UNIVERSITY OF CALGARY

SUBMISSION TO THE HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE

Prepared for:

HOUSE OF COMMONS STANDING COMMITTEE ON FINANCE

Summary of Recommendations

1. Expand federal work integrated learning programs across all sectors and disciplines to support the goal of 100 per cent student participation in WIL.
2. Expand the Undergraduate Student Research Awards Program beyond NSERC to include CIHR and SSHRC.
3. Introduce a new program modelled on I-Corps that prepares university researchers to extend their focus beyond the laboratory, and accelerates the economic and societal benefits of publicly funded, basic research projects with the potential for commercialization.
4. Building on the recommendations of the Fundamental Science Review (FSR), implement a broad based program to provide additional funding for graduate scholarships and fellowships with the aim of increasing the number of graduate students.
5. Plan to reach the 40 per cent level of reimbursement for the institutional costs of research as recommended by the FSR.

Introduction

The University of Calgary thanks the House of Commons Standing Committee on Finance for the opportunity to provide input into Budget 2019 on the topic of Economic Growth: Ensuring Canada's Competitiveness. UCalgary thanks the federal government for its historic and impactful investment in fundamental research in Budget 2018. This investment will help drive economic growth by fueling cutting-edge research, allowing universities to attract and retain top research talent, and strengthening the country's innovation capacity to the benefit of the economy and society. UCalgary would also like to thank the federal government for investments made in campus infrastructure through the Post-Secondary Institutions Strategic Investment Fund.

UCalgary is a global intellectual hub located in Canada's most enterprising city. It provides a spirited, high-quality learning environment, where students thrive in programs enriched by research, hands-on experiences, and entrepreneurial thinking. By immersing students in an environment rich in curiosity, diverse ideas, and global perspectives we develop creative, confident citizens who think critically and contribute value to their communities. We integrate entrepreneurial thinking throughout our students' educational experiences, such that they learn to identify opportunities, collaborate effectively, build partnerships, embrace differences of opinion, and create a prosperous and sustainable future. Our research excellence allows us to provide students with unique experiences and skills development opportunities, while generating new ideas that promote prosperity and improve the quality of life for all Canadians. In 2016-17, our sponsored research funding totaled $380.4 million, ranking us the sixth most research intensive university in Canada.

Ensuring and enhancing Canada's future economic competitiveness will mean providing more Canadians with the opportunity to develop the skills necessary to become successful innovators, and adapt to a labour market that is rapidly changing due to technological developments such as automation and artificial intelligence. Research-intensive universities, such as UCalgary, play a unique and significant role in strengthening a country's innovation capacity—they create new knowledge that leads to innovative products, processes, and services, as well as training the highly skilled workers that innovative, knowledge-based economies require. Strengthened federal support to enhance the student experience and support university research will ensure Canada's future prosperity with broad benefits for all.

Increase Opportunities for Students to Engage in Work Integrated Learning

Currently, about half of university students in Canada participate in Work Integrated Learning (WIL).[1] Studies show that upon graduation, students who participated in WIL have better employment outcomes than those that did not. They have lower unemployment rates, are more likely to find full-

[1] BHER, *Taking the Pulse of Work-Integrated Learning in Canada*, 2016. http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf

time employment, earn more, and are more likely to be employed in a job related to their studies and long-term career goals.[2] Canadian companies also see significant benefits from WIL—they have the opportunity to foster potential new employees, ensure students develop the skills needed by their industry, and particularly in the case of those working with graduate students, may benefit from exposure to cutting-edge university research.[3] The significant benefits of WIL have led the Business Higher Education Roundtable (BHER) to call for 100 per cent of post-secondary students to have a WIL experience during their studies. UCalgary strongly endorses this recommendation, and the other recommendations on WIL made in the BHER pre-budget submission.

UCalgary has embraced WIL, and is taking steps to meet the 100 per cent target. In 2017/18, 58 per cent of undergraduate students at UCalgary were involved in experiential learning opportunities organized by the University. UCalgary has also created an Office of Experiential Learning to provide expertise and guidance to the campus community on the design and implementation of experiential learning activities, and to track and report on experiential learning activities occurring in faculties and non-academic units. Additional federal support for WIL would accelerate UCalgary in meeting the 100 per cent target for student WIL participation.

A successful WIL program is the Age-In-Place Laneway House Pilot Project that brings students and researchers from UCalgary together with a Calgary homebuilder, the Alberta Real Estate Foundation, and the City of Calgary. Students and researchers designed prototypes for a temporary laneway home with features allowing a senior who requires medical assistance to continue living independently in their community. This first project prototype received the 2015 Mayor's Urban Design Award in Housing Innovation. This type of research-based WIL opportunity allows students to develop valuable research skills, tackle complex issues for which there is not a clear solution, and understand how an innovation can be successfully brought to market.

Social sciences and humanities students have fewer opportunities to participate in WIL than students in other disciplines. Future investments in WIL should ensure that students across all disciplines have equal access to WIL opportunities.

Recommendation: Expand federal WIL programs across all sectors and disciplines to support the goal of 100 per cent student participation in WIL.

Each year, NSERC supports about 3,000 undergraduate research opportunities through its Undergraduate Student Research Awards program. This program provides undergraduate students with

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[2] Academic Group, *What is the Impact of Work-Integrated Learning on Student Success?* December 12, 2014. https://www.academica.ca/blog/what-impact-work-integrated-learning-student-success.

[3] Sattler and Peters, *Work Integrated Learning and Postsecondary Graduates,* Higher Education Quality Council of Ontario, 2012. http://www.heqco.ca/SiteCollectionDocuments/WIL%20Employer%20Survey%20ENG.pdf. Mitacs, *Mitacs Accelerate and Elevate Outcomes,* 2017. https://www.mitacs.ca/sites/default/files/uploads/newsroom/accelerate_and_elevate_outcomes_supervisors_survey.pdf.

valuable experiential learning opportunities, and helps teach them the skills to be the innovators of tomorrow. Unfortunately, as the other granting councils do not have similar programs, undergraduate students in many disciplines have limited opportunities to take part in academic research in their field of interest.

Recommendation: Expand the Undergraduate Student Research Awards Program beyond NSERC to include CIHR and SSHRC.

Support Bringing Research to Market

While Canada has a strong capacity for high-quality fundamental research, it consistently lags behind peer countries in commercializing the outputs of its scientific research. A 2018 report by The Council of Canadian Academies found that between 2008 and 2013, Canada experienced a 20 per cent decline in the number of people employed in R&D by Canadian businesses, while at the same time R&D spending in countries such as India and China is rapidly expanding.[4] To enhance Canada's innovation capacity and ensure we remain globally competitive, a new approach to bringing publicly funded research to market is needed, including exposing more graduate students to the necessary skills to become successful entrepreneurs.

Through its emphasis on entrepreneurial thinking across all disciplines, UCalgary has already taken steps to help faculty and students develop the mindset needed to successfully commercialize their research. Entrepreneurial thinking is being creative in finding innovative solutions—it involves taking initiative, exchanging knowledge across disciplines, being resourceful, and learning from experience.

An intensive program, modelled on the US National Science Foundation's I-Corps program, will further provide researchers with the necessary expertise to successfully bring their research to market. In the I-Corps program, teams made up of a senior researcher or post-doc, a graduate student, and an experienced entrepreneur, work together to commercialize a discovery. This seven-week intensive program provides participants with structured training involving extensive industry engagement so they can better understand the commercialization potential of their discovery.

Recommendation: Introduce a new program modelled on I-Corps that prepares university researchers to extend their focus beyond the laboratory, and accelerates the economic and societal benefits of publicly funded, basic research projects with the potential for commercialization.

[4] Council of Canadian Academies, *Competing in a Global Innovation Economy: The Current State of R&D in Canada,* 2018.

Expansion of Graduate Scholarships

Graduate programs teach students the advanced skills needed to enhance productivity and contribute effectively to the innovation process. Individuals with advanced degrees may contribute to increased productivity because they are able to perform complex tasks and solve complex problems more efficiently and accurately than less-educated workers, and are more likely than less-educated individuals to encourage and assist organizations in adopting processes and technologies that increase productivity.[5] Statistics Canada's Labour Force Estimates consistently show that individuals with graduate degrees have better employment outcomes than those with lower levels of educational attainment.

However, just as Canada lags behind its peers on innovation performance, it also lags behind peer countries on graduate level attainment. Amongst Canadians ages 25 to 34 years old, only 9 per cent have completed a masters or doctoral degree, while the average amongst OECD countries is 14 per cent. Expanding the graduate student cohort—with a focus on equity, diversity, and inclusion—will lay the groundwork for the academy to more closely reflect Canadian society over time, while strengthening the ability of the Canadian workforce to contribute to innovation, and adapt to technological change.

UCalgary welcomes Budget 2018's commitment to review scholarships and fellowships, in response to the recommendations of the FSR that scholarship and fellowship programs be harmonized across the granting councils and given significant additional investments.

Recommendation: Building on the recommendations of the FSR, implement a broad based program to provide additional funding for scholarships and fellowships with the aim of increasing the number of graduate students.

Research Support Fund

While the federal government made a historic investment in funding primary research in Canada in response to the Naylor report, insufficient funding for the institutional costs of research, such as facility costs and administrative expenses, continues to hinder the global competitiveness of our research infrastructure. The current average reimbursement rate for RSF funding is 21.6 per cent, but due to the funding formula, large research-intensive universities receive less. For example, in the 2016/17 fiscal year, UCalgary received an RSF grant for 19.6 per cent of the Tri-Council funding it received. In contrast, in the US, the reimbursement rate for the institutional costs of research is typically between 40 to 60 per cent.[6] In Australia, the reimbursement rate is between 47.2 and 52.8 per cent, depending on the

[5] Casey (2009), "The Economic Contribution of PhDs," *Journal of Higher Education Policy and Management,* vol. 31, issue 3, 219-227.
[6] Advisory Panel for the Review of Federal Support for Fundamental Science, *Investing in Canada's Future*, 2017.

type of research funding.[7] In Canada, the low reimbursement rate not only detracts from the competitiveness of our fundamental research and ability to attract and retain top-tier talent, it also hinders the ability of institutions to meet teaching and learning objectives as the institutional costs of research must be redirected from elsewhere in university budgets.

Recommendation: Plan to reach the 40 per cent level of reimbursement for the institutional costs of research as recommended by the FSR.

Conclusion

UCalgary believes the recommendations made in this document will ensure Canada's future economic competitiveness by strengthening our innovation capacity and giving Canadians the advanced skills to succeed in a time of rapid technological change. UCalgary strongly endorses the recommendations in the pre-budget submissions made by U15 and Universities Canada. UCalgary thanks the Committee for this opportunity and urges the federal government to enhance budgetary support for students, research, and innovation in Budget 2019.

[7] Australian Department of Education and Training, *Research Block Grants Calculation Methodology,* January 4, 2018. https://www.education.gov.au/research-block-grants-new-arrangements-allocation-calculation-methodology.

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