



Policy Statement

UCGSA.01 Provincial Funding for Post-Secondary

Policy ID: **UCGSA.01**

Category: **Accessibility**

Jurisdiction: **Provincial**

Adopted: **Sept. 2023**

Last Reviewed: **Jan. 2024**

GSA Principles

The Graduate Students' Association of the University of Calgary believes in creating an educational experience that is engaging, fulfilling, and accessible to all.

Summary

Albertan universities have seen massive funding cuts since the 2018/19 fiscal year. In that time, tuition levels for Albertan students have increased at the highest rate in Canada.

The research listed below shows how tuition increases negatively affect enrollment in graduate programs, the completion of graduate degrees, and program quality. As we will also show, graduate student research is closely intertwined with the innovative and productive potential of Alberta's economy. This means that a lack of graduate student funding will lead to a marked decrease in innovation, productivity, and living standards within Alberta. As there are currently no private sector funding alternatives that equal the Campus Alberta Grant, government cutbacks are actively harming the Albertan economy, and will continue to do so until they are reversed. This in addition to the broader harm—to our democracy, our social fabric, and our ability as a society to improve ourselves—created by making graduate education less financially accessible, and the harm already felt by the graduate students of today.

The Graduate Students' Association of the University of Calgary thus calls upon the Government of Alberta to reverse their cuts to the Campus Alberta Grant, so that all Albertans can benefit from a better funded, and more innovative, post-secondary system.

Concerns

Introduction: The Role of the Provincial Government in Post-Secondary Education

In the Canadian political system, post-secondary education (PSE) falls under provincial jurisdiction. This means that the provincial government is primarily responsible for writing and overseeing policies surrounding post-secondary education. This includes regulations around PSE budgets, reporting requirements, granting streams, and other factors that set the stage for the operation of a post-secondary institution (PSI). Furthermore, the provincial government has significant influence over the governance of a PSI itself, as the majority of a university's Board of Directors are directly appointed by

the Minister of Advanced Education, through Section 16(e) and 16(f) of the *Post-Secondary Learning Act* (PSLA),¹

In Alberta, the Ministry of Advanced Education, through the Alberta Treasury Board and Finance, offers funding to PSIs largely through the Campus Alberta Grant, which is intended to contribute a significant portion of the budget of a PSI (currently around 50% of a PSI's operating budget comes from provincial funding).² Graduate programs, in particular, are heavily reliant on the Campus Alberta Grant, as the Faculty of Graduate Studies (FGS) receives its funding primarily through this grant. This funding goes to support graduate researchers and scholars who are essential to the function of a university's research programs, and whose innovations contribute to a growing economy.

Over the last four years, however, this funding has been sharply reduced, leading to an affordability crisis in Alberta's post-secondary sector.

Government Funding Cuts and Concurrent Tuition Increases

The operating budgets of PSIs in Alberta are made up of both public and private funding sources. For the University of Calgary and all other PSIs in Alberta, the majority of public funds are received from the provincial government,³ with the majority of *those* funds being received from the Ministry of Advanced Education⁴ (other government departments, such as Alberta Health, provide some funding to specific parts of the university⁵). The funds received from the Ministry of Advanced Education are split between "Operating Grants," also known as the "Campus Alberta Grant,"⁶ and "Grants for Infrastructure," with the Campus Alberta Grant again being the largest source of funding.⁷ Private sources of funding include student tuition and fees, donations and other grants, dividends from investments, and the sale of services and products.⁸ Of these private sources of funding, student tuition and fees again represent the largest sources of revenue for PSIs like the University of Calgary.⁹

Over the past four years, however, the operating budget of the University of Calgary has significantly declined. The total revenue for the University of Calgary in 2019 was \$1,502,061,000 (nominal)¹⁰ while

¹ *Post-Secondary Learning Act*, SCAB 2003, P-19.5, s 16(e), 16(f).

² Alberta Treasury Board and Finance, "Fiscal Plan: Moving Forward" § (2022), pg. 131.

³ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 6. Note: numbers used are what was budgeted for at beginning of the year, rather than final totals, to account for random fluctuations in financing and funding that are not the result of government policy. Totals and trends in data are not significantly affected by this decision.

⁴ Ministry of Advanced Education, "Annual Report: Advanced Education, 2021-2022" § (2022), pg. 76. Note: numbers used are what was budgeted for at beginning of the year, rather than final totals, to account for random fluctuations in financing and funding that are not the result of government policy. Totals and trends in data are not significantly affected by this decision.

⁵ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 29.

⁶ <https://www.alberta.ca/publicly-funded-institutions-government-support.aspx#:~:text=How%20operating%20grants%20are%20allocated,on%20their%20needs%20and%20priorities.>

⁷ Ministry of Advanced Education, "Annual Report: Advanced Education, 2021-2022" § (2022), pg. 76.

⁸ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 6.

⁹ *ibid.*

¹⁰ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2020" § (2020), pg. 6.

its 2022 budget anticipated \$1,398,963,000.¹¹ This decrease in revenue has manifest in widespread staffing cuts and a reduction of services,^{12,13,14,15} including a reduction in the number of Graduate Program Administrators (GPA), an essential staff member and administrative resource for graduate students.

The origins of this steep decline in university operating revenue lies with the provincial government. Since 2019, the provincial government has repeatedly reduced the amount of public funding PSIs receive. In *nominal* dollars, **(Fig.1.)** 2019 saw the amount of funding the University of Calgary received from the Campus Alberta Grant increase to \$506,486,000, from a total of \$491,977,000 in 2018.¹⁶ In 2020, however, the amount of funding received through the Campus Alberta Grant decreased to \$475,395,000;¹⁷ in 2021 this was decreased to \$457,126,000;¹⁸ in 2022, the amount decreased yet again to \$423,283,000;¹⁹ and finally, in 2023, the total Campus Alberta Grant funding was \$413,582,000 as per the Ministry's own reporting.²⁰ For comparison's sake, the last time the University of Calgary received less than \$430,000,000 in nominal terms from the Campus Alberta Grant was in the 2011 budgetary year.²¹

Since 2019, then—and in *real* terms (indexing for inflation, in 2023 dollars)—the Campus Alberta Grant for the University of Calgary has been cut from \$584,149,663.98 to \$413,582,000.00, or by \$170,567,663.98, a 29.2% cut **(Fig.2.)**²²

During this same period, the amount of money the university has collected through student tuition and fees has increased. In *nominal* terms **(Fig.1.)**, the total amount of revenue collected by the university through tuition and fees was \$231,792,000 in 2019;²³ in 2020 this rose to \$238,632,000;²⁴ in 2021 it was \$268,155,000;²⁵ in 2022 it was \$300,952,000;²⁶ and in 2023 it was \$328,805,000.²⁷ In *real* terms (indexed for inflation, 2023 dollars), the total amount of revenue collected via student tuition and fees increased

¹¹ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 6.

¹² Hudes, Sammy. "Layoffs Begin at U of C, Mount Royal Following Provincial Budget Cuts." *Calgary Herald*, November 28, 2019.

¹³ University of Calgary, "Annual Report for the year ended March 31, 2019" § (2019), pg. 9.

¹⁴ Slack, Jeff. "UofC anticipates 125 to 150 positions will be terminated over the next few months." *CityNews*, Calgary, April 21, 2020.

¹⁵ Cook, Dustin. "U of A plans to cut 650 jobs by 2022 to overcome \$127-million funding gap." *Edmonton Journal*, October 4, 2022.

¹⁶ Ministry of Advanced Education, "Annual Report: Advanced Education, 2018-2019" § (2019), pg. 113.

¹⁷ Ministry of Advanced Education, "Annual Report: Advanced Education, 2019-2020" § (2020), pg. 75.

¹⁸ Ministry of Advanced Education, "Annual Report: Advanced Education, 2020-2021" § (2021), pg. 84.

¹⁹ Ministry of Advanced Education, "Annual Report: Advanced Education, 2021-2022" § (2022), pg. 76.

²⁰ Ministry of Advanced Education, "Annual Report: Advanced Education, 2022-2023" § (2023), pg. 71.

²¹ Ministry of Advanced Education, "Advanced Education and Technology Annual Report, 2010-11" § (2011), pg. 58.

²² <https://www.bankofcanada.ca/rates/related/inflation-calculator/>, using June 2019 to June 2023 CPI. Average annual inflation rate during this period is 3.63%.

²³ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2019" § (2019), pg. 6.

²⁴ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2020" § (2020), pg. 6.

²⁵ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2021" § (2021), pg. 6.

²⁶ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 6.

²⁷ University of Calgary, "Consolidated Financial Statements for the Year Ended March 31, 2022" § (2022), pg. 6.

from \$267,792,000.00 in 2019 to \$328,805,000.00 in 2023,²⁸ or by \$61,013,000.00—a 22.8% increase (Fig.2.).

Fig. 1. UCalgary Campus Alberta Grant and Tuition Revenue since 2018/19 (Nominal)²⁹

Year	UCalgary Campus Alberta Grant Revenue (thousands of \$)	% change in Campus Alberta Grant revenue from previous year	UCalgary tuition revenue (thousands of \$)	% change in tuition revenue from previous year
2018/19	506,486	--	231,792	--
2019/20	475,395	-6.1%	238,632	+3.0%
2020/21	457,126	-3.8%	268,155	+12.4%
2021/22	423,283	-7.4%	300,952	+12.2%
2022/23	413,582	-2.3%	328,805	+9.3%
Cumulative Change	-92,904	-18.3%	+97,013	+41.9%

Fig. 2. UCalgary Campus Alberta Grant and Tuition Revenue Since 2018/19 (Real, 2023 dollars)³⁰

Year	UCalgary Campus Alberta Grant Revenue (thousands of \$)	% change in Campus Alberta Grant revenue from previous year	UCalgary tuition revenue (thousands of \$)	% change in tuition revenue from previous year
2018/19	584,150	--	267,792	--
2019/20	544,695	-6.8%	273,418	+2.2%
2020/21	508,205	-6.7%	298,118	+9.0%
2021/22	435,187	-14.4%	309,415	+3.8%
2022/23	413,582	-5.0%	328,805	+6.3%
Cumulative Change	-170,568	-29.2%	+61,013	+22.8%

The 2023 budget, impacting the 2023/24 budgetary period, will be the first budget in five years to not cut the Campus Alberta Grant further, at least in nominal terms.^{31,32} However, with inflation, the Campus Alberta Grant will yet again be cut in *real* terms for the fifth year in a row.

²⁸ <https://www.bankofcanada.ca/rates/related/inflation-calculator/>, using June 2019 to June 2023 CPI. Average annual inflation rate during this period is 3.63%.

²⁹ Taken from the Ministry of Advanced Education Annual Reports and UCalgary Yearly Financial Statements.

³⁰ Taken from the Ministry of Advanced Education Annual Reports and UCalgary Yearly Financial Statements, adjusted for inflation (June 2023 CPI).

³¹ Little, H (April 12, 2023). "Provincial budget round-up 2023: highlights for the university sector," *University Affairs*. Accessed online: <https://www.universityaffairs.ca/news/news-article/provincial-budget-round-up-2023-highlights-for-the-university-sector/>.

³² Alberta Treasury Board and Finance, "Fiscal Plan (Alberta Budget 2023)" § (2023), pg. 89.

A direct causal line exists from the cuts to the Campus Alberta Grant and the increase in tuition and fees from 2019 to 2022. If the Campus Alberta Grant represents the largest source of public funding available for PSIs, and tuition and fees represent the largest source of private funding for PSIs, then a cut to public funding will disproportionately be made up by increases in tuition and fees, if a university wants to maintain the same level of funding year over year. This is current provincial government policy: the government of Alberta is following the recommendations of the Mackinnon Panel Report—which stated that PSIs should rely more heavily on tuition and alternative funding sources for their operating budgets—and is projecting that “own-source” funding will make up 55% of PSIs operating budgets by 2024-25, up from 45% in 2020-21.³³ Unless the University of Calgary receives a massive increase in private donations and grants, or sells an increasingly larger amount of services and products, tuition and fees will be the only reliable source of private revenue. As the provincial government has proposed a 2% cap on all domestic tuition increases starting in 2024-25,³⁴ these student-based own-source funding increases will have to come from dramatically increasing international student tuition, increasing mandatory non-instructional fees, or both.

The figures above also ought to be interpreted in this way: the purchasing power of Albertan post-secondary institutions has declined substantially, while the cost of attending these institutions has, for students, *increased* substantially. The nominal tuition increases show that students are spending more money to attend the University of Calgary than ever before. The *inflation-adjusted* tuition numbers, however, show that the university’s purchasing power has increased only *half as much* over that time—i.e., while the university is collecting more in tuition, inflation eats away at the amount of goods it can purchase with these funds. The inflation-adjusted *Campus Alberta Grant* revenue shows that the university is not only receiving less funds from the government, but that the funds it *is* receiving can purchase far fewer goods than they would have five years ago. The end result is this: the University of Calgary is collecting **\$110 million dollars less** in tuition than would be required to cover the Campus Alberta Grant cuts, *despite* students paying more to attend the university than ever before.

The main justification for these cuts, as outlined in the *Blue Ribbon Panel on Alberta’s Finances* (the “MacKinnon Report”), was to equalize the government funding per full-time equivalent student (i.e., per capita PSI spending) with comparator provinces, particularly British Columbia and Ontario.³⁵ The issue with the Report’s utilization of inter-provincial comparisons, however, is that it does not address whether other jurisdictions—in this case, British Columbia and Ontario—have sound policies *themselves*, where that money is spent, and what the effects of moving Alberta’s PSI’s towards those jurisdictions funding models were likely to do for accessibility, affordability, and program quality (there are also additional ways of measuring government support for PSI’s, as will be discussed below).

The following section will argue that such a move has contributed to an expensive, less adaptive, and less attractive post-secondary system—and Albertan students are struggling as a result. It provides

³³ Alberta Treasury Board and Finance, “Fiscal Plan: Moving Forward” § (2022), pg. 131.

³⁴ Johnson, L. (Feb 16, 2023). “UCP to cap post-secondary tuition growth at two percent beginning in 2024-25,” *Edmonton Journal*. Accessed online: <https://edmontonjournal.com/news/politics/ucp-to-cap-post-secondary-tuition-growth-at-two-per-cent-beginning-in-2024-25>. Necessary amendments to the *PSLA* have, at time of writing, not yet been tabled.

³⁵ *Report and Recommendations: Blue Ribbon Panel on Alberta’s Finances*, pg. 7. Accessed online: <https://open.alberta.ca/dataset/081ba74d-95c8-43ab-9097-cef17a9fb59c/resource/257f040a-2645-49e7-b40b-462e4b5c059c/download/blue-ribbon-panel-report.pdf>.

evidence that tuition increases—especially rapid ones—negatively impact all aspects of the student experience, with cascading effects on the post-secondary system as a whole. Universities like UCalgary then face a difficult dilemma. They can increase tuition even more than they already have to balance out the Campus Alberta Grant cuts, but at the cost of further harming students and, eventually, program quality or delivery; or they can maintain a deficit and see program quality and delivery deteriorate, harming students both during their education and later, as they enter the workforce. Either way, students are trapped in an impossible situation.

Financial Barriers to Accessing and Completing Post-Secondary Education

These benefits to education mentioned earlier only materialize if educational institutions are open and accessible to all, regardless of a student or family's ability to pay. Additionally, there must be no financial pressures that cause students to prematurely leave a graduate program. Tuition increases can negatively impact accessibility and reduce completion rates, especially during times of exceptionally high tuition increases.

There are studies that argue an increase in tuition should not reduce enrollment numbers, largely because the middle-to-upper class is overrepresented in higher education.³⁶ And indeed, access to post-secondary education for those of low socioeconomic status (SES) is far more complicated than simply keeping tuition rates low.^{37,38,39} For instance, a 2009 study from the Netherlands showed that while eligibility for post-secondary education increased, students from low-SES households nonetheless tended to avoid pursuing post-secondary education for reasons that cannot be fully explained by lack of ability to pay.⁴⁰ This study is one of many that suggests wealthier students have an advantage over students from lower SES-households that persists regardless of how high, or low, tuition rates are.^{41,42,43,44}

However, the studies noted above that find a null effect on increasing tuition and enrollment rates, including the 2009 Dutch study:

³⁶ Denny, K. 2014. "The effect of abolishing university tuition costs: Evidence from Ireland," *Labour Economics* 26(1): 26-33.

³⁷ Kirby, D. 2009. "Widening Access: Making the Transition from Mass to Universal Post-Secondary Education in Canada," *Journal of Applied Research on Learning* 2(3): 1-17.

³⁸ Boliver, V. 2017. "Misplaced optimism: how higher education reproduces rather than reduces social inequality," *British Journal of Sociology of Education* 38(3): 423-432.

³⁹ Kromydas, T. 2017. "Rethinking higher education and its relationship with social inequalities: past knowledge, present state and future potential," *Palgrave Communications* 3(1).

⁴⁰ Tieben, N. and Wolbers, M.H.J. 2010. "Transitions to post-secondary and tertiary education in the Netherlands: a trend analysis of unconditional and conditional socio-economic background effects," *Higher Education* 65(1): 85-100.

⁴¹ Dupriez, V., Monseur, C., van Campenhout, M., and LaFontaine, D. 2012. "Social Inequalities of Post-secondary Educational Aspirations: influence of social background, school composition and institutional context," *European Educational Research Journal* 11(4): 504-519.

⁴² Schindler, S. and Lörz, M. 2012. "Mechanisms of Social Inequality Development: Primary and Secondary Effects in the Transition to Tertiary Education Between 1976 and 2005," *European Sociological Review* 28(5): 647-660.

⁴³ Triventi, M. 2013. "Stratification in Higher Education and Its Relationship with Social Inequality: A Comparative Study of 11 European Countries," *European Sociological Review* 29(3): 489-502.

⁴⁴ Triventi, M. 2013. "The role of higher education stratification in the reproduction of social inequality in the labor market," *Research in Social Stratification and Mobility* 32(1): 45-63.

1. Suggest that this is true only when government financial aid is sufficient to offset the increased cost for students;^{45,46,47,48}
2. Largely covers a period (the 1990s) where tuition, despite multiple increases, was a substantially lower portion of a university's operating budget (less than 20%) than it is today;⁴⁹
3. Did not closely examine the level to which students from low SES households might be sensitive to tuition changes;⁵⁰ studies that *do* have found that tuition increases tend to have negative impacts on post-secondary accessibility, as individuals from low SES households face increased barriers to entry;^{51,52,53,54}
4. Did not measure how tuition increases might impact specific identity groups, such as new migrants; studies that *do* have found that tuition increases discourage new migrants from attending post-secondary;⁵⁵
5. And are sensitive to different measurement methods. For instance, tuition increases have a negative impact on enrollment when provincial trends in university demand (i.e., whether enrollment rates were increasing for labour market-related reasons *before* tuition increases were instituted) are controlled for.⁵⁶ Similarly, a negative relationship between tuition levels and enrollment is observed when the proxy for tuition increases is government policy, which better captures exogenous tuition changes;⁵⁷ and
6. Do not necessarily look at factors that might indirectly impact degree attainment, such as being forced to find employment during your studies in order to achieve some measure of financial

⁴⁵ Looker, E.D. and Lowe, G.S. 2001. "Post-Secondary Access and Student Financial Aid in Canada: Current Knowledge and Research Gaps," *Canadian Policy Research Networks*.

⁴⁶ Johnstone, D.B. 2003. "Cost Sharing in Higher Education: Tuition, Financial Assistance, and Accessibility in a Comparative Perspective," *Czech Sociological Review* 39(3): 351-374.

⁴⁷ Rivard, M. and Raymond, M. 2004. "The Effect of Tuition Fees on Post-Secondary Education in Canada in the late 1990s," *Department of Finance Working Paper*.

⁴⁸ Finnie, R. 2012. "Access to post-secondary education: The importance of culture," *Children and Youth Services Review* 34(6): 1161-1170

⁴⁹ For the 20% figure see Levin, B. 1990. "Tuition Fees and University Accessibility," *Canadian Public Policy* 16(1): 51-59. For other figures on more current tuition figures, see Harden, J. "The Case for Renewal in Post-Secondary Education," *Alternative Budget 2017 Technical Paper: Canadian Centre for Policy Alternatives*.

⁵⁰ de Broucker, P. 2005. "Getting There and Staying There: Low-income Students and Post-Secondary Education," *Canadian Policy Research Networks Research Report*.

⁵¹ Looker, E.D. and Lowe, G.S. 2001. "Post-Secondary Access and Student Financial Aid in Canada: Current Knowledge and Research Gaps," *Canadian Policy Research Networks*.

⁵² Johnstone, D.B. 2003. "Cost Sharing in Higher Education: Tuition, Financial Assistance, and Accessibility in a Comparative Perspective," *Czech Sociological Review* 39(3): 351-374.

⁵³ Coelli, M.B. 2009. "Tuition Fees and Equality of University Enrollment," *The Canadian Journal of Economics* 42(3): 1072-1099.

⁵⁴ Mueller, R.E. 2007. "Access and Persistence of Students from Low-Income Backgrounds in Canadian Post-Secondary Education: A Review of the Literature," in Finne, R., Mueller, R.E., Sweetman, A., and Usher, A. (eds). *Who Goes? Who Stays? What Matters? Accessing and Persisting in Post-Secondary Education in Canada*. Montreal: McGill-Queen's University Press, pgs. 33-62.

⁵⁵ Ferede, M.K. 2010. "Structural Factors Associated with Higher Education Access for First-Generation Refugees in Canada: An Agenda for Research," *Refuge* 27(2): 79-88.

⁵⁶ Johnson, D.R. and Rahman, F.T. 2005. "The role of economic factors, including the level of tuition, in individual university participation decisions in Canada," *The Canadian Journal of Higher Education* 35(3): 101-127.

⁵⁷ Neill, C. 2009. "Tuition Fees and the Demand for University Places," *Economics of Higher Education Review* 28(1): 561-570.

security. To that end, Josipa Roksa found that students from lower socio-economic backgrounds sought more hours of employment during their degree in order to improve their financial security, and that this was associated with lower degree attainment.⁵⁸

Those studies that find null effects also do not tend to focus on graduate students, and at graduate student retention in particular. This is a problematic omission. Studies that do not find any relationship between tuition increases and enrollment numbers point to the fact that university students disproportionately come from middle-to-upper class families, and thus are able to absorb higher levels of tuition. But since graduate students are frequently older and, thus, more likely to be living away from their parents (or, indeed, might be starting families of their own), they may not have the same level of familial support as undergraduates.

For studies that *do* look at graduate students, high levels of undergraduate debt act as a deterrent for graduate school application,^{59,60} especially for students from lower-SES households.⁶¹ Once in graduate school, high levels of student debt leads to earlier exits from graduate programs, delays in major degree milestones, and significant levels of finance-related stress.^{62,63} On study in particular, by Terrell L. Strayhorn, found that graduate student persistence is also negatively related to high levels of student loan debt (i.e., while almost all graduate students who persist in their degrees will have student loan debt, at a level above \$25,000 debt becomes associated with lower levels of degree completion) and is positively related to tuition reductions.⁶⁴ Interestingly, that same study also found that TA-ships are *negatively* related to persistence, while RA-ships are positively related to persistence.⁶⁵ This suggests, much like Roksa's study mentioned in Point 6, that attempting to pay for post-secondary through employment can actually push student's out of their programs.

International students are particularly vulnerable to tuition increases, with research in the United States indicating that doctoral and research universities recruit international students to bolster their internal revenue streams.⁶⁶ This is in addition to challenges international students face in finding affordable and

⁵⁸ Roksa, J. 2011. "Differentiation and Work: Inequality in Degree Attainment in U.S. Higher Education," *Higher Education* 61(3): 293-308.

⁵⁹ Xu, Y.J. 2014. "Advance to and Persistence in Graduate School: Identifying the Influential Factors and Major-based Differences," *Journal of College Student Retention* 16(3): 391-417.

⁶⁰ Zhang, L. 2013. "Effects of college educational debt on graduate school attendance and early career and lifestyle choices," *Education Economics* 21(2): 154-175.

⁶¹ Malcom, L.E. and Dowd, A.C. 2016. "The Impact of Undergraduate Debt on the Graduate School Enrollment of STEM Baccalaureates," *The Review of Higher Education* 35(2): 265-305.

⁶² Doran, J.M., Kraha, A., Marks, L.R., Ameen, E.J., and El-Ghorourym N.H. 2016. "Graduate Debt in Psychology: A Quantitative Analysis," *Training and Education in Professional Psychology* 10(1): 3-13.

⁶³ DeClou, L. 2016. "Who Stays and for How Long: Examining Attrition in Canadian Graduate Programs," *Canadian Journal of Higher Education* 46(4): 174-198.

⁶⁴ Strayhorn, T.L. 2010. "Money Matters: The Influence of Financial Factors on Graduate Student Persistence," *Journal of Student Financial Aid* 40(3): 4-25.

⁶⁵ *Ibid*, pg. 17.

⁶⁶ Cantwell, B. 2015. "Are International Students Cash Cows? Examining the Relationship Between New Undergraduate Enrollments and Institutional Revenue at Public Colleges and Universities in the US," *Journal of International Students* 5(4): 512-525.

adequate housing, personal finances, and culture shock.⁶⁷ International students are also vulnerable to information asymmetries (particularly with accurate information about cost-of-living) and face a great deal of uncertainty about their future job prospects and social networks in whichever country they have chosen to study.⁶⁸ As such, any increase in tuition or fees risks increasing the precarious finances of students with limited social supports compared to domestic students, particularly for international students suffering from incomplete or inaccurate information about cost-of-living in their chosen country.

Finally, even framing education as ultimately an instrumental means to achieve higher wages, rather than being a process for personal growth and knowledge acquisition, can recapitulate social inequalities and make education inaccessible for many.⁶⁹ Prioritizing only degrees that offer higher wages in *today's* labour market artificially limits the number of spaces and degree options available at an institution; and it can funnel the already socially well-off into prestigious degree tracks, to the detriment of the educational potential of those from less advantaged households.⁷⁰

Data for Alberta shows that our students are more vulnerable to cuts in government funding than per capita measurements indicate. For starters, the per FTE measurement that the MacKinnon Report utilized, and which the Alberta government has chosen as a performance metric for the system,⁷¹ does not take into account the broader social challenges students face. Albertans have the highest levels of moderate and severe food insecurity in the country, as an example;⁷² students are at an elevated risk of food insecurity relative to the baseline population, with a 2021 Meal Exchange survey finding that 66.1% of UCalgary students were at least moderately food insecure.⁷³ An increase to tuition or fees is more likely to negatively impact the quality of life of a population with higher levels of food insecurity than populations that are more food secure, and so Albertan students are more vulnerable to financial shocks than their peers elsewhere in the country.

Additionally, measuring government support on a per capita basis is only one method of comparison, and it does not fully capture the jurisdictional differences in funding choices between provinces. For instance, the higher government funding per FTE in Alberta is, to a significant extent, a result of the Ed Stelmach government generously funding capital-enhancement projects during the height of the oil

⁶⁷ Calder, M.J., Richter, S., Mao, Y., Kovacs Burns, K., Mogale, R.S., and Danko, M. 2016. "International Students Attending Canadian Universities: Their Experiences with Housing, Finances, and Other Issues," *Canadian Journal of Higher Education* 46(2): 92-110.

⁶⁸ Khanal, J. and Gaulee, U. 2019. "Challenges of International Students from Pre-Departure to Post-Study: A Literature Review," *Journal of International Students* 9(2): 560-581.

⁶⁹ Kromydas, T. 2017. "Rethinking higher education and its relationship with social inequalities: past knowledge, present state and future potential," *Palgrave Communications* 3(1).

⁷⁰ Schindler, S. and Lörz, M. 2012. "Mechanisms of Social Inequality Development: Primary and Secondary Effects in the Transition to Tertiary Education Between 1976 and 2005," *European Sociological Review* 28(5): 647-660.

⁷¹ Alberta Treasury Board and Finance, "Fiscal Plan (Alberta Budget 2023)" § (2023), pg. 89-90.

⁷² Gibson, C. (Aug 23, 2023). "Alberta has the highest food insecurity rate among Canadian provinces: report," *Global News*. Accessed online: <https://globalnews.ca/news/9079245/alberta-food-insecurity-highest-canada-report/>.

⁷³ Cummings, D. (Sept 16, 2022). "UCalgary club addresses student food insecurity, feeds 850 in 2021-22 academic year," *UCalgary Alumni*. Accessed online: <https://alumni.ucalgary.ca/news/students-cannot-live-ramen-alone#:~:text=Survey%20findings%20reported%20that%2C%20in,66.1%20per%20cent%20in%202021.>

boom.⁷⁴ An alternative method is to measure the amount of government support for PSE as a percentage of GDP, which, as Alex Usher notes, better measures a jurisdiction’s ability to pay.⁷⁵ Measuring government funding for PSE as a percentage of GDP also better accounts for size and economies of scale, relative to per capita spending. For instance, a small school with only enough funding to cover its operating costs may spend more, per student, than a university with a large student body and a massive endowment, but that higher per capita spending does not accurately represent the university’s ability to fund novel research or support its students. Measuring spending as a percentage of GDP, however, captures the amount of economic production in the post-secondary sector.

According to data compiled by the Canadian Association of University Teachers (CAUT), in 2019/20, the Alberta government spent 0.7% of GDP on PSE, tied for second last in Canada with British Columbia (**Fig.3**).⁷⁶ Note that this was before the largest spending cuts had been instituted by the Alberta government. Taking an international perspective, the European Commission recently stated that EU members spent, on average, 0.8% of GDP on PSE; they argued that this constituted “significant underfunding” that threatened European universities ability to fund research, expand, support their students, and fulfill their role as guardians of democratic and pluralistic values.⁷⁷

Fig.3. Provincial PSE Spending as % of GDP (2019/20)

Province	PSE Spending % of GDP (2019/20)	Difference from EU “Significantly Underfunded” Average
NL	1.4%	+0.6%
PEI	1.1%	+0.3%
NS	1.2%	+0.4%
NB	0.9%	+0.1%
QC	1.2%	+0.4%
ON	0.6%	-0.2%
MB	1.0%	+0.2%
SK	0.8%	--
AB	0.7%	-0.1%
BC	0.7%	-0.1%

Cross-national data shows that while the number of Albertans with at least a Bachelor’s degree is close to the Canadian average, the province has a significantly *lower* than average percentage of the workforce with graduate degrees (**Fig.4**). While a causal connection cannot be conclusively established

⁷⁴ Fletcher, R. (Jan 23, 2020). “In the 2000s, Albert invested heavily in its universities. That’s about to change,” *CBC News*. Accessed online: <https://www.cbc.ca/news/canada/calgary/alberta-university-spending-revenue-analysis-1.5436236>.

⁷⁵ Usher, A. (Oct 24, 2018). “Comparing Provincial Expenditures on Post-Secondary Education,” *Higher Education Strategy Associates*. Accessed online: <https://higherstrategy.com/comparing-provincial-expenditures-on-post-secondary-education/>.

⁷⁶ Data available here: <https://www.caut.ca/resources/almanac/2-canada-provinces>.

⁷⁷ European Commission. 2022. *Communication on a European Strategy for Universities*, pg. 11. Accessed online: <https://education.ec.europa.eu/sites/default/files/2022-01/communication-european-strategy-for-universities-graphic-version.pdf>.

from this data alone, given the studies discussed above, it is probable that rapidly increasing tuition and the lack of graduate student funding is at least partially responsible for creating a degree bottleneck. A government committed to maintaining an open and accessible post-secondary education system could find some success in relieving this bottleneck by restoring PSE funding and ensuring that tuition and fees do not disincentivize students from pursuing graduate degrees.

Fig. 4. Percentage of Bachelor's and Graduate Degrees amongst working age population (25-64) in Alberta and Comparative Provinces, 2021.⁷⁸

Degree Level	Quebec	Ontario	Alberta	British Columbia	Canada Average	OECD Average
Bachelor's	18.1%	23.7%	21.7%	22.7%	21.3%	18.9%
Total Graduate Degrees	11.4%	13.1%	9.4%	12.3%	11.5%	15.1%
Master's Degree	6.8%	8.7%	6.1%	7.9%	7.4%	13.9%
Doctorate	1.1%	1.2%	0.9%	1.1%	1.1%	1.3%

Decreasing Student Mental Health and Program Quality

An increased financial burden on students not only creates barriers to access or degree completion, but also negatively impacts the quality of life of students who persist through education—particularly when it comes to mental health. This has wide-ranging reverberations that, in the long run, can also decrease the quality of education received in PSIs.

Current students, and especially graduate students, are experiencing a mental health crisis.^{79,80,81,82,83} While a number of factors contribute to creating a mental health crisis—including the culture of academia at large—financial stress remains a significant, if not *dominant* cause of mental distress

⁷⁸ Statistics Canada (2022). Census 2021. Database: Highest level of education by census year—Canada, provinces and territories, census metropolitan areas and census agglomerations. Retrieved from: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=9810042901>.

⁷⁹ Flatt, A.K. 2013. "A Suffering Generation: Six factors contributing to the mental health crisis in North American higher education," *College Quarterly* 16(1).

⁸⁰ Evans, T.M., Bira, L., Gastelum, L.B., Weiss, L.T., and Vanderford, N.L. 2018. "Evidence for a mental health crisis in graduate education," *Nature Biotechnology* 36(1): 282-284.

⁸¹ Bekkouche, N., Schmid, R.F., and Carliner, S. 2021. "'Simmering Pressure': How Systemic Stress Impacts Graduate Student Mental Health," *Performance Improvement Quarterly* 34(4): 547-572.

⁸² Minutillo, S., Cleary, M., Hills, A.P., and Visentin, D. 2020. "Mental Health Considerations for International Students," *Issues in Mental Health Nursing* 41(6): 494-499.

⁸³ Charles, S.T., Karnaze, M.M., and Leslie, F.M. 2022. "Positive factors related to graduate student mental health," *Journal of American College Health* 70(6): 1858-1866.

amongst students.^{84,85,86,87,88} A comparative study from France found that university students displayed significantly higher rates of anxiety disorders, PTSD, and panic disorder compared to non-student peers.⁸⁹ The negative effect of financial stress on mental health is amplified for marginalized groups, in large part because marginalized groups tend to experience higher debt-levels during their post-secondary careers.⁹⁰

In a Canadian context, Albertan students disproportionately experience mental health-related difficulties. According to data collected by the Canadian Alliance of Student Associations, Abacus Data, and the Mental Health Commission of Canada, Albertan students were just as likely as students belonging to visible minority groups, 2SLGBTQ+, and students with pre-existing mental illness or disability to rate their mental health as “poor.”⁹¹ That same report routinely identified financial stress as being both a significant cause of mental health problems for students *and* partially responsible for students feeling as though they lack access to adequate mental health services.⁹² Albertan students also face the highest Mandatory Non-Instructional Fees (MNIFs) amongst Canadian students.⁹³

If financial stress is a leading cause of mental distress amongst the student population, then Albertan students being at such an elevated risk of mental illness relative to their Canadian peers could be explained by differences in tuition and fees between provinces. Indeed, Albertan students have faced a far steeper rise in tuition (in addition to their already nationally higher MNIFs) than students elsewhere in the country. Since the tuition freeze was lifted in 2019/20, both Albertan undergraduate and graduate students saw tuition increases that were significantly higher than the Canadian average in 2019/20⁹⁴ and 2021/22,⁹⁵ with 2020/21 being an outlier for graduate student tuition⁹⁶ largely because the University of Calgary’s Veterinary Medicine program reduced tuition by 38.1%.⁹⁷

⁸⁴ Cooke, R., Barkham, M., Audin, K., Bradley, M., and Davy, J. 2004. “Student Debt and its Relation to Student Mental Health,” *Journal of Further and Higher Education* 28(1): 53-66.

⁸⁵ *Ibid.*

⁸⁶ Flatt, A.K. 2013. “A Suffering Generation: Six factors contributing to the mental health crisis in North American higher education,” *College Quarterly* 16(1).

⁸⁷ Walsemann, K.M., Gee, G.C., and Gentile, D. 2015. “Sick of our loans: Student borrowing and the mental health of young adults in the United States,” *Social Science & Medicine* 124(1): 85-93.

⁸⁸ Johnson, A.P. and Lester, R.J. 2021. “Mental health in academia: Hacks for cultivating and sustaining wellbeing,” *American Journal of Human Biology*

⁸⁹ Kovess-Masfety, V., Leray, E., Denis, L., Husky, M., Pitrou, I., and Bodeau-Livinec, F. 2016. “Mental health of college students and their non-college-attending peers: results from a large French cross-sectional survey,” *BMC Psychology* 4(20). Accessed: <https://link.springer.com/article/10.1186/s40359-016-0124-5>.

⁹⁰ Deckard, F.M., Goosby, B.J., and Cheadle, J.E. 2022. “Debt Stress, College Stress: Implications for Black and Latinx Students’ Mental Health,” *Race and Social Problems* 14(1): 238-253.

⁹¹ Canadian Alliance of Student Associations, Abacus Data, Mental Health Commission of Canada. 2022. “The New Abnormal: Student Mental Health Two Years Into COVID.” Accessed: https://assets.nationbuilder.com/casaacae/pages/3470/attachments/original/1664377984/Abacus_Report_2022_%281%29.pdf?1664377984, pg. 10.

⁹² *Ibid*, pg. 7, 9, 19.

⁹³ <https://www150.statcan.gc.ca/n1/daily-quotidien/220907/dq220907b-eng.htm>

⁹⁴ <https://www150.statcan.gc.ca/n1/daily-quotidien/190904/t001b-eng.htm>

⁹⁵ <https://www150.statcan.gc.ca/n1/daily-quotidien/210908/t001a-eng.htm>

⁹⁶ <https://www150.statcan.gc.ca/n1/daily-quotidien/200921/t001b-eng.htm>

⁹⁷ <https://www150.statcan.gc.ca/n1/daily-quotidien/200921/dq200921b-eng.htm>

Beyond the human cost of a mental health crisis in graduate education, the rapid decline in student's mental health will pose problems for program quality. Mental health issues affect student's ability to study and research; given that scholarships, student awards, and publications are major contributions to university reputation, a decline in research output from graduate students as a result of mental health issues will hurt everything from recruitment to external research funding. Poor mental health is also associated with lower levels of social cohesion (causality likely runs both ways),^{98,99} and so mental health issues can also lead to a more fractious, less collegial, and less effective graduate program. And finally, graduate students are employed as TAs, RAs, and sessional instructors: mental health troubles will negatively impact undergraduate education and faculty research, as graduate students are less able to complete their work in a high-quality manner—or complete their work at all.

The Incentive to Study Elsewhere (especially America)

Businesses, academics, and government officials have long been concerned that Canada suffers from a “brain drain,” where skilled and knowledge-based workers migrant to other jurisdictions for more lucrative careers. A similar worry exists in the post-secondary sector, where other jurisdictions fund academics, and graduate students, in a more generous manner.

As the discussion around **Fig.3.** above shows, the European Union is in the process of increasing financial support to universities and graduate students. The current average funding of universities, as a percentage of GDP, was considered unsustainably low by the European Commission—but note that this funding level is still higher than what the Alberta government spent in 2019/20, before the budget cuts to the Campus Alberta Grant began in earnest. In an increasingly globalized world, greater support for graduate students in Europe will likely attract Albertan students, further contributing to the leaky pipeline in the province's advanced education system.

Competition with the United States will be even fiercer. The United States is poised to increase funding to post-secondary institutions even more: the recently passed *Inflation Reduction Act* (IRA), as well as the *CHIPS and Science Act* (CHIPS) will inject hundreds of billions of federal dollars into a wide variety of research fields and initiatives.^{100,101} That funding is not simply bypassing graduate students, either; CHIPS has earmarked \$13 billion for graduate fellowships, training, and support as part of its expansion of graduate student awards.¹⁰² The United States is already a well-regarded destination for graduate studies; the rapid influx of funding for students will only make it more attractive, relative to the underfunded Albertan PSE system.

Lack of Alternatives from the Private Sector

⁹⁸ Echeverría, S., Diez-Roux, A.V., Shea, S., Borrell, L.N., and Jackson, S. 2008. “Associations of neighborhood problems and neighborhood social cohesion with mental health and health behaviours: The Multi-Ethnic Study of Atherosclerosis,” *Health & Place* 14(4): 853-865.

⁹⁹ Fone, D., White, J., Farewell, D., Kelly, M., John, G., Lloyd, K., Williams, G., and Dunstan, F. 2014. “Effect of neighborhood deprivation and social cohesion on mental health inequality: a multilevel population-based longitudinal study,” *Psychological Medicine* 44(1): 2449-2460.

¹⁰⁰ <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/>.

¹⁰¹ <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/>.

¹⁰² <https://cgsnet.org/press-releases/cgs-celebrates-chips-and-science-act-signed-into-law>.

Increasing private, non-tuition investment in universities is one way to make up for lost provincial funding without dramatically raising tuition. However, this is not a feasible option at this time, for two reasons.

The first is that the current funding from private, non-tuition sources at the University of Calgary is low. Private, non-tuition funding sources at the University of Calgary are “sales of services and products,” “donations and other grants,” and “investment income” from non-governmental business enterprises. Since 2019 (**Fig.4.**), the budgeted allotment from private sector grants has increased (in nominal terms) from \$134,020,000¹⁰³ to \$156,611,000 in 2023.¹⁰⁴ If we adjust for inflation, however, the budget allotment from private sector grants has only increased by \$2,040,611.15,¹⁰⁵ an increase of just 1.5%. This is over fifteen times lower than the inflation-adjusted increase in tuition over that same time.¹⁰⁶ The total amount of funding from grants and donations is half what the university receives in tuition and fees from current students, while total non-tuition private funding has declined since 2019—particularly in the area of sales of products and services (indicating a reduced capacity for the university to innovate and produce).

Fig.4. Non-Tuition, Private Funding to UCalgary (Real, 2023 dollars)¹⁰⁷

Year	Sales of Services/Products (thousands of \$)	Donations and other grants (thousands of \$)	Investment Income (thousands of \$)	Total Non-Tuition, Private revenue (thousands of \$)	% change from previous year
2018/19	143,014	154,570	55,616	353,201	--
2019/20	146,223	179,673	55,507	381,404	+8.9%
2020/21	131,584	182,137	66,969	380,691	-0.5%
2021/22	87,943	159,739	69,934	317,616	-15.5%
2022/23	119,795	156,611	74,154	350,560	+10.4%
<i>Cumulative Change</i>	-23,219	+2,041	+18,538	-2,641	-0.7%

The second reason it is not feasible is that the university would, in order to attract more private grants or donations, have to invest heavily in facilities and all manner of programs. But as has been established already, the university cannot generate funds for this level of investment on the backs of tuition and fee increases, as tuition and fee increases decrease accessibility, degree completion, and program quality. The only way the university can generate enough funds to invest heavily in facilities and programs without harming accessibility, completion rates, and program quality is through public funding; this means that, even if the provincial government wanted to increase the presence of private funding in PSI’s operating budgets, it would still require significant public investment in the short run.

¹⁰³ University of Calgary, “Consolidated Financial Statements for the Year Ended March 31, 2019” § (2019), pg. 6.

¹⁰⁴ University of Calgary, “Consolidated Financial Statements for the Year Ended March 31, 2022” § (2022), pg. 6.

¹⁰⁵ <https://www.bankofcanada.ca/rates/related/inflation-calculator/>, annual interest rate of 4.41%.

¹⁰⁶ See above: “Government funding cuts and concurrent tuition increases.”

¹⁰⁷ Taken from the yearly UCalgary Financial Statements, adjusted for inflation (June 2023 CPI).

In addition to the lack of funding alternatives from the private sector, direct federal funding for student research has remained stagnant over the past two decades,¹⁰⁸ leaving a sizable and growing gap in the demand for graduate student research and the ability for Alberta institutions to produce graduate student research.

A provincial government committed to supporting graduate students, therefore, would be in a better position to close this gap and benefit from the economic, social, and cultural rewards of student-led research. More strongly, a provincial government committed to supporting post-secondary *in general* would be responding to calls from the business community at large. The Business Council of Alberta¹⁰⁹ and the Calgary Chamber of Commerce^{110,111} have both indicated that stable funding support for Alberta's post-secondary systems are necessary for innovation and productivity.

The Benefits of Investing in Students

Investing in students pays social dividends, which means that public investment in students will create public benefits.

Nobel Prize winning economist Paul Romer noted two stylized facts about innovation systems:

^{112,113,114,115,116}

1. Human capital—the accumulated skills, knowledge, dispositions, and experiences that are useful in the production process—is the primary driver of innovation;
2. Due to the non-excludable nature of knowledge, it is typically too risky for firms to invest in human capital or most forms of innovation. This means that, even in a perfectly competitive market, less human capital and innovation will be generated than is socially optimal.

¹⁰⁸ Crawley, M. (Dec 24, 2022). "Canada's grants for master's, PhD students haven't increased since 2003. These researchers want that changed," *CBC News*. Accessed online: <https://www.cbc.ca/news/science/graduate-student-research-funding-nserc-sshr-cih-1.6692545>.

¹⁰⁹ *Define the Decade* scorecard, prepared for the Business Council of Alberta by Janet Brown: https://businesscouncilab.com/wp-content/uploads/2023/11/BCA_DTD_2023-Prosperity-Scorecard-FINAL.pdf.

¹¹⁰ https://prismic-io.s3.amazonaws.com/calgarychamberwebsite/d50d6949-e64e-4041-960e-2be0994268d8_CC+-+Accelerate+-+Driving+Alberta+Forward+2023.pdf

¹¹¹ https://calgarychamberwebsite.cdn.prismic.io/calgarychamberwebsite/5a0f6a9c-bb3d-4c72-b463-bfbd1f606d92_CC+-+Gearing+up+for+growth+-+Municipal+Roundtable+Report+-+Web.pdf

¹¹² Paul M. Romer, "Human Capital and Growth: Theory and Evidence," *Carnegie-Rochester Conference Series on Public Policy* 32 (March 1, 1990): 251–86, [https://doi.org/10.1016/0167-2231\(90\)90028-j](https://doi.org/10.1016/0167-2231(90)90028-j).

¹¹³ Paul M. Romer, "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5, Part 2 (October 1, 1990): S71–102, <https://doi.org/10.1086/261725>.

¹¹⁴ Paul M. Romer, "The Origins of Endogenous Growth," *Journal of Economic Perspectives* 8, no. 1 (February 1, 1994): 3–22, <https://doi.org/10.1257/jep.8.1.3>.

¹¹⁵ Richard R. Nelson and Paul M. Romer, "Science, Economic Growth, and Public Policy," *Challenge* 39, no. 1 (January 1, 1996): 9–21, <https://doi.org/10.1080/05775132.1996.11471873>.

¹¹⁶ Romer, P.M. 2000. "Should the Government Subsidize Supply or Demand in the Market for Scientists and Engineers?" *NBER Working Paper*. Retrieved from: https://www.nber.org/system/files/working_papers/w7723/w7723.pdf.

Consequently, one policy implication of “endogenous growth theory” is that governments ought to fund institutions of higher education to correct for this market inefficiency.¹¹⁷ The downstream benefits of investing in PSIs then include a more robust, adaptive, and effective innovation system, allowing businesses, communities, and public officials the opportunity to draw upon novel products and processes to improve the lives of everyone. As mentioned earlier, both the Business Council of Alberta¹¹⁸ and the Calgary Chamber of Commerce^{119,120} have both indicated that stable funding support for Alberta’s post-secondary systems are necessary for innovation and productivity, and this is reflected in the predictions of the models Romer has made famous.

Education—and especially *higher* education—additionally drives innovation in part because institutions of higher learning engage the most in basic research, the foundation for all innovative practices; education is also important because even the most paradigm-shattering inventions from independent inventors have required increasingly larger pools of technical knowledge to be successful.¹²¹ These facts form the basis for Romer’s argument that government funds would be better spent subsidizing university education rather than subsidizing R&D work directly, as an economy’s innovative potential depends more on the number of researchers it has access to than government subsidies to businesses.¹²² Additionally, in a broad survey of the innovation literature, John Van Reenen notes that a great deal of evidence exists linking higher education institutions to increases on innovation and productivity, and a key mechanism governing this relationship is the supply of university-educated students that are dispersed into the economy.¹²³

From a more Canadian-specific perspective, students and recent graduates represent an underappreciated source of new businesses and technology transfer, being “twice as likely to as their professors to create spin-off companies,” according to a 2017 report by the House of Commons’ Standing Committee on Industry, Science, and Technology.¹²⁴ A witness from the private sector added

¹¹⁷ Paul M. Romer, “Should the Government Subsidize Supply or Demand in the Market for Scientists and Engineers?,” *Innovation Policy and the Economy* 1 (January 1, 2000): 221–52, <https://doi.org/10.1086/ipe.1.25056146>.

¹¹⁸ Janet Brown, “Defining the Decade: Opportunity & Prosperity: Alberta’s Progress Towards Defining the Decade,” prepared for the Business Council of Alberta, 2023, https://businesscouncilab.com/wp-content/uploads/2023/11/BCA_DTD_2023-Prosperity-Scorecard-FINAL.pdf.

¹¹⁹ Calgary Chamber of Commerce, “Accelerate: Driving Alberta Forward” (Calgary Chamber of Commerce, 2023). https://prismic-io.s3.amazonaws.com/calgarychamberwebsite/d50d6949-e64e-4041-960e-2be0994268d8_CC+-+Accelerate+-+Driving+Alberta+Forward+2023.pdf

¹²⁰ Calgary Chamber of Commerce, “Gearing up for Growth: Recommendations for the City of Calgary to support the continued recovery and resilience of businesses” (Calgary Chamber of Commerce, 2023) https://calgarychamberwebsite.cdn.prismic.io/calgarychamberwebsite/5a0f6a9c-bb3d-4c72-b463-bfbd1f606d92_CC+-+Gearing+up+for+growth+-+Municipal+Roundtable+Report+-+Web.pdf

¹²¹ Baumol, J.W. 2004. “Education for Innovation: Entrepreneurial Breakthroughs vs. Corporate Incremental Improvements,” *NBER Working Papers*. Retrieved from: https://www.nber.org/system/files/working_papers/w10578/w10578.pdf.

¹²² Romer, P.M. 2000. “Should the Government Subsidize Supply or Demand in the Market for Scientists and Engineers?” *NBER Working Paper*. Retrieved from: https://www.nber.org/system/files/working_papers/w7723/w7723.pdf.

¹²³ Reenen, V.J. 2020. “Innovation Policies to Boost Productivity,” *Brookings Institute*. Retrieved from: https://www.hamiltonproject.org/wp-content/uploads/2023/01/JVR_PP_LO_6.15_FINAL.pdf.

¹²⁴ Canada. Parliament. House of Commons. Standing Committee on Industry, Science, and Technology. Intellectual Property and Technology Transfer: Promoting Best Practices. 1st Session, 42nd Parliament, 2017. Report 8.

that “[t]he largest intellectual property and technology transfers from academia to Canadian companies occur when one of these innovative companies hires technically well-trained graduating students,” which requires integrating students “into the broader innovation ecosystem in order to do design work, proof of concept and prototyping.”¹²⁵

Increasing the accessibility of graduate student education can help Alberta tackle a longstanding problem: lagging productivity growth. Canada as a whole has produced less output per worker than the United States for over two decades, however the productivity gap between countries increased between 2000 and 2020;¹²⁶ the COVID-19 pandemic has only exacerbated Canada’s productivity woes.¹²⁷ While Alberta has the highest productivity in Canada, but it is still less productive than 13 US states.¹²⁸ There are numerous explanations for why this productivity gap exists, but the Business Council of Alberta identifies disparities in advanced education between Canada and the US as a likely culprit. They state that Canada and the US have equally educated populations at the K-12 level, but 38% of Americans have a bachelor’s degree or higher compared to 33% of Canadians, and 2% of Americans have a PhD relative to 1% of Canadians.¹²⁹ Recall that Alberta sees proportionally fewer undergraduate students pursue graduate students relative to the rest of Canada. If proportionally fewer Canadians with advanced degrees explains part of the productivity gap between us and the United States, and Alberta has proportionally fewer students with advanced degrees than the rest of Canada, then the lack of openness in Alberta’s advanced education pipeline is likely a serious drag on the province’s productivity. Increasing the accessibility of graduate programs by addressing the financial barriers Albertan students face would boost the province’s productivity *and* our standard of living. It also carries with it an additional benefit: increased productivity means less time and resources are needed to produce a good, which will lower costs. Lowering costs helps reduce inflation. Given the stickiness of inflation at the time of writing,¹³⁰ investments in PSE would then help address the affordability crisis that *all* Albertans are facing.

Overall, the public return on higher education spending is significant, suggesting that higher education represents an efficient and welfare-enhancing public investment. If both the income-enhancing effects of higher education *and* the cost-saving effects of higher education (through, for example, lower welfare enrollments in more highly educated populations) are taken into account, then it has been estimated

<https://www.ourcommons.ca/Content/Committee/421/INDU/Reports/RP9261888/indurp08/indurp08-e.pdf>, pg. 29.

¹²⁵ *Ibid*, pg. 30.

¹²⁶ Williams, D. (May 24, 2022). “Canada’s productivity performance over the past 20 years,” *Business Council of British Columbia*. Accessed online: <https://bcbc.com/insights-and-opinions/canadas-productivity-performance-over-the-past-20-years>.

¹²⁷ Tombe, T. (March 9, 2023). “The pandemic’s lasting scars on Canada’s economy,” *The Hub*. Accessed online: <https://thehub.ca/2023-03-09/trevor-tombe-the-pandemics-lasting-scars-on-canadas-economy/>.

¹²⁸ Tombe, T. (June 15, 2023). “As productivity plunges, Ontario and Alabama now have the same per capita GDP,” *The Hub*. Accessed online: <https://thehub.ca/2023-06-15/trevor-tombe-most-provincial-economies-struggle-to-match-the-u-s/>.

¹²⁹ Business Council of Alberta. (March 10, 2021). “It’s no about winning but we can’t help but notice we’re losing (part three): Productivity—why Canada lags behind the US.” Accessed online: <https://businesscouncilab.com/insights-category/analysis/productivity-part-three-canada-us-productivity-gap/>.

¹³⁰ Holt, D. (April 18, 2023). “Canadian Core Inflation Remains Sticky as Upside Risks are Returning,” *Scotiabank*. Accessed online: <https://www.scotiabank.com/ca/en/about/economics/economics-publications/post.other-publications.economic-indicators.scotia-flash.-april-18--2023-.html>.

that the government receives \$7.46 in fiscal benefits for every \$1 it invests in students.¹³¹ A more recent study conservatively estimates that, in the state of Massachusetts, the government receives a net financial benefit of \$83,000 per graduate.¹³² Given the innovation-driving activity of graduate students, it is possible this number is even higher for graduates possessing at least a Master's degree. But this benefit can only occur if students are able to *finish* their degrees.

Finally, there is evidence that investment in higher education can *crowd in* private investment. This effect is especially strong when funding is directly distributed to graduate students. "Crowding in" refers to the process whereby one source of funding (typically public funding) indirectly leads to an increase in alternative sources of funding (typically private funding). Boardman and Ponomariov, in analyzing the characteristics of "entrepreneurial universities," found that as the number of graduate students supported by grants increased, so did a wide variety of university-industry interactions, such as technology transfer, paid consultation, the creation of patents, or co-authorship of academic papers with members of industry.¹³³ They also found that an increase in students supported by grants increased the likelihood that graduate students would become owners, partners, or employees of private firms.¹³⁴ Given the lack of funding alternatives from the private sector (as noted above), as well as lower percentage of R&D funding committed by Canadian firms,^{135,136} increasing funding for graduate students is likely to increase the attractiveness of Canadian firms in global capital markets, thus leading to increased private investment in R&D over time.

An import caveat to the above studies is that innovation thrives on a diversity of thought and ideas. For instance, a survey of University of Calgary engineering students noted that innovative thinking required a culture that encourages transdisciplinary thinking, to the extent that "disciplines disappear and the research challenge and innovation required come to the fore."¹³⁷ Similarly, William J. Baumol argued that revolutionary innovations tend to come from smaller firms because small firms have more flexible organizational structures, and are able to incorporate wider pools of knowledge than in more standardized R&D labs.¹³⁸ As such, while absolute funding matters for enhancing innovation, the funding

¹³¹ Trostel, P.A. 2008. "High Returns: Public Investment in Higher Education," *Community & Banking*. Federal Reserve of Boston.

¹³² Ash, M. and Chakraborty, S. 2020. "An Economic Analysis of Investment in Public Higher Education in Massachusetts: Recovering from the COVID-19 Crisis and Laying the Foundations for the Future." Retrieved from: <https://peri.umass.edu/publication/item/1311-an-economic-analysis-of-investment-in-public-higher-education-in-massachusetts>.

¹³³ Boardman, P.C. and Ponomariov, B.L. 2009. "University researchers working with private companies," *Technovation* 29(1): 142-153.

¹³⁴ *Ibid*.

¹³⁵ Canada's Fundamental Science Review. 2017. "Investing in Canada's Future: Strengthening the Foundations of Canadian Research," pg. 220. Retrieved from: https://ised-isde.canada.ca/site/canada-fundamental-science-review/sites/default/files/attachments/2022/ScienceReview_April2017-rv.pdf.

¹³⁶ Usher, A., & Balfour, J. (2023). *The State of Postsecondary Education in Canada, 2023*. Toronto: Higher Education Strategy Associates. Pg. 69.

¹³⁷ Gates, I.D., Wang, J., Kannaiyan, R., and Su, Y. 2020. "Instilling innovation and entrepreneurship in engineering graduate students: Observations at the University of Calgary," *The Canadian Journal of Chemical Engineering*: 2195-2204.

¹³⁸ Baumol, W.J. 2004. "Education for Innovation: Entrepreneurial Breakthroughs vs. Corporate Incremental Improvements," *NBER Working Paper*. Retrieved from: https://www.nber.org/system/files/working_papers/w10578/w10578.pdf.

available for graduate students cannot be targeted towards a select few disciplines. Any funding must allow student researchers the freedom to choose what their research focus is, who they wish to collaborate with, and how they pursue their research. Otherwise, the connection between research funding and innovative output will not be as tight or efficient.

The benefits of investing in education are not limited to economic innovation and global competitiveness. Higher levels of education shield individuals from falling into poverty;^{139,140,141} furthermore, education is also associated with increased levels of democratic participation in the political system.¹⁴² Higher education should, therefore, be a conduit for addressing long-standing social inequalities—particularly for groups who have faced long-standing historical injustices—by providing individuals from these groups more choices, higher social mobility, and greater financial resources than past generations have had access to.

Higher education should also be a site of cultural transmission and reconciliation, if marginalized groups are able to share their voices. Broad investment into fine arts, cultural studies, or the humanities more generally can create close bonds between social groups, enhancing cross-cultural communication and enriching society's cultural mosaic.¹⁴³ Attracting more international students will also help diversify the labour market, bring additional perspectives to our culture, and inject significant human and physical capital into the economy; it is little wonder, then, that multiple studies have indicated that lower-cost post-secondary systems will have an advantage in attracting international talent.^{144,145}

Ultimately, it cannot be forgotten that there are intrinsic benefits to accumulating knowledge through education, the most important of which would include the process of self-discovery. An open and robustly funded post-secondary education system can serve as a transformative institution that makes us all better off in the short *and* long-run.

Counterargument: Don't Graduate Students Make More Money?

One counterargument to increasing government support for students is that education is highly correlated with future earnings. It is not only a waste of money to subsidize the cost of attending university, since the more education you receive, the higher your average earnings; but it is also deeply inequalitarian and regressive, as the taxes used to fund tuition subsidies transfer money from less-

¹³⁹ Coelli, M.B., Green, D.A., and Warburton, W.P. 2007. "Breaking the Cycle? The effect of education on welfare receipt among children of welfare recipients," *Journal of Public Economics* 91(7-8): 1369-1398.

¹⁴⁰ Landon, R. 2006. "The Role of Post-Secondary Education in Welfare Recipients Paths to Self-Sufficiency," *The Journal of Higher Education* 77(3): 472-496.

¹⁴¹ Dave, D.M., Carman, H., and Reichman, N.E. 2013. "Effects of Welfare Reform on Education Acquisition of Adult Women," *Journal of Labor Relations* 33(2): 251-282.

¹⁴² Kiess, J. 2021. "Learning by Doing: The impact of experiencing democracy in education on political trust and participation," *Politics* 42(1): 75-94.

¹⁴³ Lee, D. 2013. "How the Arts Generate Social Capital to Foster Intergroup Social Cohesion," *The Journal of Arts Management, Law, and Society* 43(1): 4-17.

¹⁴⁴ Verbik, L. and Lasanowski, V. 2007. "International Student Mobility: Patterns and Trends," *The Observatory on Borderless Higher Education*. Accessed online: https://nccastaff.bournemouth.ac.uk/hncharif/MathsCGs/Desktop/PGCertificate/Assignment%20-%202002/International_student_mobility_abridged.pdf.

¹⁴⁵ García, H.A. and Villarreal, M.L. 2014. "The 'Redirecting' of International Students: American Higher Education Hinderances and Implications," *Journal of International Students* 4(2): 126-136.

wealthy individuals without a college degree to predominantly well-off individuals attending post-secondary.¹⁴⁶ This counterargument is, in fact, deeply connected to the above discussion of human capital: the skills, experiences, and knowledge of graduate students helps drive innovation forward, but it is also—like all forms of investment—intended to generate a return for this capital’s owner. The correlation between education and higher future earnings is simply the return that individuals receive for investing in their human capital.

It is true that a correlation between levels of education and earnings exists. Nonetheless, the research summarized in previous sections still shows that investing in graduate students creates public dividends. And the externalities that Romer noted as an inherent part of the knowledge-generation process also create market inefficiencies, which means it is difficult to know if anyone but the most independently wealthy individuals could afford to attend post-secondary if tuition subsidies were ended. Romer’s argument follows a well-developed strand in the economics literature, first formalized by Kenneth Arrow,¹⁴⁷ that otherwise perfectly competitive markets will underinvest in risky behaviour—like innovation.

But there is an additional problem with this counterargument that suggestions we should treat the correlation between education and earnings with caution. “Capital,” as a unit of economic analysis, is fundamentally unmeasurable. To quote Bichler and Nitzan on the issue:

To put it bluntly, neither liberals nor Marxists ... know how to determine the magnitude of real capital to start with. The common, makeshift solution is to estimate the magnitude indirectly, by using the money price of capital goods—yet this doesn’t solve the problem either, since capital goods can have many prices and there is no way of knowing which of them, if any, is the “true” one.¹⁴⁸

If capital is fundamentally unmeasurable—and most estimations commit the sin of circuitous reasoning—then we cannot conclusively measure the *value* of a capital stock either. If we cannot measure the value of that capital stock, we cannot know for certain what the equilibrium return on investment of owning that capital stock should be. And if we cannot know for certain what the equilibrium return on investment of owning a capital stock should be, we cannot say that the income an individual currently has is a *direct* result of their ownership of capital. For our purposes, this means we cannot say that a person’s future earnings—and the difference in earnings between two individuals—is a direct result of their human capital. Other factors may explain the correlation between education and high future income that has nothing *causally* to do with education.

To be clear: education *does* have an income enhancing effect—see the cited studies above on how education can help prevent people from falling into poverty. And capital being unmeasurable does not undermine the logic that accumulated skills and knowledge are the foundation of all innovation and economic growth. What it complicates is the notion that investment in graduate students is not

¹⁴⁶ Speer, Sean. “It’s Time to End Tuition Subsidies.” The Hub, December 2, 2023. <https://thehub.ca/2023-12-02/sean-speer-its-time-to-end-tuition-subsidies/>.

¹⁴⁷ Arrow, Kenneth J. “Uncertainty and the Welfare Economics of Medical Care.” *Journal of Health Politics Policy and Law* 26, no. 5 (October 1, 2001): 851–83. <https://doi.org/10.1215/03616878-26-5-851>.

¹⁴⁸ Nitzan, Shimshon Bichler Jonathan. “What Do Economists Mean When They Talk about ‘Capital Accumulation?’” *Economics*, September 27, 2020. <https://economics.com/what-do-economists-mean-when-they-talk-about-capital-accumulation/>.

necessary *now* because all costs will be compensated for in the future. More nuanced empirical studies help bring this tension out. One study found that the correlation between education and wages is at least *partially* explained by family background, rather than education *per se*.¹⁴⁹ Another study, focusing primarily on the United States, notes that the impact of education on future wages depends on the institution you attend;¹⁵⁰ a similar heterogeneity exists between degrees, too, with future earnings potential being concentrated in a few degree streams.¹⁵¹ Note that, if capital is unmeasurable, we cannot conclude that this is simply due to these degrees being less valuable. Indeed, in a complex world, assuming that we can easily predict where innovations might emerge is a fatally flawed assumption,¹⁵² and so punishing individuals for studying in one field rather than the other will only serve to make our innovation system more fragile.

Perhaps the most important study on the more nuanced relationship between education and future earnings found that delayed graduation negatively impacts both employment probability and monthly earnings—this earnings penalty persists over several years and hits women and non-STEM graduates particularly hard.¹⁵³ As our previous sections have shown, tuition increases negatively impact graduation time. There is, consequently, a direct causal mechanism by which tuition increases *decrease* future earnings by delaying graduation.

In summary, it is true that a correlation exists between education levels and income earnings, but this relationship is complicated and does not indicate that graduate students will be “compensated” for the cost of their education in the future.

Additional Concern: Transparency Around Funding

The MacKinnon Report indicated that not all post-secondary institutions spend their allotted funds efficiently.¹⁵⁴ Transparent reporting on how the Campus Alberta Grant is being distributed within institutions would help ensure that funds are being received by graduate students in an equitable and sustainable fashion. This would also help ensure that government funding goes towards research activities that generate significant returns on investment, rather than being lost within inefficient processes.

Conclusion: Investing in Graduate Students to Benefit all Albertans

¹⁴⁹ Britton, Jack, Lorraine Dearden, Neil Shephard, and Anna Vignoles. “Is Improving Access to University Enough? Socio-Economic Gaps in the Earnings of English Graduates.” *Oxford Bulletin of Economics and Statistics* 81, no. 2 (January 29, 2019): 328–68. <https://doi.org/10.1111/obes.12261>.

¹⁵⁰ Cappelli, Peter. “The Return on a College Degree: The US Experience.” *Oxford Review of Education* 46, no. 1 (January 2, 2020): 30–43. <https://doi.org/10.1080/03054985.2019.1689939>.

¹⁵¹ Britton, Jack, Lorraine Dearden, Laura Van Der Erve, and Ben Waltmann. “The Impact of Undergraduate Degrees on Lifetime Earnings,” February 29, 2020. <https://doi.org/10.1920/re.ifs.2020.0167>.

¹⁵² <https://fooledbyrandomness.com/ConvexityScience.pdf>

¹⁵³ Aina, Carmen, and Giorgia Casalone. “Early Labor Market Outcomes of University Graduates: Does Time to Degree Matter?” *Socio-Economic Planning Sciences* 71 (September 1, 2020): 100822. <https://doi.org/10.1016/j.seps.2020.100822>.

¹⁵⁴ *Report and Recommendations: Blue Ribbon Panel on Alberta’s Finances*, pg. 41-43. Accessed online: <https://open.alberta.ca/dataset/081ba74d-95c8-43ab-9097-cef17a9fb59c/resource/257f040a-2645-49e7-b40b-462e4b5c059c/download/blue-ribbon-panel-report.pdf>.

If graduate students play an integral role in creating, developing, and commercializing innovative research, then increasing the funding available for graduate students will increase the innovative potential of Alberta's economy—so long as student researchers are free to choose which research projects they pursue. Increasing the innovative potential of Alberta's economy will have immediate and lasting positive impacts on productivity, economic growth, and living standards.

As such, an investment in Alberta's graduate students is an investment in Albertan prosperity. This investment must first start with a restoration of the Campus Alberta Grant. Graduate students—in addition to undergraduate students, faculty, and other staff—cannot be expected to produce novel ideas and technologies to the benefit of all Albertans under such austere conditions. We are already seeing consequences of reckless funding cuts in Ontario. Laurentian University filed for creditor protection in 2021¹⁵⁵ and, on January 9th 2024, the Provost of Queen's University declared that his university would similarly be insolvent by the end of the 2025-26 academic year.¹⁵⁶ A blue-ribbon panel was convened by the provincial government to provide recommendations on how to increase the financial stability of Ontario's post-secondary system; while the panel's terms of reference limited any considered solutions to being compatible with fiscal conservatism,¹⁵⁷ the panel nonetheless found that a major reversal of the government's hack-and-slash approach to university budgets was required to prevent other Ontario institutions from falling into financial ruin.¹⁵⁸ We believe the experience of post-secondary institutions in Ontario invalidates The MacKinnon Report's optimistic appraisal of per capita funding cuts in Alberta, and the Alberta government's continual endorsement of the panel's conclusions.¹⁵⁹

Second, Alberta must be made an attractive destination for graduate student talent. In order of Alberta to be seen as a viable destination for graduate student and researcher talent, our PSI system must offer a competitive advantage for anyone who chooses to study here. One such method is to create a transparent, dedicated funding stream for graduate students dedicated to supporting graduate-led research. To avoid creating more red tape for institutions, this funding stream could take the form of enrollment grants or scholarships that exist parallel to the CAG funding each institution earmarks for their Faculty of Graduate Studies. These grants or scholarships could begin at a very basic, universal level to create a funding floor for all graduate students in Alberta. Subsequent grants or scholarships could be merit-based and modelled off the federal Tri-Council (NSERC, SSHRC, and CIHR) scholarships, culminating in a set of research excellence awards for each major field (natural sciences, engineering, social sciences,

¹⁵⁵ "Laurentian University Files for Creditor Protection," *CBC*, February 2, 2021,

<https://www.cbc.ca/news/canada/sudbury/laurentian-university-creditor-protection-1.5896522>.

¹⁵⁶ Sophia Coppolino, "'Queen's Could Cease to Exist If We Don't Deal with This Issue:' Faculty and Staff Remain Skeptical - The Queen's Journal," *The Queen's Journal*, January 12, 2024, <https://www.queensjournal.ca/queens-university-faces-imminent-closure-if-cuts-not-made-faculty-and-staff-remain->.

¹⁵⁷ Alex Usher, "What's in Ontario's Blue Ribbon Panel Report?," *Higher Education Strategies Associates* (blog), November 20, 2023, <https://higherstrategy.com/whats-in-ontarios-blue-ribbon-panel-report/>.

¹⁵⁸ Alan Harrison, "Ensuring Financial Sustainability for Ontario's Postsecondary Sector," *Blue-Ribbon Panel on Postsecondary Education Financial Sustainability* (November 15, 2023). <https://files.ontario.ca/mcu-ensuring-financial-sustainability-for-ontarios-postsecondary-sector-en-2023-11-14.pdf>

¹⁵⁹ Alberta.ca, "Report and Recommendations: Blue Ribbon Panel on Alberta's Finances," pg. 7 (Recommendation 8). Accessed online:

<https://open.alberta.ca/dataset/081ba74d-95c8-43ab-9097-cef17a9fb59c/resource/257f040a-2645-49e7-b40b462e4b5c059c/download/blue-ribbon-panel-report.pdf>.

humanities, health sciences, etc). In material terms, this would create additional funding opportunities specific to Albertan graduate students while incentivizing research-focused work. In *symbolic* terms, having dedicated provincial research grants or scholarships would signal to all prospective students that the Albertan PSI system values graduate student research above and beyond basic CAG funding. Consequently, the Graduate Students' Association of the University of Calgary calls upon the provincial government to institute a dedicated graduate student research funding stream in the form of research grants or scholarships, including a universal graduate grant or scholarship for all Albertan graduate students and in addition to merit-based research excellence awards for each major field of study.

Other measures that would signal a commitment to quality graduate education include addressing concerns over funding transparency, committing to monitoring graduate student affordability, and ensure that funds are allocated to PSIs in such a way that students have the freedom to study whichever subject they wish.

Recommendations

Therefore, we urge the provincial government to take the following actions to address the concerns presented above.

Be It Resolved That

1. UCalgary GSA calls upon the Provincial Government to reverse the budget cuts made to PSI's through the Campus Alberta Grant since 2018/19;
2. UCalgary GSA calls upon the Provincial Government to create an additional funding stream to directly fund graduate student research, in the form of grants and scholarships that:
 - a. Create a universal funding floor for all graduate students studying in Alberta;
 - b. Create merit-based scholarships with increasing monetary rewards that culminate in a series of research excellence awards, modeled off the federal Tri-Agency graduate scholarships.
3. UCalgary GSA calls upon the Provincial Government to legislate transparent and publicly available reporting on PSI expenditures, including amounts spent on:
 - a. Each individual faculty and school;
 - b. Individual employment units;
 - c. Graduate student research; and
 - d. Services that directly support students.
4. UCalgary GSA calls upon the Provincial Government to legislate ongoing reporting by the Ministry of Advanced Education on the accessibility of graduate education in Alberta, including:
 - a. Baseline graduate program funding relative to the poverty line, after tuition;
 - b. The effects of institutional funding and tuition policies on program accessibility and completion;
 - c. The effects of government funding and tuition policies on program accessibility and completion; and
 - d. Demographic data to track equity of access to advanced education.
5. UCalgary GSA calls upon the Provincial Government to fund PSI's in a way that allows student researchers the freedom to choose which projects they wish to pursue, rather than basing program funding on existing labour market trends or pre-defined government targets.