



**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 28<sup>th</sup> 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.