Quantifying the impact of entrepreneurship on cooperative education job creation

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This paper investigates the impact of entrepreneurship on cooperative job creation in a large North American post-secondary institution. The data-driven analysis is enabled by two unique datasets: a list of companies started by the institution's engineering students and faculty, and a database of the institution's cooperative education (co-op) placements. Over the past 10 years, companies started by the institution's engineers have created at least 9,000 co-op placements for the institution's students, paying a total of at least $115 million in salaries (Canadian dollar; CAD$). Furthermore, students working for these companies were more likely to receive high performance evaluations than their peers and were more likely to be satisfied with the cooperative experience. Finally, students who went on to start companies did not always take entrepreneurship courses or excel academically, but they were rated highly by their workplace supervisors.

Keywords: Cooperative education, cooperative job creation, entrepreneurship

It is well known that entrepreneurship can lead to job creation and economic growth (Bosma & Levie, 2010; Malecki, 1993; Reynolds, Storey, & Westhead, 1994). Given its economic benefits, there is a public and private focus on fostering entrepreneurship, ranging from monetary incentives such as tax credits to supporting entities such as incubators which are commonly paired with universities (Phillips, 2002). Combined with the popularity of cooperative education (co-op), it is natural to ask how entrepreneurship impacts the co-op process.

Previous work gives qualitative evidence that innovative universities contribute to growth in the local and regional economies (Bramwell & Wolfe, 2008; Roberts & Eesley, 2011). However, due to the private nature of start-ups and their rapid growth and dissolutions, it is difficult to collect information about newly formed companies and quantify their economic impact.

Furthermore, an issue with public policy in promoting entrepreneurship is a common misconception that creating more start-up companies will create more jobs and more wealth. However, not all startups are the same; many are wage-substitution businesses akin to self-employment and consulting (Shane, 2009). Thus, the quality of co-op opportunities at startups is not clear.

In addition to issues with information collection, the effect of formal education on entrepreneurship is unclear (Pittaway & Cope, 2007). Several studies found that courses do not provide sufficient motivation and skills to cultivate effective entrepreneurs, while others suggested new approaches such as hands-on entrepreneurial learning (Kirby, 2004; Oosterbeek, Van Praag, & Ijsselstein, 2010; Rasmussen & Sorheim, 2006; Solomon & Matlay, 2008; Tan & Ng, 2006).

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This paper attempts to fill the aforementioned knowledge gaps by investigating the role of cooperative education as a catalyst for, and beneficiary of, entrepreneurship. This analysis has been enabled by two unique datasets from a large North American post-secondary institution: a list of 472 companies started by the institution's engineering students and professors, and a database of the institution's co-op placements. The database spans 10 years, from 2006 until 2016, and includes over 138,000 placements of over 37,000 students with over 12,000 employers.

Over the past 10 years, 223 of the 472 known companies started by the institution's engineering students and professors have participated in the institution's co-op process, and have paid an estimated $115 million (Canadian Dollar; CAD$) in salaries to students on co-op placements. Furthermore, analysis of work term evaluations revealed that, on average, students placed in these companies received higher evaluations than their peers and were more satisfied with their experience. Finally, by analyzing the academic and work-integrated learning histories of the students who went on to start companies, it was observed that these students did not always take entrepreneurship courses or excel academically, but they were rated highly by their co-op employers.

To the best of the authors' knowledge, no prior work has quantified the impact of entrepreneurship on co-op job creation or investigated the co-op experiences of students who go on to start companies.

DATA AND METHODOLOGY

This analysis uses data from a large North American post-secondary institution with established work-integrated learning programs in engineering and information technologies, as well as a local technology incubator. The first of two datasets lists 472 companies started by 746 current or former members of the institution's Faculty of Engineering (students or faculty members). This dataset is referred to as the *founder dataset,* and these 472 companies are referred to as *alumni companies* (keeping in mind that some founders may be current students or professors). Among the 746 founders, 83% are current or former undergraduate students, 16% are current or former graduate students, and 1% are faculty members. This dataset was created using alumni surveys and publicly available information such as news publications. As such, the list of founders and companies may not be exhaustive.

The second dataset consists of 10 years of co-op placements at the institution, from January 2006 to December 2015, with a total of 138,871 job placements of 37,473 distinct students by 12,146 distinct employers. This dataset is referred to as the *co-op dataset*. The average number of work terms per student is 3.7, though some students have completed up to six work terms. For each placement, this dataset includes:

1) employer name, industry code, job title and salary,
2) employer and employee evaluations, and
3) student information such as academic year, academic program and cumulative average.

To analyze the impact of entrepreneurship on cooperative education, it was necessary to match companies and founders in the founder dataset with employers and students in the co-op dataset.

However, only the co-op dataset included unique identifiers such as employer ID and student ID, whereas the founder dataset only included company and founder names. Furthermore, the company and student naming conventions were not standardized. Alternative company name spellings and suffixes were common (e.g., "XYZ Inc." in one dataset vs. "XYZ Systems Inc." in the other), as well as alternative spellings of founder names, maiden names and adopted nicknames (e.g., "Jim Smith" in one dataset vs. "James A. Smith" in the other).

To deal with these problems, approximate (fuzzy) string matching was used instead of exact matching. Specifically, the SeatGeek's FuzzyWuzzy library (Cohen, 2011), implemented in the Python programming language, was used, combined with Levenshtein string distance matching (Haapala & Ohtama, 2015). Fuzzy matching returned pairs of similar strings such as "XYZ Inc." and "XYZ Systems Inc." as potential matches. Potential matches were manually examined, and, with the help of publicly available data such as LinkedIn profiles, those which did not refer to the same student or employer were discarded (e.g., the strings "Johnson Consulting" and "Jones Consulting" are similar but may refer to different companies). In other words, there were no *false positives* in the matching process.

The above matching process produced two lists:

1) A list of company names from the founder dataset that also appear in the co-op dataset, that is, alumni companies that hired at least one co-op student from the institution in the past 10 years. There are 223 such companies (out of 472 alumni companies). Over the past 10 years, these 223 companies have hired 5,802 distinct students from the institution (which is 15% of all students) for a total of 9,084 placements (which is 6.5% of all placements). These 9,084 placements were located in 56 different cities across 16 countries.
2) A list of names from the founder dataset that also appear as students in the co-op dataset, that is, founders who are or were enrolled in a co-op engineering program at the institution within the past 10 years. There are 221 such students (out of 746 founders).

To quantify the economic impact of entrepreneurship on the institution's co-op system, the salaries of the 9,084 placements at alumni companies were summed up. The following assumptions were made to deal with data quality issues. First, the co-op dataset did not include placement lengths, and furthermore different placements included salaries at different granularities (hourly, weekly or monthly). Based on the knowledge of the institution's co-op process, it was assumed that all work terms were 16 weeks long at 40 hours per week. Second, 551 placements had no salary data; these were imputed with the mean salary across all alumni companies, which turned out to be CAD$3,200 per month.

Finally, alumni companies were divided into two types: startups and established companies. Out of 223 alumni companies appearing in the co-op dataset, 11 were labelled as established: they were founded before 2008 and have hired an average of at least two co-op students from the institution per academic term. The remainder, classified as startups, were more recent and/or did not hire co-op students consistently. Of the 9,084 placements at alumni companies, 3,205 were at startups (which is 2.3% of all placements) and 5,879 were at established companies (which is 4.2% of all placements).

A limitation of this research arises from the potential incompleteness of the founder dataset; additionally, the fuzzy matching process may have missed some matches. Thus, the results presented in this paper are *lower bounds* of the true number of (and total salaries paid by) co-op work terms at alumni companies and the true number of founders enrolled in a co-op program.

Additionally, the focus of this analysis is on how the institution's co-op system benefits from (and enables) entrepreneurship of its members. The available data cannot be used to report, for example, the total valuation or the total number of jobs created by alumni companies. This is because the available data only cover co-op positions which were filled by students from the institution.

RESULTS

Placement Statistics

To provide context, Figure 1 shows the total number of co-op placements at the institution over the past 10 years. Note that the y-axis does not start at zero. Figures 2a and 2b include separate lines for startups and established alumni companies. There is a recent drop in hiring by established companies, likely due to the great recession of the late 2000s/early 2010s, but an increase in hiring by startups.

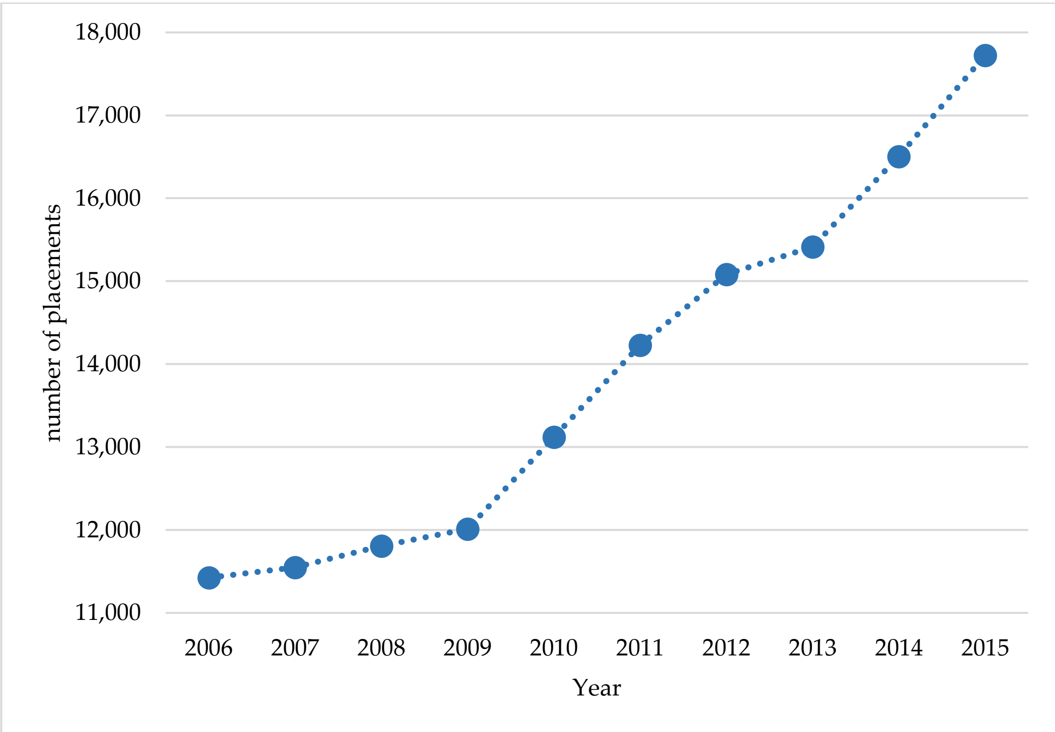
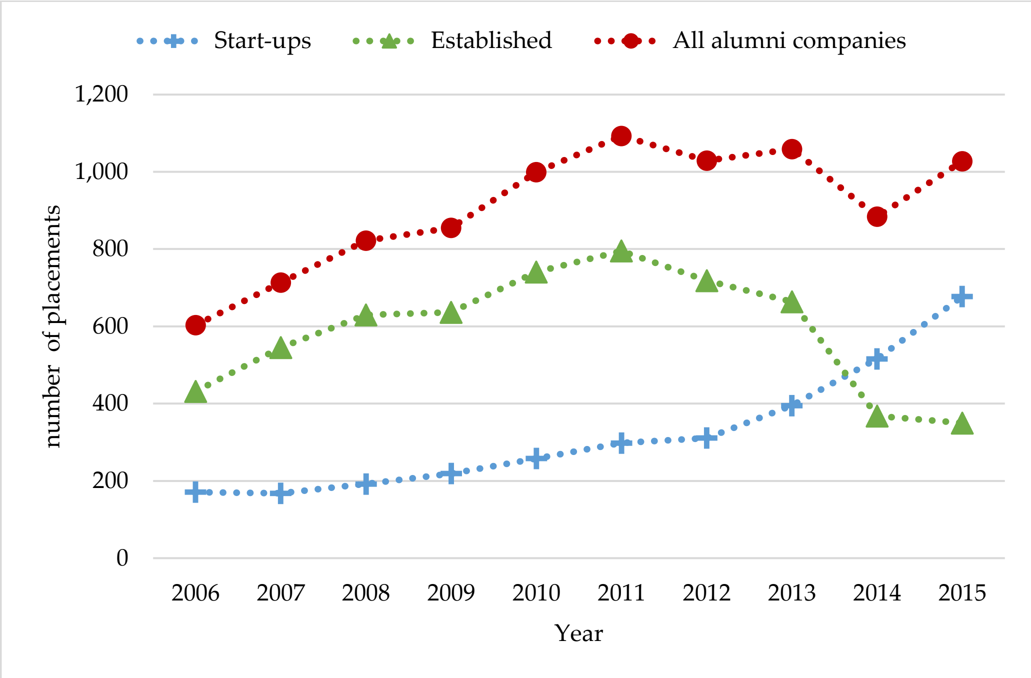
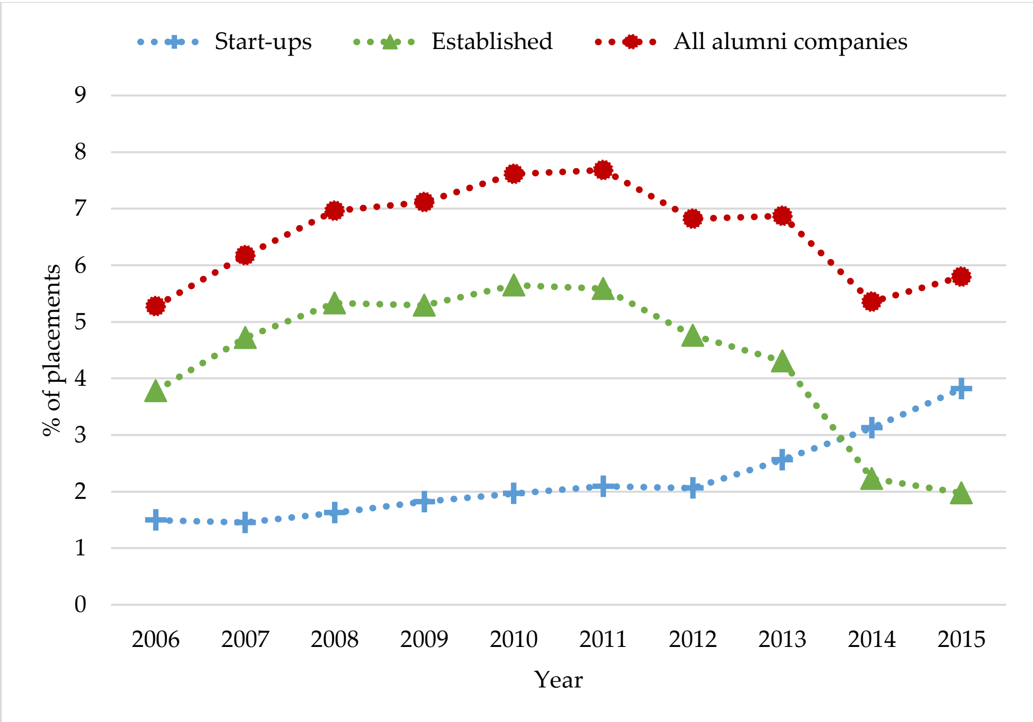


FIGURE 1: Total number of co-op placements per year.



(a) Total number



(b) As a percentage of total placements

FIGURE 2: a) the number of placements at alumni companies per year and b) the number of placements at alumni companies as a percentage of total co-op placements at the institution

Figure 3 groups co-op placements at alumni companies by industry code. Most of the jobs were in information technologies, with the most common job titles being "Software Developer" and "Software Engineer".

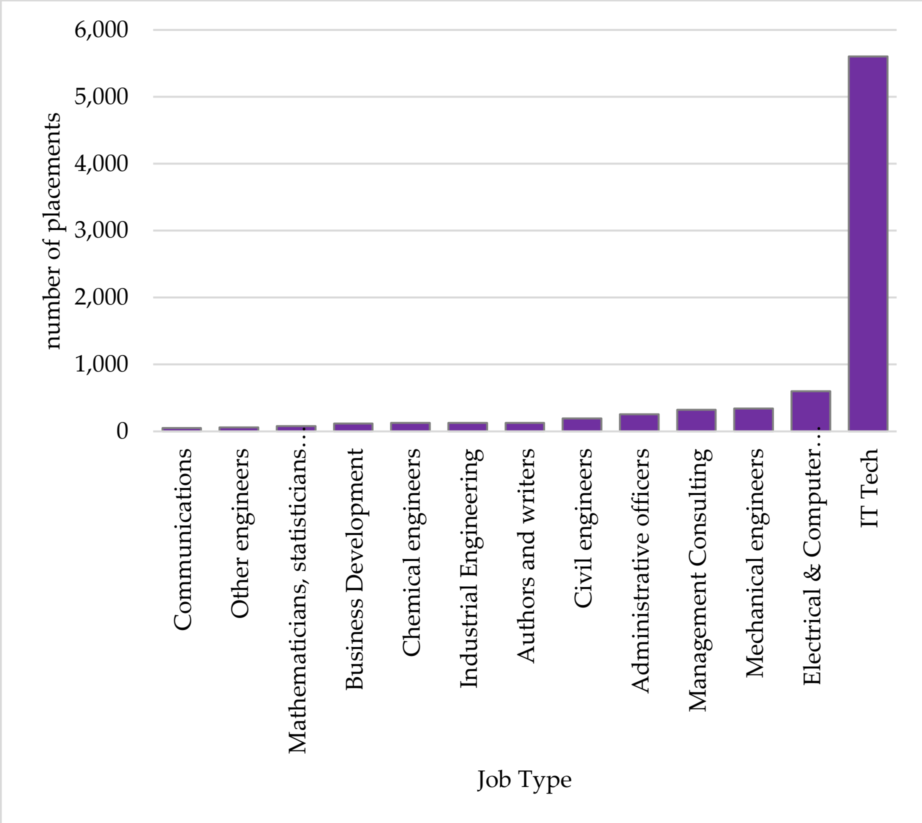


FIGURE 3: Number of placements offered by alumni companies in different industries

Economic Impact

The next step is to examine the salaries paid by alumni companies to co-op students. Figure 4 shows the distribution of monthly salaries after imputing missing data and standardizing work term lengths, as explained earlier. Upon further inspection, it was found that high salaries (over CAD$5,000/month) were offered by alumni companies which have been acquired by large technology companies and by venture-funded startups. Low salaries (under $1,500/month) were paid by early-stage startups through government grants. These early-stage startups usually hired junior students, likely because senior students have more experience and were able to find higher-paying co-op jobs elsewhere.

Assuming that all internships were 16 weeks long with 40 hours per week, the total salary paid by alumni companies to the institution's co-op students over the 10 years under study works out to $109,005,000 (rounded to the nearest $1,000). Imputing the 551 missing salaries with the mean salary of $3,200/month results in $116,058,000 (rounded to the nearest $1,000).

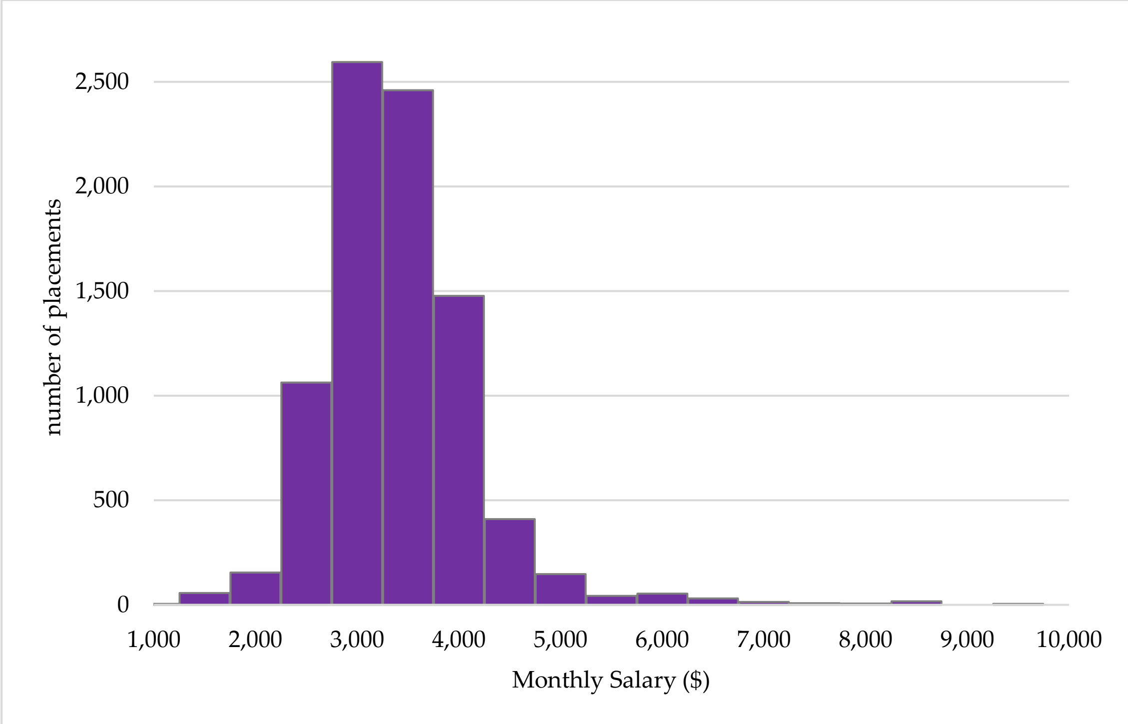


FIGURE 4: Distribution of monthly salaries at alumni companies.

Figure 5 shows an annual breakdown of the economic impact of alumni companies, and Figure 6 breaks down the annual totals for startups and established companies. These results are consistent with Figure 2, since 2014, startups have offered more co-op jobs than established companies, leading to higher annual salary totals.

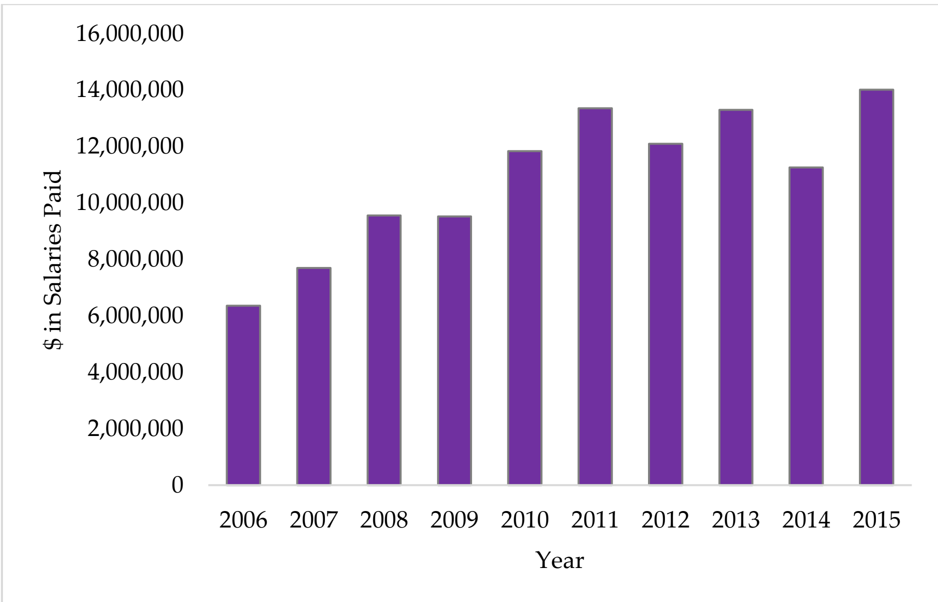


FIGURE 5: Aggregate salaries (CAD$) at all alumni company placements by year.

The salary analysis concludes with a look at how salaries at alumni companies have changed from 2006 to 2015. Results are shown in Figure 7 in the form of boxplots for each year. The average salary has grown gradually, whereas the last five years have seen a significant increase of highly-paid placements, coinciding with strong growth in venture capital funding. On the other hand, top salaries in 2010 were lower, likely due to the great recession.

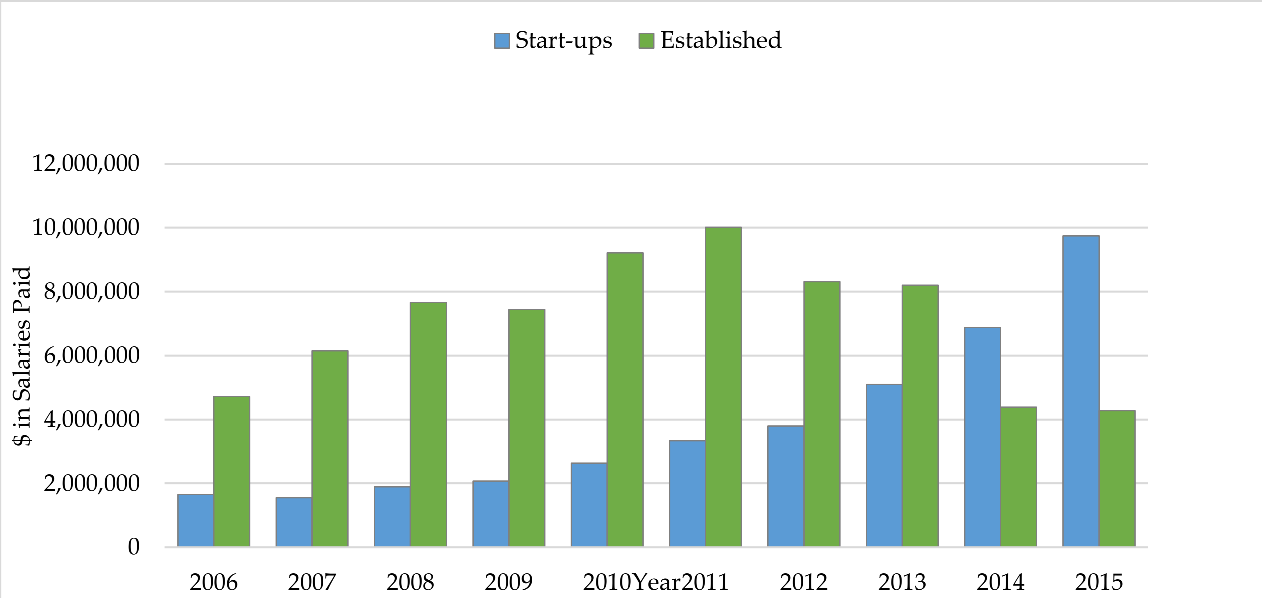


FIGURE 6: Aggregate salaries (CAD$) at alumni company placements by year, split by established companies and startups.

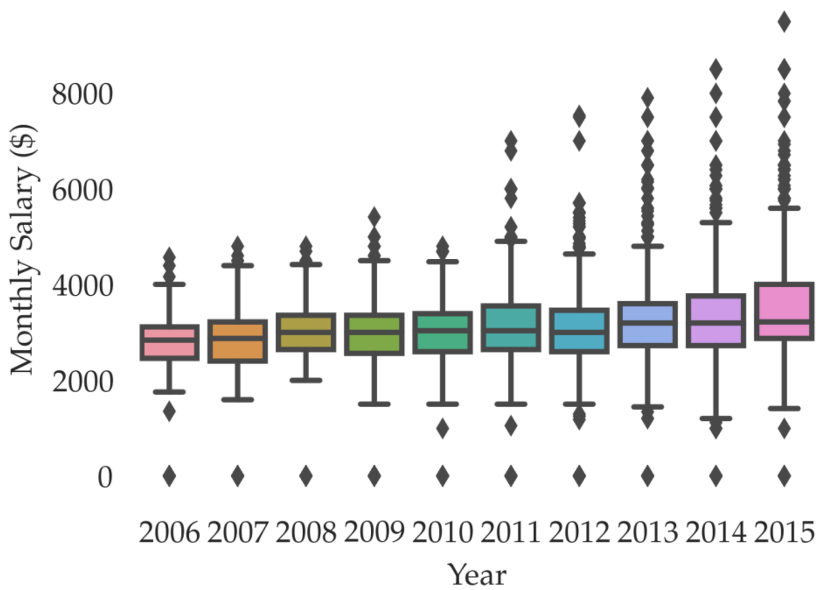


FIGURE 7: Boxplots of monthly salary (CAD$) distributions at alumni companies over time.

Evaluations of Students

At the end of each work term, students receive performance evaluations from their workplace supervisors. The evaluations are on a 7-point scale, with 1 being the worst and 7 being the best. Figure 8 illustrates the distributions of evaluations at alumni companies and evaluations at all other employers. A greater fraction of students working at alumni companies received top evaluations (sixes and sevens). Furthermore, the average evaluation at alumni companies was 5.91 and the average evaluation at other companies was 5.78. This difference is statistically significant at the 95% confidence level.

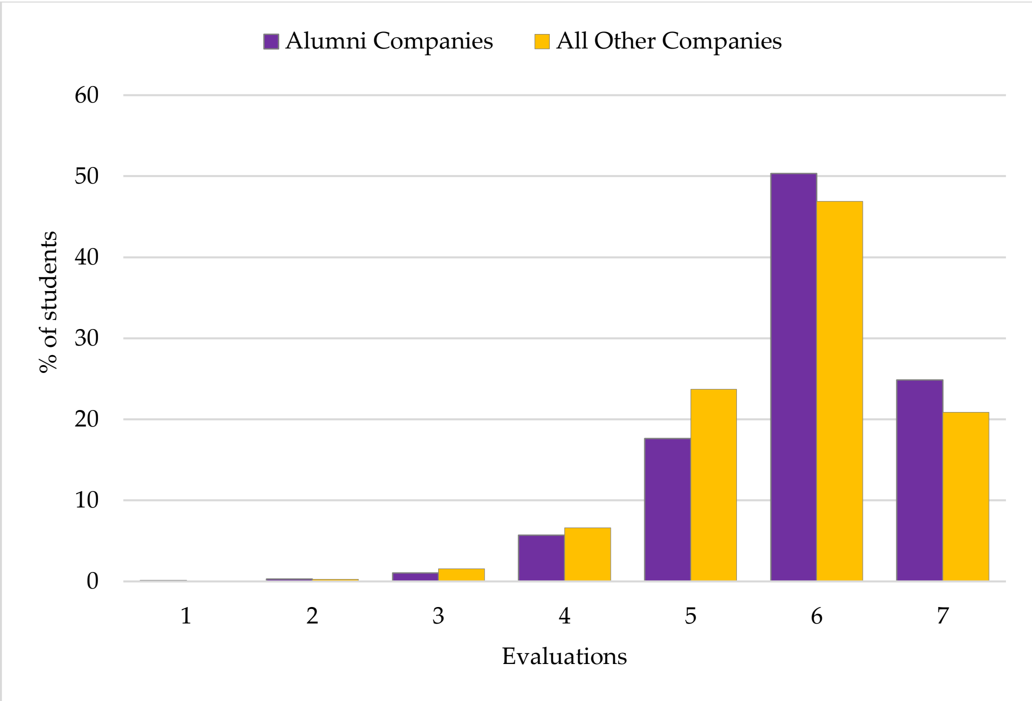


FIGURE 8: Distribution of evaluations of students working at alumni companies compared with the rest of the co-op population. Seven is the best score and one is the lowest.

Figure 9 compares the distribution of performance evaluations at startups and established companies. Students working for startups appear more likely to receive the highest possible evaluation of seven. This could mean smaller startups are attracting top talent and they are thus highly valued by their employers. Alternatively, this could be the result of established companies having more rigorous evaluation methods, perhaps with stricter percentile allowances for each evaluation level. Finally, another potential explanation is that lower paying startup placements give higher evaluations as a way of rewarding students for their work and helping their future job search. However, no correlation was found between salaries and evaluations.

Students' Evaluations of Employers

At the end of each work term, students also evaluate their employers on a scale from 1 to 10, with 10 being the best. Not every placement in the co-op dataset included a student's evaluation of the employer: the dataset included 8,610 such evaluations of alumni companies and 119,009 evaluations of other companies.

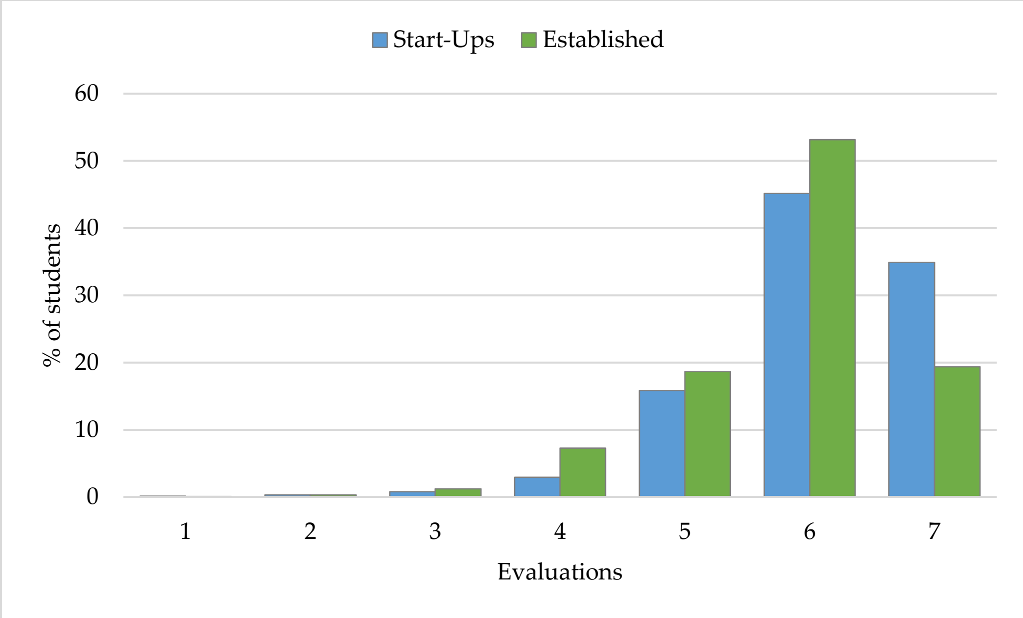


FIGURE 9: Distribution of evaluations of students working at alumni startups and alumni established companies.

Figure 10 compares the distribution of evaluations of alumni companies versus all other companies, suggesting that alumni companies are more likely to receive the highest scores of 9 and 10. Furthermore, the average evaluation of alumni companies was 8.38 and the average evaluation of all other companies was 8.22. This difference is statistically significant at the 95% confidence level.

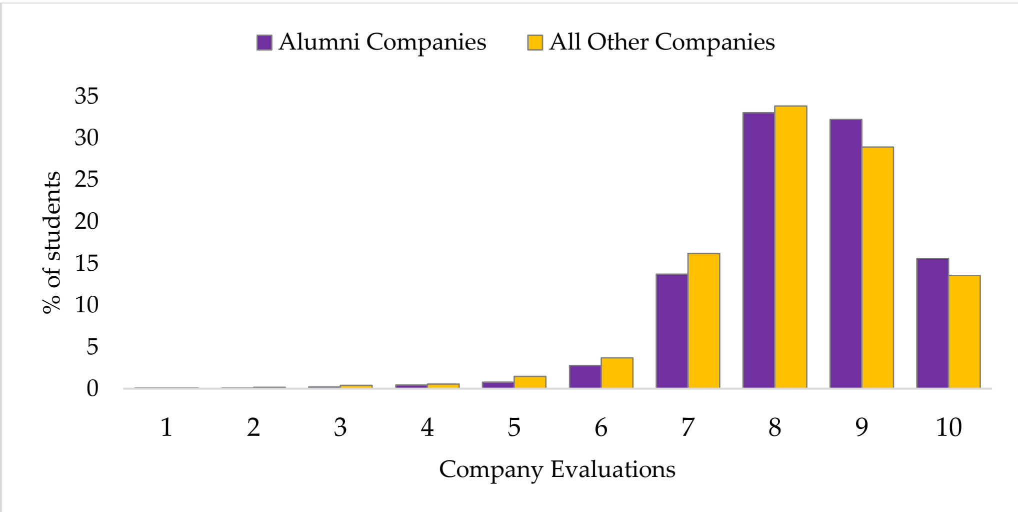


FIGURE 10: Distribution of employer evaluations done by students working at alumni companies compared with placements at other companies. 10 is the highest score and 1 is the lowest.

Figure 11 breaks down the distribution of employer evaluations for startups and established companies, suggesting that startups are more likely than established companies to receive the highest evaluation of 10. This result is analogous to that in Figure 9, where startups were more likely than alumni companies to give the highest rating to their employees.

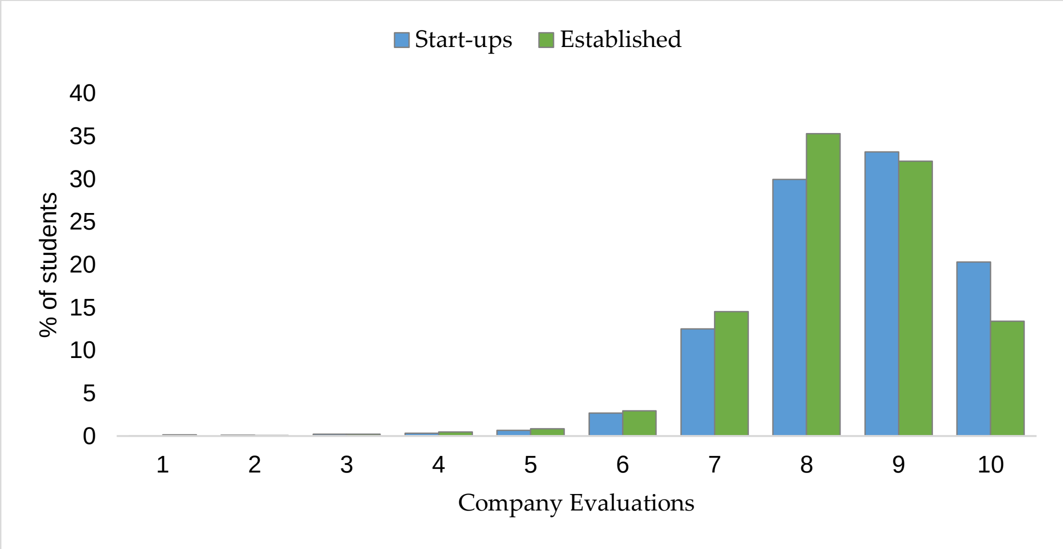


FIGURE 11: Distribution of employer evaluations done by students working at startups compared with established companies. 10 is the best score and 1 is the lowest.

Founders' Cooperative Education Placement Statistics

So far, this analysis has focused on cooperative placements at alumni companies. This section describes the cooperative education histories of engineering student founders. As mentioned earlier, 221 founders appeared in the co-op dataset, which includes 994 co-op placements for them. These are the students who were enrolled in a co-op engineering program at the institution between 2006 and 2016.

Notably, only 12 of these students (i.e., about 5%) are female, and these 12 students founded or co-founded 15 companies. In contrast, the proportion of female students in the co-op dataset as a whole was 22%.

Figure 12 shows the distribution of the 994 founders' work terms per industry. Most of the founders' placements were in information technologies, coinciding with the fact that most of the alumni companies are also in information technologies (recall Figure 3).

Evaluations of Founders' Cooperative Education Performance

This section presents an analysis of the work term evaluations associated with the 994 placements done by 221 founders identified above, compared to the 67,810 work term evaluations of all other engineering students. Figure 13 compares the distributions of work term evaluations of future founders and all other engineering students. Founders appear more likely to receive the highest score of seven. Moreover, the average evaluation of founders was 5.98 and the average evaluation of other engineering students was 5.78. This difference is statistically significant at the 95% confidence level.

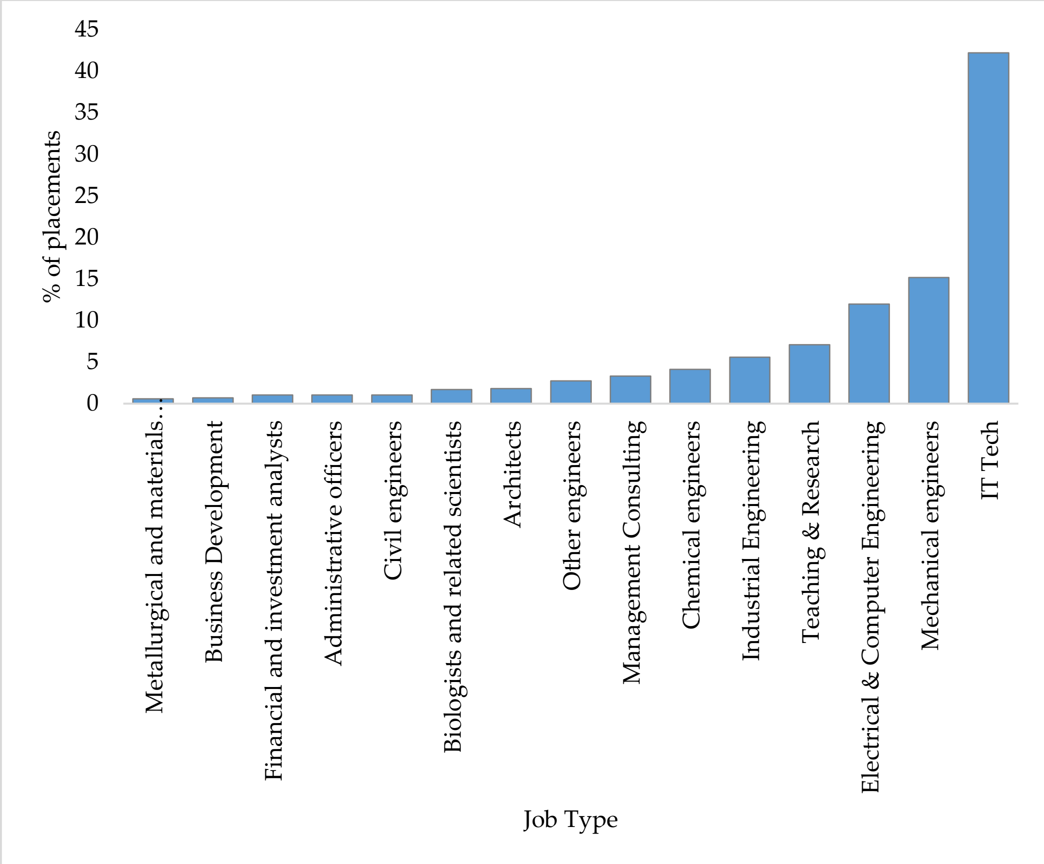


FIGURE 12: Founders' co-op placements by industry type. Industry types occurring in fewer than five placements are excluded.

FIGURE 13: Distribution of work term evaluations of founders when they were students compared to the evaluations of all other Engineering students.

In addition to an overall score, work term evaluations prior to year 2013 include separate scores for 19 criteria such as initiative, quality of work, quantity of work, communication and leadership. Each criterion is rated from 1 to 4 (with 4 being the best), but employers also have the option to specify "Not Applicable" (N/A) instead of entering a score. The co-op dataset contains 905 such detailed evaluations of future founders and 47,304 detailed evaluations of other engineering students.

The detailed evaluation scores of founders and other students are now compared. Full details, including the definitions of all 19 evaluation criteria, are shown in the Appendix, and the most significant findings are summarized below.

- Founders were rated higher (p <0.05) than other engineering students on 12 out of 19 criteria: interest in work, initiative, setting goals, ability to learn, creativity, reflection and integration from prior learning, problem solving, interpersonal behavior, response to supervision, written communication, oral communication, and leadership.
- There was no significant difference between founders and other engineering students on the remaining seven criteria: planning and organizing, quality of work, quantity of work, judgement, dependability, handling conflict, and adaptation to formal organizations, rules and policies.
- Founders were *more* likely (p <0.05) than other engineering students to receive a score instead of a N/A for three criteria: setting goals, creativity, and reflection and integration from prior learning.
- Founders were *less* likely (p <0.05) than other engineering students to receive a score instead of a N/A for adaptation to formal organizations, rules and policies.
- There was no significant difference between the proportion of N/As given to future founders compared to other students for the remaining 15 evaluation criteria. Furthermore, nearly half the evaluations (of founders and other students) included N/As for leadership and handling conflict, suggesting that many placements did not require these qualities.

Notably, there are three criteria – setting goals, creativity, and reflection and integration from prior learning – where founders both scored better and received fewer N/As than other students.

Founders' Evaluations of their Employers

Figure 14 shows the distribution of founders' evaluations of their co-op employers compared to employer evaluations done by other engineering co-op students. It appears that founders were more likely to be very satisfied with their employers, corresponding to the highest score of 10. Furthermore, the average employer evaluation submitted by a founder was 8.30 and the average employer evaluation submitted by other engineering students was 8.19. This difference is statistically significant at the 95% confidence level.

Founders' Academic and Entrepreneurship Background

Having analyzed work term evaluations of (and by) founders, this section examines their entrepreneurial and academic backgrounds. Out of the 221 founders enrolled in a co-op engineering program, 101 took at least one entrepreneurship course offered by the institution

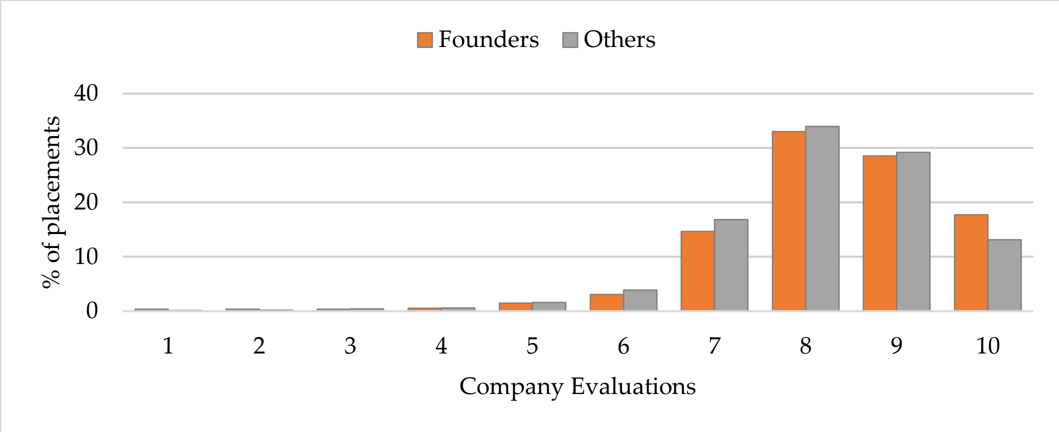


FIGURE 14: Distribution of employer evaluations done by founders when they were students compared to employer evaluations done by all other Engineering students.

Furthermore, most of these 101 students took an entrepreneurship course in their last term of study before graduating, and none took it in their first academic year. For comparison, the total number of students in the co-op dataset who took at least one entrepreneurship course is 1965. Out of these 1965 students, 253, or 13%, were female.

The grades of future founders were also examined. It was observed that their average founder grade point average (GPA) was slightly lower than the average GPA of all other engineering students. However, the difference was not statistically significant at the 95% confidence level.

Finally, the institution allows students to earn co-op work term credits while working on their own business. However, only 47 out of the 221 founders did so: 36 students for one term, nine students for two terms and two students for three terms. Furthermore, none of these students pursued a self-employed work term in their first year of study or in their last co-op term. For comparison, the total number of students in the co-op dataset who opted for at least one self-employed work term is 139.

DISCUSSION

The economic impact analysis revealed that over the past 10 years, nearly half of the 472 engineering alumni companies have been involved in the institution's co-op process. These alumni companies have created (at least) 9,000 co-op placements paying a total of (at least) CAD$115 million in salaries. This amounts to 6.5% of all placements at the institution. Furthermore, most of the companies and placements are in information technologies, with the most common job titles being 'software engineer' and 'software developer'. As mentioned earlier, the above numbers are lower bounds since the dataset of known founders may be incomplete. Furthermore, these numbers only include co-op positions offered by alumni companies and filled by the institution's students. They do not include non-co-op positions or co-op positions filled by students from other institutions.

The results presented in this paper agree with previous work suggesting that innovative universities contribute to economic growth (Bramwell & Wolfe, 2008; Roberts & Eesley, 2011). However, the novelty of this research lies in the focus on the economic impact of alumni on the institution's co-op job market, enabled by merging two unique datasets. To the best of the authors' knowledge, there is no prior work on quantifying such impact. The institution can view this as data-supported evidence of the economic impact of the entrepreneurship of its members on cooperative education. Furthermore, these results can be used by institutions to motivate programs and initiatives that encourage entrepreneurship, especially in information technologies.

The second salary-related finding is that early-stage startups tend to pay lower salaries and hire junior students. This observation has at least two implications. First, institutions might want to manage early startups' expectations regarding the level of cooperative education talent that is available at low salaries. Second, as Figures 9 and 11 show, early startups appear satisfied with their co-op employees and vice versa. Thus, perhaps early startups simply require more junior-level talent than more established companies. This hypothesis could be validated in future work by interviewing the founders of early-stage startups.

It was found that alumni employers were more likely to give high evaluations to the institution's co-op students compared to other employees. Furthermore, the institution's co-op students were more likely to give high evaluations of alumni employers compared to other employers. These results suggest that alumni companies are satisfied with co-op students from the institution, and vice versa. As a result, the institution should continue to promote its students to alumni employers, and it can view cooperative education as an effective way to stay in touch with successful alumni.

As shown in Figures 9 and 11, early-stage startups were especially likely to give and receive the highest possible evaluation scores. This might mean that students enjoy working in a dynamic and informal environment offered by many new startups. While further research (e.g., interviews with students who gave or received very high evaluations) is required to validate this hypothesis, this may be a sign that top students prefer startups over established companies, at least in information technologies. Similar conclusions were reported by Toulis & Golab (2017).

It has been argued in previous work that not all startups create economic growth and high-quality jobs (Shane, 2009). This is consistent with the findings reported here as not all engineering alumni companies have participated in the institution's co-op process. However, based on the analysis of work term evaluations, the jobs created by the institution's alumni entrepreneurs were well liked by students. As a result, the institution should continue including alumni companies in its co-op job market.

The analysis of the founders themselves revealed that 221 of the 746 founders are or were enrolled in one of the institution's co-op programs within the past 10 years. Only 5% of these 221 founders are female, whereas over 20% of the institution's co-op students in the past 10 years, and 13% of students taking an entrepreneurship course in the past 10 years, are female. Thus, it appears that female students are interested in entrepreneurship but are less likely to become entrepreneurs who will hire co-op students from the institution. Based on these findings, institutions may want to offer entrepreneurship workshops targeted at female students and invite female entrepreneurs to give talks.

As observed by Kirby (2004) and others, entrepreneurship education does not appear to be critical to students who go on to start companies: only 101 out of the 221 founders enrolled in a co-op engineering program took at least one entrepreneurship course offered by the institution, and only 47 founders opted to do a self-employed work term at their own startups.

Furthermore, student founders enrolled in a co-op engineering program were more likely to give and receive higher work term evaluations compared to other engineering students. This suggests a possible link between success in work-integrated learning and entrepreneurship. To investigate this issue further, it would be interesting to interview founders who earned a co-op degree at the institution and ask if their co-op experience (working at a startup company or otherwise) influenced their decision to start a company.

Finally, it was observed that when founders were co-op students, they were rated more highly than other engineering co-op students for their soft skills such as initiative, creativity and communication. On the other hand, both founders and other students were rated equally on quality and quantity of work. Previous work on identifying the characteristics of successful entrepreneurs reached similar conclusions, e.g., that soft skills such as self-motivation and innovation are critical (Harris & Gibson, 2008; Levine & Rubinstein, 2017; McNeil, Fullerton & Murphy, 2004). However, prior work analyzed personal testimonies collected from entrepreneurs, whereas the results presented in this paper are based on employer evaluations and therefore provide a third-person perspective. Based on these findings, institutions may want to put more focus on soft skills in their entrepreneurship curricula.

CONCLUSIONS

This paper analyzed the impact of entrepreneurship on co-op job creation at a large North American post-secondary institution. The analysis was based on two unique datasets: a list of companies started by current or former engineering students and professors at the institution (referred to as alumni companies), and a history of the institution's co-op placements. By cross-referencing these two datasets, co-op placements at alumni companies were identified and academic and co-op histories of student founders were obtained. This unique combination of data revealed new insight and also suggests several areas for future research, in particular, on the role of cooperative education in fostering entrepreneurship.

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APPENDIX: Work-term Evaluation Analysis.

Analysis of founders' work-term evaluations compared to those of all other Engineering students. For each evaluation criterion, the following numbers are reported: the p-value for the difference of mean evaluation scores, the mean score for founders, the mean score for all other Engineering students (abbreviated Others), the p-value for the difference of proportions of Not Applicable (N/A) ratings, the percentage of N/A ratings given to founders, and the percentage of N/A ratings given to all other Engineering students. Shaded cells correspond to statistically significant differences at the 95% confidence level.

Critera	p-value	Founder Mean	Others Mean	p-value N/A	Founder N/A %	Others N/A %
Interest in work	0.00	3.56	3.44	0.52	0.13	0.07
Initiative	0.00	3.40	3.29	0.92	0.27	0.25
Planning and organizing	0.58	3.13	3.11	0.99	1.73	1.74
Setting goals	0.00	3.42	3.31	0.00	13.83	19.76
Ability to learn	0.00	3.66	3.59	0.75	0.13	0.18
Quality of work	0.91	3.42	3.41	0.99	0.13	0.13
Quantity of work	0.05	3.44	3.39	0.41	0.13	0.30
Creativity	0.00	3.19	3.00	0.00	4.52	8.00
Reflection and integration from prior learning	0.00	3.50	3.41	0.01	7.56	11.29
Judgement	0.10	3.26	3.22	0.20	2.11	2.90
Problem solving	0.00	3.34	3.21	0.62	1.72	1.98
Dependability	0.59	3.50	3.51	0.58	0.53	0.41
Interpersonal behavior	0.02	3.56	3.51	0.74	0.66	0.77
Handling conflict	0.22	3.55	3.51	0.14	47.99	51.08
Response to supervision	0.03	3.69	3.64	0.94	0.27	0.25
Written communication	0.00	3.29	3.21	0.46	9.89	10.74
Oral communication	0.00	3.37	3.25	0.44	1.07	0.81
Leadership	0.00	3.05	2.89	0.31	43.66	45.52
Adaptation to formal organizations, rules & policies	0.88	3.50	3.51	0.01	5.19	3.42

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About the Journal

The International Journal of Work-Integrated Learning (IJWIL) publishes double-blind peer-reviewed original research and topical issues dealing with Work-Integrated Learning (WIL). IJWIL first published in 2000 under the name of Asia-Pacific Journal of Cooperative Education (APJCE). Since then the readership and authorship has become more international and terminology usage in the literature has favoured the broader term of WIL. In response to these changes, the journal name was changed to the International Journal of Work-Integrated Learning in 2018.

In this Journal, WIL is defined as "*an educational approach that uses relevant work-based experiences to allow students to integrate theory with the meaningful practice of work as an intentional component of the curriculum*". Examples of such practice includes work placements, work-terms, internships, practicum, cooperative education (Co-op), fieldwork, work-related projects/competitions, service learning, entrepreneurships, student-led enterprise, applied projects, simulations (including virtual WIL), etc. WIL shares similar aims and underpinning theories of learning as the fields of experiential learning, work-based learning, and vocational education and training, however, each of these fields are seen as separate fields.

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Types of manuscripts sought by IJWIL primarily of two forms; 1) *research publications* describing research into aspects of work-integrated learning and, 2) *topical discussion* articles that review relevant literature and provide critical explorative discussion around a topical issue. The journal will, on occasions, consider best practice submissions.

Research publications should contain; an introduction that describes relevant literature and sets the context of the inquiry. A detailed description and justification for the methodology employed. A description of the research findings - tabulated as appropriate, a discussion of the importance of the findings including their significance to current established literature, implications for practitioners and researchers, whilst remaining mindful of the limitations of the data. And a conclusion preferably including suggestions for further research.

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