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From Class to Career: How Work Integrated Learning Benefits Graduates Looking for Jobs

Work integrated learning, whether through co-op programs or job placements, offers benefits for students entering the workforce, but the benefits differ by gender, field of study and other factors. Government funders should take note.

Rosalie Wyonch and Bradley Seward

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From Class to Career: How Work Integrated Learning Benefits Graduates Looking for Jobs

by Rosalie Wyonch and Bradley Seward

- Work integrated learning (WIL) is associated with easing graduates' transition into the labour market, as measured by employment outcomes such as income, employment status, or whether the occupation matches the student's field of study. This report analyses newly available data to provide insights into the success of different types of WIL (e.g., co-op programs and paid and unpaid work placements) and provides new estimates of the returns to WIL in Canadian postsecondary education (PSE).
- The results show that WIL programs are associated with improved labour market outcomes but the benefits differ by program type, gender, field of study, educational institution and other factors. For example: participating in a co-op program is associated with larger benefits for men than for women. Conversely, participating in a work placement after classes end is associated with larger benefits for women than for men, particularly at the college level.
- Governments spend millions of dollars supporting WIL programs through tax credits, subsidies and direct funding. Insights about the different benefits to graduates entering the job market are important to ensuring that WIL programs are consistently refined as they are expanded and that the case for government subsidization is evidence-based.

The transition from education to the labour market is an important milestone for young people in Canada. Ensuring their smooth transition to the labour market is critical for individual success and overall economic prosperity. Work-integrated learning (WIL) – programs of study that integrate academic and workplace experiences – has been identified by provincial and federal governments as a key part of the

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strategy to prepare post-secondary graduates for transition to the labour market.¹ Despite the enthusiasm, there is limited Canadian research delving into the outcomes of various WIL programs and the labour market mechanisms that lead to them, in part because, until recently, nationally representative data sources were relatively limited.

This *Commentary* aims to enhance our understanding of the relationship between WIL participation and labour market outcomes of graduates in terms of income, employment status and occupation matching well with education. A deeper understanding of the mechanisms affecting graduates' labour market outcomes can inform policy and program guidance. To help advance this comprehension, we rely on the 2018 National Graduates Survey (NGS) and analysis from Pizarro Milian et al. (2021).

Overall, our analysis shows many benefits associated with WIL participation, but also an uneven distribution of benefits across WIL programs and educational institutions. Benefits associated with WIL participation include improved job matching, higher incomes and higher likelihood of being employed in a permanent and/or full-time position. In particular, more benefits are associated with co-op participation than with work placements, and those benefits are more pronounced at the university, rather than

college, level. Work placements, however, are more beneficial for women, while men gain more from co-op participation.

The mechanisms underlying these differences would be a promising area for further study.² A better understanding of the different types of WIL, their different structures and outcomes, could inform more strategic investment by governments and the development of new programs by educational institutions. It could also help to inform students considering enrolling in a WIL program about the different types of programs and their associated outcomes (see Box 1).

EVIDENCE OF THE BENEFITS OF WORK-INTEGRATED LEARNING

Studies have shown that graduating from a WIL program is generally associated with beneficial outcomes in the labour market. Results vary significantly between college and university graduates, across fields of study and by demographic characteristics. For example, co-op participation reduced the likelihood of over-qualification (Frenette 2004), increased the likelihood of full-time employment and was associated with higher employment incomes (Walters and Zarifa 2008) for university graduates, with relatively lower or insignificant benefits for college graduates in

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- 1 A more formal definition of WIL in Canada is “a form of curricular experiential education that formally integrates a student’s academic studies with quality experiences within a workplace or practice setting. WIL experiences include an engaged partnership of at least: an academic institution, a host organization, and a student. WIL can occur at the course or program level and includes the development of student learning objectives and outcomes related to: employability, agency, knowledge and skill mobility and life-long learning” (CEWIL Canada). For more information about WIL and government programs supporting them, see CEWIL Canada, “Employer & Community Partner Resources,” <https://cewilcanada.ca/CEWIL/CEWIL/Resources/Employer-Community-Partners/Employer-Benefits.aspx>; and Canada, Employment and Social Development Canada, “The Innovative Work-Integrated Learning Initiative,” <https://www.canada.ca/en/employment-social-development/programs/work-integrated-learning.html>.
 - 2 The NGS 2018 was the first cycle of the survey to include questions differentiating between different types of WIL. However, the sample size of the NGS limits the depth of analysis into different outcomes by field of study, and socioeconomic factors. Similarly, there has been an expansion of the types of WIL available to students in recent years. Future surveys should include an expanded set of questions for WIL and consider larger sample sizes to improve researchers’ and policymakers’ ability to analyze outcomes.

Box 1: Different Types of Work-Integrated Learning

Work-integrated learning is the general term for programs of study that involve one or more periods of professional experience in addition to academic course requirements. Different academic programs have different requirements with respect to professional work terms: they could be required for degree completion and/or professional certification/licensure or they might be in addition to formal academic requirements.

Co-op programs: Terms of professional experience are interspersed throughout academic studies, making up at least 30 percent of the total program length. Students are engaged in productive work that complements their field of study and are compensated for their labour.

Work placement: Normally occurs at the end of academic studies, but may be interspersed among academic terms, for varying lengths of time. Work placements might be paid or unpaid, but students should be engaged in professional activities that complement their discipline. Completion of a work placement may or may not be required for graduation, depending on the program of study.

Work term: For the purposes of this study, generally refers to the period of professional experience associated with a single WIL experience.

There are additional forms of work-integrated learning, beyond the two categories available in the NGS (2018) data including clinical placements, apprenticeships, entrepreneurship, community and industry research partnerships, and community service learning and internships, but these are beyond the scope of this analysis due to limits of the data. Apprenticeships for tradespeople, clinical placements for health practitioners, articling hours for lawyers and similar examples of WIL are required for all practitioners in a particular field. Internships are generally considered entry-level (or below) positions, and may or may not be not linked directly to educational institutions (similarly, some students might meet work placement requirements by securing an internship position). Unpaid internships can be legal in some provinces, but they are tightly controlled as to the types of work that can be done – generally, interns cannot substitute for paid labour and are limited to activities that would not be performed by employees.

both studies. A recent analysis of the 2018 NGS shows that both university and college WIL graduates were less likely to be overqualified than non-participants, while only university graduates benefited from higher incomes (Galarneau, Kinack and Marshall 2020).

Additional studies focusing on Ontario report similar results. An analysis by Finnie and Miyairi (2017) using linked administrative student records with tax files for five Ontario post-secondary

institutions found that co-op graduates had mean earnings that were consistently higher than those of non-participants, but the benefits were more pronounced at the university level. Similarly, Peters and Sattler (2014) analyzed survey information from 13 post-secondary institutions and found that university graduates who participated in WIL were less likely to be unemployed than non-participants, but there was no statistically significant difference for college graduates.

A limitation of this research is that it has not generally accounted for the non-random nature of choosing to participate in a co-op program. The characteristics of people who choose to enrol in a co-op program could differ from those of non-participants in ways that affect their long-term employment outcomes. To adjust for this non-random selection, Wyonch (2020) applies quasi-experimental techniques (propensity score matching) to measure the returns to WIL in Canada.³ Her analysis, using the 2013 NGS public use microdata file, found that co-op participation was associated with a statistically significant increase in relative income at the university level.⁴ Co-op participation at the college level was associated with the higher likelihood of having the first job after graduation be permanent. For both college and university graduates, co-op participation was associated with the higher likelihood of having the first job after graduation be highly related to field of study. Further, the estimated effect of participating in a co-op program differed for women, visible minorities and immigrants, relative to Canadian-born white men. Women who participated in a co-op program received wages closer to those of non-participating male peers than women who did not participate. For immigrant and visible minority university graduates, the returns to co-op participation were on average sufficient to overcome the wage gap (Wyonch 2020). These results suggest that co-op programs, and WIL more generally, might have a role to play in reducing wage and employment gaps traditionally associated with biases toward individual characteristics.

Other research has used bespoke survey data to investigate the benefits of WIL for both

students and employers in terms of performance and skill metrics. Grosjean (2000) and Sattler (2011) show that students benefit from WIL by learning discipline- or industry-specific skills, gaining information that helps form realistic career expectations and getting real-world context that can make academic studies more meaningful. Employers also benefit from developing an industry-specific workforce, the ability to bring in highly educated employees to address short-term needs and streamlined recruiting processes (Sattler and Peters 2012). In addition, Lenarcic, Biss and Pichette (2018) show that post-secondary students in Ontario believe there is a gap between the skills they are learning at university or college and the skills they will need in the workplace. In particular, the largest skills gaps are in business etiquette, leadership, teamwork and creative/innovative thinking.

Overall, there is mixed, but generally positive evidence that WIL is associated with easing graduates' transition to the labour market, as measured by employment outcomes and the perceptions of students and employers. The following sections provide an overview of WIL in Canada, analysis of newer data that provide insights about different types of WIL (such as co-op, paid and unpaid work placements) and new estimates of the returns to WIL in Canadian postsecondary education.

A PROFILE OF WIL IN CANADA

There has been significant growth in WIL participation in Canada over time: by 2015, half of all post-secondary graduates had participated in

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- 3 Ideally, in an experiment, participants and non-participants would be randomly selected to be enrolled in a co-op program, or not. Propensity score matching constructs a quasi-experimental dataset using observable characteristics. Although this is an improvement, it does not account for unobserved characteristics that could affect the choice of co-op participation. For more information on how different statistical techniques affect estimation results, see Box 2.
- 4 Co-op participation at the college level was also associated with higher income on average, but the size of the effect was smaller than for university graduates and the difference was not statistically significant.

Box 2: Statistical Techniques and Estimation Results

Comparing the results of previous analysis using propensity score matching (PSM) and unmatched Canadian data shows a relatively larger income boost is associated with co-op participation at the college level with minimal change in the results for university graduates. This result provides some suggestive evidence that non-experimental techniques might underestimate the income increases associated with co-op participation at the college level (Wyonch 2020).^{*} This result, however, is counter to a number of international results. For example, in Germany, Margaryan et al. (2019) found a 6 percent boost in earnings and a lower risk of unemployment the first year of work following participation in internships using ordinary least squares (OLS) and instrumental variable approaches. Cerulli-Harms (2017), however, use PSM techniques with the same data and found that those who participated in an internship were less likely to be employed a year after leaving school, and if they were employed, had lower earnings (the effect disappeared over time).

Pizarro Milian et al. (2021 p14) estimate the relationship between WIL and income using inverse probability weighting, PSM and risk-adjusted OLS, and evaluate if and how they differ from OLS estimates. They find that

...the direction relationships, coefficient sizes and significance levels estimated through OLS are not contradictory to those produced through risk-adjusted OLS and inverse probability weighting, and differ only modestly from those PSM. This lends legitimacy not only to our OLS estimates, but will help to legitimate both past and future research on the returns to WIL with the NGS using this type of statistical modeling.

Though treated with skepticism by some quantitative methodologists, the storyline produced through OLS held up well after re-estimation with alternative techniques. This may reflect the fact that self-selection and filtering when it comes to WIL within Canadian postsecondary education – unlike elsewhere – may not be as serious as with other topics (e.g., vouchers, private schooling) studied by educational researchers.

Some research has addressed non-random selection in WIL by generating data through randomized field experiments. Baert et al. (2021) submitted over 1,200 fictitious resumés to job advertisements and found that applicants with internship experience had a callback rate that was 12.6 percent higher than comparable applicants without internship experience. Nunley et al. (2016) similarly found that internship experience increased the callback rate by 14 percent using similar methods.

Overall, there is limited research in Canada directly comparing the results of different methods of evaluating returns to WIL, while international evidence provides mixed but generally positive labour market outcomes associated with WIL participation, when using a variety of statistical techniques. The limited Canadian evidence suggests that statistical methods used to control for the non-random selection of WIL participation produce results generally similar to the analyses conducted with OLS or other non-quasi-experimental techniques.

^{*} PSM constructs a quasi-experimental data set by matching co-op participants and non-participants in the data based on observable characteristics. Unobserved characteristics might increase or decrease the returns associated with WIL participation, and further research and statistical analysis is needed to understand the relationship between observed and unobserved characteristics with respect to WIL participation and labour market outcomes in Canada.

some form of WIL. Participation varies across fields of study and levels of education (Figure 1). WIL participation is generally highest among college graduates (61 percent), followed by bachelor's graduates (48 percent), with declining participation (and likely availability) of WIL programs as studies progress to the master's and doctorate levels. WIL participation is highest in education (70 percent) and health and related programs (84 percent) and lowest in humanities (23 percent), physical and life sciences and technology (26 percent).

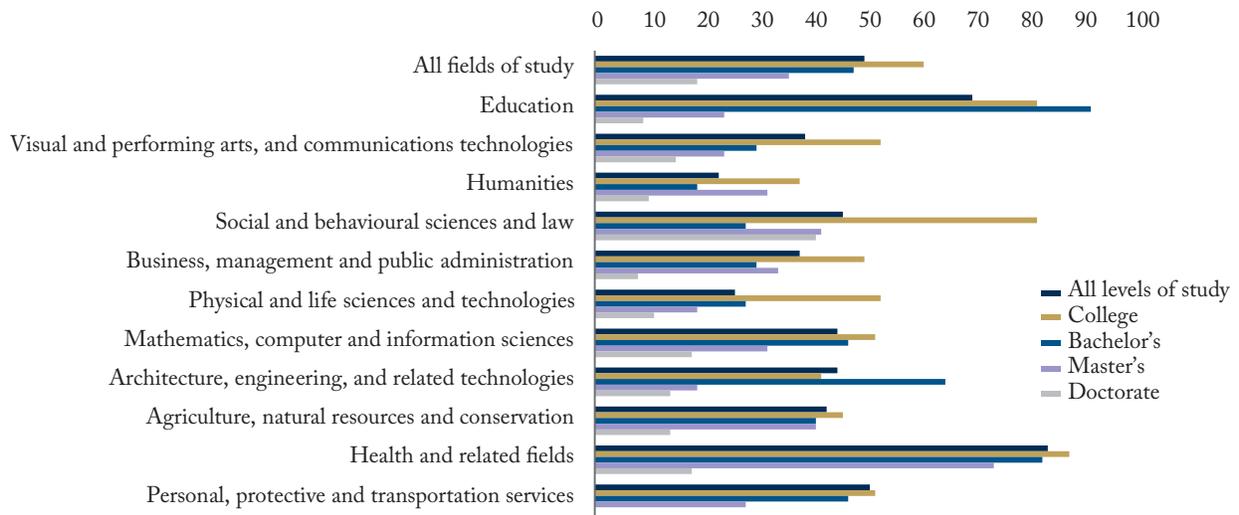
WIL participation is mandatory to graduate from many post-secondary programs: 40.5 percent of all post-secondary graduates in 2015 reported having a mandatory WIL component (81 percent of WIL participants). More than half (53.7 percent) of 2015 college graduates participated in mandatory WIL. Similarly, for the majority of students enrolled in programs in education (68.6 percent) and health and related fields (80.6 percent), WIL is a mandatory part of their education. The mandatory nature of WIL for some post-secondary programs complicates analysis of the labour market outcomes associated with participation.⁵ It also shows that, for some fields of study (and the occupations they lead to), the beneficial labour market outcomes associated with WIL participation might be diluted: since the vast majority of graduates in particular fields participate in WIL, it does not provide WIL graduates with a labour market advantage over their peers.⁶ In these fields, WIL participation has become part of “standard” training across educational institutions. Notably, mathematics, computer and information

technology, architecture, engineering and related services, and agriculture, natural resources and conservation fields of study have the highest proportion of voluntary participation in WIL and relatively lower proportions of mandatory WIL.⁷ They are also the fields where the highest proportion of students report that WIL participation was helpful in finding a job after graduation. In fact, more than half of students report that WIL participation was helpful in finding employment, across all fields of study.

Despite these positive student perceptions, there is some cause for concern in their responses as well – less than half reported being paid for their work while participating in WIL (Figure 2). Less than 10 percent of graduates of education and health programs reported being paid, meaning that three-quarters of health graduates and two-thirds of education graduates participated in unpaid WIL during their studies. Across most fields of study, a higher proportion of university graduates than college graduates reported being paid for their WIL. There are legitimate reasons for WIL experiences to be unpaid. For example, Service Learning programs, where students participate in community service integrated with classroom instruction to enrich learning and strengthen communities. As well, genuine volunteer and community services activities, activities that earn educational credits or those where a professional certification is needed to be compensated for professional work (such as law and medicine) have different labour regulations than regular

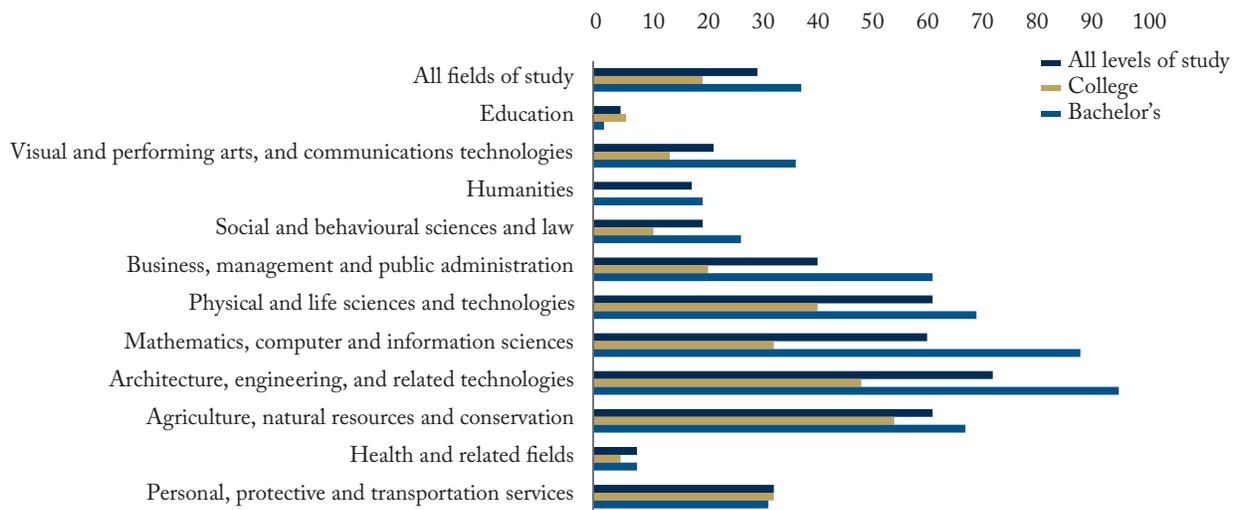
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- 5 If all students participate in WIL as a requirement, there is no appropriate control group to which to compare their results. This means we cannot separate the effects of the educational content and the WIL component, but would be comparing the results of graduates from WIL-mandatory programs and programs without a mandatory WIL component (not apples-to-apples). Similarly, the non-random nature of WIL “treatment” is further complicated by differing levels of mandatory participation across fields and levels of study.
- 6 In this case, we would need to compare the results of participation in different programs and types of WIL within a particular field of study and level of education, but the sample sizes in NGS 2018 do not allow for this analysis.
- 7 In these fields, slightly more than half of WIL participants reported its being mandatory and about 45 percent of graduates participated in WIL. In all other fields (except physical and life sciences), WIL participation was mandatory for at least 70 percent of participants.

Figure 1: Participation in WIL by Field and Level of Study, 2015 Graduates, Percent



Sources: Authors' calculations; Statistics Canada (2020).

Figure 2: Proportion of WIL Participants Paid for Their Labour, by Field and Level of Study, 2015 Graduates, Percent



Source: Statistics Canada (2020).

Table 1: Variables Introduced in Each Model

| | |
|--------------------------------|---|
| Model 1: WIL participation | Co-op, paid or unpaid work placement (reference category: no WIL participation) |
| Model 2: Demographic factors | Age, sex, disability, visible minority, immigrant, bilingual, parents' education, dependents, marital status, province of residence |
| Model 3: Educational factors | Field of study, distance education, student loan borrowing |
| Model 4: Labour market factors | Hours worked, industry, job relatedness |

Note: The addition of control blocks is cumulative – that is, model 3 maintains the controls of model 2 and adds additional controls; similarly, model 4 contains all the control variables in model 3, with the addition of labour market factors.

Source: Pizarro Milian et al. (2021).

employment, and generally are not required to compensate student activities with at least minimum wages.

Unpaid internships can be legal in some provinces, but are generally tightly controlled as to the types of work that can be done. There are also some “volunteer” placements that suspiciously resemble employment. This opens the door to exploitative employment practices by unscrupulous employers interested in free labour. An employer might imply the prospect of a paid job in the future, and require the intern for long and underpaid hours in the meantime. Most unpaid internships are unlawful, but few victims complain for fear of personal reputational damage at the start of their career (Whitten 2013). Although many students benefit from WIL experiences, governments and educational institutions should have safeguards in place to prevent, investigate and intervene in cases where student labour is being undercompensated to ensure that their labour rights are being upheld.

NEW ANALYSIS ON THE RETURNS TO WIL IN CANADA

To evaluate the effects of participating in a WIL program on transition to the labour market, we relied on nationally representative data from the 2018 NGS.⁸ The data include information from 2015 graduates, three years after graduation. For the first time, the survey included modified questions regarding WIL that allows for comparison and analysis of different types of WIL (co-ops, paid and unpaid work placements). In addition, we used the confidential master datafiles housed in Statistics Canada research data centres, which have larger sample sizes and more detailed information.⁹

We used a combination of linear and logistic modelling to address a number of research questions relating WIL participation to labour market outcomes, including likelihood of employment status (full-time and permanent), job matching the level and field of education, and graduates' employment income. Our approach involved fitting a model

8 The 2018 NGS surveyed graduates of Canadian institutions who remained in Canada. It excluded graduates from private post-secondary institutions, continuing education and apprenticeship programs. The survey was a simple random sample stratified by jurisdiction of post-secondary institution and level of study. The response rate for this iteration of the survey was 63 percent. For more information see Statistics Canada, “National Graduates Survey 2018,” <https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5012>.

9 Compared with the more commonly used public microdata files. There are also some limitations to the data: they do not include graduates of private career colleges or students who do not complete their programs.

estimating the relationship between our dependent variables (labour market outcomes) and an indicator of WIL participation (model 1). We then added “blocks” of controls, including demographic factors (model 2), educational details (model 3) and labour market controls (model 4) to observe fluctuations in the relationship between WIL and employment outcomes (Table 1). This successive adding of blocks of controls allowed for informal inferences about the mechanisms that lead to different outcomes for WIL participants than for non-participants.

We fitted separate models for graduates from universities and colleges at the undergraduate level (including degrees, diplomas and certificates) and excluded post-graduates.¹⁰ In addition, we fitted separate models for male and female graduates from each type of institution for income and job-matching models to evaluate differential returns to WIL participation by gender.

Summary of Findings

Overall, the results show that many benefits are associated with WIL and, as expected from the results of previous studies, returns to WIL participation vary by the type of institution attended, with more benefits associated with participation at the university level. Here, we present a summary of the main findings related to WIL participation and discuss some observations about the differences and nuances of the various results (See Box 3 for model and data limitations).

Table 2 shows that participation in WIL is associated with higher likelihood of having the first job after graduation be highly related to the

student’s field of study across types of WIL at both the college and university levels, but the effect is larger at the university level. For university graduates, participating in any type of WIL is associated with higher income after graduation, with a larger increase associated with a co-op program, followed by paid work placements. Participating in a university co-op program is also associated with lower likelihood of unemployment and part-time employment and of being employed in a non-permanent job. Work placements, on the other hand, are not associated with higher likelihood of full-time or permanent employment at the college or university level. At the college level, co-op participation is associated with higher income following graduation, but participating in work placement is not.

Additional results of the income and job-matching models by sex show further nuance in the returns associated with participation in WIL programs (Table 3). Co-op participation is associated with larger increases in income for men than for women¹¹ at both the college and university levels. Women, however, have higher income after participating in work placements, but men do not. This difference remains significant after controlling for graduates’ field of study and demographic characteristics. Both male and female college and university graduates are more likely to be employed in jobs closely related to their field of study after participating in a co-op program.¹² Similar to the results for income, women are also more likely to get a job that matches their education after participating in work placement. For men,

10 Similar to Galarneau, Kinack, and Marshall (2020); Walters and Zarifa (2008); and Wyonch (2020). Post-graduates are excluded due to small sample sizes and comparatively low participation in and availability of WIL programs.

11 After controlling for field of study, the income increase associated with co-op participation becomes statistically insignificant for the regression including female university graduates.

12 Men have a higher likelihood than women of getting a job that matches their education after participating in a co-op program. The difference nearly disappears after including demographic and field-of-study controls, suggesting that this result might have more to do with differences between men and women in the choice of field than differences in returns to co-op participation.

Table 2: Summary Regression Results (Method), by Model

| | College | | | University | | |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| Job Match (Logistic) – Odds relative to non-WIL participants | | | | | | |
| Co-op | 1.790 | 1.835 | 1.819 | 2.818 | 2.746 | 1.955 |
| Work-placement (paid) | 1.508 | 1.279 | 1.249 | 2.649 | 2.680 | 2.098 |
| Work-placement (unpaid) | 1.708 | 1.527 | 1.409 | 2.122 | 2.253 | 1.821 |
| Income (OLS) – Percent, relative to non-WIL participants | | | | | | |
| Co-op | 5.9 | 11.9 | 11.5 | 22.5 | 19.8 | 10.9 |
| Work-placement (paid) | 6 | 5.2 | 5.7 | 16.6 | 15.2 | 9.3 |
| Work-placement (unpaid) | -2.6 | 3.3 | 5.6 | 9.7 | 9.1 | 7.9 |
| Full Time (Logistic) – Odds relative to non-WIL participants | | | | | | |
| Co-op | 1.124 | 1.253 | 1.272 | 2.020 | 1.812 | 1.577 |
| Work-placement | 0.801 | 0.889 | 1.022 | 0.993 | 0.960 | 1.238 |
| Permanent (Logistic) – Odds relative to non-WIL participants | | | | | | |
| Co-op | 1.055 | 1.127 | 1.114 | 1.733 | 1.631 | 1.364 |
| Work-placement | 1.001 | 1.098 | 1.143 | 0.808 | 0.811 | 0.935 |

Notes: To assist with interpretation, statistically significant results (surpassing 95 percent confidence) are in bold text. See Table 1 for model descriptions.

Source: Pizarro Milian et al. (2021).

however, work placement is associated with better job matching at the university level, but not at the college level.

Overall, our analysis shows many benefits associated with WIL participation, but also an uneven distribution of benefits across a range of factors. In particular, more benefits are associated with co-op participation than with work placement, and those benefits are more pronounced at the university level than at the college level. Although both men and women benefit from WIL participation, women have more benefits associated with work placement than do men, and men have larger benefits associated with co-op participation. The underlying explanation of this result is beyond the scope of this analysis. However, the gap-reducing effect of adding additional blocks of controls provides suggestive evidence that field of study and post-graduation industry of employment

likely contribute to the differing outcomes by sex. In the next section, we discuss some policy and program implications of these results in the context of the current labour market.

POLICY DISCUSSION AND RECOMMENDATIONS

The results of the statistical analysis in this *Commentary* and previous research show that there are benefits to WIL programs, but there are also important differences between measured returns depending on the labour market outcome investigated, the type of educational institution, the demographic characteristics of graduates and the type of WIL program. Governments spend millions of dollars supporting WIL programs through tax credits, subsidies and direct funding. Insights about the different benefits to graduates in terms

Table 3: Regression Results by Sex

| Income – Percent Increase, relative to non-WIL participants of same gender | | | | | | | |
|--|----------------|---------|---------|---------|------------|---------|---------|
| | | College | | | University | | |
| | | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| Female | Co-op | 3.2 | 9.2 | 9.5 | 17.4 | 16.3 | 9.3 |
| | Work-placement | 6.8 | 7.1 | 8.3 | 16.3 | 12.7 | 9.8 |
| Male | Co-op | 14.3 | 16.8 | 14.8 | 20.7 | 20.1 | 11.1 |
| | Work-placement | 0.2 | -1.3 | 0.8 | 5.3 | 4.3 | 4.6 |
| Job Match – Odds, relative to non-WIL participants of same gender | | | | | | | |
| | | College | | | University | | |
| | | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| Female | Co-op | 1.67 | 1.748 | 1.762 | 2.369 | 2.294 | 1.876 |
| | Work-placement | 1.786 | 1.658 | 1.455 | 2.283 | 2.355 | 1.877 |
| Male | Co-op | 1.898 | 1.959 | 1.924 | 3.224 | 3.071 | 1.968 |
| | Work-placement | 1.365 | 1.253 | 1.308 | 2.022 | 2.124 | 1.841 |

Notes: To assist with interpretation, statistically significant results (surpassing 95 percent confidence) are in bold text. See Table 1 for model descriptions.

Source: Pizarro Milian et al. (2021).

of their labour market outcomes are important to ensure that WIL programs are consistently refined as they are expanded and the case for government subsidization is evidence based.

Our results show that co-op programs are generally associated with more labour market benefits than are work placements. Co-op programs tend to provide more extensive work experience through more work terms, and those experiences are interspersed among academic terms. Either or both of these factors might contribute to better labour market outcomes than work placements.¹³ Work placements were associated with higher likelihood of being employed in a job that was well matched to a graduate's field of study. Work

placements generally occur at the end of academic studies, which suggests that they serve as a pathway to relevant employment. In addition, our analysis does not account for the high proportions of WIL participation from some college programs – a work placement might be mandatory for all graduates of a particular program (such as training for teaching and many health occupations), meaning there is no comparison group of non-participants within the same field of study. College programs tend to be more applied and aim to provide students with directly relevant labour market skills than are university programs. At the university level, work placements lead to higher incomes, but are less likely to result in full-time, permanent employment

13 Analysis of employer evaluations of University of Waterloo co-op student competencies and employability show an indirect positive association between the number of co-op terms and employability (Drewery and Pretti 2019, chap. 5).

Box 3: Discussion of Modelling and Data Limitations

Our analysis finds many beneficial labour market outcomes associated with WIL participation, particularly co-ops, however there are limitations to the available data and modelling approach. The 2018 NGS surveyed graduates of Canadian institutions who remained in Canada. It excluded graduates from private post-secondary institutions, continuing education and apprenticeship programs. The survey was a simple random sample stratified by jurisdiction of post-secondary institution and level of study. The response rate for this iteration of the survey was 63 percent.

The NGS 2018 does not differentiate between different forms of work placements. Given the variability in the length of work placements, their occurrence during academic studies and ambiguity regarding wages, it is likely that the overall results for work placements in this analysis mask underlying differences in associated outcomes. Future cycles of the NGS should consider adding additional questions and increasing sample sizes to enable continued analysis of WIL programs in Canada as they grow in complexity, scope and options available to students. Similarly, our analysis does not delve into prospective regional or industry-based variations in the observed returns to WIL. This is mainly due to sample size limitations with the NGS at that level of granularity.

Another limitation is the “snap shot” timeframe of the analysis and data. Graduates are surveyed 3 years following graduation and there is no additional data to track their labour market outcomes over time. It is possible that the beneficial labour market outcomes associated with WIL participation persist over their careers. It’s also possible that non-participants achieve comparable outcomes to WIL participants over time.

following graduation than participation in a co-op program.¹⁴ At the college level, graduating from a co-op program is associated with a higher income. The benefits of participating in WIL are clearer at the university level than at the college level, although there are still some benefits associated with job matching and income for college WIL graduates.

The results also show a difference in outcomes related to sex: participating in a co-op program is associated with larger beneficial labour market outcomes for men than for women. Conversely, participating in a work placement is associated with larger benefits for women than for men,

particularly at the college level. These results are compatible with other research showing that the returns associated with WIL participation vary with demographic characteristics (sex, visible minority status and immigration status) (Wyonch 2020). So far, there has been little research into the reasons underlying the differences in outcomes associated with WIL participation, which could be a promising avenue for further study. Similarly, further analysis of differences in outcomes based on region, fields of study and demographic characteristics could illuminate mechanisms that contribute to differing outcomes. In addition, given the limited timeframe of surveys

14 University students also are more likely to be compensated for their labour during WIL experiences (Figure 2).

following graduation, we cannot determine if these differences persist over the long term. The differences in returns to WIL participation have implications for wage gaps in the broader economy. Since men receive more benefits from co-op participation, co-op programs potentially could increase wage gaps between men and women in the labour market if both sexes are equally likely to participate.¹⁵ Wyonch (2020), however, shows that co-op participation is associated with significantly higher incomes for visible minority and immigrant graduates, and suggests that co-op participation likely shrinks wage gaps related to those demographic characteristics.

There are benefits to participating in WIL regardless of demographic characteristics, particularly at the university level and with respect to job matching. Co-ops appear to be generally more beneficial than work placements. This suggests that some features of co-op programs that are not present in work placements might significantly impact the transition to the labour market. Since work terms are interspersed throughout education, students can either develop more in-depth experience with a particular employer or discipline or they might try a wide breadth of possible employment options related to their field of study. The labour market information gained might also affect students' choices of elective courses or otherwise make them more strategic or employment focused about their education. It could also be that the limited exposure to the job

market afforded by work placements does not yield work experience for participants that is significantly different from that of those who enter the labour market directly following graduation.

Given that WIL programs are generally found to have benefits for students, it is unsurprising that they are well supported by governments. In 2016, the federal government dedicated \$73 million over four years to the Post-Secondary Industry Partnership and Co-operative Placement Initiative, with the goal of increasing WIL opportunities in science, technology, engineering, mathematics and business fields. In 2019, the federal government dedicated \$631.2 million over five years to the Student Work Placement Program¹⁶ to create 20,000 new work placements in all disciplines. The 2021 federal budget included \$5.4 billion in expenditures over five years to support the creation of an estimated 215,000 training and work opportunities through a number of programs.¹⁷

Current government policies surrounding WIL generally support different forms of work placements and put priority on particular disciplines (skilled trades, STEM and business, in particular) and increasing representation for underrepresented groups. Through the Student Work Placement program, employers can receive 50 percent of wages up to \$5,000 for every student hired through the program and 70 percent up to \$7,000 for students in their first year or from an underrepresented group. A student work placement can include mentorship programs, co-op placements,

15 Differences between men and women could also be related to relative participation rates in WIL and field of study. For example, at the college level, more than 80 percent of students in health, education and social sciences participate in WIL (Galarneau, Kinack and Marshall 2020). Since a strong majority of graduates participate in WIL, it could be considered the "standard" or expected pathway from graduation to the labour market. This result could explain the significant returns associated with participating in work placements at the college level for women, but not for men.

16 An extension of the Mitacs Globalink program, which in 2016 received \$14 million over two years to fund 825 internships and fellowships annually.

17 These are the Student Work Placement Program (\$239.8 million), the Youth Employment and Skills Strategy (\$109.3 million), the Canada Summer Jobs program (\$371.8 million), Mitacs (\$708 million) and the Canada Digital Adoption Program (\$4 billion). See Canada, Department of Finance, "Budget 2021 Job Creation," <https://www.canada.ca/en/departement-finance/news/2021/04/backgrounder-budget-2021-job-creation.html>.

practicums and internships. The Innovative Work-Integrated Learning Initiative focuses on providing opportunities that are short and intensive in nature and use technology, including short-term work placements, virtual internships, hackathons, business cases and classroom projects to help the community. There are also provincial policies supporting WIL such as the Co-operative Education Tax Credit in Ontario, which allows employers to claim 25 to 30 percent of eligible expenditures (up to \$3,000) for each student in a work placement.¹⁸

Some notable observations from WIL survey data should be considered in refining WIL support policies. Half of all post-secondary graduates had access to a WIL opportunity, yet nationally representative data that detail types of WIL experiences and lengths of work terms are limited, which in turn restricts the level of analysis that can be performed. Some of the funding that governments are investing in the development of WIL should be directed to collecting data that include more information and larger sample sizes to aid researchers and policymakers in program evaluation. There is a complex relationship between institutional and disciplinary practices, providing appropriate subsidization to encourage business participation and having many students require WIL placements to complete their education. In some fields, such as physical and life sciences and mathematics, and computer and information technologies, more than half of WIL participation is voluntary and higher proportions of students are paid for their work. In others, such as health and education, the vast majority of students participate in mandatory WIL, but very few of them are

paid. More granular and representative data could illuminate the interactions of government policy with these labour market and educational factors.

Opportunities exist to refine government policies supporting WIL to be more focused on outcomes. For example, a higher proportion of domestic students participate in WIL than immigrant graduates, despite research showing that immigrants with Canadian labour market experience during their studies are more likely to stay in Canada and that participation in a university WIL program is associated with significantly higher income after graduation (Crossman et al. 2022; Wyonch 2020). This suggests that there are opportunities to adjust government policies to subsidize improved labour market outcomes more efficiently for post-secondary graduates by, for example, targeting the expansion of co-op programs at the university level and encouraging participation of international students.

Policies supporting and governing WIL programs in Canada are complex and include taxation, subsidization and regulation. This means there are many options for adjusting, improving and further optimizing WIL policies. For example, since co-op programs, with interspersed work and academic terms, are associated with more benefits than are work placements at the end of studies, the subsidy for employing a student during a work term could be higher if the student is returning to studies following the term of employment or is currently enrolled in a co-op program. This could encourage more participation by employers in co-op programs.¹⁹ Alternatively, or as a complementary measure, educational institutions offering programs with work placements could

18 The tax credit is available to employers who hire students enrolled in a co-operative education program at an Ontario university or college.

19 However, this would decrease the relative incentive for employers to hire students in a work placement program. Work placements would still provide a wage subsidy in the form of a tax rebate and the benefits for employers of streamlined recruiting processes would remain. Before implementing such a policy, more analysis into the likely effects on other program enrolments would be necessary to set relative rates and determine the administrative costs relative to the potential benefits for graduates and employers.

adjust their programming to incorporate more features of co-op programs. Although dedicated work terms might not be feasible or practical for some programs prior to the completion of academic studies, programs could offer industry- or discipline-specific learning opportunities by inviting practitioners to share experiences with students, collecting and distributing feedback from students who have recently completed work terms or offering professional development elective options to improve the skills that students feel they gain from work experiences, such as business etiquette, leadership, teamwork and creative/innovative thinking.

In the current labour market context of low unemployment and high job vacancy rates, ensuring a smooth transition to the labour market for new graduates is directly linked to broader economic success. New graduates might not have difficulty finding employment when there is a labour shortage, but those who participate in WIL programs, particularly co-ops at the university level, are more likely to get a job that is well matched to their education and, in some cases, to have a higher income and be more likely to be employed in a permanent, full-time position. Since significant government spending is associated with supporting WIL programs, insights about the factors affecting graduates' success should inform strategic improvements to programs and be used to direct public policy efforts strategically to improve graduates' outcomes.

CONCLUSION

Successful transition from education to the labour market sets people up for careers in their chosen field, with better chances of secure, full-time employment at livable wages, with additional benefits such as supplementary health insurance and paid vacation time. Work-integrated learning programs help prepare post-secondary graduates for transition to the labour market and are associated with improved labour market outcomes across a number of metrics. More benefits, however, are associated with co-op programs and the university level of education. The results of our analysis echo those from previous studies that show WIL programs are beneficial, but also that important distinctions underlie the overall results. New data and analysis allow for a deeper understanding of the outcomes associated with different types of WIL and should inform future program design and expansion efforts. They should also help students form realistic expectations about their eventual labour market outcomes when deciding which programs, fields of study and type of institution they should enrol in for post-secondary studies.

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