested to hear from witnesses on why Francophone researchers choose to publish their research in English and what recommendations they had for the Committee in ensuring Francophone researchers are not required to publish in English in order to win prizes and notoriety to advance their careers. They were also eager to explore what role the federal government would play in ensuring Francophone researchers have access to equal opportunities and whether or not any efforts might be futile, given that English has become the *lingua franca* of science internationally. Once again witnesses called for the establishment of a federal research support service for French research.

Linda Cardinal from l'Université de l'Ontario français discussed the challenges of small universities and research departments trying to work in French given limited resources to support French publication and the constant pressure of publishing in English to maintain rankings and recognition. She mentioned that despite **granting agencies** accepting submissions in French, the **granting agencies** are not capable to read and assess them as is the case with several university ethics boards.

On how the federal government can better support Francophone researchers, Martin Normand representing l'Association des collèges et universités de la francophonie Canadienne, emphasized the importance of working with **granting agencies** on acquiring additional funding, but also on the equitable assessment of grant applications submitted to the agencies. This included recent work he had engaged on with **CIHR**, to design training modules on unconscious bias in the assessment of grant applications and how these tools can prevent bias in terms of language and the research topics chosen by Francophone researchers and that these tools should be used well beyond the **CIHR**. Valerie Lapointe-Gagnon, associate professor at the University of Alberta mentioned that of the three **granting agencies**, **CIHR** faces the most obstacles in supporting French research. And that in proportional terms, less funding is provided for proposed research in French at **CIHR** than for those submitted in English (lower success rate).

A large portion of the meeting was dedicated to questions from Maxime Blanchette-Joncas (BQ) to Marc Fortin, representing NSERC. Questions were focused on why so few applications were being submitted in French and why this wasn't proportional to the percentage of French researchers in Canada. Marc Fortin discussed the multi-faceted nature of the issue including publication opportunities, the need to demystify the perception that success rates are lower in French, and that the Francophone researcher experience cannot be generalized across engineering, social sciences and health sciences. Mr. Blanchette-Joncas provided data that at **CIHR** the success rate for French applications is 10% lower than in English and that on average the grant amounts were 50% less for French applications at **CIHR**. Marc Fortin provided to the committee that the trends were not like those at **CIHR** for NSERC. Finally, on the proposal of quotas for Francophone research Marc Fortin replied that this was a question for the research community and not the **granting agencies**.

October 31, 2022

Members of the committee asked questions relating to the current status, trends and the future of French research in Canada. Importantly, witnesses discussed how French language research can be better supported by the Government of Canada.

Yves Gingras from l'Université du Québec à Montréal discussed the importance of the impact factor in the success of some researchers over others. He was of the opinion that the impact factor should outright be banned from review committees to ensure that French researchers do not experience bias.

Maxime Blanchette-Joncas (BQ) had several questions for Nipun Vats, ADM of the Science and Research Sector at ISED. Many were in relation to the application and success rates of French applications compared to English. Nipun Vats described the issue as multi-faceted, including variables such as the language of application reflecting the language of work, the abundance in communication of scientific knowledge being mostly in English and the disciplines of research. However, he maintained that researchers wishing to submit in French should always feel free to do so and that the granting agencies were ready to assess these applications equitably. He

discussed the continued efforts of the granting agencies in ensuring that French representation was present on review committees and that all the tools were in place to receive French applications. Beyond these comments, he concluded that additional data and research is needed to fully understand the issue and develop further strategies to enhance Francophone research in Canada.

Valerie La Traverse from **SSHRC** noted that Canada is in an ideal position to demonstrate global leadership in the area of Francophone research in a minority context. She mentioned that SSHRC is in ongoing discussions with Switzerland, Belgium and France and other Francophone countries in Africa in this regard.

November 14, 2022

Martine Lagacé from the University of Ottawa made reference to the Research Chairs programs in which her university had 10 chairs specifically allocated for French language researchers. However, given the continued value of English publication, more resources must be provided to Francophones to ensure they can conduct research in French but also publish in English. She further elaborated that enhanced support for French research is essential to maintain a diversity of knowledge. She advocated for the need to coordinate all federal actors directly involved in research and science in French at universities.

Kenneth Deveau from la Fédération acadienne de la Nouvelle-Écosse expressed his gratitude for the support received from the **federal government,** but that more resources are required given they are trying to work in French in an otherwise predominantly English environment. He discussed successful partnerships with the province of Québec with significant funding from Québec, noting that this type of support should also be coming from **federal** groups.

Allister Surette from l'Université Sainte-Anne was asked whether funding should be reserved for research and scientific publishing in French. He responded that he did not feel that quotas were needed but that there must be continued support for French research including the mobilization and accessibility of supports for our researchers in submitting applications in French.

February 2, 2023

At the final meeting with witnesses, the Minister of Innovation, Science and Industry, Francois-Phillipe Champagne, alongside representatives from the **tri-agencies,** appeared before the committee. In his opening remarks, Minister Champagne stressed that linguistic duality adds to the diversity of ideas and collaborations, making Canada a destination of choice for francophone researchers. The Minister raised some of the actions that government is taking to support duality, including funding research, training and scholarships in both official languages, and initiatives associated with scientific publication in French. All questions were directed to the Minister and on the topic of measures to address the decrease in submissions and scientific publication in French.

The committee met on two occasions to discuss its draft report which is expected to be released shortly.

Media Coverage

Recent media coverage in *Radio Canada* discussed the decline of scientific research in French in Canada. The article highlights concern with the level of funding invested for research conducted in French, the quantity of applications submitted in French to Canada's granting agencies and that - particularly in health research - applications in French are more frequently rejected. Member of Parliament, and member of SRSR for the Bloc Québecois, Mr. Maxime Blanchette-Joncas, criticized the federal government in its response to the decline of French in science. He noted that despite the Government of Canada positioning itself as wanting to protect French, this government has not taken any meaningful actions to support scientific research in French.

Data Requests

CIHR has recently received three requests for data related to research in French.

- Mr. Maxime Blanchette-Joncas (BQ) **submitted written question Q-1162** with regard to funding applications submitted by researchers at Canada's francophone and bilingual universities, broken down by granting agency, by fiscal year from 1980–81 to 2021–22 and by university:
  (a) how many applications were submitted in (i) French, (ii) English;
  (b) what proportion of applications were submitted in (i) French, (ii) English; and
  (c) what was the success rate of applications submitted in (i) French, (ii) English?

- Mr. Maxime Blanchette-Joncas (BQ) **submitted written question Q-1163** with regard to scientific research and publication in Canada: what strategic plans, measures, programs and mechanisms have been put in place within the three federal granting agencies by the government in order to facilitate, ensure, promote or elevate (i) the submission of French-language funding applications, (ii) fair and equitable assessment of French-language funding applications, (iii) the conduct of research in French, (iv) scientific publication in French, (v) the dissemination of scholarly knowledge in French, (vi) the profile and positioning of Canada within the international francophone scientific community?

- As a follow up from the March 7th meeting of the SRSR committee. Mr. Maxime Blanchette-Joncas (BQ) requested **information about scholarships**:
  - the number of scholarships granted in English and in French by the three granting agencies by university, for the last 20 years;
  - the amount of scholarships granted by the three research granting agencies, by university, for the last 20 years.

Official Languages Action Plan

In late April, the *Action Plan for Official Languages 2023–2028: Protection-Promotion-Collaboration* was unveiled, referencing $8.5 million over five years to support the creation of new measures to improve the French-language research ecosystem in Canada, initially through the work of a committee of experts that will examine the dynamics of creating and disseminating scientific knowledge in French. In addition, there will be initiatives to directly support research and funding applications in French, notably via a new French-language research assistance service. It is expected that regional support will be provided across Canada to help leverage scientific knowledge within communities.

APPENDIX D: LIST OF COMMITTEE WITNESSES

House of Commons Standing Committee on Science and Research

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

May 9th

Canadian Association of University Teachers
- ☐ Justine De Jaegher, Director, Political Action and Communications

Fédération québécoise des professeures et professeurs d'université
- ☐ Michel Lacroix, President and Treasurer

As an individual
- ☐ Sarah Laframboise, Executive Director, Support Our Science

Canadian Black Scientists Network
- ☐ Maydianne Andrade, Professor

Science and Policy Exchange
- ☐ Gavin Douglas, Co-President
- ☐ Julia Messina-Pacheco, Vice-President

May 4th

Canadian Alliance of Student Associations
- ☐ Mackenzy Metcalfe, Executive Director

Canadian Federation of Students
- ☐ Hilary Hennessey, Campaign Coordinator

Quebec Student Union
- ☐ Samy-Jane Tremblay, President

Association du personnel de la recherche du Québec (APRQ)
- ☐ Sébastien Paquette, Union President

Canadian Association for Graduate Studies
- ☐ Philippe-Edwin Bélanger, President

Syndicat des travailleurs et travailleuses étudiant(es) et postdoctoraux de l'Université Laval
- ☐ Cynthia Mbuya-Bienge, President, PhD student in epidemiology

APPENDIX E

Estimated CIHR Investments by Research Area
As of March 2023

	$ millions	
	2021-22	**2017-18 to 2021-22**
Access to care	$67.03	$223.32
Addiction	$50.43	$179.91
Aging	$109.58	$484.57
Amyotrophic Lateral Sclerosis (ALS)	$6.05	$41.34
Alzheimer's	$54.26	$227.35
Antimicrobial resistance (AMR)	$20.03	$132.89
Arthritis	$25.14	$120.94
Asthma	$12.46	$57.68
Autism	$19.20	$78.28
Autoimmune disease	$32.38	$147.12
Cannabis	$15.73	$60.13
Cancer	$226.82	$1063.22
Cardiovascular	$115.08	$542.12
Circulatory & respiratory health	$227.09	$1058.12
Cystic fibrosis	$5.33	$28.46
Diabetes	$51.33	$250.46
Eating disorders	$2.10	$5.65
Ebola	$0.68	$2.65
E-health	$27.06	$96.15
Epilepsy	$10.78	$52.36
Gastrointestinal	$37.42	$187.00
Genetics	$576.98	$2,743.66
Global health	$257.26	$968.80
HIV-AIDS	$41.18	$226.07
Indigenous Health Research	$62.60	$238.36
Infection & immunity	$465.84	$1,980.95
Influenza	$3.28	$21.68
Kidney	$27.84	$147.73
Liver	$14.92	$70.29
Lyme disease	$1.55	$6.34
Mental health	$144.26	$496.93
Metabolism	$39.18	$183.94

	$ millions	
	2021-22	**2017-18 to 2021-22**
Multiple sclerosis	$12.39	$45.70
Musculoskeletal health & arthritis	$178.06	$678.14
Neuroscience	$238.51	$909.14
Nutrition	$59.25	$258.18
Obesity	$37.19	$185.75
Opioids	$20.13	$75.80
Pain	$45.32	$164.93
Parkinson's	$14.22	$76.32
Population & public health	$205.19	$851.41
Post-traumatic stress injury (PTSI)	$6.22	$22.73
Rare diseases	$38.53	$196.80
Respiratory	$50.52	$274.81
Spinal cord injury	$9.07	$32.25
Stem cell	$54.90*	$337.20**
Stroke	$27.18	$144.22
Suicide	$10.97	$31.13
Transplantation	$23.59	$116.84
Traumatic brain injury	$12.05	$51.05
Tuberculosis	$5.56	$29.73

Notes:

Amounts for individual projects may be double-counted in the case where a project was found relevant to more than one research area (e.g., a project could be relevant to both diabetes and obesity). Therefore, the sum of individual research areas will not reflect the overall expenditures by CIHR.

*data from FY 2020-21 available only
**data from FY 2016-17 to 2020-21 available only

APPENDIX F

Estimated CIHR Investments by Awards
As of March 2023

Level	CIHR investment in the last 5 years (2017-18 to 21-2022)	Number of scholars and fellows supported in the last 5 years (2017-18 to 21-2022)	Programs included
Master's	$44,798,347	2594	Master's Award – CGS, CGS – Michael Smith Foreign Study Supplements, Dr. James Rossiter MPH Practicum Awards Program
Doctoral	$141,245,490	1641	Doctoral Research Award – CGS, Doctoral Foreign Study Award, Vanier Canada Graduate Scholarship, Doctoral Award - Frederick Banting and Charles Best Canada Graduate Scholarships, Doctoral Research Award: CGS-D to Honour Nelson Mandela, CIHR MD/PhD Program Grants, institute-led initiatives
Post-Doctoral	$121,351,700	1322	Banting Post-doctoral Fellowship, Health System Impact Fellowships, Human Frontier Science Program, KRESCENT / CIHR Fellowship, CIHR Fellowship, Fellowship: POR Awards, institute-led initiatives
TOTAL	**$ 307,395,537**	**5557**	

Written Submission to the House of Commons Standing Committee on Science and Research

Study on Top Talent, Research and Innovation

As the federal health research funding agency, the Canadian Institutes of Health Research (CIHR) would like to thank the committee for embarking on this study and drawing attention to an important subject both for our own organization and for the broader research ecosystem in Canada. This is an exciting time for science in Canada. There is a growing momentum toward a transformative change in our approach to innovation and an opportunity for unprecedented investment in Canada's research capacity.

As Canadians, we recognize our inherent strengths but also our potential. We know it is our obligation to nurture this potential into a robust, impactful, and globally competitive research and innovation ecosystem. This begins with developing, attracting, and retaining top talent, and that is why CIHR's core priorities include supporting the brightest scientific minds of today, while developing the leaders and trailblazers of tomorrow.

In their appearance before this committee for the study on Top Talent, Research and Innovation, representatives from the Natural Sciences and Engineering Research Council (NSERC) outlined critical considerations with respect to the viability of current tri-agency trainee stipend levels and the impact for attracting and retaining research talent. As Canada endeavours to establish a modern and globally competitive science and innovation landscape, CIHR wishes to strongly reiterate to the committee the importance and timeliness of these considerations.

Our colleagues from NSERC also spoke of the commitment of Canada's federal research granting agencies – working collaboratively through the Canadian Research Coordinating Committee (CRCC) – to harmonize and streamline the approach to supporting research talent, including the development of a tri-agency talent strategy. Enhanced tri-agency collaboration through the CRCC continues to yield fruitful results and is contributing to a stronger, more impactful research ecosystem. CIHR is steadfastly committed to advancing this invaluable work.

Complementary to these tri-agency efforts, CIHR is undertaking numerous activities to strengthen the health research enterprise, including initiatives to attract, retain, and develop top talent, while also strategically positioning talent to address Canada's most pressing health challenges, both within and beyond academia. These priorities reflect the central themes and ambitions of CIHR's **2021-2031 Strategic Plan** and speak to the complexities of a research enterprise that is increasingly interdisciplinary and rapidly evolving. In the context of this current study on Top Talent, Research, and Innovation, CIHR would like to submit for the committee's consideration the following, which highlights key priorities, opportunities, and challenges from a health research perspective.

CIHR Strategic Plan Priority: Strengthen Canadian Health Research Capacity

Talent and innovation are central themes of CIHR's 2021-31 Strategic Plan, which envisions a strengthened health research community – one that is diverse, vibrant, stable, and well-positioned to

address current and future health and health system challenges. CIHR recognizes the need to support the development of the research leaders and innovators of tomorrow by equipping trainees and early career researchers (ECRs) with the experiences and skills needed to lead high-impact, interdisciplinary careers in a rapidly evolving health and research landscape.

CIHR's Strategic Plan outlines strategies to achieve these goals, building upon and updating previous achievements, such as CIHR's **Strategic Action Plan on Training**, which launched in 2015 and aims to "generate scientific, professional, and organizational leaders within and beyond the Health Research Enterprise". To maximize the impact of public investment in research, CIHR's current Strategic Plan looks to leverage existing opportunities and create new capacity to better align research funding and talent development with Canada's most pressing health priorities. Through the Strategic Plan, CIHR is also exploring ways to address gaps and challenges using a variety of approaches, from funding to policy and beyond.

These strategies include **strengthening investigator-initiated research** (also referred to as fundamental or "open" research) – the cornerstone of Canadian health research and a major source of financial support for highly qualified research personnel, students, and trainees. CIHR will also strengthen the health research community by developing a policy framework (accompanied by action plans) to address gaps in **training and support across all career stages**, **transitions, and paths**. Through these efforts, we will prepare researchers to respond to a broad range of current and future needs.

Additionally, CIHR will continue to embrace Canada's wealth of diversity by implementing targeted actions focused on funding researchers in accordance with the principles of **equity, diversity, and inclusion**. By removing systemic barriers to accessing research funding and embracing a diversity of perspectives, we can enhance the participation and retention of outstanding researchers from all under-represented groups, to ensure that we are capitalizing on the full extent of Canada's tremendous scientific talent.

***Policy Spotlight**: Equalization of success rates for Early Career Researchers*

Through its flagship Project Grant program, CIHR has committed to equalizing applicant success rates for ECRs, ensuring a dedicated source of support for this critical cohort of young researchers. In other words, CIHR applies a calibration exercise to its funding decisions so that the proportion of ECRs funded through each Project Grant competition is equal to the proportion of ECR applicants.

***Program Spotlight**: Health Research Training Platform*

In 2021, CIHR launched a new pilot initiative tied directly to its strategic plan priorities: the **Health Research Training Platform** (HRTP). The HRTP, an investment by CIHR and its partners of $31.1 million over six years, is comprised of 13 unique training programs that bring together researchers from different research entities, with a view to increase Canada's capacity to address priority disease areas and key health and societal challenges. Through the HRTP, trainees and ECRs are given access to interdisciplinary, inter-jurisdictional, and intersectoral training environments (i.e., "platforms") where they benefit from high-calibre academic, non-academic and knowledge user mentors from a variety of disciplines, gaining the knowledge and skillset to increase employability and prepare them for independent careers both within and outside of academia.

For instance, one of the inaugural HRTP platforms, based at the Sunnybrook Research Institute, is providing training and mentorship opportunities focused on spanning the boundaries between research and care. Another, based at the University of Calgary, focuses on system and population transformations in Girls' and Women's Health.

Capacity development across the spectrum of health research activities

CIHR's commitment to training and career support is also aligned with other priorities within the current Strategic Plan. For example, equitable, diverse and inclusive capacity development is a central theme of our existing and developing strategies and action plans in the areas of global health; knowledge mobilization; and patient-oriented research.

Guided by a spirit of reconciliation and co-existence, and a commitment to self-determination and promoting optimal health, CIHR is also prioritizing the needs of **First Nations, Inuit and Métis Peoples**, including urban Indigenous populations, to strengthen Indigenous health research and knowledge mobilization. By listening attentively to and working with First Nations, Inuit and Métis communities, CIHR is embracing a distinctions-based and culturally safe approach to this important work, which includes building capacity for community-led research and training that address the priorities of First Nations, Inuit and Métis Peoples.

Program Spotlight: *Network Environments for Indigenous Health Research (NEIHR) Program*

CIHR's NEIHR program, a $100.8 million investment over 16 years, has been developed to address those needs in capacity development, research and knowledge translation. The network of centres provides supportive research and training environments for Indigenous health research driven by, and grounded in, Indigenous communities in Canada. The NEIHR Program will take a comprehensive approach to capacity building in Indigenous health research by concentrating on Indigenous communities and structural factors (e.g., educational systems, institutions, research infrastructures, policy apparatus) and by focusing on individual agency (e.g., supporting trainees and researchers).In their first year, cumulatively across all centres they were able to provide funding to over 105 Indigenous students from the undergraduate to the graduate level.

CIHR Strategic Plan Priority: Integrate Evidence in Health Decisions

CIHR's vision for better health includes a future where the gap between discovery and implementation is a thing of the past; where Canadian researchers are at the forefront of knowledge mobilization; and where the uptake, scale, and spread of evidence are engrained in the fabric of Canadian institutions. To achieve this, CIHR will work with its partners, including the provinces and territories, to prioritize knowledge mobilization at all stages of discovery, invest in implementation science, and strengthen the capacity of knowledge users to leverage and use research findings.

One of CIHR's foremost priorities is addressing the challenges facing the Canadian health care system. One way that CIHR is tackling this is by placing renewed emphasis on **Learning Health Systems**. This approach sees scientists embedded in the health system, working with health professionals, patients, and decision-makers, to understand the root of problems and develop solutions. Through the seamless integration of evidence, policy, and practice, we have seen remarkable progress in the capacity to accelerate innovation and achieve more cost-effective health care.

CIHR is also placing a strong, central focus on capacity and talent development in many new initiatives, such as the **Centre for Research on Pandemic Preparedness and Health Emergencies**, and the new CIHR **Clinical Trials Fund** (CTF), which both launched in 2022. These initiatives represent a key foundation for rebuilding Canada's bio-innovation pipeline and ensuring future pandemic preparedness. Through a focus on talent and capacity building, CIHR will implement, via the CTF, recruitment, training, and mentoring strategies to attract high-caliber trainees, researchers, healthcare professionals and clinical research professionals, thereby developing the necessary specialized skills for a resurging bio-manufacturing sector. This will not only increase Canada's resiliency and capacity for innovation, but also drive economic growth and create good high-skilled jobs.

Challenges and Opportunities

There are critical challenges in the field of health research, several of which have already been highlighted by witness testimony, including the financial difficulties faced by students from the undergraduate level to post-doctoral candidates; challenges in clinical trials; support for clinician-scientists; and obstacles facing researchers and their partners in the field patient-oriented research. We have also heard from our community and know that more must be done to help students transition through each stage of academia to a successful independent research career, or from academia to impact-oriented career paths in other sectors where their expertise can contribute to evidence-based decision making within health systems, not-for-profits, private entities and governments alike.

We know that for Canada to remain competitive in research and innovation, we must continue to build bridges across sectors and jurisdictions; to collaborate with federal, provincial and health system partners, learning institutions, non-profits, patient and community groups, and the private sector. It will take significant coordination at all levels, and our collective investment as a country, to ensure we are fully realizing Canada's potential and successfully developing the next generation of innovative leaders, while creating the capacity and resources to help them succeed throughout their career.

Building on its existing networks and strong collaborative relationships, CIHR is well positioned to play a leading role in the modernized science and innovation landscape — one that embraces new concepts of research excellence, with a focus on developing and mobilizing dynamic talent and scientific leaders — to fully maximize the return on investment for Canadians.

APPENDIX G

Selected Written Briefs to House of Commons' Standing Committee on Finance's (FINA) Pre-Budget Consultation

This is not a comprehensive list of CIHR stakeholders who submitted related recommendations to FINA. Submissions from individual institutions are not included, for example.

1. Bureau de coopération interuniversitaire
2. Canadian Association for Neuroscience
3. Canadian Consortium for Research
4. Canadian Federation of Students
5. Canadian Society for Molecular Biosciences
6. Federation for the Humanities and Social Sciences
7. Support Our Science; with: Anti-racism Student Association; Canadian Association of Postdoctoral Scholars; Ottawa Science Policy Network; Science and Policy Exchange; Toronto Science Policy Network
8. Joint: Canadian Alliance of Student Associations; Quebec Student Union
9. Universities Canada
10. U15 Group of Canadian Research Universities

BCI
BUREAU DE
COOPÉRATION
INTERUNIVERSITAIRE

University research that attracts talent from here and abroad and is competitive in all fields of knowledge

Submission on research investments presented by the Bureau de coopération interuniversitaire to the House of Commons Standing Committee on Finance as part of pre-budget consultations in advance of Budget 2023

October 5, 2022

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LIST OF RECOMMENDATIONS

RECOMMENDATION 1: Increase the budgets of the three federal granting agencies to increase the amount of master's and doctoral merit scholarships, and index them annually based on the consumer price index.

RECOMMENDATION 2: Add the promised 1,000 Canada Research Chairs and allow them to be allocated in all disciplines and based on priorities identified by the Universities.

RECOMMENDATION 3: Increase funding for basic research, and for research equipment and infrastructure and its operation and maintenance.

THE BUREAU DE COOPÉRATION INTERUNIVERSITAIRE

The Bureau de coopération interuniversitaire (BCI) is an organization that brings together all universities in Quebec. Its mission is to promote cooperation among its members, promote their common interests through representation, and facilitate the sharing of services and best practices throughout the Quebec university network.

RECOMMENDATION 1

Increase the budgets of the three federal granting agencies to increase the amount of master's and doctoral merit scholarships, and index them annually based on the consumer price index.

To ensure research succession, it is important to promote academic research among the most promising young researchers and to allocate all the necessary resources to their training and to supporting for the start of their research careers. To do so, Canada must first and foremost be able to have a program of merit-based scholarships by which it guarantees competitive research scholarships to the best young talent in Canada.

Currently, the amounts of scholarships granted by the Natural Sciences and Engineering Research Council (NSERC) for master's studies ($17,500/year for one year) or doctoral studies ($21,000/year for three years) at a Canadian university are the same as they were in 2003. The amounts granted by the Social Sciences and Humanities Research Council (SSHRC) for master's studies ($17,500/year for one year) or doctoral studies ($20,000/year for four years) have not changed since the early 2000s. For the period from 2003 to 2022, however, inflation was 48.3% according to the Bank of Canada.[1] Had they been increased at that rate, master's scholarships would be close to $26,000 and doctoral scholarships would be about $30.000. In the context of that kind of devaluation, scholarships from federal granting agencies, initially reserved for the best candidates and research candidates, have lost their prestige and excellence and have become less attractive for the next generation.

While the scholarship amounts cover tuition and other costs directly related to studies, such as course manuals and school materials, they no longer cover living expenses (food, housing, travel). According to the most recent data from Statistics Canada on low-income cut-offs, about $18,000 to $22,000 is needed per year, after taxes, to ensure minimum subsistence in most university cities. In those circumstances, scholarship students are now forced to work to survive, which may not only extend their studies but also hinder their graduation. The risk of young researchers, the most promising researchers, quitting school is therefore increased in the context of the current labour shortage, when salaries offered to qualified workers with a diploma are competitive. In this context, there is an urgent need to increase the scholarships awarded to master's and doctoral students. To ensure that scholarships are not increased to the detriment of other research funding programs, the budgets of the three granting agencies should be increased accordingly.

[1] Inflation Calculator – Bank of Canada, Consulted on September 29, 2022.

To avoid seeing the real value of these scholarships decline again, they must be indexed annually based on the consumer price index to ensure that merit scholarship recipients have the income they need to focus full-time on their studies. Indexing postdoctoral scholarships would allow researchers who have recently received their doctorate to launch their research careers. They could then offer their high-level skills to the private, public and academic sectors.

RECOMMENDATION 2

Add the promised 1,000 Canada research chairs and allow them to be allocated in all disciplines and based on priorities identified by the academic institutions

In his mandate letter dated December 16, 2021, the Minister of Innovation, Science and Industry was asked to "[a]dd 1,000 Canada Research Chairs to help attract and retain top talent at Canadian universities and support graduate research, with a focus on improving gender and racial equity among faculty, promoting interdisciplinary research and reinforcing Canada's world-leading capabilities in life sciences and bio-medical research."[2]

The increase in the number of Canada Research Chairs is a strategy that Quebec universities welcome: the addition of 1,000 more chairs to the Canada Research Chair Program, envied everywhere, will undoubtedly increase the attraction and retention of the best researchers from here and elsewhere to Canadian universities.

To be able to truly assist in the growth of Canada's competitiveness in research, creation and innovation, however, universities must be able to continue leveraging their respective strengths to retain talent from here and attract talent from elsewhere. For this reason, rather than trying to build capacities in certain targeted areas of research, the 1,000 chairs announced should be allocated by universities based on their priorities. The allocation method should allow these 1,000 chairs to be distributed across Quebec and Canada. To maintain Canada's competitiveness in all areas of knowledge, all institutions must be able to leverage their existing areas of expertise or those in development. Not to mention that, to be able to meet the major challenges facing societies in the 21st century that require diverse expertise, all talent must be cultivated.

Since we cannot predict the challenges of the future, Canada must be able to continue to have the best expertise in all areas of knowledge to be adequately prepared. This would promote equity, diversity and inclusion within faculties along with inclusive excellence, as universities would be able to seek out diverse talent wherever it is found.

RECOMMENDATION 3

Increase funding for basic research, and for research equipment and infrastructure and its operation and maintenance.

[2] Minister of Innovation, Science and Industry Mandate Letter, December 16, 2021, consulted on September 29, 2022.

To be able to conduct high-calibre research, make progress and push the frontiers of knowledge ever further, researchers and students must have access to competitive research grants and state-of-the-art infrastructure and facilities. However, based on estimates by U15, an annual amount of nearly $1.144 million would be needed to close the gap between the level of funding allocated to the three federal granting agencies and the Canada Foundation for Innovation in 2022 and what they were allocated between 2001 and 2007.[3]

Universities face significant costs for the installation of new infrastructure and the maintenance of existing infrastructure. The current model for funding research infrastructure forces universities to mobilize various sources of funding to operate and maintain their facilities.

Costs related to the operation, maintenance and renewal of research infrastructure are even more significant for universities since they must pay highly qualified staff who are essential to the proper operation of the tools, equipment and infrastructure in question. In the current context, the amounts used to pay these staff must most often be supplemented through other revenue sources, such as grants received by researchers or the institution's overall infrastructure funding.

Additional amounts should therefore be allocated to the Canada Foundation for Innovation, particularly as adding 1,000 Canada Research Chairs would result in additional needs for state-of-the-art equipment and infrastructure. The government should also increase funding to the Humanities Research Council, the Natural Sciences and Engineering Research Council, and the Institutes of Health Research to allow for the pursuit of basic research in all disciplines and ensure that Canada remains competitive in all areas of knowledge.

CONCLUSION

The Bureau de coopération interuniversitaire wants to thank the House of Commons Standing Committee on Finance for this opportunity to present its recommendations, the implementation of which would allow Canadian Universities to continue to be leading research centres in all fields of knowledge, able to attract and retain the best talents from here and abroad.

[3] U15, *Calculating the Tri-Council + CFI Research Funding Gap*, February 23, 2022.


BCI

CAN-ACN
CANADIAN ASSOCIATION FOR NEUROSCIENCE
ASSOCIATION CANADIENNE DES NEUROSCIENCES

Written Submission for the Pre-Budget Consultations in Advance of the 2023 Federal Budget

Increased Investment in Scientific Research for the Health and Prosperity of Canadians Today and Tomorrow

By: The Canadian Association for Neuroscience

CAN-ACN
CANADIAN ASSOCIATION FOR NEUROSCIENCE
ASSOCIATION CANADIENNE DES NEUROSCIENCES

The Canadian Association for Neuroscience recommends the following:

Recommendation 1: That the government of Canada increase investments in the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC) for the benefit of all Canadians. We urge the government to adopt a **four-year plan to double the budgets of the three main federal funding agencies (CIHR, NSERC, SSHRC) starting with a 25% increase in the next budget.** This recommendation aims to bring Canadian investment in scientific research to a level commensurate to that of other G7 countries.

Recommendation 2: That the government of Canada increase its support for graduate students and postdoctoral fellows by **50% for graduate scholarships and postdoctoral fellowships** to increase both value and number awarded in the next budget. In conjunction with recommendation 1, this recommendation will ensure our next generation of scientists have the means to participate fully in Canada's knowledge economy.

Recommendation 3: That the government of Canada make **research on the Brain and Mental Health a national priority** by investing in research to understand the brain through well-established and trusted organizations in the field.

CAN-ACN
CANADIAN ASSOCIATION FOR NEUROSCIENCE
ASSOCIATION CANADIENNE DES NEUROSCIENCES

Increased funding for fundamental research will make Canada ready to face existing and new challenges.

Fundamental research is key to informing our response to new challenges. The pandemic best illustrated this - if you received the Pfizer COVID-19 vaccine, you received a vaccine that uses lipid nanoparticle technology that was developed right here in Canada, based on 40 years of curiosity-driven research by Dr. Pieter Cullis, Professor at the University of British Columbia. This is just one success story out of hundreds, and made possible only because of past investments in fundamental, non-targeted research in Canada.

In addition to COVID-19 vaccines, Canada's researchers contribute to addressing varied challenges and opportunities that Canada faces, including:

- **Brain and Mental Health issues**, which are among the most complex to understand, but also the most important to address –The burden of brain disorders and diseases has substantially increased over the last 25 years with the ageing of the population and is increasing further due to Post-COVID19-Condition (PCC). This has a growing impact on the economy, healthcare systems, and Canadian livelihood. **Neurodegenerative diseases are the leading cause of disability and the second leading cause of death worldwide**[1]. Through their research, Canadian neuroscientists work tirelessly to provide hope to Canadians who live with diseases and conditions for which there are currently no cures, and few treatments.
- **Maintaining Canada's Leadership in the World** – Canada's scientists have historically been known to punch above their weight and are recognized leaders in research in many fields of neuroscience including autism, memory, sleep, pain, artificial intelligence, and spinal cord injury. However, it is difficult for Canadian scientists to remain competitive and for Canada to attract new talent as the disparity in research support with other G7 countries continues to widen.
- **Providing Good Jobs for Canadians** – Investing in scientific research leads to the creation of jobs for highly qualified personnel (HQP) within research laboratories, industry, government, and the public sector. Our trainees constitute important assets for medical and high-tech companies in Canada, who are looking to fill high paying and competitive job opportunities.
- **Diversifying and Strengthening Canada's Economy** – The world is moving towards a knowledge and innovation economy, in which Canada has the potential to lead. *Made-in-Canada* discoveries are the foundation for innovation that supports a stronger and more diverse Canadian economy.

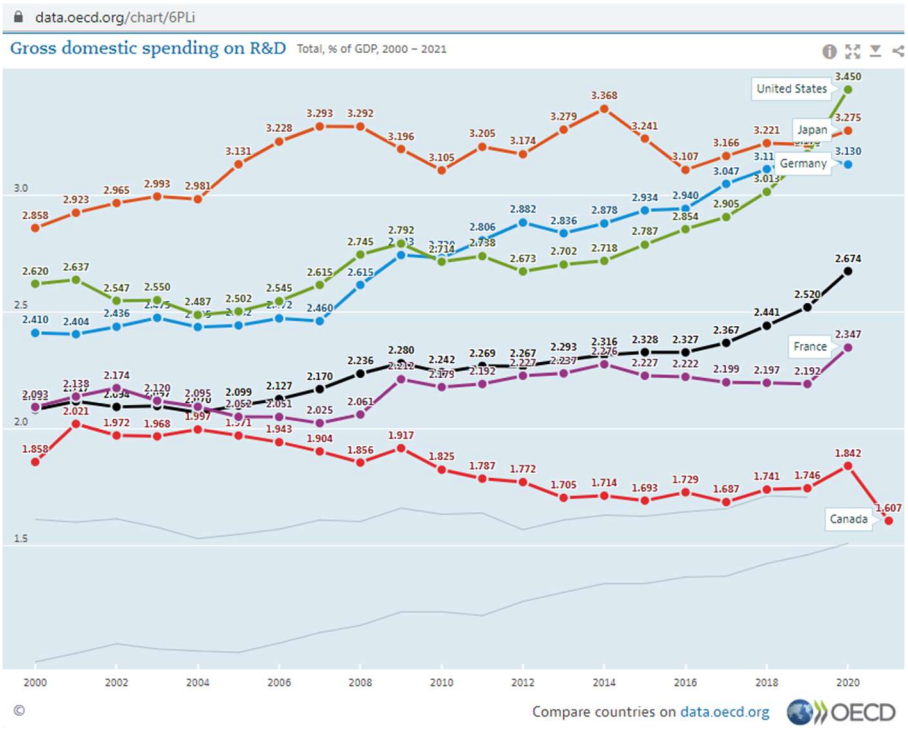
Increasing support for fundamental research now is an investment in **scientific readiness**, allowing Canada to be prepared to face new challenges.

Canada is falling behind in science funding – now is the time to act

[1] (Feigin et al. Lancet Neurol. 2019;18(5):459-480. doi:10.1016/S1474-4422(18)30499-X)

Canadian scientists work for all Canadians. Their discoveries fuel the innovation economy, and their laboratories train highly qualified personnel who contribute to diversifying the Canadian workforce. Yet **Canada is falling behind in science funding when compared to other countries**.

According to the latest data from the OECD (Organisation for Economic Co-operation and Development http://www.oecd.org/) Canada is the only country in the G7 whose investments in Research and Development have **steadily declined over the last 20 years**.



United States
Japan
Germany
France
Canada
Average -OECD countries

OECD Data on gross domestic spending on Research and Development - Canada compared to other countries of the G7.[2]

Canada now ranks second to last among G7 countries in terms of gross domestic spending on Research & Development (R&D), with only 1.6% of its GDP invested in R&D. This comparatively low investment level places Canada below the average of 2.7% for OECD countries and well below the United States (3.4%), and other countries with fast-growing economies such as South Korea (4.8%) and Israel (5.4%) with respect to gross domestic spending in R&D.

We recognize that government investment in R&D is only a small proportion of the total R&D investment in a country. However, research shows that government investment is multiplied by private investments, leading to a much higher return on investment. Many countries have recognized this, including Japan, Germany, and the United States. Looking to our American counterparts, in May

[2] *(Accessed on 10 October, 2022 Chart permanent URL: https://data.oecd.org/chart/6PLi*

2021, President Biden's first big budget request proposed increases for science budgets, including a 21% increase to the American equivalent of CIHR, the National Institutes of Health (NIH)[3]. The NIH's 2021 budget was $45 billion USD (approx. $62 billion CAD), compared to CIHR's $1.44 billion CAD (which includes one-time investments in COVID-19 research). **This represents a 43-fold difference in funding support for CIHR**, which contrasts with the nine-fold difference in population between the United States and Canada.

Canada has much to lose by not supporting our scientists. The competition is strong, and even if Canada's quality of life is enviable, high caliber researchers are attracted by the much higher financial means available to them in the United States, and other countries. If Canada does not increase its support for science, the **reality of the brain drain** will worsen.

Untapped potential: Underfunded researchers at all career levels.

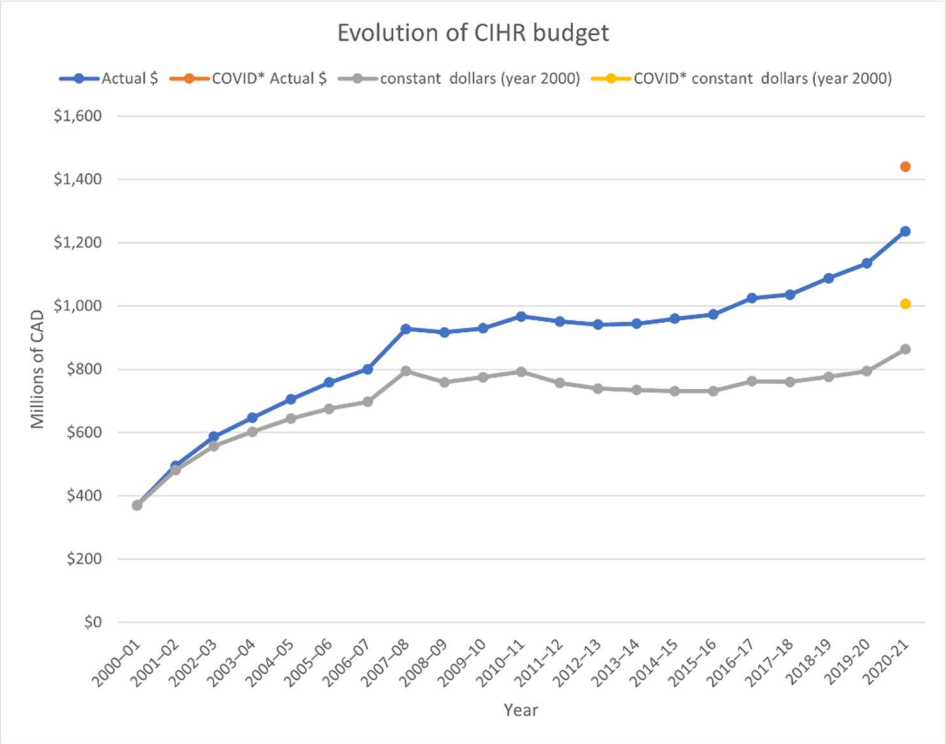
Canadian neuroscience laboratories that perform fundamental research rely mainly on funding provided by the Canadian government through Tri-Agency (CIHR, NSERC, SSHRC).

Project grants awarded by the CIHR are the core funding mechanism for biomedical research in Canada. Unfortunately, the success rates for funding applications at CIHR have declined since 2005, from a 33% success rate to close to 19% in 2021 (less than one in five successful applications), leading to financial insecurity for laboratories. Current success rates are too low to maintain a diverse and flourishing research environment, as most excellent research projects go unfunded. Researchers spend months preparing and writing grant applications, while their chances of being successful are too low to be sustainable. It should also be noted that the current funding level is only achieved by making drastic cuts to the budgets of all funded project grants – 23.5% in the last few years - further highlighting the lack of sufficient funding for this critical mechanism to support Canadian research.

Most research projects are long-term endeavours. Loss of funding for even a single year due to the highly competitive funding situation causes major setbacks for researchers leading to the loss of HQP that cannot easily be replaced. Some laboratories do not recover, and end up closing, or moving to other countries.

One clear contributing factor to the decline in success rates is **stagnation in the CIHR budget between 2006 and 2018**. The budget for CIHR in 2007-2008 was $927M and planned spending for 2020-2021 was $1,236M. While this represents an increase in actual dollars, it represents only an 8.7% increase over 14 years when inflation is considered (adjusting to constant dollars by using the Bank of Canada inflation calculator). Moreover, application pressure from researchers has increased (3850 applications in 2006 vs. 4395 in 2021), and the cost of experimental materials increases at a rate higher than inflation.

[3] https://www.sciencemag.org/news/2021/05/biden-seeks-big-increases-science-budgets



Millions $CAD

Adjusted for inflation

Millions $CAD including COVID-19 dedicated funds

Funds including COVID-19 dedicated funds – adjusted for inflation

Graph data source:

https://can-acn.org/science-funding-in-canada-statistics/

Funding for graduate students – often below the poverty line

More support is required to maintain Canada's attractiveness for the next generation of researchers. Trainees that successfully compete for Canada Graduate Scholarships (Master's program; CGS-M), receive an $17.5K CAD per year award, an amount that has not kept up with inflation and is stagnant since 2003. This is below the low-income level cut-off of $22k CAD for a person living alone in a major Canadian city. The NSERC website states that "*This support allows these scholars to fully concentrate on their studies in their chosen fields*". This is no longer accurate, and disheartening for students, who must now face rising housing costs and inflation rates. Academia is viewed as an uphill battle, with no clear indication that the situation will improve, which is a daunting prospect for trainees.

Paying students a living wage is the base for equity, diversity and inclusion, and an essential requirement if we are to attract the brightest minds from diverse backgrounds and not only those who are independently wealthy. As two of our student members from Ontario commented:

I am the recipient of a CIHR Canada Graduate Scholarship (amount received is $17,500). This amount of money, in addition to the amount I get as a research assistant, would not be enough money to pay for my expenses and to live comfortably if I lived on my own. Thankfully, I live with my parents. If I didn't, I would need a part-time job to further support myself, which would take time away from my research and master's program studies. I think more government funding is absolutely necessary to support graduate researchers.

As an NSERC PGSD holder who also receives additional funding I cannot imagine a student being in the position of relying solely on a PGSD award for PhD funding, particularly considering that doctoral degrees almost always run longer than the duration of the award and that the fixed value of the award leaves students particularly vulnerable to inflation risk. Even with additional funding sources my current compensation falls somewhere between 25% and 33% of that earned in industry by other students from my previous (computational) degrees who are doing similar work.

Decisive action is needed now. We recommend that **funding for Canada Graduate Scholarships be increased by 50% in the next budget, and that it be indexed to inflation afterwards**. This investment would allow Canada to retain its brightest minds and to attract new talent. Without it, our scientists will find it more favourable to bring their talent elsewhere.

Closing remarks

Canada must invest in fundamental research to secure its position as a scientific leader in the world, and to support a knowledge-based economy that is prepared to face future challenges. Furthermore, brain diseases and disorders are amongst the most important challenges facing Canadians today.

We propose a bold, but timely and feasible plan for Canada:

- Doubling the budgets of all three Canadian science funding agencies – CIHR, NSERC, SSHRC over four years (starting with a 25% increase in the next budget), to support the Canadian science ecosystem.
- 50% increase in support for Canada Graduate Scholarships in the 2023 budget, to ensure support for the next generation of researchers.
- National prioritization of Brain and Mental Health Research and increased investment in major initiatives to understand the brain through trusted organizations in the field.

We have much to gain by supporting our scientists, who are motivated and ready to work for Canada. The time for decisive action is now to maintain our global competitiveness in science and research and to ensure we are fully prepared to confront existing and new challenges.

About the Canadian Association for Neuroscience

We are the largest association of neuroscientists in Canada, with over 1000 members dedicated to advancing brain research.

Building on Our Strength:
Higher Education Research and Science

Written Submission for the Pre-Budget Consultations in Advance of the 2023 Budget

by the

Canadian Consortium for Research  Consortium canadien pour la recherche

The Canadian Consortium for Research (CCR) is the largest advocacy consortium for researchers in Canada, focusing on research funding across all disciplines, and supporting post-secondary education. The CCR includes 22 organizations that represent more than 50,000 researchers and 650,000 students across numerous disciplines.
For more information about the CCR, please visit https://ccr-ccr.ca/.

RECOMMENDATIONS

Recommendation #1: Increase base funding levels of the Tri-Councils for investigator-led research by $200 million per year for the next five years**.**

Recommendation #2: Increase the number and value of scholarship awards by $185 million in 2023 and an additional $55 million per year, thereafter.

Recommendation #3: Renew investments in equity, diversity, and inclusion initiatives related to research.

Recommendation #4: Expand the Statistics Canada academic staff survey (UCASS) to include data on part-time faculty and develop a Science and Research Human Resource Strategy.

Recommendation #5: Increase funding for government science by at least $740 million annually to return funding levels to 2010/11 levels and review barriers to government-academic partnerships.

INTRODUCTION

Higher education research and development, the strength of Canada's research and science ecosystem, remains severely underfunded. The $1 billion investment in fundamental science in Budget 2018 restored some funding for basic research after years of neglect. Budget 2022 saw an investment of $3 billion to initiatives to incent businesses to invest in research and development. A further commitment of $1 billion over five years for fundamental science is needed to keep solid this foundation of our knowledge infrastructure.

In addition, Canada must take immediate steps to fix the shrinking pipeline of scientists and researchers by better supporting graduate students, developing a national research and science human resource strategy, and supporting government science.

Another key strength of Canada is our diversity. Our Budget 2023 submission calls for a modest investment of $30 million to programs aimed at increasing equity, diversity, and inclusion within our research and science community.

1. Invest $1 billion over five years in fundamental science

The base of Canada's research ecosystem is fundamental science. Basic research expands knowledge needed for progress and innovation. This was recognized by the government in Budget 2018 which noted that:

> "Canada's prospects are bright thanks in part to earlier investments in science, research, and innovation. These investments built world-leading Canadian universities and colleges and created a strong research environment—one that has resulted in global recognition and has succeeded in attracting top talent in important emerging fields like artificial intelligence. The next step is to build on this success and make Canada a beacon that attracts the very best researchers from across the globe."

The funding commitments made in 2018 were essential to shore up the crumbling base of our research ecosystem. However, they fall far short of making Canada a beacon that attracts the very best.

- When accounting for inflation, funding at CIHR and NSERC has not grown since 2012/13.[i]
- The flagship inter-disciplinary, international, fast-breaking, and higher-risk research fund has a 17.2% success rate.
- The value of grants has not increased in real terms.

Canada's research intensity was 1.70% of the Gross Domestic Product (GDP) in 2020 compared to the Organisation for Economic Co-operation and Development (OECD) average of 2.68%.[ii] When examined, our key strength is in Higher Education Expenditures on Research and Development

(HERD) and we lag on Business Expenditures (BERD). To address the latter, the government invested $3 billion in Budget 2022 to initiatives to incent businesses to invest in research and development.

Meanwhile HERD, the strength of our research and science ecosystem, is not where it needs to be, even after a $1 billion Budget 2018 investment to restore some funding for basic research after years of neglect. To build on our strength of higher education research and development, an additional $1 billion over 5 years to granting council funding is needed.

This recommendation is echoed by the House of Commons Standing Committee on Science and Research in its report, *Successes, Challenges and Opportunities for Science in Canada*, released in June 2022, "the Government of Canada increase its investments in fundamental research through increases to the budgets of the three granting councils."

2. Increase support for graduate students

Graduate scholarship awards have remained unchanged for nearly 20 years, and postdoctoral fellowships had only a small increase in the same timeframe. As the cost of living has steadily increased, these scholarships and fellowships provide inadequate support or incentive to continue to do this work in Canada.

We recommend that the government increase scholarship and fellowship award amounts for graduate students and postdoctoral researchers by $185 million in 2023 and an additional $55 million per year thereafter, to increase both the value and the number of awards, and to index to the consumer price index (CPI).

3. Renew investments in equity, diversity, and inclusion (EDI) initiatives

A diversity of backgrounds, experiences, and thought breed great science and research. This government has made progress in ensuring that publicly supported science and research is equitable and diverse. Budget 2018 committed $21 million to seeding change. These initiatives are just taking root and the commitment must be renewed with additional funding to ensure these EDI initiatives flourish.

Specifically, the government should commit $30 million over five years to continue the following:

- The EDI Capacity Building Grants
- The Dimensions program
- The Survey on Post-Secondary Researchers to assess impact of CoViD-19
- The University and College Academic Staff Survey (UCASS) and increase to include data beyond gender

4. **Expand Statistics Canada academic staff survey to include data on part-time faculty and develop a Science and Research Human Resource Strategy**

   The limited data[iii, 1] we have shows that Canada's science and research workforce is shrinking. Since 2006, we have seen a 21% decline in tenure-track positions and a near doubling of 'off the tenure-track' contract positions. The off-track positions are employed on teaching only contracts with no support for research. In the words of one observer, "Canada is hemorrhaging early career research capacity."[iv]

   As noted by the President of the Social Sciences and Humanities Research Council (SSHRC), "[There are] minimal opportunities for starting academics to undertake meaningful research…The real challenge…lies...specifically in finding ways to expand academic offerings to accelerate onboarding of early career researchers in an environment that is increasingly constrained financially."[v]

   The number of researchers in Canada has declined over the last six years—the only G7 country to experience a decrease. Between 2014 and 2018, the number of full-time researchers per million inhabitants in Canada declined by 4.8%. During that same period, the number of researchers in the U.S. increased by 4.9%, in the United Kingdom by 9%, and in Germany by a full 20%.[vi]

   As a recent Council of Canadian Academies report concluded, cultivating a robust, resilient, and diverse scientific workforce is central to the development of a nation's research capacity and requires supporting researchers throughout their careers.[vii, viii]

5. **Restore funding for government to 2010/11 levels and review barriers to government-academic partnerships**

   Science undertaken by the government complements, contributes to, and benefits from the work of academic researchers. Government science facilities, like the Experimental Lakes Area, welcome post-secondary researchers and students alongside government scientists. When government science is well funded, supported, and allowed to be freely shared with the broader scientific community, there are direct and indirect benefits for Canada's academic research community and, ultimately, all Canadians. For this reason, the **CCR joins other stakeholders to recommend that funding for government science be increased by at least $740 million annually to return funding levels to 2010/11 levels**.[ix]

   In addition, to make it easier to carry out joint research with government scientists, the granting agencies should review barriers for partnership with government scientists, including those presented by industry linkage and cost-sharing requirements.

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[i] Statistics Canada. Federal extramural expenditures on science and technology, by performing sector and major departments and agencies.

[ii] *OECD Main Science and Technology Indicators, March 2022 Edition*

[iii] Data on the academic workforce is drawn from Statistics Canada, University and College Academic Staff System Survey and the long-form census.

[iv] Wright, Julia. (2017). How to invest in our PhDs? Through faculty renewal. *University Affairs.*

[v] Hewitt. Ted . (2018). Underemployment of PhDs hurts research. This article was originally published in The Chronicle Herald on January 3, 2018.

[vi] Sylvain Charbonneau. Vice-president of research and innovation at the University of Ottawa, (2021) Oral Testimony. House of Commons Committee on Science and Research, February 10.

[vii] Council of Canadian Academies, (2021.) Powering Discovery: The Expert Panel on International Practices for Funding Natural Sciences and Engineering Research.

[ix] McGrath, Eleanor. (2021). A decade of defunded public science: preparing for the next crisis. Sciencepolicy.ca

CANADIAN FEDERATION OF STUDENTS
FÉDÉRATION CANADIENNE DES ÉTUDIANT-E-S

Written Submission for Pre-Budget Consultations in Advance of the 2023 Budget

PART 1: LIST OF RECOMMENDATIONS

Recommendation #1: Affordability of Post-Secondary Education

1. The creation of a national post-secondary education transfer as a part of the federal social transfer to the provinces and territories to eliminate tuition fees. **Cost**: $5.6 billion per year.
2. Implement a national tuition freeze. **Cost:** $3 billion per year.
3. Permanently eliminate federal interest on Canada Student Loans and Canada Apprentice Loans. **Cost:** $400 million per year.
4. Continue with the doubling of Canada student grants and maintain the student grant maximum of $6,000 per year. **Cost:** $2.6 billion per year.

Recommendation #2: Fairness for International Students

1. Provide international students with public health insurance. **Cost**: $2.5 billion in 2023 and $1 billion per year, thereafter.
2. Direct federal agencies to eliminate exploitative and predatory recruitment practices targeting international students. **Cost:** $20 million per year.
3. Direct Statistics Canada to research comprehensive statistics on quality of life for international students, with a specific focus on mental health and rate of suicides. **Cost:** $5 million per year.

Recommendation #3: Housing

1. Build at a minimum 320,000 additional housing units to address the rising rate of chronic homelessness and implement universal barrier-free housing. **Cost**: $6.5 billion per year.
2. Provide rental support to over 250,000 units that have endured financial hardship and are currently in arrears due to the pandemic. **Cost**: $214 million.

Recommendation #4: Graduate Students and Research

1. Extend eligibility for Canada Student Grants to graduate students. **Cost:** $25 million per year.
2. Explore the creation of dedicated research fellowships for Indigenous and international students. **Cost:** $30 million per year.
3. Increase the value of graduate scholarships and post-doctoral fellowships awarded by the Tri-Council agencies by 48% to match inflation since 2003, especially the Postgraduate Scholarships – Doctoral (PGS-D), Canadian Graduate Scholarships – Master's (CGS-M) and the postdoctoral fellowships. **Cost**: $45.71 million in 2023 and indexed for inflation for the next 5 years.
4. Index all award values to the consumer price index, which will ensure awards are internationally competitive and increase with the costs of living. **Cost:** $18,832,520 in 2023 and indexed to CPI thereafter.
5. Double the number of postdoctoral fellowships awarded by the Tri-Council. Cost: **Cost:** $51.471 million in 2023.
6. A 50% increase in the number of graduate scholarships awarded by the Tri-Council **Cost**: $57.75 million in 2023.

Recommendation #5: Mental Health Supports

1. Allocate $300 million per year, over two years, to improve on-campus mental health services. **Cost:** $600 million over two years.
2. Create a dedicated mental health stream. **Cost:** $350 million over three years.

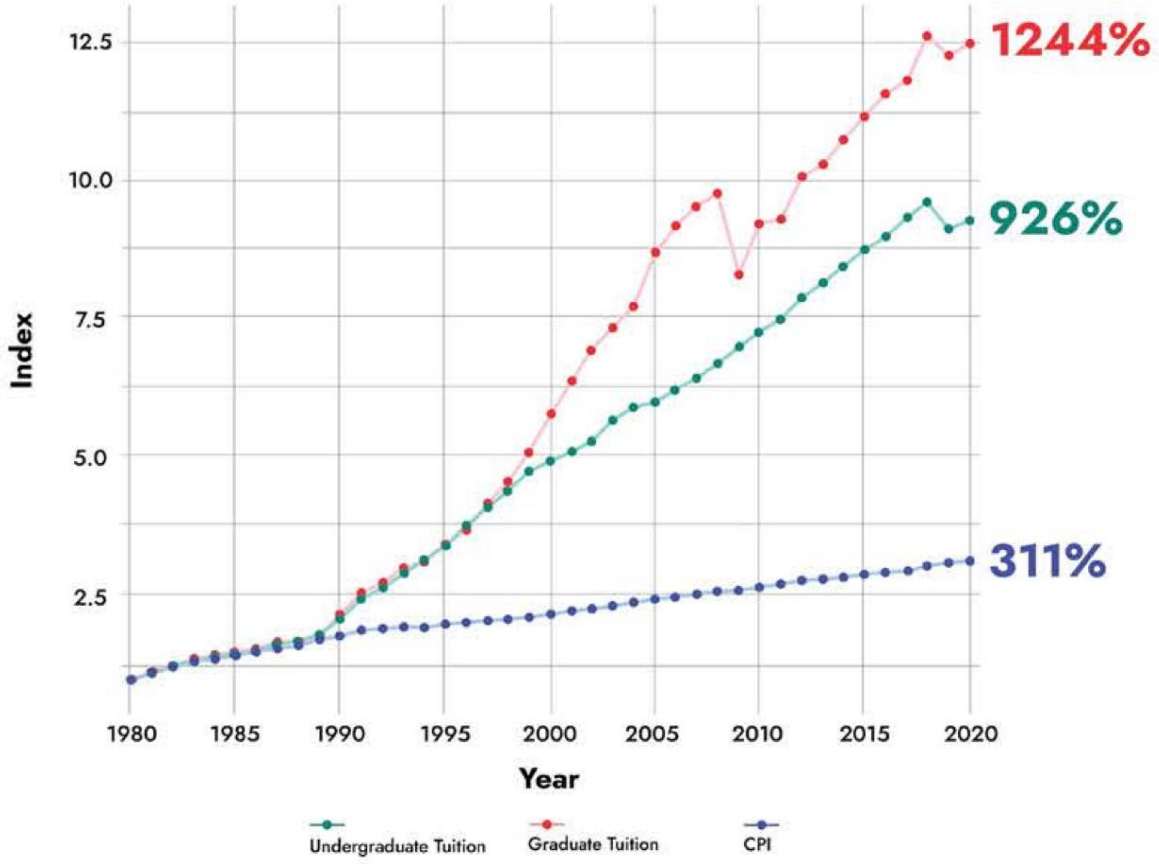
Recommendation #6: Decolonize Learning

1. Invest additional funds to those allocated in Budget 2022 to fully address the Post-Secondary Student Support Program (PSSSP) application backlog. **Cost:** an additional $228.3 million over three years.
2. Dedicate funding to support the development of Indigenous learning materials and language courses at the post-secondary level. **Cost:** $10 million per year.
3. Close the gap in Indigenous post-secondary education attainment. **Cost**: $650 million per year.

PART 2: CONTEXT AND EXPLANATION
Recommendation #1: Affordability of Post-Secondary Education

Ensuring Canada's competitiveness requires educated and active participants in our economy. We need to create a system that allows Canada to join other parts of the world in ensuring post-secondary education has no financial or accessibility barriers to have the most educated workforce in the world. Students for decades, as seen in the graph below, shows massive increases in tuition well above the annual rate of inflation. Creating a national post-secondary education transfer would eliminate tuition fees as a part of a 50:50 model and make the dream of millions of current and future students come true.

Figure 2: Average tuition fees and CPI, 1980-2021



The high tuition fees are a deterrent for tens of thousands of current and prospective students. Eliminating tuition fees and ensuring there is a national tuition freeze would allow hundreds of thousands of students to access some of the best public institutions in the world and address the worsening labour shortage. The return on investment from education is one of the best investments a federal government

can make and many students are on the front line of innovative research that we pride ourselves on and rely upon.

Affordable education means students and graduates are able to save for retirement, eliminating the issue of student loans preventing applicants from obtaining a mortgage, and have a healthy credit score. Continuing the doubling of Canada student grants means ensuring students can realistically budget to study and obtain an education, while counting on the federal government to act as a partner in the fight against rising levels of student debt and continuing to build on progressive policy that tackles unaffordability.

Recommendation #2: Fairness for International Students

Ensuring we keep international talent in Canada means making economic conditions viable for retainment rates of that talent and eliminating the two-tier system that international students experience. Provincial policies of differential fees have created a system where international students pay over five times more in tuition fees than domestic students for the same education. The result of this is an education system across Canada that relies on unjustifiable increases in international student tuition. Giving international students the same public health insurance options is in line with the values of our universal healthcare system and creates more economic opportunities and contributions to local economies by international students.

The high cost of tuition and housing for international students is directly connected with a decline in mental health. 90% of international students are worried about their expenses and 70% of international students have familiar debt or loans to cover the cost of their education.[1] One study found that 55% of international students were at risk of depression and 50% were at risk of an anxiety disorder, with very common testimonials of those interviewed including consistent experiences of loneliness, mental exhaustion, panic attacks, and social isolation.[2]

We need to ensure that the exploitative and predatory practices of recruiters, that disproportionately target low-income international students, is eliminated and are a deterrent for tens of thousands of international students every year. We need to also understand the seriousness of the mental health crisis for international students, which often goes unnoticed because of pervasive stigma to mental health care in diaspora communities and lack of funding to address disaggregated data on international student mental health issues. This is why it is absolutely necessary to provide funding for organizations and Statistics Canada to regularly monitor and provide comprehensive data on the wellbeing and quality of life for international students, with a specific focus on rate of suicide. The elevated rates of suicide are a major concern for international students with very little research being tracked on current statistics. The BC Coroner Services reported that between 2013 to 2018 at least 15 international students committed suicide and noted in their report they stated that the number was “underestimated”.[3] All of these issues are only exacerbated by the exclusion of international students from public health insurance.

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[1] https://onevoicecanada.org/wp-content/uploads/2021/05/The-Realities-of-International-Students-Evidenced-Challenges_Full-Report-2.pdf

[2] https://www.studyinternational.com/news/canadian-universities-intl-students/

[3] https://onevoicecanada.org/wp-content/uploads/2021/05/The-Realities-of-International-Students-Evidenced-Challenges_Full-Report-2.pdf

Recommendation #3: Housing

Students face many financial barriers to affording decent living conditions and are renting more than ever, while home ownership becomes unattainable for more students indefinitely. A federal rent assistance program would address the unaffordability of skyrocketing rent prices and alleviate financial constraints on students. Addressing this crisis means doubling the amount of additional housing units, listed in accordance with the *National Housing Strategy Act*, to address the rising rate of chronic homelessness and address the unsustainable supply shortage that is a significant deterrent to international students with massive tuition costs and housing prices. Tackling the effects of poverty that many students face and providing a renter's rebate would make significant progress to the government's goal to eradicate poverty and homelessness.

Additional housing units being built need to completed in an equitable way to address the gap in housing attainment for Indigenous students, which is why there needs to be a minimum requirement of at least 10% of new housing being built under the National Housing Strategy to address underfunding of housing investments in First Nations, Inuit, and Métis communities. Providing renter rebates for the many households that are not receiving other rental support would address many of the financial barriers that low-income students and international students face, alleviating market pressures on many students that are being pushed out of home ownership and in the continuous cycle of renting.

Recommendation #4: Graduate Students and Research

Committing to support research goes a long way towards promoting innovation and thus ensuring Canada's competitiveness. Expanding the eligibility criteria for needs-based Canada Student Grants would allow more underrepresented students to pursue graduate studies and for all graduate students to focus on completing their research. Additionally, creating dedicated research fellowships for Indigenous and international students would serve to support the diversity of perspectives, and solutions to problems. Canada will benefit from a more highly educated and diverse workforce that would fuel research and innovation in both the public and private sectors.

The value of graduate awards has remained unchanged for nearly 20 years, and postdoctoral fellowships increased by only $5,000 in the same time period. This means that the vast majority of federally funded graduate and postdoctoral scholarships amount to less than minimum wage. This results in some of our brightest minds living in poverty, leaving to study abroad, or simply unable to contribute to Canada's knowledge economy through graduate studies altogether. Increasing the value of federal graduate awards means students receiving these awards can actually afford to pursue graduate education, or continue research as a postdoctoral scholar.

By ensuring awards increase with the cost of living, they will be internationally competitive and provide support and incentive for students and postdoctoral scholars to pursue education and careers in research and innovation in Canada. By increasing the value of scholarships and fellowships, we can ensure we retain talented and innovative minds in Canada pursuing research at the highest levels.

Recommendation #5: Mental Health Supports

Ensuring Canada's competitiveness requires a healthy workforce: body and mind. It is therefore crucial that students and their families have access to adequate healthcare, including psychological care. Meeting students where they are is key to providing mental health care and services, which is why it is completely necessary to have publicly funded on-campus supports and allow post-secondary institutions to apply for

federal grants to improve on-campus supports modelled after the Post-Secondary Institutions Strategic Investment Fund.

The need for mental health services has far outpaced their delivery, as evidenced by growing waiting lists and restrictions to on-campus services. It is critical that a dedicated mental health stream be created to ensure ongoing mental health promotion and prompt treatment of mental illnesses through a nationwide program in accordance with the principles and criteria of the *Canada Health Act*.

Recommendation #6: Decolonize Learning

It is imperative that we continue making education more inclusive of Indigenous learners, and that we close achievement gaps between Indigenous and non-Indigenous peoples. The Centre for the Study of Living Standards projected that "Canada's Gross Domestic Product (GDP) would be $36.4 billion greater in 2031 if the Indigenous education attainment gap and related gaps for employment rates and income by level of employment were closed."[4] Investments that address the rapid growth of Indigenous learners and to address the backlog of program applicants, as well as closing the gap in Indigenous post-secondary education attainment, are imperative

As emphasized in the Report by the Truth and Reconciliation Commission, post-secondary institutions have an important role to play in honouring and preserving Indigenous languages and cultures. With *Bill C-91* and Bill C–15 this government has prioritized the preservation and promotion of Indigenous language. However, there is a specific role for the post-secondary sector to play. To that end, we recommend $10 million to support the development of culturally appropriate curriculum at the post-secondary level, including courses and programs in Indigenous languages, cultures, and history.

[4] Calver, Matthew. 2015. “Closing the Aboriginal Education Gap in Canada: Assessing Progress and Estimating the Economic Benefits.” Centre for the Study of Living Standards: Ottawa.

Canadian Society for Molecular Biosciences

Promoting and advancing molecular understanding of biology

Boosting Investment in Scientific Research: An Important Tool for Post-COVID 19 Economic Recovery Readiness and for Meeting Future Challenges

Submission to the Finance Committee's Pre-Budget Consultations

Prepared by:

The Canadian Society for Molecular Biosciences (CSMB)

RECOMMENDATIONS

That the Government commit to appropriately funding Canada's best and brightest in science and research, by:

Recommendation 1: That the Government significantly increase investments in the budgets of the tri-councils – the Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC), and the Natural Sciences and Engineering Research Council (NSERC) – by 30%. This amount would be in line with the recommendation of the Fundamental Science Review, and accounting for inflation since 2017.

Recommendation 2: That the Government increase the level of support for recipients of the Canada Graduate Scholarship (Masters program) and Postgraduate Scholarship (Doctoral program), through each of the tri-councils, by 48% to account for inflation since 2003.

Recommendation 3: That the Government increase investment in training of the next generation of scientists, over 4 years, to an additional $140M per year (increases at $35M per year, via the tri-councils).

Recommendation 4: That the Government increase its investment in the Research Support Fund, over 4 years, to an additional $478M to help institutions across Canada to support their researchers as effectively and efficiently as possible.

Conceived in 1957, the **Canadian Society for Molecular Biosciences (CSMB)** is a professional association of scientists involved in Biochemistry, Cell Biology, Molecular Biology and Genetics. Our members are primarily from universities and academic research institutions from across the country and are the scientists responsible for investigator-driven research. Their work generates new knowledge that fuels innovation and discoveries, and trains the next generation of scientists who will continue to innovate and contribute to our knowledge-based economy through academic, industry, and business opportunities.

On behalf of the CSMB, we would like to thank the Finance Committee for the opportunity to provide our recommendations for Federal Budget 2023. Alongside the rest of Canada's scientific community, we are calling for significant and sustained investments in science and discovery research, so that we can continue to recover from the COVID-19 pandemic, as well as build a better and more resilient tomorrow.

The Impact of Sustained Support for Science and Research, Illustrated by the Pandemic

As Canada continues to cope with the challenges brought on by the pandemic, science,

undertaken by Canadian scientists, has been a guiding light of hope amid the darkness of a few difficult years. Through immense cross-disciplinary collaboration and a spirit of scientific ingenuity, Canada's scientific community, including CSMB, has risen to the challenge, such as through involvement with mRNA vaccine development.

But as the light at the end of this pandemic appears brighter everyday, it is vital for us to consider the foundational work that has produced the pandemic-ending scientific achievements, and how COVID-19 has shifted Canada's science policy landscape, as well as that of our counterparts.

Government investment in scientific research has been especially highlighted in the past number of years as public dollars played an essential role in getting vaccine research, development and manufacturing off the ground, based on decades of research that allowed this leap. The pandemic illustrated the necessity of supporting fundamental research on an ongoing basis, and the ability to apply that research to new and emerging challenges quickly, which would not be possible without the existing groundwork.

The Need to Increase Support for Science and Research: An Investment in our Long-Term Future

Momentous change has been the biggest constant of the 21st century, and nowhere is that more evident than with climate change. From flash flooding to increasingly devastating hurricanes, the climate crisis has become a leading threat to our shared economic and ecological future. Solving this crisis will be one of the greatest challenges of our lifetimes, and investing in science is the key to getting there. From large-scale renewable energy generation to carbon capture and storage, scientific innovation, which always start with basic research, can pave the way to a safe climate future – but only if investments are made to realize this potential.

Canada's allies and competitors have taken note of these pandemic learnings, challenges and emerging science policy realities, and this is best embodied by the commitments of the new Biden administration. The new President's first budget request to Congress reflected his administration's broad, bold and ambitious science and research agenda, including funding to expand education and workforce training programs and support next-generation science talent.

To illustrate this – in 2022, the budget of the Canadian Institutes of Health Research (CIHR) was a mere 2.38% when compared with the budget of the United States National Institutes of Health (NIH) budget – and will only be 2.06% of its budget in 2023 without major investments. Given that the US population is 8.7 times that of Canada, they invest 5 to 6 times as much in biomedical research per capita, compared to us. The United States is only one of several countries that has identified science and research as a way to deal with global challenges, and has matched this with adequate funding.

The current level of operational support at the tri-councils is insufficient to support Canadian researchers at internationally competitive rates. The erosion of the funding base has been slowly forcing many promising biomedical research laboratories across the country to reduce their research efforts or close entire research programs, release highly trained personnel, and stop training the next generation of scientists. This fundamentally threatens our preparedness for the next pandemic, as basic science training is foundational to so many aspects of public health, medicine and biomedical research into therapies.

Recommendation 1: *That the Government significantly increase investments in the budgets of the tri-councils – the Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC), and the Natural Sciences and Engineering Research Council (NSERC) – by 30%. This amount would be in line with the recommendation of the Fundamental Science Review, and accounting for inflation since 2017.*

This investment would address the steady decline in research funding in Canada thereby positioning Canada to innovate and discover on the global stage, promote greater international collaboration, create interdisciplinary opportunities, and lead to high-risk ventures that will ensure Canada is ready to face the next global challenges ahead, health or otherwise.

The Need to Increase Support for our Best and Brightest: An Investment in the Talent Needed for Tomorrow

As the pandemic highlighted the need for a highly skilled workforce with a background in biosciences – which feeds into the fields of epidemiology, virology, vaccine development, public health, pharmaceutical innovation, and more – is more important than ever, and Government action is needed to ensure that we have enough qualified Canadians to meet the needs of a rapidly growing sector. As Canada looks towards making our economy more innovative and production, it remains vital that any government strategy retain a laser focus on a significant hurdle for the science and research sector: a lack of support for next generation science talent, leading to a skills shortage – which is incredibly problematic for a sector that is so highly skilled.

Government financial support for science and research is primarily made through investments in infrastructure, such as for university-based laboratories, in addition to grant funding for researchers through the tri-councils (CIHR, NSERC, SSHRC) which grad students rely heavily on. Ongoing, and sustained, increases in the amount of grant funding available for basic science researchers is crucial to ensuring that our best and brightest can continue to perform research, and that they do not seek more compelling opportunities elsewhere.

Today, scholarship amounts are not increasing with inflation – and in fact, amounts have not increased since the early 2000's. For example, during the 2021-2022 fiscal year, Master level students were eligible for a one-time scholarship of $17,500, the poverty line for a single individual living in an urban area with a population greater than 500,000 was $22,060.

At the same time, the competition for grants and funding is highly competitive. For example, from the CIHR's Fall 2021 project grant results, of the 525 applications submitted by early career researchers, only 25.9% of applications were funded. Of the 726 mid-career applications submitted by mid-career investigators, only 31.7% of applications were funded. These low success rates mean that many of Canada's researchers spend hours writing grant applications, yet many of their applications are unsuccessful.

We would be remiss if we did not acknowledge that the science and research sector is, like many other sectors, competing for talent. Faced with low success rates for funding support, as well as a perception that Canadian scientists and researchers do not have access to a livable wage, our current cohort of talent may be leaving the field - not because they don't love it, but because they can't afford to stay in it. At the same time, opportunities within the sector, but abroad, may appear far more attractive than those offered domestically, leading to instances of "brain drain".

Recommendation 2: *That the Government increase the level of support for recipients of the Canada Graduate Scholarship (Masters program) and Postgraduate Scholarship (Doctoral program), through each of the tri-councils, by 48% to account for inflation since 2003.*

Recommendation 3: *That the Government increase investment in training of the next generation of scientists, over 4 years, to an additional $140M per year (increases at $35M per year, via the tri-councils).*

The Need to Increase Support for Research Enterprise: An Investment in Infrastructure

Cutting-edge discovery research such as the Canadian scientific teams searching for a COVID-19 vaccine, takes place in universities, hospitals and research institutes across the country and their infrastructure is increasingly in need of upgrades. Our scientists require state of the art infrastructure to continue to innovate, discover and create new knowledge.

The Research Support Fund assists Canadian post-secondary institutions with the costs associated with managing their research enterprise, helping them to maintain a world-class research environment. Grants through the Fund can be used to maintain modern labs and equipment, provide access to up-to-date knowledge resources, and more. However, despite its significant impact, the Fund is lacking in the investments needed to ensure that our research infrastructure is operating as efficiently as we need it to.

Recommendation 4: *That the Government increase its investment in the Research Support Fund, over 4 years, to an additional $478M to help institutions across Canada to support their researchers as effectively and efficiently as possible.*

Conclusion

Canada's scientists have been at the forefront of the response to COVID-19. Because of the investments that have been made by governments, provincial, territorial and federal, to support the scientific community thus far, Canada has fared better than it otherwise would have. A commitment to basic science helped us to understand and apply knowledge to the problems Canadians faced, such as the novel vaccines developed over the past years. Similarly, a sustained commitment and increased investment in basic science will help us to understand the root causes of many other problems that Canadians face, or might face in the future – diseases

like cancer, diabetes, and dementia, and challenges such as climate change, natural disasters, antibiotic resistance and contaminated drinking water, to only name a few.

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Written Submission for the Pre-Budget Consultations in Advance of the 2023 Federal Budget

Federation for the Humanities and Social Sciences

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Recommendations

Recommendation 1: Invest in future researchers by increasing the amount of funding support for graduate students and postdoctoral fellows to adjust for inflation, and index the value of these funds to the consumer price index

Recommendation 2: Enhance the impact and reach of Canadian research by investing in open access publishing

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Introduction

Researchers in the humanities and social sciences (HSS) address our society's most important challenges, from racial justice to reconciliation between Indigenous and non-Indigenous peoples, to the spread of misinformation. They preserve and mobilize knowledge about Canada, including history, language, culture, and our place in a rapidly changing world. The human skills frequently sought by employers, including communication, critical thinking and analytical skills, and the ability to work with, understand, and adapt to other people, are all hallmarks of an education in the humanities and social sciences.

The COVID-19 pandemic has exacerbated many challenges, and increased the need for these human skills. It has underscored the importance of having complete and accurate information that can be reliably accessed in an environment polluted by dis- and misinformation.

However, we must do more as a country to support our next generation of knowledge leaders. The federal scholarships and fellowships that many graduate-student researchers depend on are losing their value due to rising costs and stagnant funding levels. As a result, it is more difficult for Canadians to expand their skills and attain advanced degrees, and more difficult for Canadian institutions to attract graduate students and remain competitive.

The declining value of these awards must not be ignored any longer. The Federal government must invest in our future scholars. If Canada is going to remain competitive, and attract, train, and retain the researchers it needs, the Federal government must reverse the decline in value of its graduate student scholarships and fellowships.

In addition to investing in future researchers, we are calling on the Federal government to support open access publishing. The costs of open access publishing, often borne by the researcher, are a barrier to accessing and applying valuable research findings. By investing in open access publishing, the Federal government can increase the reach and impact of Canadian research.

Our recommendations

Recommendation 1: Invest in future researchers by increasing the amount of funding support for graduate students and postdoctoral fellows to adjust for inflation, and index the value of these funds to the consumer price index

Federal scholarships and fellowships are critical to the development of future researchers and their amounts must increase to provide the support that graduate students and postdoctoral fellows require. In some instances, the amounts of these awards have not been adjusted for 19 years, and, as a result, rising costs are eroding their value to the point where a recipients' income is below the poverty line.

Figure 1: Graph of the values of SSHRC scholarships and fellowships from 2003-2020 plotted against Low-Income Cut Off data for the same time period (based on a single individual living in an urban area with a population greater than 500,000). Data sources: Social Sciences and Humanities Research Council, Statistics Canada.

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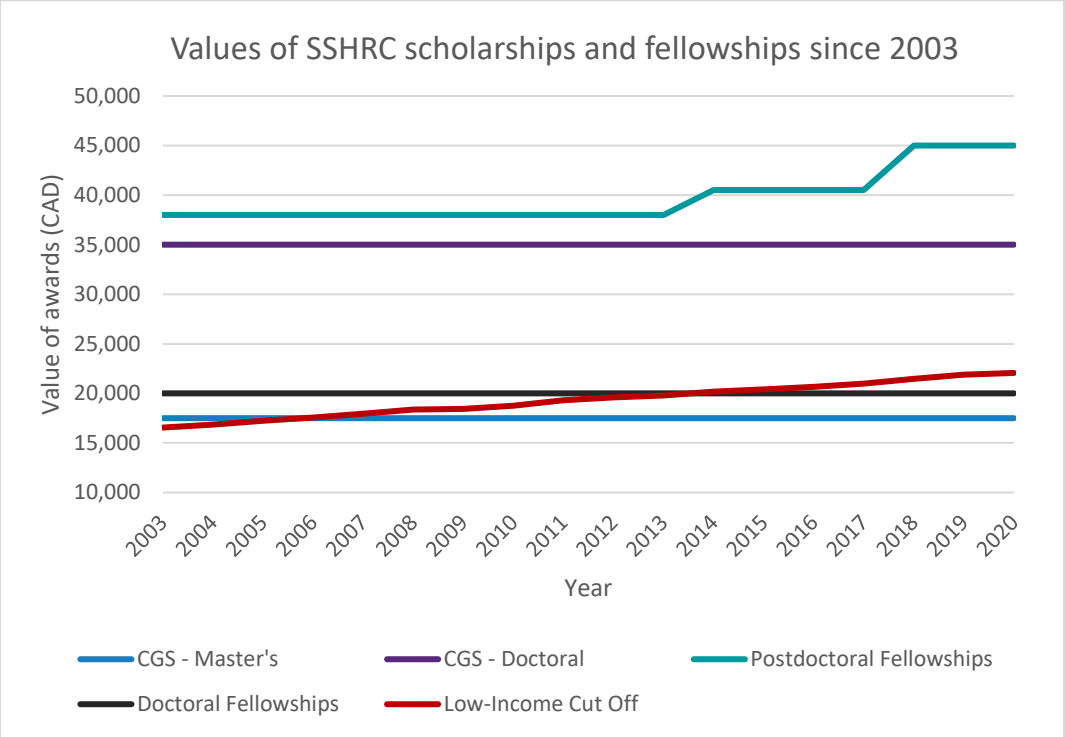

Similar trends are also observable in the Canada Research Chair (CRC) program funding. The award value had not changed since the CRC program was introduced in 2000, and declined by one third as of the year 2015.[1] The Federation was pleased to see actions taken to mitigate the declining value of the CRC program. The final report of Canada's Fundamental Science Review recommended adjusting the value of the CRCs and accounting for their loss in value due to inflation since 2000 (Recommendation 7.2),[2] while Budget 2018 committed $210 million over five years to the CRCs to support early-career researchers and increase diversity among nominated researchers.[3] The funding programs for graduate students and postdoctoral fellows deserve the same attention and revitalization.

Graduate scholarships and postdoctoral fellowships must keep up with the cost of living. The value of the Canada Graduate Scholarships has decreased by 48% due to inflation during the past two decades, and the value of Postdoctoral Fellowships has declined by 14% since they were last adjusted four years ago. Fortunately, there is growing momentum to address this issue. The House of Commons Standing Committee on Science and Research recently recommended that the Federal government increase the

[1] Goss Gilroy Inc. 2016. Evaluation of the Canada Research Chair Program. Prepared for NSERC-SSHRC Evaluation Division.
[2] Advisory Panel for the Review of Federal Support for Fundamental Science. 2017. Investing in Canada's Future: Strengthening the Foundations of Canadian Research.
[3] Government of Canada. 2018. Equality & Growth: A Resilient Middle Class. Chapter 2 – Progress.

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number of these graduate scholarships and postdoctoral fellowships, increase the value of the awards, and index the awards to the consumer price index.[4]

There is a continued need for these funds across disciplines to support advanced study, research, and training. Investing early in a scholar's career through graduate and postdoctoral funding provides important training, experience, and research opportunities for scholars to build upon throughout their careers, and enhances Canada's ability to attract and retain research talent. To ensure equitable access to these funds across equity-deserving groups, Federal granting agencies must continue to monitor applications to assess that success rates are proportionate to population rates.

If persistent gaps in the access to these funds occur, dedicated funding streams can be created to mitigate these imbalances and support scholars with diverse identities. An important example was Budget 2022's commitment of $40.9 million over five years to support targeted scholarships and fellowships for Black student researchers.[5]

Recommendation 2: Enhance the impact and reach of Canadian research by investing in open access publishing

As proposed in the 2022 Open Science Dialogues,[6] there should be federal funding support for open access publishing of journal articles and scholarly books in Canada. Open access publishing allows research to be found, read, and shared by anyone in the world with Internet access, facilitating dissemination of research to the public, policymakers, and other researchers.

The Federal government should establish an open access fund to help mitigate the costs researchers incur when publishing open access articles and books. The open access fund must be available to researchers belonging to equity-deserving groups, in all disciplines, and working in French, English and Indigenous languages. Lowering barriers to research will benefit students, fuel innovation and economic growth, and put knowledge in the hands of more people working to solve global challenges. This open exchange of research can help Canada have a thriving knowledge economy across universities, public, and private sectors, while keeping the public informed on important scientific developments.

Conclusion

Scholars in the humanities and social sciences produce important research and make valuable contributions to Canadian society. Investing in scholarships, fellowships, and open access publishing will help scholars in these disciplines, as well as researchers in other disciplines, increase the impact and reach of their work.

[4] Standing Committee on Science and Research. 2022. Successes, Challenges and Opportunities for Science in Canada.
[5] Government of Canada. 2022. Budget 2022. Chapter 2: A Strong, Growing and Resilient Economy.
[6] Office of the Chief Science Advisor of Canada. 2022. The Open Science Dialogues: Summary of stakeholders round tables.

FEDERATION FOR THE HUMANITIES AND SOCIAL SCIENCES | FÉDÉRATION DES SCIENCES HUMAINES

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About the Federation

The Federation for the Humanities and Social Sciences promotes research and teaching for the advancement of an inclusive, democratic and prosperous society. With a membership now comprising over 160 universities, colleges and scholarly associations, the Federation represents a diverse community of 91,000 researchers and graduate students across Canada. The Federation organizes Canada's largest academic gathering, the Congress of the Humanities and Social Sciences, bringing together more than 8,000 participants each year. For more information about the Federation, visit www.federationhss.ca.

Written Submission for Pre-Budget Consultations in Advance of the 2023 Budget

Support Our Science

Support Our Science

Support Our Science is a grass-roots organization advocating for increased pay for graduate students and postdoctoral scholars in Canada. We represent tens of thousands of graduate students, postdoctoral scholars and faculty in Canada advocating for increases in funding and the elimination of poverty wages for students on the front line of innovative and transformative research.

Signatories to this submission:

Ottawa Science Policy Network

Toronto Science Policy Network

Science & Policy Exchange

Anti-racism Student Association

Canadian Association of Postdoctoral Scholars

LIST OF RECOMMENDATIONS

Recommendation #1: That the government provides funding to the Tri-Council agencies so that the value of graduate student scholarships for masters students (e.g., NSERC CGS-M) are increased by 48% to address inflation since 2003. Tri-Agency masters student scholarships are currently valued at $17,500 per year and would increase to $25,900 per year.

- NSERC CGS-M: $8,400 per award x 840 existing awards = **$7.06M**
- SSHRC CGS-M: $8,400 per award x 1280 existing awards = **$10.8M**
- CIHR CGS-M: $8,400 per award x 886 existing awards = **$7.4M**

Recommendation #2: That the government provide funding to the Tri-Council agencies to equalize the values of NSERC and SSHRC Post-Graduate Scholarship Awards (e.g., PGS-D) to the Canada Graduate Scholarships for Doctoral students (e.g., CGS-D) at $35,000 per year.

- NSERC PGS-D: value would increase from $21,000 per year to $35,000 per year
    - Increase of: $14,000 per award x 342 existing awards = **$4.79M**
- SSHRC PGS-D: value would increase from $20,000 per year to $35,000 per year
    - Increase of: $15,000 per award x 430 existing awards = **$6.5M**
- CIHR PGS-D: NA

Recommendation #3: That the government provides funding to the Tri-Council agencies so that the value of Postdoctoral Fellowships awards are increased by 48% to address inflation since 2003.

- NSERC PDF: value would increase from $45,000 per year to $59,200 per year
    - Increase of: $14,200 per award x 150 existing awards = **$2.13M**
- SSHRC PDF: value would increase from $45,000 per year to $59,200 per year
    - Increase of: $14,200 per award x 151 existing awards = **$2.14M**
- CIHR PDF: value would increase from $45,000 per year to $59,200 per year
    - Increase of: $14,200 per award x 158 existing awards = **$2.24M**

Recommendation #4: That the government implements a policy to provide on-going funding to the Tri-Council agencies to index award values to inflation based on a long-term average of 2.1%.

Recommendation #5: That the government provide additional funding to the Tri-Council agencies to increase the number of post-graduate scholarships provided annually by 50%.

- NSERC: from 1524 awards to 2226 awards, increased cost per year: **$22.85M**
- SSHRC: from 2140 awards to 3210 awards, increased cost per year: **$24.10M**
- CIHR: from 1227 awards to 1841 awards, increased cost per year: **$17.4M**

Recommendation #6: That the government provide additional funding to the Tri-Council agencies to double the number of Postdoctoral Fellowships awarded annually.

- NSERC: $59,200 x 150 new awards = **$8.88M**
- SSHRC: $59,200 x 150 new awards = **$8.88M**
- CIHR: $59,200 x 150 new awards = **$8.88M**

ANTICIPATED OUTCOMES

Contributing to growing a more resilient economy - Research is the foundation of innovation in Canada. Investing in the financial stability of early career researchers will return immediate and long-term benefits in the R&D sector by enabling individuals to pursue these careers as financially viable options. This will ensure the Canadian economy will continue to benefit from its investments in research by drawing more people into these sectors and keeping them in Canada via competitive compensation.

Promoting diversity and inclusion - The Tri-Agencies have noted the importance of Equity, Diversity and Inclusion (EDI) (e.g., NSERC EDI statement[1]) for research excellence in Canada. Increasing the value and number of scholarships and fellowships awarded to graduate students and postdoctoral scholars would reduce existing financial barriers to participating in research. This financial support would help achieve the stated goals of promoting diversity and inclusion in higher education and retaining high-calibre researchers in these innovative fields.

Retaining and attracting top talent - Investing in scholarships and fellowships for graduate students and postdoctoral scholars will attract individuals to Canada's innovative research environment, and retain them for eventual careers in industry, government, and academia. The Tri-Agency awards set the standard for graduate student and postdoctoral scholar pay in research sectors across Canada - this means an increase in award values will also improve conditions for the majority of individuals who are not successful in winning a Tri-Agency award. These changes would be most significant for students from low-income families and other underrepresented groups who have limited support and opportunities to pursue research careers in the current system. The benefits of increasing the value and number of Tri-Agency scholarships and fellowships would be felt across Canada.

Contributing to solving current and future challenges - Investing in graduate students and postdoctoral scholars means investing in pandemic control, climate action, sustainable technology, green jobs and more. Our recommendations focus on improving the living standards for the next generation of researchers across Canada to ensure we are prepared to meet these challenges. Without this investment, Canada risks falling further behind other G-7 and OECD countries in research and innovation. Increasing the value and number of graduate student awards and postdoctoral fellowships will encourage more students to remain in research and pursue scientific careers which will help Canada become a leader in innovation, with the concomitant economic benefits that will ensue from such leadership.

CONTEXT

Graduate Students and Postdoctoral Scholars are the Lifeforce of Discovery and Innovation

Graduate students and postdoctoral scholars drive the science and innovation that keeps Canada competitive on the global stage. Investing in training these highly skilled individuals is a Canadian priority to bolster innovation and the economy. Without ensuring graduate students and postdoctoral scholars are consistently supported with increased funding, we cannot ensure that the front line of research remains optimal for innovation, entrepreneurship, and business development. Meeting the challenges of the future means investing in maximizing our capacity to take on these challenges and ensuring entry into programs for graduate students and postdoctoral scholars has no financial barrier

[1] https://www.nserc-crsng.gc.ca/InterAgency-Interorganismes/EDI-EDI/Grants-Awards_Subventions_et_Bourses_eng.asp?wbdisable=true

for prospective students, which starts with investing in the next generation of researchers.

The Next Generation of Researchers Face Significant Financial Challenges

Funding for graduate students and postdoctoral scholars comes from one of the three federal granting agencies; the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC), accountable to the Minister of Innovation, Science, and Economic Development, and the Canadian Institutes of Health Research (CIHR), accountable to the Minister of Health. Students and postdoctoral scholars are funded either directly through graduate student scholarships and postdoctoral fellowships, or indirectly from their supervisors' research grants.

Recommendations #1 & #2: Despite being a core component of the Canadian funding landscape, award amounts have been stagnant for nearly 20 years and have not kept pace with inflation. This means that the vast majority of **federally funded graduate scholarships amount to less than minimum wage**. Currently, master's students receive $17,500/yr (CGS-M) and PhD students awarded PGS-D scholarships receive $20-21,000/yr (SSHRC and NSERC, respectively). Therefore, we recommend the value of masters' student awards (CGS-M) increase by 48% in 2023 to meet inflation rates since 2003 and to standardize the value of the two major doctoral awards CGS-D and PGS-D at $35,000.

Recommendation #3: Postdoctoral scholars, who have completed a 4 or 5-year doctoral degree, receive fellowships that amount to a salary of $45,000/yr. This value is a modest increase of $5K since 2003. We recommend the value of postdoctoral awards be increased to at least $59,200 to match 48% inflation since 2003. This increase in postdoctoral fellowship values will significantly advance Canada's mandate to "secure a supply of highly qualified Canadians with leading-edge scientific and research skills for Canadian industry, government and academic institutions."

Recommendation #4: As the cost of living has steadily increased, the unchanged values of graduate student scholarships and postdoctoral fellowships provide inadequate support for these researchers, who often have families, prior student loans, and other financial responsibilities. For graduate students, tuition fees have also steadily increased from $5,387 in 2006 to $7,437 in 2022 - a 38% increase[2]. This is why it is imperative that all graduate scholarships and post-doctoral fellowships are indexed to the consumer price index moving forward. By ensuring values increase with the cost of living, the awards will be internationally competitive and provide an incentive for students and postdoctoral scholars to pursue education and careers in Canada. This will also ensure a sustainable model where scholarships and fellowship values do not become underfunded in the future.

Recommendations #5 & #6: Canada continues to be a world leader in research and innovation. Canada is proud to be the OECD member nation with the highest share of university or college graduates and first in the G-7 for higher-education sector R&D performance[3]. **However, the number of federal scholarships being offered has not kept pace with the number of graduate students attending Canadian universities and the number of available postdoctoral fellowships has actually decreased.** This means an increasingly smaller percentage of highly qualified applicants benefit from the opportunities these awards provide. To secure Canada's future as a global leader in research and innovation, we recommend the federal government increase the number of scholarships and fellowships.

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[2] https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710004501&cubeTimeFrame.startYear=2006+%2F+2007&cubeTimeFrame.endYear=2022+%2F+2023&referencePeriods=20060101%2C20220101

[3] https://www.tradecommissioner.gc.ca/innovators-innovateurs/strategies.aspx?lang=eng

Receiving a federal scholarship or fellowship can change an individual's career trajectory. While in graduate school, scholarships reduce the need for trainees to take on additional work which allows them to focus on their cutting-edge research. A recent survey of 1300 students by the Ottawa Science Policy Network (OSPN) found that almost 40% of current graduate students have concerns about their ability to pay rent and buy groceries. Over 30% have considered dropping out of their programs due to financial concerns. Nearly half say they do not have enough money to cover their monthly expenses. In addition, a survey[4] of over 450 University of Toronto graduate students indicates that 44% of students report taking on additional employment to meet their financial needs. Students who receive awards are less likely to abandon their studies and accumulate less debt[5]. These students therefore have more time to devote to research allowing them to publish more peer-reviewed publications and present at more conferences. Graduate students who hold a scholarship are more likely to win future awards, find employment in a position closely related to their degree program, and earn a higher salary[5]. It is imperative that the government supports graduate students and postdoctoral scholars, or we risk Canada's strong research and innovation-based economy atrophying.

Our recommendations to increase the value of scholarships and fellowships are in line with previous recommendations by the Tri-Council. In SSHRC's report, "Revitalization of Graduate and Postdoctoral Scholarships", they ask the Government of Canada to increase the value of graduate scholarships and postdoctoral fellowships and index the award values to the consumer price index. This sentiment is further echoed in NSERC's 2030 Strategic Plan[6] and in this year's Standing Committee on Science and Research's report on "Successes, Challenges and Opportunities for Science in Canada"[7]. "Building a resilient economy means investing in people."[8] By increasing the value of scholarships and fellowships, we can ensure we retain the talented and innovative minds in Canada who will lead international discoveries and secure a strong economy.

[4] https://drive.google.com/file/d/1TIqjJdtBT2hjiKke_q90T2fu5W9J0LRC/view

[5] https://cihr-irsc.gc.ca/e/50081.html

[6] https://www.nserc-crsng.gc.ca/NSERC-CRSNG/NSERC2030-CRSNG2030/report-rapport/index_eng.asp#6

[7] https://www.ourcommons.ca/DocumentViewer/en/44-1/SRSR/report-1

[8] https://www.canada.ca/en/privy-council/campaigns/speech-throne/2021/speech-from-the-throne.html

CASA's 2023
Pre-Budget Submission

CASA
Canadian Alliance of Student Associations

ACAE
Alliance canadienne des associations étudiantes

UNION ÉTUDIANTE DU QUÉBEC

QUEBEC STUDENT UNION

Recommendations:

1. Lower interest rates on student loans by 1% each year through the government's existing mandate with the final goal of eliminating any interest paid on Canada Student Loans.
2. Maintain current funding levels to Canada Student Grants past the 2022-23 school year, permanently doubling grant maximums for eligible students from $3,000 to $6,000 per academic year.
3. Increase the value of graduate scholarships awarded by the Tri-Agencies by 48%, at a cost of $155.4 million ongoing, and double the number of awards given to students at a cost of $190 million ongoing, to ensure awards are internationally competitive and increase with the cost of living.
4. Increase the number of Canada Apprenticeship Grants to 40,000 per year to address the urgent need for apprentices and skilled trades across Canada.
5. Create an up-front, non-repayable Canada Student Grant for graduate students with high financial need, at an estimated cost of $381.5 million per year.
6. Create a new fund of $500 million over 4 years for the hiring of student mental health professionals on post-secondary campuses.

Modernizing Canada's Student Financial Assistance to Reflect Today's Cost of Living

Post-secondary students continue to face significant study and living costs in 2022. According to the University of Waterloo, yearly costs for a single student include: off-campus shared housing ($8,400-$20,400), groceries ($4,200), transportation ($300), and books and supplies ($2,880)[1]. Ultimately, university students can expect a total annual cost of living between $21,060 and $33,060[2], in addition to an average annual tuition of $6,834 (undergraduate) or $7,437 (graduate)[3] [4].

Unprecedented levels of inflation are now impacting these student expenses. **The Consumer Price Index (CPI) has risen 6.8% since last year[5], more than 3 times the rate of inflation pre-pandemic (1.95% in 2019)**[6]. By July 2022, inflation had risen to the highest levels seen since 1991[7], at 8.1%, further intensifying student expenses[8]. This is cause for concern, as according to Statistics Canada, post-secondary students are more likely to be impacted by inflation, given that their primary expenses are tuition, housing, and food[9].

To help support these rapidly inflating post-secondary expenses, many students have increasingly turned to the Canada Student Financial Assistance (CSFA) program[10]. In 2020, the federal government temporarily increased CSFA grants in response to the COVID-19 pandemic to $6000 for full-time students and $10,000 for students with disabilities.[11] However, this investment will expire on July 31 2023[12], which presents a significant challenge for Canadian students relying on this financial aid who are facing inflated costs substantially higher than pre-pandemic levels.

1 https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/future-students/funding-graduate-school/study-and-living-costs
2 https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/future-students/funding-graduate-school/study-and-living-costs
3 https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710004501&cubeTimeFrame.startYear=2006+%2F+2007&cubeTimeFrame.endYear=2022+%2F+2023&referencePeriods=20060101%2C20220101
4 https://www150.statcan.gc.ca/n1/daily-quotidien/220907/dq220907b-eng.htm?mc_cid=b374790536&mc_eid=91e7797f59
5 https://www150.statcan.gc.ca/n1/daily-quotidien/220907/dq220907b-eng.htm?mc_cid=b374790536&mc_eid=91e7797f5
6 https://www.statista.com/statistics/271247/inflation-rate-in-canada/
7 https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2022004-eng.htm
8 https://tradingeconomics.com/canada/inflation-cpi#:~:text=Canada's%20annual%20inflation%20rate%20rose,below%20market%20expectations%20of%208.4%25.
9 https://www150.statcan.gc.ca/n1/daily-quotidien/220907/dq220907b-eng.htm?mc_cid=b374790536&mc_eid=91e7797f59
10 https://www.canada.ca/en/employment-social-development/programs/canada-student-loans-grants/reports/cslp-annual-2018-2019.html
11 https://www.canada.ca/en/employment-social-development/programs/canada-student-loans-grants/reports/cslp-annual-2020-2021.html
12 https://www.canada.ca/en/services/benefits/education/student-aid/grants-loans/full-time.html

Additionally, students must begin to repay their federal loans within 6 months of graduation, after which they begin to accumulate interest at the prime rate (5.45%[13]) plus 2%[14] [15]. The CSFA programhas frozen interest accumulation on loans, however this policy will expire March 31, 2023[16]. Given that the average repayment period for a student is 9.5 years[17], interest rates significantly compound debt over many years. **In their first year, a student graduate in 2022 with the average debt of $23,000[18] will need to pay a minimum of $1,690.50 just to cover interest related costs**.

Recommendation #1:

Lower interest rates on student loans by 1% each year through the government's existing mandate with the final goal of eliminating interest on Canada Student Loans.

Recommendation #2:

Maintain current funding levels to Canada Student Grants past the 2022-23 school year, permanently doubling grant maximums for eligible students from $3,000 to $6,000 per academic year.

Though government-based grant support exists for undergraduate students, 272,853 graduate students in Canada[19] currently remain ineligible for key federal funding programs, including Canada Student Grants. Instead, federal scholarships for graduate students are predominantly provided through the Tri-Agencies[20] [21] [22], however only 2% of students applicants are awarded these scholarships[23] [24]. Currently, the Tri-Agencies receive over $2.19 billion in federal funding[25], yet only $190 million in scholarships is provided to support 4,500 student researchers[26]. Without access to reliable funding, many graduate students take on higher levels of debt[27].

13 https://www.bankofcanada.ca/rates/daily-digest
14 https://www.canada.ca/en/services/benefits/education/student-aid/grants-loans/repay.html
15 https://tools.canlearn.ca/cslgs-scpse/cln-cln/crp-lrc/af.nlindex-eng.do
16 https://www.csnpe-nslsc.canada.ca/en/what-is-new
17 https://osap.gov.on.ca/AidEstimator2223Web/enterapp/debt_calculator.xhtml#:~:text=Repayment%20calculator%20_for%20Full%2DTime%20OSAP%20loans&text=How%20long%20do%20you%20want,114%20months%20or%209.5%20years.
18 https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710003601&pickMembers%5B0%5D=1.1&pickMembers%5B1%5D=3.2&cubeTimeFrame.startYear=2015&cubeTimeFrame.endYear=2015&referencePeriods=20150101%2C20150101
19 https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020019-eng.htm
20 https://www.ourcommons.ca/Content/Committee/371/INST/Reports/RP1032098/indurp05/20-ch8-e.htm
21 https://www.sshrc-crsh.gc.ca/home-accueil-eng.aspx
22 https://www.nserc-crsng.gc.ca/index_eng.asp
23 https://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/CGSM-BESCM_eng.asp.
24 https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Eligibility-Admissibilite/students-etudiants_eng.asp
25 https://www.sshrc-crsh.gc.ca/news_room-salle_de_presse/latest_news-nouvelles_recentes/2020/tri-agency_talent-trois_organismes-talent-eng.aspx
26 https://www.sshrc-crsh.gc.ca/news_room-salle_de_presse/latest_news-nouvelles_recentes/2020/tri-agency_talent-trois_organismes-talent-eng.aspx
27 http://www.statcan.gc.ca/pub/81-595-m/81-595-m2009074-eng.pdf

Currently, Tri-Agencies award graduate student recipients only $17,500 (Master's)[28] or $35,000 (PhD)[29], amounts which have not changed since 2004[30], despite inflation rising 48%[31]. This means that the 4,500 graduate students who received one of Canada's top research awards earn less than minimum wage in many parts of the country[32]. With the high demands of graduate-level research, most graduate students do not have the capacity to take on additional work to finance their studies. Were the Tri-Agencies to increase the value of awards by 48%, to match net inflation since 2004[33], costing $155.4 million, this would allow Canada's top researchers to focus on their studies instead of the rising cost of living.

Graduate student research is a strong driver behind the $14.3 billion in research and development (R&D) conducted across Canadian universities, representing 40% of national R&D[34], yet Canada is falling behind globally[35] [36] [37] [38]. Since 2001, federal expenditures on post-secondary R&D have declined by 15.8%, making Canada only 1 of 5 OECD countries to cut its R&D investments during this period[39].

Recommendation #3:

Increase the value of graduate scholarships awarded by the Tri-Agencies by 48%, at a cost of $155.4 million ongoing, and double the number of awards given to students at a cost of $190 million ongoing, to ensure awards are internationally competitive and increase with the cost of living.

28 https://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/CGSM-BESCM_eng.asp
29 https://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/CGSD-BESCD_eng.asp
30 https://www.universityaffairs.ca/opinion/in-my-opinion/how-canada-short-changes-its-graduate-students-and-postdocs/
31 https://petitions.ourcommons.ca/en/Petition/Details?Petition=e-4098
32 https://www.universityaffairs.ca/opinion/in-my-opinion/how-canada-short-changes-its-graduate-students-and-postdocs/
33 https://www.nserc-crsng.gc.ca/students-etudiants/cgsallocations-quotasbesc_eng.asp
34 https://www.educanada.ca/programs-programmes/graduate-studies-etudes-superieures.aspx?lang=eng
35 https://financialpost.com/fp-work/canadian-businesses-have-fallen-far-behind-global-peers-in-technology-and-rd-investment
36 https://www.thestar.com/business/opinion/2022/08/06/how-canada-has-fallen-behind-in-the-global-race-for-advanced-industries.html
37 https://www.thestar.com/opinion/commentary/2014/03/23/canada_falling_behind_on_innovation.html
38 https://www.cbc.ca/archives/canada-artificial-intelligence-research-1984-1.5727962
39 https://www.caut.ca/resources/almanac/1-canada-world

Preparing Canada's Next Generation of Skilled Workers for Today's Labour Market

The COVID-19 pandemic has significantly impacted the Canadian economy and has brought about abrupt changes to the Canadian labour market. In the first two months of the pandemic, Canadians lost an unprecedented 3 million jobs[40], however, after two years, Canada has begun to experience a rapid economic recovery. By April 2022, Canada displayed the fastest jobs recovery in the G7, generating 112% of jobs lost since March 2020, with both rates of employment (61.9%[41]) and unemployment (5.2%[42]) having recovered to their pre-pandemic levels.

In spite of this record economic growth, Canada is now confronting a significant labour shortage, which has only worsened due to the effects of the pandemic and its aging workforce[43]. Since April 2021, demand for skilled workers has hit record levels, with job vacancies rising 60% above pre-pandemic rates across most industrial sectors and all provinces[44].The Canadian Apprenticeship Forum estimates that 700,000 skilled trades workers are set to retire by 2028[45] [46]. **In order to meet this workforce demand, approximately 75,000 new apprentices will need to be hired each year for the following 5 years**[47].

Currently, there are 381,039 apprentices enrolled in post-secondary institutions across the country[48]. While the government of Canada provides support to apprentices through various programs, prospective apprentices face significant barriers to access, including ineligibility for Canada Student Grants[49]. The federal government's main financial aid program for prospective apprentices, the Apprenticeship Incentive Grant (AIG), provides a $1,000 grant that may be claimed twice[50] [51]. While the AIG direct supports 66,000 apprentices[52], it does not currently provide enough grants to fulfill the 75,000 new apprenticeship positions per year required by Canada's labour market[53] [54].

40 "COVID-19 in Canada: A Two-year Update on Social and Economic Impacts", Statistics Canada, 2022, https://www150.statcan.gc.ca/n1/pub/11-631-x/11-631-x2022001-eng.htm
41 "Labour Force Survey, April 2022", Statistics Canada, 2022, https://www150.statcan.gc.ca/n1/daily-quotidien/220506/dq220506a-eng.htm
42 "Labour market report, April 2022", Queen's Printer for Ontario, 2022, https://www.ontario.ca/page/labour-market-report-april-2022#:~:text=Unemployment%20rate%20increased%20to%205.4%25,-Chart%203%20shows&text=to%20April%202022.-,Source%3A%20Statistics%20Canada%2C%20Labour%20Force%20Survey%2C%20Table%2014%2D,%2C%20(seasonally%20adjusted%20data).&text=Ontario's%20unemployment%20rate%20was%205.4,rate%20was%205.2%25%20in%20April.
43 https://www.canada.ca/content/dam/canada/employment-social-development/corporate/reports/briefing-binder-2019/infographics/labour-shortage-en.pdf.
44 https://budget.gc.ca/2022/home-accueil-en.html
45 https://www.canada.ca/en/employment-social-development/news/2022/01/skills-trade.html
46 https://www.newswire.ca/news-releases/government-of-canada-helps-to-create-more-than-25-000-apprenticeship-positions-across-canada-883678523.html
47 https://www.newswire.ca/news-releases/government-of-canada-helps-to-create-more-than-25-000-apprenticeship-positions-across-canada-883678523.html
48 https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710002301
49 https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00008-eng.htm.
50 "https://www.canada.ca/en/employment-social-development/services/funding/apprenticeship-incentive-overview.html
51 Ibid.
52 https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/apprenticeship-grants.html#h2.01
53 https://www.canada.ca/en/employment-social-development/news/2022/01/skills-trade.html
54 https://www.newswire.ca/news-releases/government-of-canada-helps-to-create-more-than-25-000-apprenticeship-positions-across-canada-883678523.html

Currently, the lack of financial aid has caused the majority of apprentices to either extend their studies (64%) or leave their training (20%)[55]. **According to Statistics Canada, out of 55,455 enrolled apprentices, only 35,256 students graduated in 2020[56] [57], nearly 40,000 graduates short of Canada's annual workforce needs**[58].

Given that over 81% of apprenticeships lead to permanent, high-paying jobs that are essential to the Canadian economy, supporting Canadian skilled trades is a valuable long-term investment[59].

Recommendation #4:

Invest $80 million to increase the number of Canada Apprenticeship Grants by 40,000 per year to address the urgent need for apprentices and skilled trades across Canada.

The pandemic has accelerated pre-existing labour market trends surrounding automation, technology, and sustainability.[60] The World Economic Forum estimates that the most in-demand jobs of tomorrow include: robotics engineers, mechanics, data analysts, and scientists, all of which require specialised training beyond an undergraduate degree.[61]

Unfortunately, all 272,853 of Canada's graduate students[62] remain ineligible for grants within the CSFA program. Other forms of federal aid, like Tri-Agency grants, are only awarded to 2% of graduate student applicants[63].

Because of the lack of grants available, a growing number of Canadian graduate students are entering their studies with less up-front, non-repayable aid, while coping with higher tuition and increased living costs.[64]

With inflation rising approximately 2.15% each year[65] [66], and with record inflation in 2022 (8.1% in June[67]), the cost of tuition, housing, and groceries for students is increasing faster than their ability to pay for these basic necessities.

55 https://www150.statcan.gc.ca/n1/daily-quotidien/201209/dq201209a-eng.htm
56 https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020016-eng.htm
57 https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710008901
58 https://www.canada.ca/en/employment-social-development/news/2022/05/government-of-canada-helps-to-create-more-than-25000-apprenticeship-positions-across-canada.html
59 https://www150.statcan.gc.ca/n1/daily-quotidien/170329/dq170329b-eng.htm
60 https://www.bankofcanada.ca/2021/02/canadas-labour-market-rebound-recuperation-and-restructuring/; "https://www.weforum.org/reports/the-future-of-jobs-report-2020/in-full/chapter-2-forecasts-for-labour-market-evolution-in-2020-2025#2-2-emerging-and-declining-jobs.
61 https://www.weforum.org/reports/the-future-of-jobs-report-2020/in-full/chapter-2-forecasts-for-labour-market-evolution-in-2020-2025#2-2-emerging-and-declining-jobs.
62 https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020019-eng.htm
63 https://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/CGSM-BESCM_eng.asp.
64 https://www.univcan.ca/universities/facts-and-stats/tuition-fees-by-university/.
65 https://www.rateinflation.com/inflation-rate/canada-historical-inflation-rate/
66 https://www.bankofcanada.ca/rates/indicators/capacity-and-inflation-pressures/inflation/
67 https://www.bankofcanada.ca/rates/indicators/capacity-and-inflation-pressures/inflation/

To address the rising cost of living, the federal government should create an upfront, $3000 grant for graduate students in financial need. This $381.5 million ongoing investment would provide 120,881 eligible graduate students with high debt68 relief from the strong financial burden being felt by Canada's top researchers and innovators.

Recommendation #5 :

Create an up-front, non-repayable Canada Student Grant for graduate students with high financial need, at an estimated cost of $381.5 million per year, ongoing.

68 https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020019-eng.htm

Supporting Student Health and Wellness Across Canadian Post-Secondary Institutions

The long term impact of COVID-19 has significantly intensified the existing academic, financial, and emotional challenges that students face in post-secondary education. According to the Mental Health Commission of Canada 2021 report, post-secondary students across Canada experienced high levels of social isolation (83%), financial distress (64%), and loneliness (61%)[69] during the pandemic.

To cope with these challenges, students have increasingly turned to mental health services. However, there are significant barriers to accessing these supports including: lack of funding, wait times, lack of awareness, and stigma[70]. Furthermore, **these negative impacts disproportionately affect students identifying as a visible minority, 2SLGBTQ+, Indigenous, and those with a pre-existing mental illness or disability**[71].

In recent years, the federal government has acknowledged the urgent need to address mental health across post-secondary campuses. The Minister of Mental Health and Addictions' mandate letter calls for a new student mental health fund dedicated to improving campus mental health.[72]

Recommendation #6:

Create a new fund of $500 million over 4 years for the hiring of student mental health professionals on post-secondary campuses.

69 https://mentalhealthcommission.ca/wp-content/uploads/2022/04/The-Ongoing-Impact-of-COVID-19.pdf ; https://www.cacuss.ca/files/Docs/CampusMentalHealthAcrossCanada-TheOngoingImpactofCOVID-19.pdf
70 https://assets.nationbuilder.com/casaacae/pages/3470/attachments/original/1664377984/Abacus_Report_2022_%281%29.pdf?1664377984
71 https://assets.nationbuilder.com/casaacae/pages/3470/attachments/original/1664377984/Abacus_Report_2022_%281%29.pdf?1664377984
72 https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-mental-health-and-addictions-and-associate-minister-health

About CASA

Established in 1995, the Canadian Alliance of Student Associations (CASA) is a non-partisan, not-for-profit, student organization composed of 22 student associations representing 360,000 post-secondary students from coast to coast. Through its partnership with the Quebec Students Union (QSU), CASA presents a national student voice to the federal government. CASA advocates for a Canadian post-secondary education system that is accessible, affordable, innovative, and of the highest quality.

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Our Members

Investir aujourd'hui dans les personnes et les idées pour un avenir meilleur

Universités Canada.

Mémoire prébudgétaire
Par Universités Canada
6 octobre 2022

Universités Canada exhorte le gouvernement à :

Recommandation 1 :

Attirer, former et retenir les meilleurs talents et idées :

- en investissant dans la recherche aux cycles supérieurs et au postdoctorat afin d'attirer, de cultiver et de retenir les meilleurs talents canadiens et étrangers, et de remédier au sous-investissement auquel a fait face toute une génération de jeunes chercheurs canadiens les plus prometteurs;
- en veillant à ce que les diplômés et les travailleurs possèdent les compétences dont le Canada a besoin en multipliant les possibilités d'apprentissage continu et d'apprentissage intégré au travail;
- en consolidant la position du Canada comme destination prisée par le talent mondial en réduisant le délai de traitement des permis d'études et de travail des étudiants et des professeurs.

Recommandation 2 :

Assurer la prospérité grâce à la recherche et à l'innovation :

- en renforçant les liens entre les universités et les partenaires étrangers, la société civile et le secteur privé afin de favoriser la collaboration internationale en matière de recherche, la mobilisation des connaissances et la commercialisation;
- en poursuivant sur la voie de l'excellence inclusive par la création de 1 000 nouvelles chaires de recherche du Canada et le financement des coûts associés, tout en visant l'amélioration de l'égalité raciale et des genres;
- en appuyant les personnes autochtones grâce à de nouveaux investissements dans le Programme de bourses d'études supérieures du Canada pour étudiants autochtones, en continuant de renforcer les capacités de recherche menée par des personnes autochtones et en éliminant les obstacles.

Recommandation 3 :

Outiller les universités canadiennes afin qu'elles puissent résoudre des problèmes locaux et mondiaux :

- en élargissant les critères d'admissibilité des programmes de financement de l'infrastructure, en simplifiant les programmes existants et en faisant en sorte que les universités puissent se prévaloir des nouveaux programmes, qu'ils soient axés sur la lutte contre les changements climatiques, la transition vers le numérique ou l'accessibilité, y compris les programmes de financement pour les logements étudiants;
- en améliorant l'accès des étudiants aux services de santé mentale sur les campus en aidant les universités à accroître leur offre de services et en embauchant du personnel qualifié.

Introduction

Le monde d'aujourd'hui est plus interconnecté, concurrentiel et fragile que jamais. Comme l'ont montré la pandémie de COVID-19, la guerre en Ukraine, les perturbations dans les chaînes d'approvisionnement mondiales, les changements climatiques et la pénurie de main-d'œuvre sans précédent, le Canada n'est pas à l'abri des répercussions.

Les employeurs canadiens peinent à trouver des travailleurs hautement qualifiés, alors que les travailleurs des secteurs vulnérables, inquiets de ne pas pouvoir subvenir à leurs besoins, cherchent à se perfectionner et à se recycler.

Le Canada a besoin de talent et ne peut se permettre d'accuser du retard par rapport aux autres pays. Le contexte oblige à faire preuve d'innovation pour faire concurrence à l'échelle mondiale afin d'assurer la prospérité et la pérennité du pays.

La solution consiste à investir dans les personnes et les idées. Avec une main-d'œuvre composée de personnes d'origines diverses, capables de s'adapter et qui travaillent en vue de faire des découvertes, d'innover et de commercialiser de nouvelles idées, le Canada peut réussir.

Le prochain budget fédéral est donc un tournant important dans un monde concurrentiel et en pleine transformation. Des pays comparables et des concurrents étrangers investissent dans la recherche et élaborent de nouvelles politiques en matière d'innovation, alors que les récents investissements du Canada diminuent ou arrivent à terme. Le Canada ne peut pas être complaisant.

Les universités peuvent contribuer à la prospérité future du Canada en attirant et en formant des apprenants tout au long de leur vie, en menant des travaux de recherche qui stimulent la croissance économique grâce à l'innovation ainsi qu'en conservant et en mettant à profit la réputation bien méritée du pays en matière d'excellence inclusive.

Universités Canada est heureuse d'avoir la possibilité de présenter au Comité permanent des finances de la Chambre des communes ses recommandations sur les manières d'outiller les universités pour qu'elles puissent continuer de se mettre au service du Canada. Une importante occasion de faire des investissements transformateurs pour l'avenir du Canada se présente, et les universités sont prêtes à répondre aux besoins du pays.

Renforcer le rôle du Canada comme un chef de file mondial en matière de talent

Le monde entier se livre une concurrence féroce pour le talent. Au Canada, le nombre de postes vacants, qui se chiffre à plus d'un million dans tous les secteurs de l'économie, n'a jamais été aussi élevé que cette année[1]. Le nombre de postes vacants aux États-Unis[2], au Royaume-Uni[3] et en Australie[4] a également atteint des sommets inégalés au printemps dernier.

Selon une étude du Conference Board du Canada, le coût associé aux emplois vacants en 2020 s'élevait à 25 milliards de dollars, et ce chiffre continue de grimper compte tenu de la demande croissante. Parallèlement, la Banque Royale du Canada estime que 15 % de la population active subira des perturbations au cours de la prochaine décennie, lors de la transition vers une économie carboneutre.

Les pays qui réussissent le mieux à composer avec la pénurie mondiale de main-d'œuvre connaîtront ensuite la prospérité et la croissance, mais pour combler le manque de talent, le Canada doit accroître ses investissements dans les personnes et les idées.

Lorsqu'on le compare à des pays semblables, le Canada se classe à un rang élevé pour ce qui est du nombre de personnes ayant terminé des études postsecondaires. Toutefois, seuls 10 % des Canadiennes et des Canadiens âgés de 25 à 34 ans ont terminé des études aux cycles supérieurs, soit une proportion beaucoup plus basse que chez les autres pays de l'Organisation de coopération et de développement économiques (OCDE), dont la moyenne se chiffre à 15 %[5].

Cette donnée n'est pas surprenante compte tenu de la baisse du financement accordé aux étudiants à la maîtrise et au doctorat au Canada. Le financement de la recherche aux cycles supérieurs par le biais du Programme de bourses d'études supérieures du Canada n'a pas augmenté depuis 2002, ce qui signifie que le sous-investissement qu'a subi toute une génération a réduit de moitié la valeur réelle des bourses de recherche fédérales, alors que le nombre d'étudiants aux cycles supérieurs a doublé. Une hausse importante à la fois du nombre de bourses ainsi que de leur valeur est nécessaire pour attirer et retenir la prochaine génération de chercheurs canadiens et les meilleurs talents mondiaux.

Le Canada doit également faire en sorte que les employeurs puissent faire appel aux talents canadiens et étrangers possédant les compétences nécessaires pour réussir dans le marché du travail.

Veiller à ce que les travailleurs canadiens acquièrent les compétences dont ils ont besoin doit figurer au sommet des priorités du gouvernement et se faire par le biais d'une démarche fondée sur les stratégies précitées, qui met l'accent sur l'apprentissage continu et l'apprentissage intégré au travail, favorise l'équité, la diversité et l'inclusion, et promeut la réconciliation.

[1] Statistique Canada, « Le Quotidien : Emploi, rémunération et heures de travail, et postes vacants, mars 2022 », 26 mai 2022.
[2] US Bureau of Labour Statistics, « Job Openings and Labor Turnover Survey News Release », 3 mai 2022.
[3] Office for National Statistics, « Vacancies and Jobs in the UK: April 2022 », 12 avril 2022.
[4] Australian Bureau of Statistics, « Job Vacancies, Australia », 31 mars 2022.
[5] Organisation de coopération et de développement économique, « Education at a glance 2019 ».

Selon les résultats de sondages réalisés par le Conseil canadien des affaires et la Table ronde des affaires + de l'enseignement supérieur, il faudra près d'un quart de million de diplômés en sciences, technologie, génie et mathématiques en Ontario seulement pour pourvoir des postes dans des secteurs à forte croissance. En outre, plus d'employeurs que jamais recherchent des employés qui possèdent des compétences que les universités permettent d'acquérir, comme l'esprit critique et la capacité à résoudre des problèmes.

Des investissements dans l'apprentissage continu et l'apprentissage intégré au travail, ainsi que des politiques en la matière, seront essentiels pour remédier à la pénurie de talent. Les universités canadiennes sont bien placées pour être des chefs de file grâce à leurs avantages uniques. L'excellence en recherche leur permet de mettre les dernières connaissances à la disposition des étudiants, et les relations qu'elles tissent avec les étudiants, les diplômés et les professeurs leur permettent de communiquer avec eux à tout moment dans leur carrière.

Universités Canada appuie également les appels d'organisations nationales autochtones visant un soutien accru afin d'améliorer l'accès des membres des Premières Nations, des Inuits et des Métis à l'éducation postsecondaire, et de favoriser leur réussite. Selon l'édition de 2022 de la Stratégie économique nationale pour les Autochtones au Canada, si les personnes autochtones avaient les mêmes possibilités d'apprentissage et de formation que les allochtones, la productivité accrue qui en résulterait se traduirait par un revenu supplémentaire annuel de 8,5 milliards de dollars pour les peuples autochtones.

Attirer et retenir les meilleurs talents étrangers est un autre défi que le Canada doit relever. La réputation du Canada sur la scène internationale est compromise chaque fois qu'un étudiant prometteur dont la demande d'admission dans une université canadienne est acceptée choisit d'étudier ailleurs en raison des longs délais de traitement des demandes de visa. L'énorme perte qu'en subissent les universités canadiennes et le pays est multipliée par le nombre d'années d'études qui auraient pu être entreprises au Canada.

Il est impératif que le gouvernement consacre sans tarder des ressources afin de réduire les délais de traitement des permis d'études. À l'heure où des pays comparables comme le Royaume-Uni facilitent l'accès des étudiants étrangers et des nouveaux diplômés les plus brillants à la résidence, aux études et aux emplois sur leur territoire, les étudiants ont de la difficulté à entrer au Canada. Le Canada ne peut se permettre de fermer la porte et de prendre du retard.

Les perturbations ayant affecté les étudiants étrangers durant la pandémie ont donné l'occasion au Canada de diversifier les pays ciblés par ses mesures liées à l'immigration ainsi qu'au recrutement et à la rétention d'étudiants étrangers. Le Canada doit également accroître les investissements dans la Stratégie en matière d'éducation internationale ainsi qu'élargir la portée et accélérer la mise en œuvre d'initiatives existantes pour augmenter son rayonnement mondial. Il doit notamment lever les obstacles à l'obtention de visas de travail, qui empêchent trop souvent les étudiants étrangers de vivre des expériences d'apprentissage intégré au travail.

Assurer la prospérité grâce à des investissements dans la recherche et les idées

Pour attirer les meilleurs talents, il faut que le financement de la recherche soit concurrentiel à l'échelle mondiale.

Investir dans la recherche, même lorsque la commercialisation des travaux n'est pas garantie, favorise l'épanouissement des personnes et le développement des idées. Le financement fédéral de la recherche fondamentale se traduit par un pays qui attire, forme et retient les personnes les plus talentueuses qui contribueront à stimuler l'économie canadienne grâce à l'innovation.

Le Canada a profité d'investissements antérieurs dans la recherche axée sur la découverte, mais il ne peut pas simplement continuer à tenter de récolter les fruits de ces investissements.

En 2021, un rapport de l'OCDE révélait la possibilité que le Canada accuse du retard par rapport à d'autres économies avancées au cours de cette décennie en raison d'un taux de croissance du PIB réel par habitant de seulement 0,7 %. Il est également attendu que de 2030 à 2060, la croissance de la productivité du Canada sera la plus faible parmi les économies avancées[6].

Des pays comparables investissent fortement dans la recherche et le développement (R-D), y compris la recherche universitaire, en tant que principal moteur de la croissance économique. Par exemple, l'Allemagne prévoit d'augmenter ses investissements dans la recherche de 3,5 % de son PIB d'ici 2025, le Royaume-Uni, de 2,4 % de son PIB dans le cadre de sa réorientation vers l'éducation et l'innovation, et la Finlande, de 4 % de son PIB d'ici 2030.

En revanche, en 2020, le Canada a seulement consacré 1,7 % de son PIB à la R-D et n'a pas fixé de cible. Le pays a l'occasion d'actualiser sa vision de la recherche universitaire et d'investir de manière accrue et stable dans l'écosystème de recherche. La recherche universitaire demeure l'un des meilleurs outils pour façonner l'avenir du Canada et permettre aux travailleurs d'acquérir les compétences et les connaissances dont ils ont besoin pour réussir dans une économie axée sur l'innovation. Investir dans la recherche, c'est investir dans les personnes.

Dans son tout premier rapport présenté au Parlement, le Comité permanent de la science et de la recherche, composé de députés de tous les partis, a montré que le besoin de réinvestir dans la science et la recherche pour faire du Canada un chef de file en la matière est largement reconnu. Il sera nécessaire d'appuyer les chercheurs par le biais d'investissements dans les organismes subventionnaires réputés du Canada afin que le pays demeure un lieu attrayant pour les meilleurs talents.

Le gouvernement fédéral peut également réaliser d'importants investissements afin d'accroître les retombées des universités, notamment en favorisant la collaboration internationale en matière de recherche, la mobilisation des connaissances et la commercialisation pour consolider les liens entre les universités et les partenaires étrangers, le secteur privé et la société civile.

[6] Organisation de coopération et de développement économique, « The Long Game: Fiscal Outlooks to 2060 Underline Need for Structural Reform », 2021.

Dans sa plateforme électorale de 2021, le gouvernement a pris l'important engagement de créer 1 000 chaires de recherche du Canada, tout en mettant l'accent sur l'égalité raciale et des genres. La création des nouvelles chaires doit cependant être accompagnée d'un financement fédéral suffisant pour maximiser la valeur des travaux de recherche et couvrir les coûts associés. Les investissements dans la recherche doivent également être destinés aux personnes autochtones, notamment par de nouveaux investissements dans le Programme de bourses d'études supérieures du Canada pour étudiants autochtones, le renforcement des capacités de recherche menée par des personnes autochtones, et l'élimination des obstacles grâce à l'accès au financement offert par les organismes subventionnaires.

Outiller les universités canadiennes

Les universités canadiennes se sont forgé une réputation d'excellence à l'échelle mondiale qui les rendent attrayantes pour les étudiants étrangers, tout en décernant des diplômes qui constituent le meilleur investissement possible pour les Canadiens et les Canadiennes. Par ailleurs, elles travaillent à résoudre de grands problèmes mondiaux, comme les changements climatiques.

Les universités sont fières de participer à la lutte du Canada contre les changements climatiques en menant des activités de recherche et en donnant l'exemple sur les campus. Élargir les critères d'admissibilité des programmes existants axés sur l'action climatique ou sur le financement de l'infrastructure, et faire en sorte que les universités puissent se prévaloir des nouveaux programmes aiderait le Canada à réduire davantage les émissions sur les campus ainsi qu'à protéger les collectivités, à les rendre accessibles et interconnectées.

Les universités ont applaudi l'engagement pris dans la plateforme électorale de 2021 à l'égard de la multiplication des services de santé mentale sur les campus afin de réduire les temps d'attente pour les étudiants. Le manque d'intervention rapide risque de prolonger les effets de la pandémie sur la santé mentale des étudiants, soit les chefs de file, décideurs et membres des collectivités de demain.

Conclusion

Relever les défis d'aujourd'hui et de demain a toujours fait partie de la mission des universités. En période de bouleversements, les universités canadiennes sont disposées à continuer à être des centres qui forment le talent issu de la diversité tout en assurant la prospérité future et en contribuant à résoudre les problèmes mondiaux et locaux au profit de toute la population canadienne.

Group of Canadian Research Universities

Regroupement des universités de recherche du Canada

U15 Submission to the Standing Committee on Finance Pre-Budget Consultation in Advance of the 2023 budget

October 5, 2022

RECOMMENDATIONS:

To meet the increasing demand for the talented, highly skilled individuals that Canada needs, the U15 recommends that the Government of Canada undertake the following actions:

1. Increase the ability of Canada's research leaders to provide the research experiences that talented individuals need to drive innovation across society. Following the Minister of Industry's Mandate Letter, establish an additional 1,000 Canada Research Chairs and increase the funding levels by 25% to meet global competition.

2. To help retain Canada's best and brightest in the face of international competition, increase the opportunities for students to develop their talent through participation in high-quality research projects. To do so, increase granting agency funding by 10 per cent per year for the next 5 years and 5 per cent per year for each subsequent 5 years.

3. Increase the supply of, and the support for, highly qualified talent at the graduate level. Following the recommendations of the Standing Committee on Science and Research, increase the current award amounts of the Canada Graduate Scholarship (CGS) Program by 45%; double the number of Doctoral awards and triple the number of Master's awards; and index all subsequent awards to inflation.

4. Facilitate the recruitment of international students by streamlining immigration processes and re-setting service standards to world-class levels.

Using levels of research support per doctoral student as a measure, the U15 has identified a $1 billion per year gap in federal funding. Closing this gap will ensure that our universities can meet the demand for the highly qualified individuals who will power our ability to innovate, address global challenges and expand the economy.

Introduction

In recent years, two global phenomena have rapidly escalated the need for innovation. Extreme weather events have convinced Canadians that we must work towards a low-carbon economy. And the pandemic has accelerated the digital transformation of businesses, organizations, and governments necessary to increase productivity and meet the expectations of customers and citizens. These two phenomena are exacerbated by an aging population and the changing nature of globalization.

This changing context calls for immediate action to ensure we have the highly talented, highly qualified individuals who drive innovation; Canadians with the advanced domain knowledge and connections to the global pool of innovative ideas and practices required to increase productivity and meet changing social and economic expectations.

In today's world, capital follows talent, not the other way around. This fundamental change has accelerated since the late 20th century. Canada is now attracting record levels of venture capital and foreign direct investment in large part because we have the people business needs. However, an expanding economy and global competition have created far more demand than supply. As a result, employers were actively recruiting for more than 900,000 jobs at the end of 2021.

The fact is that Canada is not keeping up with this growing demand for individuals with the advanced university education needed to lead innovation across society. Overall, Canada ranks 28th in the OECD in graduate-level educational attainment. Compared to our closest competitor, 38% of working-age Americans have a Bachelor's degree or higher versus 33% in Canada. More worrisome is that 2% of the U.S. population has a PhD while this proportion is less than 1% in Canada.

This talent gap is an acute weakness for Canada since private sector investment in R&D is now beginning to increase in response to the growing pressure to innovate. Statistics Canada recently reported that total R&D expenditures in Canada reached $40.3 billion in 2019, a 3.9% increase from 2018 and the fourth consecutive year-over-year gain. This spending represents the highest amount that Canada has ever recorded in both current and constant dollars, and it was driven mainly by increased business investment, $753 million or +4.4% over 2018.

As well, the private sector is increasingly turning to our universities to help them innovate. In 2021, business expenditures on university R&D reached $1.285 billion, the highest level ever.

The overall result is that Canada faces both increasing domestic demand and stiff international competition for the talent needed to drive high-growth, knowledge-intensive industries, address social, environmental, and economic challenges and build an equitable, inclusive society. The $52 billion increase in science and innovation investments recently made by the United States will dramatically increase this competition.

Statistics Canada reports that over the past 5 years, job vacancies in occupations that require university-level education have increased dramatically. From the first quarter of 2017 to the first quarter of 2022, vacancies in natural and applied sciences and related occupations rose from 26,835 to 69,600. In health occupations, vacancies rose from 24,800 to 82,830. And in professional occupations in law, social, community and government services from 4,920 to 14,270.

From 2013 to 2019, approximately 80,000 engineering and technology development jobs were created in the Toronto-Waterloo Corridor alone – more than in San Francisco, Seattle and Washington, D.C., combined. The demand for talented individuals with technology-oriented university degrees outstrips the supply in 7 of 8 major urban areas across Canada.

And, to attract the required talent, employers offer significantly higher wages. On average, across OECD countries, adults with a college diploma earn 23% more than those with just a high school education. With a bachelor's degree, they earn 45% more. But adults with a master's or doctoral degree earn 95% more.

Meeting the Demand for Talent

The good news is that Canada has been preparing to meet the increasing demand for talent. Since the late 1990s, successive federal governments have helped build a world-class research environment in Canada that is now poised to expand to meet growing societal demand.

Research universities have transformed how they prepare individuals to help lead society. Using a broad range of experiential learning approaches, research universities develop talent through direct, hands-on engagement with research from the undergraduate through to the post-doctoral level. Students participate directly in research projects and work with outstanding researchers to develop new knowledge using state-of-the-art research equipment and facilities. This diverse training cultivates enduring skills essential for innovation; technical capability combined with problem-solving, collaboration, cultural awareness, communication, and creativity.

Not surprisingly, students are choosing areas they feel will prepare them for the jobs of tomorrow. Between 2010 and 2018, enrolment in Business increased by 20%, Health by 25%, Science by 33% and Engineering by 42%. Contrary to myth, STEM, Business, and Health are now the dominant areas of study in Canadian universities. In fact, the percentage of Canadian students in STEM fields alone is greater than in the U.S., the same as in Japan and only slightly less than in the U.K.

At the same time, Canada remains a world-leader in the social sciences and humanities, the research fields that advance knowledge and understanding of human thought and behaviour. As a result, Canada has a particularly well-suited balance of research strengths to meet the challenges of a rapidly changing 21st century. Canadians with higher levels of domain knowledge and broad competencies are much more likely to be entrepreneurs and innovators and, therefore, much more likely to be drivers of prosperity and improved quality of life.

Enabled by federal support, Canada's research universities are cultivating individuals who are better able to adopt, adapt, and invent, as well as better understand the social, economic, and political impacts of new technologies and services. In other words, research-enriched settings develop the full range of technical and human interrelationship skills essential for innovation. The 2021 INSEAD Global Talent Competitiveness Index ranked Canada 3rd in the quality of our universities, 8th in the relevance of our education system to the economy, and 5th in the availability of scientists and engineers.

Today, universities focus on tapping into the entire pool of potential talent in pursuit of inclusive excellence. Recent years have brought major efforts to attract Indigenous students and to benefit from Indigenous knowledge systems in efforts to build a better future for all Canadians. New fellowships for Black students, announced in Budget 2022, will complement granting agencies' sustained initiatives to advance equity, diversity, and inclusion.

Not surprisingly, Canada has become a destination of choice for a growing number of international students. Between 2014 and 2018, the number of international students increased 68%. In 2018, a total of 721,205 international students studied in Canada. In 2019, that number jumped to 780,020. International students are also a vital immigration stream. Being young and ambitious, proficient in at least one official language, and having Canadian educational qualifications, they help address this country's labour market needs, particularly for highly skilled workers. For example, 53,700 international students became permanent residents of Canada in 2018, contributing as productive and valued members of Canadian society.

However, the increasing pursuit of innovation across society in the context of growing global competition is resulting in a serious gap between the demand and supply of highly qualified talent. With federal support, Canada’s universities have been working to close this gap, but, as our 28th position at the doctoral level educational attainment shows, we will fall further behind without immediate action to boost our ability to grow the supply of highly talented Canadians. We strongly encourage the Government to invest in the opportunities for individuals to develop their potential through research training. It is this research experience that not only advances knowledge but also provides access to the global pool of insights, ideas and innovative practices that are key to making a better future for all.

Graduate Student Fellowships

Opportunities for participation in world-class research projects in our leading research universities can be significantly expanded by increasing the number of graduate students that receive the recognition and support offered by federal scholarships. Today, the number of individuals who receive support through the Canada Graduate Scholarship (CGS) program is less than 3% of the graduate students enrolled in U15 universities alone. Moreover, the dollar amount of scholarships provided through CGS program has not changed since 2003. During the 2021-2022 fiscal year, Master's level students received a CGS scholarship of $17,500. Doctoral students received $21,000 or $35,000 per year, depending on the discipline. If the CGS scholarships were indexed to inflation, today's Master's students would receive $26,105, and

doctoral students would receive $52,210. Today, Statistics Canada's poverty line is $22,060 for a single individual, $4,500 less than a Master's scholarship!

As well the overall number of scholarships has remained stagnant despite the growing demand for talent. NSERC temporarily awarded more than 1,000 CGS Doctoral scholarships annually from 2009 to 2011, but since 2012 has awarded fewer than 900. CIHR and SSHRC also saw peaks in CGS Doctoral awards between 2009 and 2011 of over 800 and near 1,400, respectively. But from 2014 to 2019, annual CGS Doctoral awards have dropped to under 400 for CIHR and around 1,300 for SSHRC. As companies, institutions and governments focus on increasing innovation and driving productivity growth, the CGS Program urgently needs updating and expansion. Only then will it have the impact that the Government of Canada intends.

Conclusion

After a quarter-century of sustained federal efforts, the U15 universities are increasingly able to develop exceptionally talented people in a research-intensive environment integrated into the larger society. These universities provide the learning opportunities, infrastructure, and tools to perform research at the highest levels of excellence to advance knowledge and understanding and drive innovation for a better future. However, Canada now faces unprecedented domestic demand and international competition for the talent needed to drive high-growth, knowledge-intensive industries, address social, environmental, and economic challenges and build an equitable, inclusive society.

The U15 recommends that the Government of Canada maximize the impact of Canada's leading research universities by closing the current $1 billion gap in research funding. A comprehensive and robust research environment is essential to meeting the growing demands of all sectors for the talent, ideas, and knowledge required to ensure the health, prosperity, and security of all Canadians. Now is the time to invest in Canadian research. Doing so will enable talent-based innovation for the benefit of all.