

Faculty Compensation in Academe (Update)

Working Paper #6

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Ken Snowdon, Snowdon & Associates

Abstract

Working Paper #6 updates and expands some of the faculty information originally provided in Working Paper #2. Specific reference is made to the competitive nature of the 'market' for faculty, the impact of the 'knowledge economy' on the labour market for highly educated personnel, and updated comparisons with universities in the United States. Over the past twenty years salaries for full-time faculty have kept pace with the general increase in Canadian incomes and appear to have maintained their relative position on the Canadian income 'curve' with Assistant Professors median salary at or near the 90th percentile of wage earners, Associate Professors at or near the 95th percentile and Full Professors at or near the 97th percentile. Relative to other individuals with PhD's, the most recent census data suggests that salary levels in academe appear to be somewhat higher although further analysis is required to better understand the importance of discipline 'mix' and 'location of PhD' to the comparison. Relative to Doctoral universities in the United States, salary levels in Canada are generally comparable although Associate Professors are somewhat higher and there is a marked difference between the salary levels of public and not-for-profit institutions in the United States and between Doctoral institutions and Master's institutions.

The Working Paper series is intended to provide a brief review of some key issues that affect higher education, particularly university education, in Canada. The Working Papers draw on the observations and insights gleaned from years of hands-on experience in the PSE sector and the many consulting and research projects completed by Snowdon & Associates. Other Working Papers are available at <http://www.snowdonandassociates.ca/presentations.htm>

Introduction

In Canadian universities almost 75%¹ of Operating expenditures are allocated to compensation - salaries and benefits for faculty, staff, and students employed in casual part-time jobs and as teaching/research assistants. Compensation for faculty is the single largest compensation expenditure category² and this update³ focuses on full-time faculty salary levels and expenditures in academe.

Data sources

The paper utilizes public data available from several sources including:

- Statistics Canada / Canadian Association of University Business Officers, Financial Information of Universities and Colleges (FIUC),
- Statistics Canada, University and College Academic Staff System (UCASS),
- Income data from the 1985, 1995, 2005 and 2015 censuses, and
- Comparative salary information from the United States produced by the National Centre for Education Statistics (NCES) and the Association of American University Professors (AAUP).

Data sources are detailed in Appendix A. Please note that there are differences in the cited Canadian faculty salary levels (average and median) depending on the context and comparison.

Table 1 provides three sets of information: university expenditures in the FIUC expenditure category 'Academic Salaries', the number of full-time faculty as reported in UCASS, and median salary levels of all full-time faculty from the same source. The FIUC expenditure category 'Academic Salaries' includes both full and part-time faculty with academic rank. UCASS information is full-time faculty only and includes the results from the reinstated 2016 UCASS.

Table 1: Academic Salary Expenditures, Number of Faculty, and Median Salary

1a. Academic Salaries Expenditure \$000s (FIUC)					% Change		
Fund	2000-01	2005-06	2010-11	2015-16	2000-2005	2005-2010	2010-2015
Operating	\$ 2,910,663	\$ 3,945,767	\$ 5,282,242	\$ 6,394,235	35.6%	33.9%	21.1%
Trust	\$ 108,483	\$ 139,752	\$ 156,790	\$ 138,797	28.8%	12.2%	-11.5%
Research	\$ 180,833	\$ 338,537	\$ 438,239	\$ 512,458	87.2%	29.5%	16.9%
Total	\$ 3,199,979	\$ 4,424,056	\$ 5,877,271	\$ 7,045,490	38.3%	32.8%	19.9%
1b. Number of Full-time Faculty reporting salary (UCASS)					% Change		
Rank	2000-01	2005-06	2010-11	2016-17	2000-2005	2005-2010	2010-2016
Full	13,539	13,875	14,823	16,059	2.5%	6.8%	8.3%
Associate	11,335	12,477	15,279	15,978	10.1%	22.5%	4.6%
Assistant	6,828	10,476	9,915	8,358	53.4%	-5.4%	-15.7%
Rank below	1,335	2,031	3,402	3,510	52.1%	67.5%	3.2%
Other	372	207	837	1,011	-44.4%	304.3%	20.8%
Total	33,409	39,066	44,256	44,916	16.9%	13.3%	1.5%
F, A, and Ass't	31,702	36,828	40,017	40,395	16.2%	8.7%	0.9%
1c. Median Salary of Full-time Faculty (UCASS)					% Change		
Rank	2000-01	2005-06	2010-11	2016-17	2000-2005	2005-2010	2010-2016
Full	\$ 93,300	\$ 113,975	\$ 138,075	\$ 158,750	22.2%	21.1%	15.0%
Associate	\$ 75,925	\$ 91,250	\$ 108,650	\$ 125,650	20.2%	19.1%	15.6%
Assistant	\$ 58,575	\$ 72,675	\$ 87,050	\$ 99,325	24.1%	19.8%	14.1%
Rank below	\$ 52,825	\$ 66,350	\$ 84,900	\$ 94,900	25.6%	28.0%	11.8%
Other	\$ 59,950	\$ 72,400	\$ 82,950	\$ 90,075	20.8%	14.6%	8.6%

¹ 2015-16=74.5% comprising 28.8% for faculty salaries, 27.4% for staff salaries, 4.9% part-time non-ranked faculty and student instructors/assistants salaries, and 13.3% for benefits (CAUBO, 2015-16).

² Another expenditure category that deserves review is 'Other Salaries and Wages' - essentially part-time and full-time staff.

³ Much of the information and analyses associated with this working paper is based on the author's work on various projects and a long-standing interest in PSE 'costs' and 'cost drivers'. The working paper represents excerpts from various reports as well as new research. For related information visit <http://www.snowdonandassociates.ca/presentations.htm>

Each of the datasets tells an interesting story. 1a highlights changes in the rate of growth of university expenditures on Academic Salaries over the past fifteen years – characterized by a major expansion in much of the first decade of the new millennium and then a considerable dampening since 2010. The decline in expenditures in Trust Funds reflects the impact of the financial crisis on university endowments and the reduced levels of funding for endowed chairs. The major increase in ‘Research’ in the period 2000-2005 reflects the introduction and rapid growth of the Canada Research Chairs and related initiatives. Readers should note that a small part of the increase in ‘Academic Salaries’ is due the inclusion of institutions that were granted university status at some point since 2000 (e.g., OCAD University, MacEwan University, Mount Royal University, Thompson Rivers University).

Table 1b tells a similar story in that there was a major increase in the number of faculty from 2000-2010 and then very limited growth since. Notable is the actual decline in the number of Assistant Professors, a reality that actually began near the end of the first decade and was related directly to the financial crisis and the impact on institutional finances as well as the abolition of mandatory retirement and the slowdown in retirements. Another interesting point to note is the increase in the number of ‘Rank below’ and ‘Other’ rank faculty, reflecting the increased use of full-time lecturers and instructors and also reflecting the inclusion of additional institutions as noted previously.

Table 1c again shows a marked increase in faculty salary levels in the 2000-2010 period, followed by a slowdown in the rate of increase consistent with a more straitened financial environment and changing market conditions. The change in median salary for each rank category is not the same as the change to an individual’s salary because the median salary over time reflects the ‘net’ impact of new hires and exits (retirements, resignations, mortalities). On average changes in individual faculty salary levels would be higher.

The data in Table 1 serve as reference point for the following more detailed review of expenditure shifts in academe and comparisons of faculty salary levels.

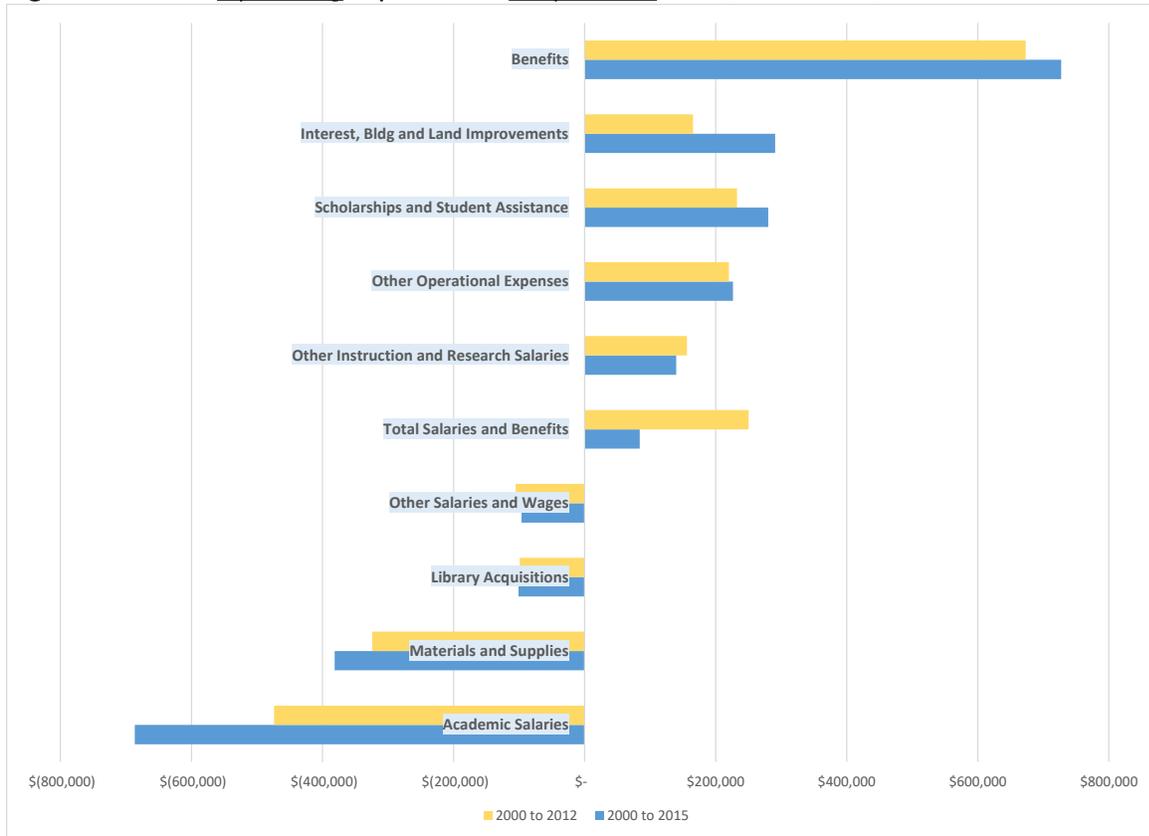
Academic Salaries Expenditures

Expenditures in the category ‘Academic Salaries’ represented 28.8% of Operating expenditures in 2015-16 – the single largest expenditure category in Canadian universities. In 2000-01 that category represented 31.9% of operating expenditures. The decrease represents approximately \$700 million in annual spending; that is Canadian universities spent approximately \$700 million less in the Academic Salaries category in 2015-16 compared to 2000-01 on a proportionate basis. In absolute terms, however, actual spending on ‘Academic Salaries’ increased from about \$2.9 billion to almost \$6.4 billion (Table 1a - Operating) – a change of 120 percent over 15 years.⁴ Roughly 35% of that increase was due to growth in the number of full-time faculty with much of the growth occurring between 2000 and 2010. The remainder reflects increases in salary levels, increases in the number of ranked part-time faculty, and the inclusion of the additional institutions and their expenditure information. For reference, total Operating expenditures increased by 143 percent; hence the decrease in the proportion attributed to the expenditure category Academic Salaries. Figure 1 shows the ‘shift’ by major expenditure category from 2000-01 to 2012-13, the reference point in *Canada’s Universities, Cost Pressures, Business Models and Financial Sustainability*, and to 2015-16 the most recent year of available data.

The shifts in spending reflect a number of factors that have been addressed in earlier Working Papers and in the previously mentioned report. What seems clear from Figure 1 is that from 2000-01 to 2015-16 Operating spending experienced some major shifts that reflected financial pressures associated with pension deficits and capital requirements/commitments. Those spending pressures were, in effect, ‘financed’ by a decline in the proportion of spending associated with spending in other expenditure categories – Academic Salaries (full-time and part-time faculty with rank), Materials & Supplies, Library Acquisitions, and Other Salaries and Wages (staff). Increased funding for Scholarships and Student Assistance reflects the effects of mandated increase requirements in some provinces, increased competition for undergraduate and graduate students and changes in reporting in some universities.

⁴ Trust and Research expenditures are restricted and subject to external conditions. The Operating fund represents the main category of income / expenditure to support university teaching, research and service.

Figure 1: Shift in Operating Expenditure Proportions 2000/01 to 2015/16



Cost pressure: funding the annual increase in salary levels

While spending in the category Academic Salaries has declined as a proportion of total Operating expenditure, the annual increase in faculty salary continues to be a key source of cost pressure because of the relative size of the Academic Salaries expenditure category and the fact that the total cost of the annual salary increase often outpaces the increase in unrestricted Operating revenue. Annual increases in faculty salary are generally composed of two key components; an inflation related across-the-board (ATB) component and a progression component sometimes referred to as Progress-Through-the-Ranks (PTR).⁵ The latter component is related to experience and, in some institutions, at least partially determined by merit assessments. Many institutions, have salary ‘caps’ by rank that limit the amount of salary increase associated with progression. Many institutions also provide for selective adjustments to recognize market factors, equity factors, anomalies, and extraordinary performance.

Together, the preceding salary components tend to sum to inflation **plus** 2% – 2.5%. One might expect that over time, the combined increase in government grants and tuition (those two sources of income represent about 90% of Operating revenues) would, or should, keep pace with inflation. And it is not unreasonable to expect to see real growth in the economy translated into real growth in salary levels – or an equivalent such as improved / expanded public services or tax reductions. In theory, the PTR component should be ‘self-financing’; as faculty retire the accumulated PTR is ‘released’ to finance the PTR of the remaining faculty. The PTR funding model appears workable providing there is an equal distribution of faculty by age/experience, sufficient retirees, and the relative salary levels

⁵ PTR is similar to career progression for professions outside academe; that is individuals are hired at a junior level and over their career receive salary adjustments that reflect experience, merit and promotions. PTR in universities is earned annually and not necessarily tied to a specific rank promotion (e.g., from Assistant Professor to Associate Professor, and/or from Associate Professor to Full Professor). The annual amount of PTR – set by institutional policy – is usually derived from the difference between the initial salary for Assistant Professors and the ending/retirement salary for Full Professors, divided by the length of the typical academic career. Institutional variations abound based on local circumstance.

associated with age/experience that underwrite the model remain intact. In the absence of those provisions, the 'net' cost of PTR has to be financed from somewhere. At the same time the institution will need to find the funds to cover market, equity, anomalies, and performance adjustments.

While the basic components of the salary increase model and possible sources of funding are easily identified, the challenges of translating the possible into reality are ever-present. Government policy regarding changes in government grants and tuition may not recognize the impact of inflation. While growth in the economy may translate into growth in government revenues, there are many demands on government and thus no automatic linking of economic growth to pay cheques.⁶ In the case of financing PTR, the sum of the 'released' PTR funds may not equal the actual costs of PTR because of limited turnover / retirements, and market factors may 'bid up' the starting salary of new faculty thus changing the relationship between starting and 'ending' salary levels and eroding the amount of the released PTR funds. Finally, other cost pressures (e.g., pension costs, increases in benefit costs, utilities, library acquisitions, new and expanded student services, deferred maintenance, research, and increased costs associated with government regulation/legislation) may outpace the increase in government grants and tuition.

Faculty Salary Levels

The preceding sets the stage for examining changes in faculty salary levels in more detail. Salary levels for full-time faculty increased markedly during the latter part of the 1990s through to the financial crisis in 2008-09. Fueled by the general increase in student demand and the 'innovation agenda' the **demand for faculty** increased from the latter part of the 1990s onwards just at a time when the supply of doctoral graduates was in decline (Figure 2); basic supply and demand principles came into play. Starting salaries were 'bid up' resulting in salary compression pressures. Institutions responded with market adjustments and/or anomaly funds. Several other factors also affected the labour market for faculty and added to the pressure for increased salaries during that period.

- The introduction of the Canada Research Chairs (CRC) program resulted in added demand for new faculty and contributed to salary escalation at both ends of the faculty experience/salary spectrum – adding to salary compression pressures at the junior end and creating salary 'gap' problems at the mid-to-senior end.
- The CRC program also resulted in a number of interventions by institutions to retain and recognize mid-career and senior faculty; interventions that had a 'ripple-effect' in the institution affecting salary levels (and teaching loads).
- In some disciplines, such as Law and Business, tuition deregulation, very strong competition in academe and elsewhere, and world-class aspirations combined to influence salary levels.
- Spurred on by significant federal investment in the 'innovation agenda' – special funding was provided by the Alberta government to improve the climate for faculty recruitment and retention through increased salaries.⁷ That, in turn, had a 'ripple-effect' through the faculty labour market.
- Some have argued that the Public Sector Salary Disclosure Act in Ontario (1996) had an inflationary impact on faculty salaries.⁸ Beginning in April 1997 salary data was made public for all individuals paid \$100,000 or more employed in public sector organizations including universities. Since that time other provinces have introduced 'disclosure' legislation.
- Expectations of 'catch-up' to account for wage restraints in the mid-1990s.
- As noted in the earlier version of this paper (April 2015) the increase in salary levels for faculty in the period from the late 1990s through to the latter half of the next decade was, in fact, similar to increases for other individuals in the "knowledge economy".⁹

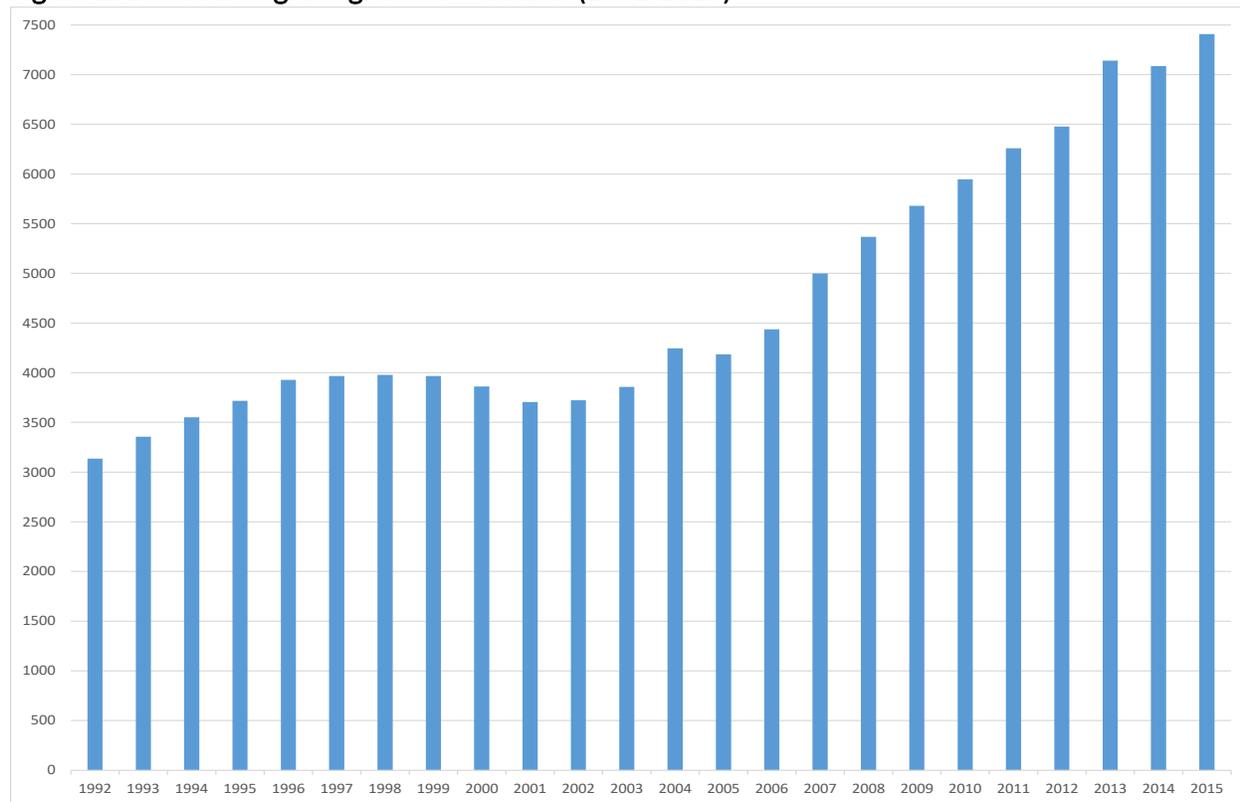
⁶ British Columbia's Economic Stability Dividend (ESD) does, in fact, link public sector compensation to growth in the economy as part of the overall Economic Stability Mandate introduced in 2014.

⁷ Alberta Learning, "Report of the Working Group on Faculty Attraction and Retention", Alberta, May 2002

⁸ Gomez, R., and Wald, S., "When public-sector salaries become public knowledge: Academic salaries and Ontario's Public Sector Salary Disclosure Act", Canadian Public Administration, Volume 53, No.1 March 2010, (107–126).

⁹ Statistics Canada, "Earnings and Incomes of Canadians Over the Past Quarter Century", 2006 Census, Minister of Industry, Ottawa, 2008.

Figure 2: Doctoral degrees granted – Canada (1992-2015)



It appears then, that from the late 1990s through to about 2006-07 or so, the increase in salary levels reflected a premium attributed to knowledge workers in general and a set of rather unique circumstances in the labour market for faculty. Nevertheless, in the 2006 Census the incomes of professors with earned doctorates, on average, mapped closely with individuals with doctorates in other parts of the labour force – public and private. The 2011 National Household Survey (NHS) suggested that in the intervening years (2005-2010) professors experienced gains in their relative position at all age levels. Some part of that relative gain could, perhaps, be attributed to a less robust market outside academe (private and public). Nevertheless, the end result, by 2010, appeared to be a relative improvement in salaries (for full-time professors) compared to the incomes of individuals with PhDs outside the academy.¹⁰

In keeping with Bowen’s Law (see Working Paper #1 “Cost pressures and cost theories” April, 2015) the salary adjustments were facilitated by the general availability of PSE funding in the period prior to the economic downturn in 2008-09. Nationally, average funding per student increased in real terms for much of the first decade of the new millennium.¹¹

¹⁰ It is important to note that the census comparison cited is between individuals with earned doctorates working full-time for the full year who indicated that their occupation was ‘University Professors’ in the NHS versus all other individuals with PhDs. This is not a comparison of UCASS and Census data.

¹¹ Also, again in keeping with Bowen’s Law, the relative improvement in funding levels facilitated (but did not fully fund) the shift in workload from teaching to research as institutions pursued the ‘innovation agenda’.

As the decade drew to a close, however, the faculty labour market was in the midst of marked change. On the supply side, the number of doctoral graduates had far surpassed the previous peaks of the mid-1990s. The impact of the abolition of mandatory retirement across the country¹² and a decline in the value of pension funds, dampened retirement flows in many provinces as more faculty decided to continue working beyond age 65.¹³ On the demand side the rate of enrolment growth slowed and in one province turned negative. Combined with the deteriorating financial situation the impact on faculty recruitment was telling; the absolute number of Assistant Professors declined in 2008-09 versus the previous year and declined again in 2010-11 relative to the previous year.¹⁴ Data from the 2016 UCASS indicates that the number of Assistant Professors still remains well below the 2010-11 level suggesting that the demand for new faculty, in general, has continued to be very soft at the national level.

By 2011 Across-the-Board (ATB) increases started to reflect the general level of financial austerity and provincial wage restraint legislation and/or exhortations in many jurisdictions. According to data compiled by Faculty Bargaining Services (FBS) the average ATB increase declined by over one full percentage point relative to the 2009 and 2010 period – bringing it more in line with CPI inflation. Since that time ATB increases for full-time faculty have approximated inflation (except in circumstances where provincial governments have intervened to set lower levels (e.g., British Columbia, Manitoba, Alberta). Nevertheless, PTR costs, in the absence of sufficient turnover to finance PTR, pushes the annual increase requirement into a range that outpaces whatever CPI related inflation provisions may be provided in operating grants and/or tuition increases. The result is a constant pressure that is then exacerbated by additional cost requirements such as a need for greater pension contributions or the added costs associated with an increasing number and diversity of students.

Update to 2016

The following set of information provides a brief overview of faculty salary levels based on the 2016 UCASS report. Data is displayed in a number of ways to illustrate the variance between national averages and salary levels by region, type of institution, size of institution and disciplines. All information is derived from the 2016 Statistics Canada UCASS report.

Figure 3 illustrates the differences in salary levels by region, with salary levels in Ontario, on average, running approximately 10% above the Canadian average, while salary levels in Quebec, on average, are well below the Canadian average – more than 10% below at the Full Professor level, ~10% at the Associate Professor levels and ~5% lower at the Assistant Professor level.

Figure 4, based on an analysis of universities with at least 100 full-time faculty, indicates that there are major differences in the level of salary by ‘type’ of institution. The U15 institutions, for example, on average have the highest salary levels by rank while ‘small’ universities have, on average, the lowest salary levels. Part of that difference is due to differences in discipline ‘mix’ and presence of professional schools in the larger universities.

Figure 5 illustrates the importance that discipline ‘mix’ has on interpreting average salary information. Faculty in Law, on average, have the highest salaries, followed by Business, Engineering and Computer Science. Faculty in Visual and Performing Arts, Cultural Studies, Education, and English have the lowest salaries. Accordingly, differences in discipline ‘mix’ will influence institutional salary comparisons and helps explain some of the difference noted in Figure 4.

¹² Mandatory retirement was abolished in Manitoba in 1983 and Quebec in 1982.

¹³ The proportion of faculty age 65+ increased from 2.6% in 2005 to 6.7% in 2010 and in 2016 was 10.4% (Statistics Canada, UCASS).

¹⁴ Statistics Canada, Salaries and Salary Scales of Full-time Teaching Staff at Canadian Universities, 2010-11 Final Report, Culture Tourism and the Centre for Education Statistics: Research Papers 2011.

Figure 3: Regional Median Salaries by Rank Relative to Canadian Average 2016-17

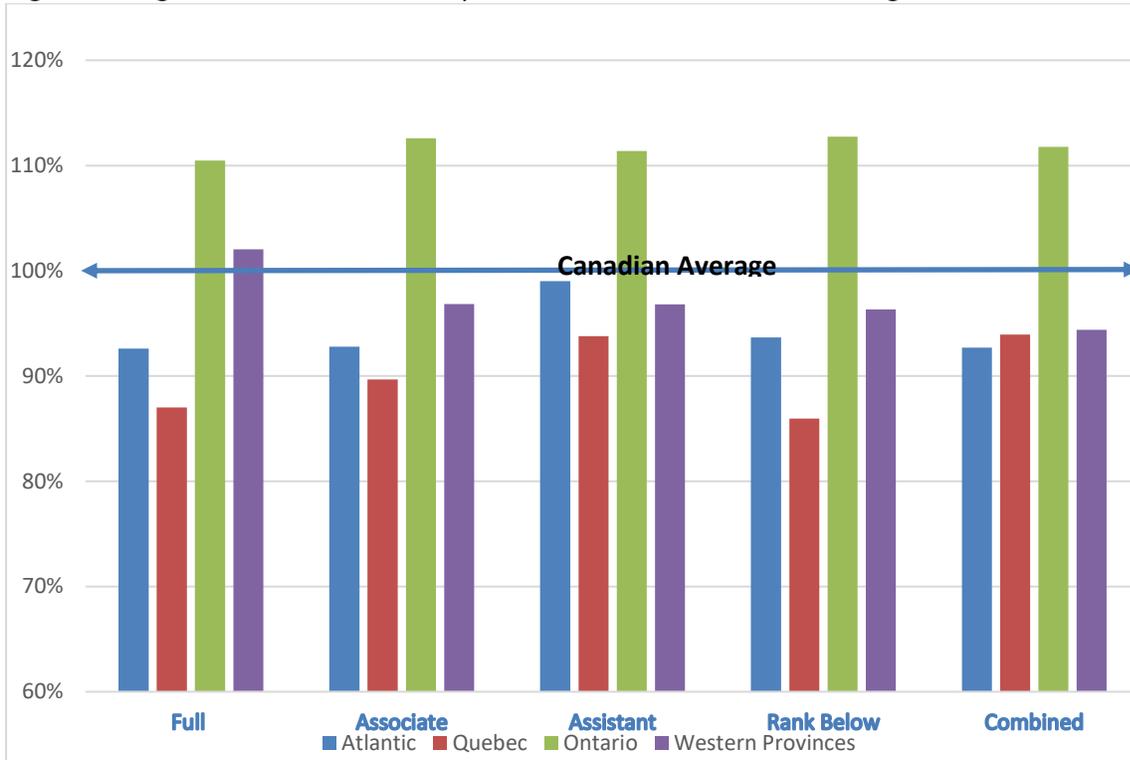
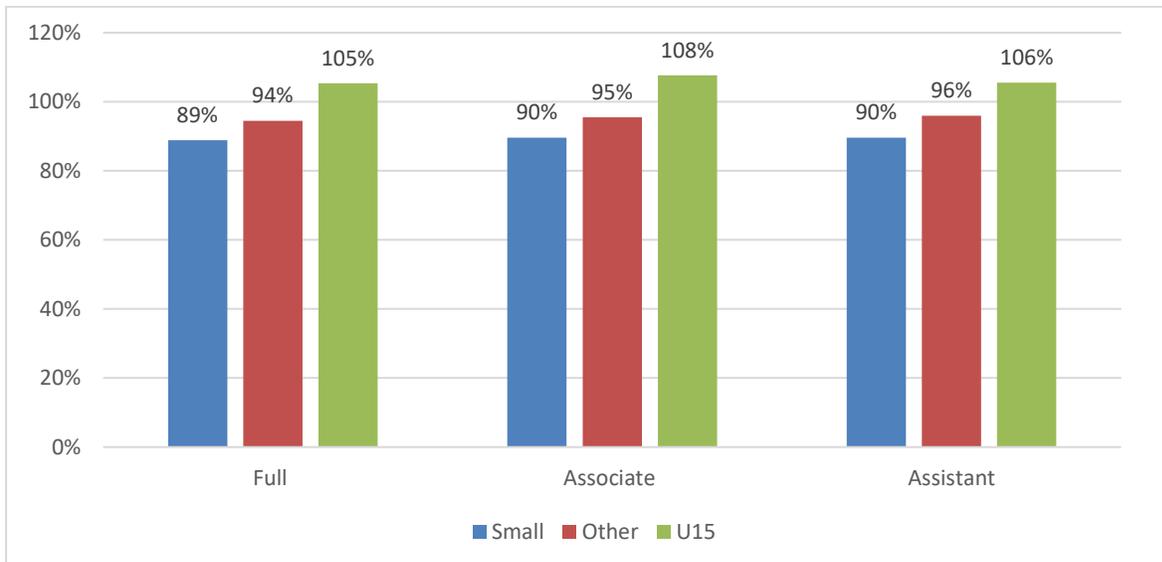


Figure 4: Average Salaries by Institutional Type Relative to Canadian Average (Excludes faculty with senior administrative duties)



The presentation of the average salary for the '45-49' age group along with the average for the discipline as a whole provides an indication of the age/experience¹⁵ profile impact on the discipline average. If the average salary exceeds the 45-49 age group figure that may suggest the average age/experience of the faculty in the discipline is higher than the average of the 45-49 age group. Differences in the age/experience profile will also influence institutional comparisons – hence the need, if one was trying to compare the institutional averages for specific institutions, to adjust for discipline and age (experience).

Figure 5: Average Salary Levels by Major Discipline

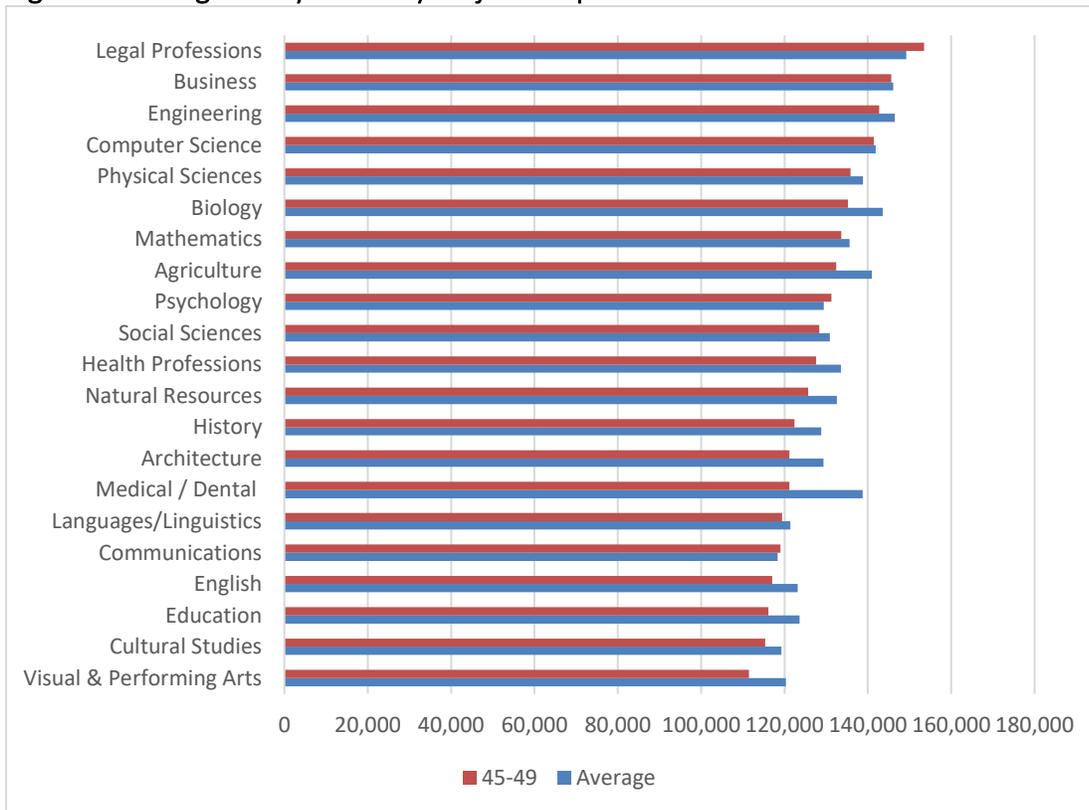
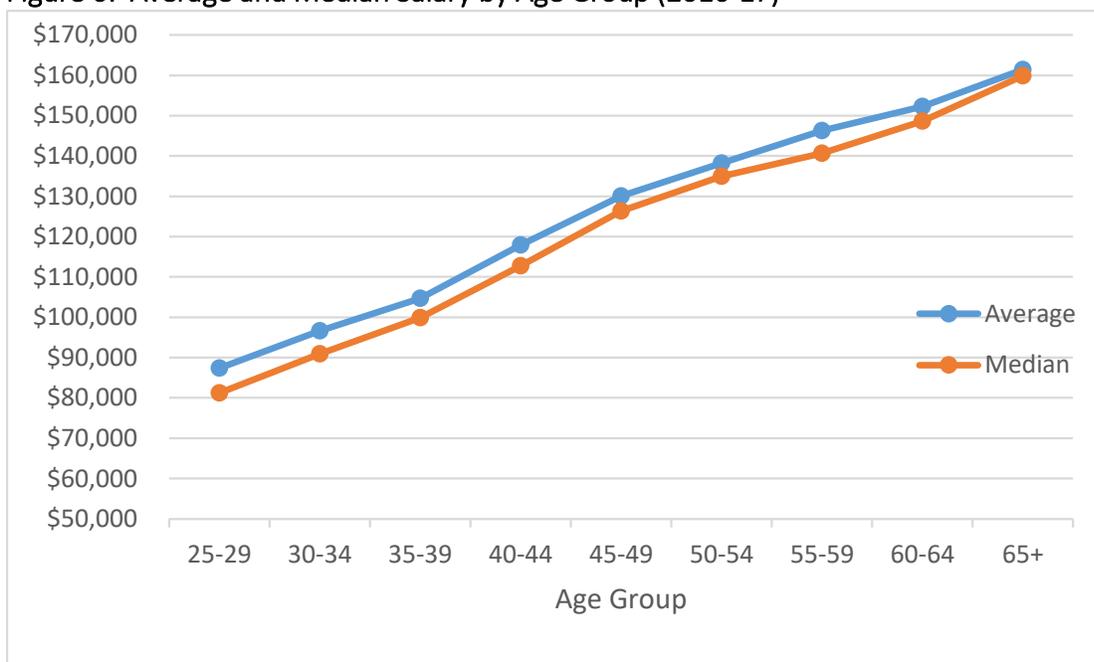


Figure 6 provides the final 'snapshot' of the 2016 faculty salary profile by indicating the relationship between age (as a proxy for experience) and salary levels. The average / median salary increases with age to the point where the salary level for the 65+ age group is approximately double the average / median salary of the 25-29 age group. There is some evidence of PTR tapering from mid-career to the senior level. The general convergence of the average and median salaries from the starting point to the 65+ age category could be interpreted in a number of ways. It may reflect a certain amount of PTR 'tapering' that, in effect, adjusts for differences in discipline / performance over time and/or may reflect the impact of anomalies and equity adjustments over time. Another point to note about Figure 6 is the apparent increase in average and median salary levels for the 65+ age group relative to the 60-64 age group. That may reflect differences in discipline 'mix', academic performance, and/or a time-related impact of salary policy (i.e. differential impacts of wage constraints or economic conditions throughout a career).

¹⁵ Age is a 'proxy' for experience. Most institutions have a detailed methodology for calculating experience based on factors such as years since highest degree and previous employment.

Figure 6: Average and Median Salary by Age Group (2016-17)



Canadian Faculty Salary levels relative to the general population

The 2016 census (2015 incomes) along with data from previous censuses provide an opportunity to examine the ‘relative’ position of faculty salary levels in Canadian society. Tables 2a and 2b provide a picture of the relative position of faculty salary levels by rank over time. Table 2a shows the actual median salary levels by rank and adjusts for inflation to 2015; note that the 2016 faculty medians are, in fact, in current 2016 \$. Table 2b then places the faculty median salaries into the 2015 national income percentile grid. As noted, the faculty medians are from 2016 UCASS and therefore are, in fact, somewhat higher than the incomes included in the national Census data.¹⁶ The median salary for full-time Full professors is in the 97th-98th percentile for each of the years in question. The median salary for full-time Associate professors is in the 95th -96th percentile for each of the years and the median salary for full-time Assistant professors has moved from the 85th to 90th percentile range in 1985 and 1995 to the 90th to 95th percentile range in 2005 and 2015. Readers should keep in mind that the data in Table 2b come from different sources - UCASS in the case of Faculty Median Salary and Census/NHS for the income percentile information. The intent is simply to provide a general indication of the relative position of faculty, not pinpoint the exact position.

¹⁶ The UCASS salary data is essentially the nominal academic salary for the ‘academic’ year as reported in the Fall whereas the Census data is the actual income (market income) for 2015 based on tax data. Accordingly the UCASS data will be somewhat higher because of the difference in calendar year versus academic year and, in this case, because the available UCASS data is 2016. It will also likely be higher because the reported nominal salary does not reflect the effect of sabbaticals or leaves whereas the Census information would be based on actual income received. The Census data definition of ‘market income’ includes wages and investment income, meaning that the Census income will be somewhat higher than just the nominal salary. The point is the Census income data is not a perfect match to the UCASS data and needs to be interpreted accordingly.

Table 2a: Median Salary by Rank

(Excludes faculty with senior administrative duties)

Current and Constant (2015\$) for 1985, 1995, 2005, Current 2016\$ for final year.

	Full	Associate	Assistant
1985 \$	\$ 60,050	\$ 47,800	\$ 37,200
2015 \$	\$ 120,672	\$ 96,055	\$ 74,754
1995 \$	\$ 84,775	\$ 68,600	\$ 52,000
2015 \$	\$ 122,517	\$ 99,141	\$ 75,151
2005 \$	\$ 112,375	\$ 90,400	\$ 72,625
2015 \$	\$ 132,960	\$ 106,959	\$ 85,928
2016 \$	\$ 156,500	\$ 124,925	\$ 99,125

Table 2b: Faculty Median Salary by Rank percentile placement relative to Canadian population with income.

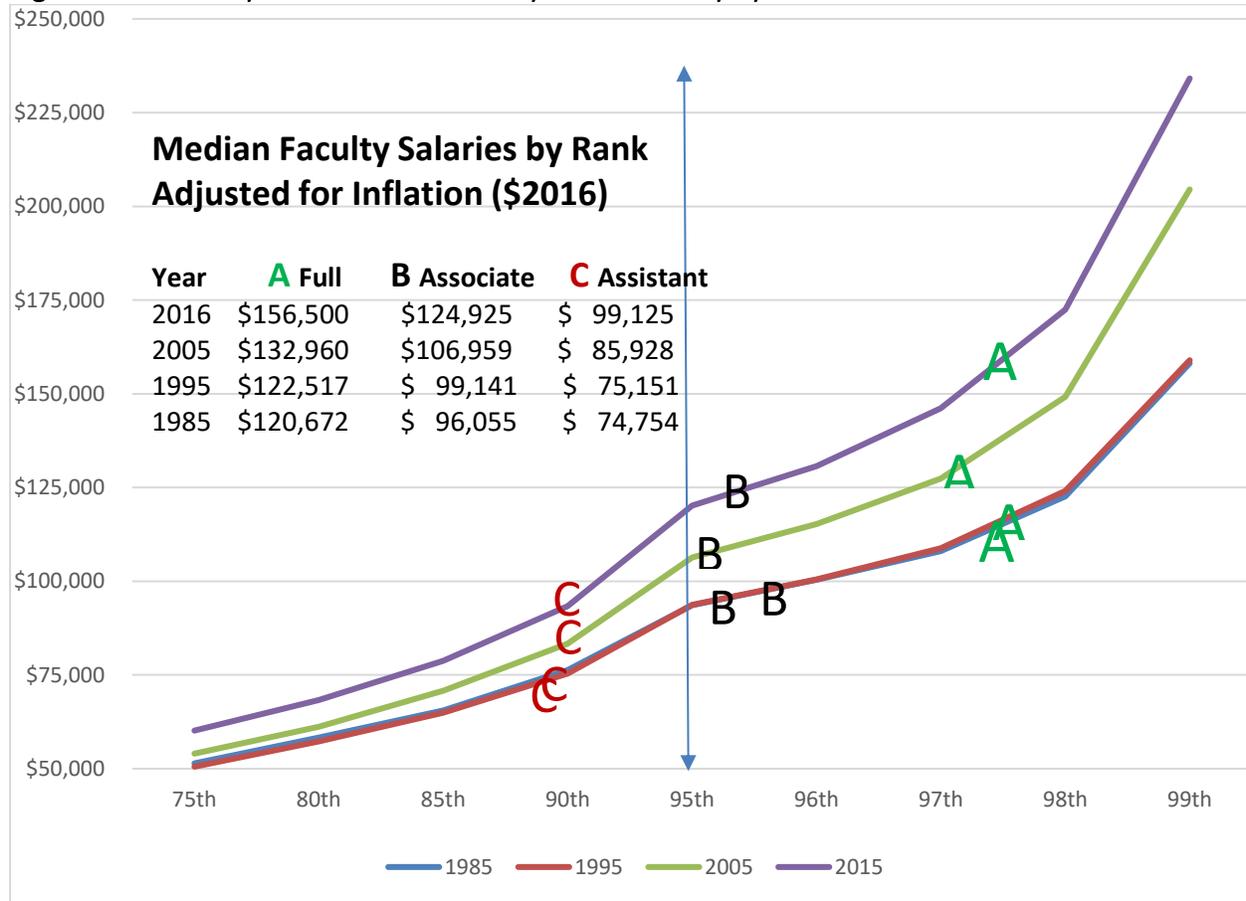
Percentile	1985	1995	2005	2015
75th	\$ 51,424	\$ 50,553	\$ 54,023	\$ 60,168
80th	\$ 58,290	\$ 57,318	\$ 61,208	\$ 68,332
85th	\$ 65,525	\$ 64,961	\$ 70,774	\$ 78,758
	\$ 74,754	\$ 75,151		
90th	\$ 76,312	\$ 75,383	\$ 83,319	\$ 93,339
			\$ 85,928	\$ 99,125
95th	\$ 93,600	\$ 93,691	\$ 106,353	\$ 120,219
	\$ 96,055	\$ 99,141	\$ 106,959	\$ 124,925
~//~				
96th	\$ 100,426	\$ 100,523	\$ 115,239	\$ 130,728
97th	\$ 108,042	\$ 108,799	\$ 127,382	\$ 146,183
	\$ 120,672	\$ 122,517	\$ 132,960	\$ 156,500
98th	\$ 122,677	\$ 124,072	\$ 149,182	\$ 172,507
99th	\$ 158,148	\$ 158,958	\$ 204,512	\$ 234,130

Figure 7 uses the information in Tables 2a and 2b to graphically illustrate the median salary of faculty relative to the national income distribution as a whole. The faculty salary median data points ‘bounce around’ a bit but within a relatively narrow band suggesting a degree of relative stability within the national context. And it is worth noting that the Canadian income distribution over time, does reflect greater dispersion at the higher income levels.

The income data indicates that faculty salary levels (excluding senior administrative faculty) at the **median** are well within the top 5%-10% of incomes in Canada and have been over time. Moreover, the data suggest that Assistant Professors have experienced relative gains over the period. In light of regional differences in salary levels (and relative income levels), differences in discipline ‘mix’ within a given institution, and differences in age profile, the ‘national’ figures need to be cited with a degree of caution and appropriate caveats when comparing with specific institutions. Readers should also keep in mind that faculty, on average, have aged over the period. For reference

purposes, the median age of Full professors was 51 in 1985 and is 58 in 2016. The median age of Associate Professors has increased from 45 to 49 over the period and from 37 to 39 for Assistant Professors.

Figure 7: Income by Percentile and Faculty Median Salary by Rank



Faculty salary levels in Canada relative to other individuals with PhDs

Census data also allows for a comparison of faculty salaries with other highly educated individuals in the labour market. Data from the 2016 Census (2015 wages) indicates that faculty salary levels for full-time faculty are somewhat higher than the employment incomes of PhDs outside academe -19% higher at the junior end, about 5% higher in the mid-career and 13% higher at the senior level. Again, the Census data is 2015 while UCASS numbers data is from Fall 2016. For Table 3 the UCASS figures have been adjusted by 5%.

Table 3: UCASS (Faculty) Salary levels compared to Incomes of PhD's Outside Academe (Census) by Age-Group

	Age-Group		
	35-44	45-54	55-64
UCASS Avg. 2016	\$ 112,400	\$ 134,100	\$ 149,000
Adjusted (-5%)	\$ 106,800	\$ 127,400	\$ 141,600
Other PhD's	\$ 89,600	\$ 121,300	\$ 125,400
Adjusted to Other	119%	105%	113%

Source; UCASS, 2016, Table 5 and Census 2016 98-400-X2016254

The data from the Census includes all individuals with PhDs employed full-time at the time of the Census. Accordingly it includes full-time faculty and staff in universities with PhDs (e.g., post-doctoral scholars, research scientists, administrators, and professional staff) as well as individuals employed outside academe in the public sector, broader public sector, and private sector. Readers should keep in mind that the market for PhD's differs by discipline level (as noted in Figure 5) and the Census data also shows that there are other factors such as location of PhD that affect the income data. No attempt has been made to adjust for those factors.

International comparisons

The need to pay attention to international salaries is driven by arguments about the global market for faculty. The repatriation of Canadian faculty abroad and the hiring premium accorded Canadian post-doctoral fellows trained in the United States attest to the realities of the global market. Accordingly, it is instructive to examine faculty salaries in the United States as a benchmark for the situation in Canada. The following table provides salary information by rank for public and Not-for-profit (private) doctoral¹⁷ institutions in select U.S. states. The U.S. states were selected by virtue of their inclusion in various reports of the Ontario Institute for Competitiveness and Prosperity.

The table focuses on Doctoral institutions in the United States and is based on reported 9 month full-time salaries; in some disciplines (e.g., business, health sciences, engineering, natural sciences) the salaries would be supplemented for some faculty. Accordingly, the reported salary levels are understated relative to the Canadian figures. To provide an idea of the importance of institutional 'type' to faculty salaries in the U.S. the following table also references Master's universities – essentially regional state universities with limited graduate enrolment and graduate programs.

Table 4: Average Salaries for Full-time Faculty

(2016-17, Doctoral universities, Public and Not-for-Profit, by Jurisdiction, 9 month contracts in the U.S.)

	Public			Not-for-profit		
	Full Professor	Associate Professor	Assistant Professor	Full Professor	Associate Professor	Assistant Professor
New Jersey	\$ 152,700	\$ 105,365	\$ 84,482	\$ 183,047	\$ 101,564	\$ 89,129
California	\$ 151,841	\$ 102,484	\$ 89,122	\$ 166,821	\$ 105,694	\$ 90,740
New York	\$ 131,489	\$ 95,249	\$ 81,032	\$ 165,534	\$ 104,784	\$ 87,781
North Carolina	\$ 124,958	\$ 85,208	\$ 76,894	\$ 165,230	\$ 97,435	\$ 78,983
Massachusetts	\$ 144,396	\$ 106,644	\$ 88,611	\$ 181,485	\$ 109,765	\$ 97,187
Georgia	\$ 115,703	\$ 83,561	\$ 72,284	\$ 143,074	\$ 90,533	\$ 80,534
Texas	\$ 126,032	\$ 88,075	\$ 74,613	\$ 143,604	\$ 96,753	\$ 83,540
Illinois	\$ 122,795	\$ 85,166	\$ 81,178	\$ 175,819	\$ 101,434	\$ 90,783
Michigan	\$ 134,896	\$ 93,873	\$ 80,848	\$ 103,526	\$ 83,519	\$ 73,066
Pennsylvania	\$ 145,215	\$ 100,220	\$ 81,207	\$ 154,914	\$ 98,367	\$ 85,134
Virginia	\$ 129,329	\$ 89,856	\$ 75,703	\$ 117,659	\$ 87,562	\$ 69,106
Indiana	\$ 129,602	\$ 89,131	\$ 78,807	\$ 140,481	\$ 90,661	\$ 73,912
Florida	\$ 125,717	\$ 88,918	\$ 79,832	\$ 134,523	\$ 91,891	\$ 78,086
Ohio	\$ 122,433	\$ 87,627	\$ 76,598	\$ 114,399	\$ 78,699	\$ 69,122
Simple Average	\$ 132,650	\$ 92,956	\$ 80,087	\$ 174,176	\$ 111,555	\$ 95,592
All U.S. Doctoral	\$ 128,503	\$ 89,321	\$ 77,687	\$ 156,716	\$ 97,477	\$ 82,831
All U.S. Masters	\$ 93,949	\$ 76,456	\$ 66,024	\$ 91,679	\$ 74,060	\$ 62,362
AAUP Survey (2016-17)						
Doctoral	\$ 123,393	\$ 84,275	\$ 73,212	\$ 167,118	\$ 104,016	\$ 90,622
Masters	\$ 87,291	\$ 70,474	\$ 60,248	\$ 86,657	\$ 69,624	\$ 58,181
Canada 2016-17	\$ 162,031	\$ 129,673	\$ 104,702	\$ 162,031	\$ 129,673	\$ 104,702
Canada Adjusted for PPP**	\$ 136,161	\$ 108,969	\$ 87,985	\$ 136,161	\$ 108,969	\$ 87,985
Canada non-U15	\$ 151,124	\$ 125,306	\$ 98,496	\$ 151,124	\$ 125,306	\$ 98,496
Adjusted for PPP*	\$ 126,995	\$ 105,299	\$ 82,770	\$ 126,995	\$ 105,299	\$ 82,770
Canada, U-15	\$ 170,808	\$ 135,243	\$ 110,692	\$ 170,808	\$ 135,243	\$ 110,692
Adjusted for PPP*	\$ 143,536	\$ 113,649	\$ 93,018	\$ 143,536	\$ 113,649	\$ 93,018

¹⁷ Carnegie Classifications – see <http://classifications.carnegiefoundation.org/>

The data illustrate a few key points:

- the range of salaries by state reflects major differences across the United States – a phenomenon similar to the range in salaries across the provinces/regions in Canada;
- there is a marked difference between average salary levels in the Public institutions and the Not-for-Profit (private) institutions;
- once adjustments are made for purchasing power Canadian average salaries by rank appear to be somewhat higher relative to the Simple Average for public institutions in the United States but, on balance, lower or similar to the Not-for-Profit institutions;
- Associate Professor salary levels are generally higher in Canada. That reality may be related to a tendency in the United States for greater merit differentiation and different policies/practices regarding Progress-Through-the-Ranks increments for long-term Associate Professors; and
- Salaries at Master’s ‘type’ institutions in the U.S. are considerably lower than Doctoral ‘type’ institutions reflecting differences in program ‘mix’ (more professional programs and graduate programs at Doctoral universities) and the relative differences in research activity and funding support for research.

Overall, the information suggests that, on balance, Canadian faculty salary levels are similar to U.S. salary levels particularly if one considers that the U.S. salary information understates the salary for some faculty, mainly those faculty members in professional schools and in disciplines that attract significant research funding.

While Table 4 provided a ‘snapshot’ of the more recent situation regarding Canadian and American faculty salaries, Table 5 helps place the U.S. information in perspective in terms of change over time. Since 2010 the increase in the average salary in the United States has been very similar to the increase in the average salary in Canada – a bit higher at the U.S. Not-for-Profit (private) institutions and a bit lower at the U.S. Public institutions. Inflation over the period from 2010 to 2016 was very similar (10.1% in the U.S. and 10.6% in Canada).

Table 5: Increase in Average Salary by Rank: United States and Canada

	2010	2016	% change
U.S. Public			
Full	\$ 112,647	\$ 128,503	14%
Associate	\$ 78,804	\$ 89,321	13%
Assistant	\$ 67,236	\$ 77,687	16%
U.S. Non-profit			
Full	\$ 133,973	\$ 156,716	17%
Associate	\$ 86,108	\$ 97,477	13%
Assistant	\$ 72,242	\$ 82,831	15%
Canada			
Full	\$ 140,500	\$ 161,750	15%
Associate	\$ 111,075	\$ 128,250	15%
Assistant	\$ 90,900	\$ 103,675	14%

Concluding comments

Over the past twenty years salaries for full-time faculty appear to have kept pace with the general increase in Canadian incomes and consequently full-time faculty appear to have maintained their relative position on the Canadian income ‘curve’ with Assistant Professors median salary at or near the 90th percentile of wage earners, Associate Professors at or near the 95th percentile and Full Professors at or near the 97th percentile. Relative to other individuals with PhD’s, salary levels in academe appear to be somewhat higher although further analysis is required

to better understand the importance of discipline 'mix' and 'location of PhD' to the comparison. Relative to the United States, salary levels in Canada are generally comparable although Associate Professors are somewhat higher and there is a marked difference between the salary levels of public and not-for-profit institutions in the United States and between Doctoral institutions and Master's institutions.

The cost pressure associated with faculty salaries is real and for part of the period since 2000 was very much related to competitive pressures for faculty – hiring and retaining the best in a tight market. Since 2012 faculty salary pressure eased somewhat in light of provincial constraints, increased supply, and less demand for new hires. However, there is recent evidence that additional hiring is underway in the academy as a number of institutions embark on faculty renewal efforts and there is some evidence that universities in Canada's major cities are experiencing recruitment challenges – two factors that will impact salary levels over the next few years. One also expects that provincial efforts to limit salary increases will ultimately result in 'catch-up' pressure as (when) the provincial financial pressure eases.

As an observation, institutions have spent considerable effort on the revenue side of the business model and some parts of the expenditure side (consortia procurement agreements, utility savings, operational efficiencies in service delivery etc.). And it is evident that a number of institutions have invested in changes in program delivery (on-line, flipped classes, teaching only faculty, part-time faculty, etc.). However, it is not evident that there has been much effort devoted to considering whether the basic salary model for faculty, or total compensation for that matter, needs to be revisited – in terms of either linking salary increases / levels more closely to workload (40/40/20) or to re-thinking PTR in the aftermath of the abolition of mandatory retirement and/or the salary curve for PhD's outside academe.

The salary levels or 'rates' part of the Academic Salaries expenditure category tells part of the story about faculty cost pressure but there is also a 'numbers' part; that is demand for more faculty – to meet increased enrolment demands, conduct 'innovation agenda' sponsored research, improve the student to faculty ratio, develop new programs and areas of expertise, and strengthen existing areas of expertise. The knowledge 'explosion' regularly creates new areas of discovery without necessarily shedding old areas. The trade-off of 'rates versus numbers' (salary levels/increases vs. number of faculty) has meant that, over time, the student to faculty ratio has increased nationally and in virtually every province. Moreover full-time faculty, on average, are spending more time on research now than they were before the 'innovation agenda'. Universities have adapted somewhat by employing more teaching-only faculty, adjunct /sessional faculty, part-time faculty/instructors and accommodating larger class sizes. But the impact on the quality of the learning experience and learning environment, along with a more demanding student body¹⁸ has spawned a new and/or expanded set of Academic Support and Student Services – a key factor in helping to explain the major shift in resources to those areas within the academy; a topic for another day.

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¹⁸ The 'more demanding student body' is both a function of the entitlement/accountability associated with paying higher tuition, in some provinces, increased demands generated by parents, and the consequence of media rankings that pay attention to university 'learning environments' (Maclean's, Globe & Mail).

Appendix A: Data Sources

Tables

Table 1a: Statistics Canada, Financial Information for Universities and Colleges (FIUC), also known as the CAUBO Report, various years.

Table 1b: Statistics Canada, University and College Academic Staff System (UCASS), various years. All full-time faculty.

Table 1c: Statistics Canada, University and College Academic Staff System (UCASS), various years. All full-time faculty.

Table 2a: Statistics Canada, Full-time teaching staff at degree granting institutions, Table 4 Median Salary of Full-time Teachers by Region, Field, Highest Earned Degree, Staff Function, Rank, and Sex 1970-71 to 2010-11 and 2016-17. Excludes faculty with senior administrative duties.

Table 2b: Statistics Canada, Total Income Explorer, 2016 Census.

<http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dv-vd/inc-rev/index-eng.cfm>

Table 3: Statistics Canada, UCASS, 2016-17, Table 5 and Census 2016 98-400-X2016254

Table 4: Canada, Statistics Canada, Number and salaries of full time teaching staff at Canadian universities, 2016-2017. Includes 59 universities with at least 100 full-time faculty. Excludes faculty with senior administrative duties.

Canada 'Adjusted for PPP' is from Statistics Canada, Purchasing power parities, CANSIM 380-0058 2015

United States, National Center for Educational Statistics, Annual Digest, Table 316.50. Average salary of full-time instructional faculty on 9-month contracts in 4-year degree-granting postsecondary institutions, by control and classification of institutions, academic rank of faculty, and state or jurisdiction: 2016-17

Association of American University Professors, (AAUP), Visualizing Change: The Annual Report on the Economic Status of the Profession, Survey Report Table 1, March-April 2017, ACADEME.

Table 5:

Canada, Statistics Canada, University and College Academic Staff System (UCASS), Table 4, Number reporting salary and Average Salaries of Full-time University Teachers by Age, Sex and Field, Canada 2010-11 and 2016-17. Excludes faculty with senior administrative duties. Special request.

United States, National Center for Educational Statistics, Annual Digest, Table 316.50. Average salary of full-time instructional faculty on 9-month contracts in 4-year degree-granting postsecondary institutions, by control and classification of institutions, academic rank of faculty, and state or jurisdiction: 2010-11 and 2016-17.

Figures

Figure 1: Statistics Canada, Financial Information for Universities and Colleges (FIUC), also known as the CAUBO Report, various years.

Figure 2: Statistics Canada, CANSIM 477-0030, Postsecondary Graduates.

Figure 3: Statistics Canada, University and College Academic Staff System (UCASS), Table 4, 2016-17. All full-time faculty.

Figure 4: Statistics Canada, UCASS, CANSIM 407-0123. 59 Institutions with at least 100 full-time faculty. Excludes faculty with senior administrative duties.

Figure 5: Statistics Canada, University and College Academic Staff System (UCASS), Table 5, Number reporting salary and Average Salaries of Full-time University Teachers by Age, Sex and Field, Canada 2010-11 and 2016-17. All faculty. Special request.

Figure 6: Statistics Canada, University and College Academic Staff System (UCASS), Table 5, Number reporting salary and Average Salaries of Full-time University Teachers by Age, Sex and Field, Canada 2010-11 and 2016-17. All faculty. Special request. And Statistics Canada, University and College Academic Staff System (UCASS), Table 4, 2016-17. All full-time faculty.

Figure 7: See Table 2a and 2b above.

All CPI/inflation figures are from Statistics Canada, Historical CPI

<http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ46a-eng.htm>