Higher Education Quality Council of Ontario

An agency of the Government of Ontario

Great Divide or Small Fissure? A Comparison of Skills, Education and Earnings across Standard and Non-standard Workers

Danielle Lamb, Ryerson University and
Ken Chatoor, Higher Education Quality Council of Ontario

Published by

The Higher Education Quality Council of Ontario

1 Yonge Street, Suite 2402
Toronto, ON Canada, M5E 1E5

Phone: (416) 212-3893
Fax: (416) 212-3899
Web: www.heqco.ca
E-mail: info@heqco.ca

Education+Skills RESEARCH INITIATIVE

The Research Initiative on Education and Skills is an innovative and collaborative policy-research initiative led by the Mowat Centre and the Higher Education Quality Council of Ontario. The initiative is funded by Employment and Social Development Canada and the Ministry of Training, Colleges and Universities. Its purpose is to access, analyze and mobilize data relating to the education, skills and labour market outcomes of Canadians, and to disseminate the findings to inform policy development.

Cite this publication in the following format:

Lamb, D. & Chatoor, K. (2019). *Great Divide or Small Fissure? A Comparison of Skills, Education and Earnings across Standard and Non-standard Workers.* Toronto: Higher Education Quality Council of Ontario.

Higher Education Quality Council of Ontario

Acknowledgement

This research was supported by funds to the Canadian Research Data Centre Network from the Social Sciences and Humanities Research Council, the Canadian Institutes of Health Research, the Canadian Foundation for Innovation and Statistics Canada. Although the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada. The authors would also like to acknowledge Brad Seward and N.T. Khuong Truong for their assistance in preparing this report.

Table of Contents

List of Tables

Introduction

Stable, good quality employment is a common goal for many Canadians. Investments in skills development, through formal education or other means, are often prescribed as the solution to employment insecurity. The fact that Canada is among the most highly educated OECD countries (OECD, 2018) while roughly one-quarter of all working Canadians are employed in some form of non-standard job (e.g., Gomez & Lamb, 2019) calls into question the long-standing, often implicit assertion that education necessarily guarantees employment security.

To explore the connection between human capital and employment security we look at the relationship between skills and non-standard work in Canada. More specifically, we explore the rates of non-standard employment across various skill and education levels; the relationship between skills and the probability of having a standard job; and the differences in earnings between workers in standard and non-standard employment with a focus on the extent to which skills gaps may contribute to the lower earnings of non-standard workers.

Standard work generally refers to jobs that are permanent and full time while non-standard work refers to jobs that are temporary, contract or casual in nature, part-time employment, self-employment and holding multiple jobs.

Although we find some evidence that those in standard jobs are generally more highly skilled and/or highly educated, skills alone are not statistically significant in relation to the probability of being in a non-standard job. However, higher levels of educational attainment is an important predictor of standard employment.

Overall, the mean hourly earnings gap between standard and non-standard workers is large — approximately 34%. Literacy, numeracy and educational attainment are statistically significant contributors explaining the difference in earnings between standard and non-standard workers. As expected, skills, education and experience are correlated with higher earnings, however, human capital accumulation alone is not enough to close the wage gap between standard and non-standard jobs as much of the earnings disparity is not explained by the factors included in the analysis.

What is Non-standard Work?

The concept of non-standard work has been described in various ways (see, for example, Kalleberg, 2000, p. 341). To understand non-standard work, the notion of standard employment must first be established. Krahn (1995) succinctly defined standard jobs as those that are full-time and permanent. More recently, the International Labour Organization (ILO) (2016, p. xxi) defined standard work as “work that is full-time, indefinite, as well as part of a subordinate relationship between an employee and an employer.” According

to these two definitions, elements that make work standard are the hours worked (full-time), permanency and structure of the employment relationship (one employer). Vosko, Zukewich and Cranford (2003, p. 1) added additional considerations, namely that the employee "[works] on the employer's premises and enjoys extensive statutory benefits and entitlements." Non-standard work, therefore, is any form of work that is antithetical to the established standard on one or more of the dimensions described above. Practically speaking, non-standard employment encompasses temporary, contract or casual work; part-time work; self-employment; and holding multiple jobs (e.g., Cranford, Vosko & Zukewich, 2003).

Trends in Non-standard Employment in Canada

Much of the increase in non-standard work was driven by a rapid expansion in part-time work during the 1980s and 1990s (Krahn, 1995). More recently, overall rates of non-standard employment have been relatively constant over the past few decades (e.g., Busby & Muthukumaran, 2016, p. 1). However, one study found that the proportion of Canadians in full-time, permanent employment declined modestly from 1997 to 2014 (Gomez & Lamb, 2019).

Much of the changes in non-standard work is owed to an increasing number of workers in temporary employment. The number of workers employed in full-time, temporary work grew 56% from 1997 to 2015 (Busby & Muthukumaran, 2016, p. 6). In 2018, "more than one in eight employees worked in a temporary job" (Statistics Canada, 2019). At the same time, recent research suggests that jobs in Canada have become *more* stable over the past several decades, as measured by the probability of remaining with the same employer for an additional year (Brochu, 2013). On the surface, increases in non-standard work and in job stability seem to be contradictory trends. However, part-time employment may be permanent and temporary contracts may be of longer duration (i.e., more than one year). Furthermore, workers may have multiple, consecutive contracts with the same employer thereby accumulating tenure while maintaining temporary status. Therefore, the utilization of temporary work arrangements and the impact of such contracts on incumbent workers merits additional exploration.

Non-standard Work: Cause for Concern?

Employment arrangements that differ from the full-time, permanent standard work are not in and of themselves a cause for concern. In fact, non-standard forms of work may serve to benefit employers and employees alike by providing both with opportunities for greater flexibility (e.g., Krahn, 1995; Vosko et al., 2003). Kalleberg (2000, p. 358) captures the apprehension surrounding non-standard employment, stating, "Much of the controversy and concern about the rise in non-standard work arrangements is due to the assumption that they are associated with bad jobs." Given the number and heterogeneity of non-standard

forms of employment, it is reasonable to assume that, like standard jobs, non-standard ones may be found at various points along a continuum of job quality.

Concerns over non-standard work arise from the inherent instability and often low wages associated with such forms of employment. It may be argued that non-standard jobs create a secondary segment or lower tier of the labour market (e.g., Leontaridi, 1998). Therefore, a subtle but important distinction must be made between non-standard employment and precarious employment (e.g., ILO, 2016; Cranford et al., 2003; Vosko et al., 2003; Noack & Vosko, 2011). Noack and Vosko (2011, p. 3) define precarious work as "jobs [that are] characterized typically by high levels of uncertainty, low income, a lack of control of the labour process and limited access to regulatory protections." It is evident that, while not necessarily one and the same, there is overlap between non-standard work and employment that is potentially precarious.

As summarized by Kalleberg (2009, pp. 8-9), in addition to the obvious economic uncertainty and impact of low wages on individuals and the economy as a whole, precarious work may have negative effects on personal identity, making individuals employed in such arrangements feel isolated and less willing or able to engage socially. De Witte (1999) finds that job insecurity is very negatively related to psychological well-being. While Marshall and Tompa (2011) do not find a relationship between non-standard work and self-reported general health, they do find a positive correlation between low earnings and low health status. The focus for policy-makers, then, ought to be on non-standard forms of work that are precarious, particularly those that are low paid and insecure.

Skills in Non-standard Employment

In Canada, roughly one-quarter of all part-time work is involuntary (Busby & Muthukumaran, 2016, p. 5). Similarly, citing OECD estimates, Busby and Muthukumaran (2016, p. 10) find that about 25% of "temporary workers in Canada were in such jobs because they could not find permanent positions." The question for policy-makers is how to make standard employment more readily available to those who want it. The common and logical answer is by placing an emphasis on improvements in skills and education (e.g., Busby & Muthukumaran, 2016, p. 17). Within a segmented labour market, however, returns to human capital depend largely on employment in the primary sector. Those employed in the secondary sector, where many non-standard jobs are found, are less likely to experience the same benefits from education and work experience since the secondary sector by nature tends to lack upward career and income mobility (e.g., Leontaridi, 1998; Dickens & Lang, 1984). The more pervasive non-standard work arrangements become, the less certain it is that education and skills enhancement will serve as a sufficient buffer against precarious work. Kalleberg (2009, p. 10), writes, "the growth of precarious work has made educational decisions more precarious too. The uncertainty and unpredictability of future work opportunities make it hard for students to plan their educations."

Furthermore, employment in non-standard work may serve to either enhance or erode workers' human capital. Two possible scenarios with respect to temporary employment described by Fuller (2011) and Fuller and Stecy-Hildebrandt (2014) suggest that, on the one hand, temporary work may allow incumbents to develop a wider variety of skills and broader professional networks, which would support at least the maintenance, if not the accumulation, of human capital. On the other hand, if temporary (and other forms of non-standard) work involve the use of relatively few skill sets, and employees in such arrangements lack access to training and other developmental opportunities, employment in non-standard work, particularly that which is below one's skill level, may contribute to human capital stagnation or deterioration. Individuals may become "trapped" in less desirable forms of employment and cohorts of workers risk a collective deskilling as a result of non-standard employment (Fuller, 2011, p. 161; Fuller & Stecy-Hildebrandt, 2014).

Concerns surrounding non-standard employment can be largely mitigated if such forms of work are temporary and lead to more secure standard employment. The ILO (2016, p. xxiii) estimates that "transitions from temporary to permanent employment range from a yearly rate of under 10% to around 50% in counties with available data." Canadian studies that examine the probability of transitioning from temporary to permanent employment, for example, find that in the short term (two months after job ending), temporary workers are "more likely to become either unemployed, leave the labour force or take up a new temporary position than they are to move to a permanent position" (Fuller, 2011, p. 173). However, within one year "almost one-half of temporary workers … move into permanent work" (Fang & Macphail, 2008, p. 70).

The Distribution of Skills, Education and Earnings across Standard and Non-standard Employment: A Statistical Snapshot

We begin by presenting an overview of the proportion of Canadians in non-standard employment by skill and education level, as well as the differences in earnings between standard and non-standard workers across a number of key human-capital characteristics. Secondly, we test whether skills are related to the probability of having a standard job controlling for a number of observable characteristics. Thirdly, we estimate the relationship between skills and earnings, and finally we explore the extent to which skill differences contribute to the sizable earnings gap observed between standard and non-standard workers.

Consistent with previous research, our results show that in 2012 roughly 70% of workers in our sample were employed in standard work and approximately 30% were in some form of non-standard work arrangement (Table 1). Males were more likely than females to have a standard job. There is some evidence to suggest that higher levels of education and skills may help to secure standard employment, however, the "human capital divide" between standard and non-standard workers is perhaps not as large as one might have expected. Roughly two-thirds of respondents without PSE and/or with low levels of literacy, numeracy or

problem-solving skills had a full-time, permanent job. Consider, for example, respondents without postsecondary education: 63% had a standard job. Similarly, 66% of respondents with low levels of literacy were in standard employment.

Table 1: Proportion of Employees in Standard and Non-standard Work by Selected Worker Characteristics

	Standard	Non-standard
Males	74%	26%
Females	64%	36%
No PSE	63%	37%
PSE	73%	27%
Low literacy	66%	34%
High literacy	72%	28%
Low numeracy	65%	35%
High numeracy	74%	26%
Low problem-solving skills	67%	33%
High problem-solving skills	72%	28%
No problem solve test	65%	35%

Source: Program for the International Assessment of Adult Competencies and the Longitudinal and International Survey of Adults, 2012

Across all comparators, those in non-standard work earned substantially less per hour than those with standard employment (Table 2). The earnings gap between females in standard versus non-standard work was smaller than that among males. Postsecondary education widens the wage disparity between standard and non-standard workers, as do higher levels of skills. The largest mean earnings gaps between standard and non-standard workers were found among those who lacked the requisite comprehension to complete the problem-solving measure. Respondents in this category who were employed in non-standard work earned on average $12 per hour less than their similarly qualified counterparts with a standard job.

Table 2: Mean Hourly Earnings across Standard and Non-standard Workers

	Standard	Non-standard	Difference
	[1]	[2]	[1]-[2]
Males	$32	$23	$9
Females	$25	$19	$6
No PSE	$23	$17	$6
PSE	$32	$24	$8
Low literacy	$24	$18	$6
High literacy	$33	$24	$9
Low numeracy	$24	$18	$6
High numeracy	$35	$25	$10
Low problem-solving skills	$26	$19	$7
High problem-solving skills	$32	$23	$9
No problem solve test	$28	$16	$12

Source: Program for the International Assessment of Adult Competencies and the Longitudinal and International Survey of Adults, 2012

The Relationship between Skills and Standard Employment

Using a series of binary logistic regressions, we estimated the relationship between three types of skills — literacy, numeracy and problem solving — and the probability of having a standard job. (See Table A1 in Appendix). Since there was a high level of overlap between the skill sets (i.e., those highly skilled in one area were also likely to score well on measures of the other skills), we estimated separate logistic regression models for skill type. Controlling for a number of observable characteristics, none of the three types of skills were statistically significant in relation to the probability of having a standard job. Females were less likely than males to be employed in full-time, permanent work. The quadratic term for experience was statistically significant and negatively related to the probability of standard employment. However, the main effect of experience was positive but not statistically significant. This is a somewhat surprising finding and should be interpreted with caution, as it may be an artifact of our choice of model specification.

Levels of education above high school graduate were all positively related to the probability of standard employment. However, a college credential and a bachelor's degree were marginally significant, and a bachelor's degree in the numeracy model was not statistically significant. There were some important industry level differences in the probability of standard employment (not shown in Table A1), with manufacturing, finance, science and public administration being positively related to the probability of

having a standard job. Finally, larger workplaces were more likely to be associated with standard employment than firms with 50 or fewer employees.

At first glance, the lack of significant relationships between the skill sets measured in this analysis and the probability of having a standard job may be somewhat surprising. These findings call into question both the notion that non-standard jobs are *necessarily* low skill and that ameliorated skill sets will *certainly* provide access to standard employment. Given the overlap between skills and educational attainment, it is possible that the effects of skills are being captured by the set of variables accounting for level of education. It is also possible that these findings speak to the fact that non-standard work is increasingly common even in professional occupations. A recent report by the Canadian Centre for Policy Alternatives (CCPA) examining employment precarity among professionals suggests that 22% of professionals do not have a standard job (Hennessy & Tranjan, 2018, p. 9). The trend can be seen even among educated workers. The following excerpt from the CCPA report is telling (Hennessy & Tranjan, 2018, p. 15):

> A university education in a profession is supposed to be the ticket into a stable job but the survey reflects that more than half (53%) of the respondents who have a university or bachelor's degree work contract-to-contract, part-time or freelance, while 31% of those who completed a postgraduate university degree work on contract, part-time or freelance.

Several occupations where non-standard employment is typical among highly skilled workers come to mind including managerial consultants, sessional academics and health care workers employed by staffing agencies

The Relationship between Skills and Earnings

The results of this analysis are consistent with previous research in showing a positive relationship between skills, education, experience and earnings. As expected, higher levels of education and experience are positively related to higher hourly earnings. Controlling for a set of observable characteristics, those employed in non-standard work earned roughly 22% less than those with standard jobs. (See Table A2 in Appendix).

The three skill sets considered in this analysis — literacy, numeracy and problem solving — were positively and significantly correlated with earnings. All else being equal, respondents with high numeracy scores earned roughly 25% more per hour than those with low levels of numeracy (Table A2 sub-column 1b). The

returns to high levels of literacy and problem solving were roughly 21% and 17% respectively (Table A2 sub-columns 1a and 1c).[1]

The raw gap between standard and non-standard workers was 0.411 log points, or roughly 34%.[2] Depending on the model, between 0.158 and 0.161, roughly 38% to 39%, of this gap is explained by the endowment characteristics included in the models, leaving approximately 60% of the gap unexplained by the variables included in the models. The most important characteristics contributing to the explained portion of the raw difference in the earnings of standard versus non-standard workers include education, industry and firm size. The fact that females have typically lower average earnings than males and tend to be overrepresented in non-standard work is also an important factor explaining the difference in earnings between standard and non-standard employees.

The contribution of literacy and numeracy skills to the explained portion of the earnings gap was statistically significant. However, the magnitudes of the coefficients were qualitatively small. Differences in problem-solving skills were not a statistically significant factor explaining the wage gap between those in standard and non-standard jobs. The fact that roughly 60% of the earnings difference between standard and non-standard workers was unexplained suggests that non-standard workers receive differential returns for the same observable characteristics, which is consistent with a segmented labour market in which many non-standard jobs are likely found.

Policy Implications

We begin this section by reviewing some of the policy implications related to non-standard work that have been suggested by others (Busby & Muthukumaran, 2016; ILO, 2016; RBC, 2018). The policy recommendations largely centre on providing some measure of employment and income security for non-standard workers. The ILO (2016, p. xxiv), for example, recommends legislation that imposes minimum guaranteed hours and restrictions on scheduling that would help to protect some workers from zero hours contracts, which allow employers to create contracts that do not guarantee minimum hours on a regular basis, and erratic, overly burdensome shift schedules.

1 Point estimates from the OLS regression models are converted to percentages for ease of interpretation by taking [exp (coeff.) - 1]*100 as in Halvorsen and Palmquist (1980).
2 The mean difference in the natural logarithm of hourly earnings is converted to a percent by taking [1-exp (-log wage gap)]*100 as illustrated, for example, by George and Kuhn (1994, p. 29).

To illustrate the problems surrounding scheduling, the term “clopening” has been coined, which colloquially refers to situations where workers, often in retail and fast-food industries, work a closing shift followed by an opening shift the next morning leaving limited time for rest between periods of work. This is but one example of the subtle yet pernicious ways that some non-standard workers can become trapped in such employment arrangements. The relatively low pay and structure of their shifts leave them without the financial, physical or mental resources necessary to pursue upgrading their skills should they so desire. In response to this concern, for example, the Ontario Employment Standards Act mandates that at least eight hours of rest be provided between shifts (Ministry of Labour, 2018).

To address income insecurity, two reports point to possible changes to employment legislation. Busby and Muthukumaran (2016, p. 13) suggest improvements to minimum wages and paid sick days, although the authors caution that in order to be useful, such legislation would require enforcement and that it may have unintended consequences on employment levels. The ILO (2016, p. xxiv) advocates for “ensuring equal treatment for workers in [non-standard employment]” as “a way of maintaining a level playing field for employers.”

An example of such policies might include employment standards provisions of equal pay for equal work regardless of contract type. In theory such laws would act as a disincentive for employers to rely on part-time and temporary labour. In practice, however, efficacy requires compliance and it is conceivable that employers could make minor changes to the job descriptions of full-time versus non-standard contracts thereby circumventing employment standards definitions of equal work. As Busby and Muthukumaran (2016, p. 13) note, legislation is an important avenue for policy-makers to explore. However, it may be of limited use in responding to concerns about inequalities arising out of non-standard work arrangements.

Finally, the ILO (2016, p. xxiv) supports improving access of non-standard workers to collective representation. A recent study shows that while rates of collective agreement coverage are lower for non-standard workers in Canada, they are still relatively high with roughly one-quarter of those in non-standard jobs being covered by a collective agreement compared to 32% of workers in full-time, permanent employment (Gomez & Lamb, 2019). Additional suggestions aimed at promoting access to social assistance programs, such as employment insurance and non-wage benefits, were made by both the reports (Busby & Muthukumaran, 2016; ILO, 2016).

The policy recommendations summarized above seek to mitigate some of the negative consequences of non-standard employment. The central question of this report emphasizes the relationship between skills and non-standard work with the implicit assumption that standard jobs are preferred over non-standard ones. As noted earlier, this is not necessarily the case as there are certainly those who choose non-standard work for various reasons. It is also true that a standard job is not necessarily synonymous with a good job. Non-standard jobs, however, are at a higher risk of being lower in quality on a number of dimensions (e.g.,

Chen & Mehdi, 2019; Arranz, Garcia-Serrano & Hernandez, 2018). Therefore, recommendations of human capital accumulation are targeted toward those who are employed in low quality, non-standard jobs and who would otherwise prefer higher quality, standard employment. (Indeed, such programs would also serve to benefit those in standard work who wish to upgrade their skills).

Increasing skills and educational attainment remains the most likely avenue to greater employment stability, higher earnings and upward career mobility. This suggestion is supported by our findings that higher levels of educational attainment are positively related to earnings as well as the probability of having a standard job. While all three skill sets — literacy, numeracy and problem solving — were related to higher earnings, none were significantly correlated to the probability of having a standard job. This could be due to the high level of overlap between skills and formal education. We concur with the recommendations made by others who seek to remove barriers to education and improve access to training through government supported programs (Busby & Muthukumaran, 2016, p. 17; RBC, 2018)

A report by RBC (2018, p. 38) highlights the SkillsFuture initiative in Singapore, a government program that provides career guidance and subsidized training and education for all citizens 25 years old and older. Singapore's ambitious plan will undoubtedly be an important model for other economies seeking to preserve and advance their collective human capital, however, the large price tag of the program will likely prevent more governments from following suit.

Initiatives that seek to improve skills and educational attainment, while beneficial, are inherently limited by the fact that they focus entirely on the characteristics of the worker; less emphasis is given to the demand side of the labour market, particularly with respect to job quality, since private employers are arguably less sensitive to policy interventions than public systems such as education and social supports. Even public sector employers, although somewhat more insulated from competitive pressures, still face resource constraints and as a result may also rely heavily on non-standard contracts.

These challenges notwithstanding, a discussion surrounding non-standard employment would be remiss if it neglected the employer's perspective. Employers may use non-standard work to achieve cost savings and flexibility, or to reduce the risks of a "bad hire" (ILO, 2016).[3] In attempts to improve job quality, public policy could explore ways to encourage employers to provide training programs to non-standard workers (Busby & Muthukumaran, 2016, p. 17) as well as to provide more full-time, permanent positions through subsidies or job-creation tax credits (see, for example, Government of Ontario, 2019).

3 The ILO (2016) provides a detailed chapter (Ch. 4 pp. 157-184) in its report on the firms' use and perspective on non-standard work.

Our results show that larger firms are associated with an increased probability of having a standard job as well as an hourly earnings premium. Firm size is also a significant factor explaining the earnings disparities between standard and non-standard workers. Therefore, employer programs targeted toward small and medium businesses may help reduce the risk and associated costs of hiring and training full-time permanent employees. Furthermore, since smaller workplaces lack internal labour markets (e.g., job postings available only to current employees, see Leontaridi, 1998), governments may create occupational portals or networks to assist non-standard workers in maintaining professional connections and information relevant in their field. This may be particularly helpful for skilled non-standard workers who may be marginalized in their careers as a result of their employment contract.

For young workers, who are typically overrepresented in non-standard employment, high quality paid internships and apprenticeships may aid them in connecting with employers and building professional networks. Such opportunities may also reduce hiring risks for employers. There is evidence to suggest that internships are positively related to finding "career-oriented employment" after graduation (Callanan & Benzing, 2004, p. 86) and higher earnings (Saniter & Siedler, 2014). On the other hand, internships by nature of being temporary are still forms of non-standard work. However, if internships are part of an academic curriculum, some of the insecurity associated with temporary work may be mitigated by the fact that participants are in the process of completing formal education. Additionally, the educational institution may take some measures to ensure the quality of approved internship programs. Internships as part of academic programs are, therefore, a unique form of non-standard employment and their relationship to future employment outcomes would be a worthwhile direction for further research.

Perhaps the most concise and cost-effective recommendation to come out of this analysis is the need to collect more detailed data on the prevalence and quality of non-standard employment in Canada. The Labour Force Survey, for example, currently collects information on the voluntary/involuntary status of part-time work (Statistics Canada, 2014); similar questions may be added that address temporary contract employment.

Conclusions

In this report we analyze the distribution of education and skills across standard and non-standard workers; we examine the returns to three skill sets — literacy, numeracy and problem solving; and we estimate the extent to which differences in skill levels contribute to the sizeable earnings disparity between standard and non-standard workers. Unsurprisingly, all three skill sets are positively related to higher hourly earnings, with numeracy yielding the largest returns of the three skills sets considered. We find that on average, workers in non-standard jobs earn roughly 34% less per hour than their counterparts in standard employment; only about 40% of this gap is attributable to the set of wage-determining characteristics

included in the analysis. The fact that roughly 60% of the earnings disparity between standard and non-standard workers is unexplained by the variables included in the model is perhaps indicative of a secondary labour market for non-standard work and suggests that upskilling alone is insufficient to close the wage gap between standard and non-standard employment.

The results of the logistic regressions find no statistically significant relationship between skills and the probability of standard employment. The models do, however, show a positive correlation between higher levels of education and the likelihood of having a standard job, which is not surprising given that skills are largely unobservable and are often signalled through formal education credentials (Spence, 1973). These findings suggest that there is still some truth to the notion that education helps to ensure employment stability. However, the prevalence of non-standard work in professional occupations suggests, at least anecdotally, that the link between human capital and employment security may not be as strong at present as it was in decades past.

We echo the policy suggestions made by others that call on policy-makers to focus on providing some measure of income and job security for non-standard workers as well as initiatives focused on skills and education upgrading. We also encourage policy-makers to consider and engage with employers to better understand the use of non-standard employment and to incentivize improvements in job quality and the creation of full-time, permanent positions through subsidized training and job-creation credits. Such programs may be particularly effective for smaller organizations. Future research on non-standard employment requires more detailed measures of the characteristics of both non-standard workers and the quality of non-standard jobs. The addition of questions to the Labour Force Survey that seek to determine whether temporary work is voluntary or not would be an important first step.

References

Arranz, J.M., Garcia-Serrano, C. & Hernanz, V. (2018). Employment Quality: Are There Differences by Types of Contract? *Social Indicators Research 137*(1), 203–230.

Blinder, Alan S. (1973). 'Wage Discrimination: Reduced Form and Structural Estimates. *The Journal of Human Resources* 8(4): 436-455.

Brochu, P. (2013). The Source of the New Canadian Job Stability Patterns. *Canadian Journal of Economics*, *46*(2), 412–440.

Busby, C. & Muthukumaran, R. (2016). Precarious Positions: Policy Options to Mitigate Risks in Non-standard Employment. Toronto: CD Howe Institute, Commentary No. 462.

Callanan, G. & Benzing, C. (2004). Assessing the Role of Internships in the Career-Oriented Employment of Graduating College Students. *Education + Training, 46*(2), 82–89.

Chen, W.H. & Mehdi, T. (2019). Assessing Job Quality in Canada: A Multidimensional Approach. *Canadian Public Policy/Analyse de Politiques (45)*2, 173–191.

Cranford, C. J., Vosko, L.F. & Zukewich, N. (2003). Precarious Employment in the Canadian Labour Market: A Statistical Portrait. *Just Labour 3*(Fall), 6–22.

De Witte, H. (1999). Job Insecurity and Psychological Well-being: Review of the Literature and Exploration of Some Unresolved Issues. *European Journal of Work and Organizational Psychology 8*(2), 155–177.

Dickens, W. T. & Lang, K. (1984). A Test of Dual Labor Market Theory. Working Paper No. 1314 Cambridge, MA: National Bureau of Economic Research.

Fang, T. & Macphail, F. (2008). Transitions from Temporary to Permanent Work in Canada: Who Makes the Transition and Why? *Social Indicators Research 88*(1), 51–74.

Fuller, S. (2011). Up and On or Down and Out? Gender, Immigration and the Consequences of Temporary Employment in Canada. *Research in Social Stratification and Mobility 29*(2): 155–180.

Fuller, S. & Stecy-Hildebrandt, N. (2014). Lasting Disadvantage? Comparing Career Trajectories of Matched Temporary and Permanent Workers in Canada. *Canadian Review of Sociology 51*(4), 293–324.

George, P. & Kuhn, P. (1994) The Size and Structure of Native-White Differentials in Canada. *Canadian Journal of Economics*, *27* (1), 20–42.

Gomez, R. & Lamb, D. (2019). Unions and Non-Standard Work: Union Representation and Wage Premiums Across Non-Standard Work Arrangements in Canada, 1997-2014. *ILR Review*, *72*(4), 1009–1035.

Government of Ontario. (2019). Hiring and Training Incentives for Employers. Toronto: Ministry of Economic Development, Job Creation and Trade. https://www.ontario.ca/page/hiring-incentives-employers.

Halvorsen, R. & Palmquist, R. (1980). "The Interpretation of Dummy Variables in Semilogarithimic Equations." *American Economic Review*, *70*(3), 474–475

Hennessy, T. & Tranjan, R. (2018). No Safe Harbour: Precarious Work and Economic Insecurity among Skilled Professionals in Canada. Canadian Centre for Policy Alternatives (August).

International Labour Organization. (2016). Non-standard Employment around the World: Understanding Challenges, Shaping Prospects. Geneva: International Labour Organization.

Kalleberg, A. (2000). Nonstandard Employment Relations: Part-Time, Temporary and Contract Work. *Annual Review of Sociology 26*(1), 341–365.

Kalleberg, A. (2009). Precarious Work, Insecure Workers: Employment Relations in Transition. *American Sociological Review 74*(1), 1–22.

Krahn, H. (1995). Non-Standard Work on the Rise. *Perspectives* (Winter), 35–42. Ottawa: Statistics Canada.

Leontaridi, M.R. (1998). Segmented Labour Markets: Theory and Evidence. *Journal of Economic Surveys 12*(1), 103–109.

Ministry of Labour. (2018). Rests between Shifts. Toronto: Ontario Ministry of Labour. https://www.labour.gov.on.ca/english/es/tools/hours/daily_rest_between_shifts_tutorial.php.

Noack, A. M. & Vosko, L. F. (2011). Precarious Jobs in Ontario: Mapping Dimensions of Labour Market Insecurity by Workers' Social Location and Context. Law Commission of Ontario (November).

Oaxaca, Ronald. (1973). 'Male-Female Wage Differentials in Urban Labor Markets.' *International Economic Review* 14(3): 693-709.

OECD (2018). Adult Education Level. OECD Data https://data.oecd.org/eduatt/adult-education-level.htm

RBC. (2018). *Humans Wanted: How Canadian Youth Can Thrive in the Age of Disruption. The Coming Skills Revolution*. Toronto: RBC.

Saniter, N. & Siedler, T. (2014). Door Opener or Waste of Time? The Effects of Student Internships on Labour Market Outcomes. Bonn, Germany: The Institute for the Study of Labour (IZA). Discussion Paper No. 8141 (April).

Scott-Marshall, H. & Tompa, E. (2011). The health consequences of precarious employment experiences. *Work, 38*(4), 369–382.

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), 355–74.

Statistics Canada. (2019). Temporary Employment in Canada, 2018. Infographic (May 14). https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2019034-eng.htm.

Statistics Canada. 2014. Guide to the Labour Force Survey 2014. Ottawa: Statistics Canada, Labour Force Survey Program, Labour Statistics Division. Cat. No. 71-534-G.

Vosko, L.F., Zukewich, N. & Cranford, C. (2003). Precarious Jobs: A New Typology of Employment. *Perspectives 4*(10), 1–11. Ottawa: Statistics Canada.

Appendix

Empirical Approach

We utilize logistic regression models to examine the probability of non-standard employment. The relationship between earnings and skills is modelled using a series of linear OLS regressions. The difference in mean hourly earnings between standard and non-standard workers is decomposed following the well-established Blinder (1973) – Oaxaca (1973) technique. The focal independent variables in all models are the three measures of skills: literacy, numeracy and problem solving. Control variables in the regressions include: sex, education, industry, firm size, language, marital status, presence of children, visible minority indicator, Indigenous person, immigrant status, self-reported health status, residence in an urban area and geographic region of residence. Experience is a continuous variable and is measured as age-years of schooling – 5. The models where problem solving is the key independent variable also include an indicator, "no test," denoting respondents who did not have the ability to take the problem-solving assessment.

Data for this report is from the Canadian file of the 2012 Program for the International Assessment of Adult Competencies (PIAAC) and the Longitudinal and International Study of Adults (LISA). The LISA survey is a subsample of PIAAC respondents that, for the purposes of this report, provides information on employment and earnings. We focus on individuals between the ages of 16 and 65 years old who are employed with positive, non-missing wages. We exclude unemployed persons, those who are self-employed as well as those currently in school. This leaves a sample size of roughly 4,100 respondents. A key outcome measure in our analysis is hourly earnings from wages and salaries for standard and non-standard workers.

We define a standard worker as someone who has a full-time, permanent job (i.e., at least 30 hours per week). Non-standard work includes all forms of employment that are not full-time and permanent. A unique feature of the PIAAC exploited in this report is that it includes three objective measures of different skill sets: literacy, numeracy and problem-solving ability. Each skill set is measured on a scale from 1 to 4; we define individuals with scores of 3 or 4 as "highly skilled."

Table A1: Skills and the Probability of Standard Employment

DV= Probability of standard work (1, 0)	**Literacy** [1]	**Numeracy** [2]	**Problem Solving** [3]
[Low skill (1, 2, or 3)]			
High Skill (1, 2, or 3)	0.041 (0.111)	0.098 (0.121)	0.085 (0.142)
[Below high school]			
High school	0.147 (0.170)	0.140 (0.170)	0.145 (0.171)
College	0.393* (0.164)	0.379* (0.164)	0.393* (0.164)
Bachelor's	0.398* (0.199)	0.371 (0.202)	0.394* (0.199)
Above bachelor's	0.655** (0.227)	0.623** (0.230)	0.652** (0.225)
Experience	0.002 (0.004)	0.002 (0.004)	0.002 (0.004)
Experience squared	-0.458*** (0.060)	-0.457*** (0.060)	-0.459*** (0.060)
[Male]			
Female	-0.431*** (0.097)	-0.420*** (0.098)	-0.433*** (0.097)
Sample size	4100	4100	4100
Full controls	Yes	Yes	Yes

*p<0.1, **p<0.05, ***p<0.001

Notes: The outcome is a dummy variable coded "1" if a respondent held a standard job and "0" otherwise. The sample excludes students, unemployed and self-employed individuals. Control variables not shown here include: no test (in model 3 for those who did not have the ability to take the problem-solving test), industry, firm size, language, marital status, presence of children, visible minority indicator, Indigenous person, immigrant status, self-reported health status, residence in an urban area and geographic region of residence. Experience is a continuous variable and is measured as age-years of schooling (5), which serves only as a rough proxy for actual experience since respondents may have discontinuous work histories. Sample sizes are rounded to the nearest multiple of 100. Standard errors are displayed in parentheses below the coefficients.

Table A2: OLS Earnings Equations, Log of Hourly Earnings

DV=ln hourly wage	Literacy (A)			Numeracy (B)			Problem Solving (C)		
	Pooled [1a]	Male [2a]	Female [3a]	Pooled [1b]	Male [2b]	Female [3b]	Pooled [1c]	Male [2c]	Female [3c]
[Male]									
Female	-0.163*** (0.031)	--	--	-0.140*** (0.032)	--	--	-0.165*** (0.032)	--	--
[Low Skill: A, B or C]									
High Skill: A, B or C	0.194*** (0.039)	0.199** (0.063)	0.178*** (0.051)	0.223*** (0.041)	0.240*** (0.060)	0.187*** (0.052)	0.155*** (0.041)	0.154* (0.061)	0.146** (0.052)
[Standard]									
Non-standard	-0.252*** (0.034)	-0.253*** (0.058)	-0.248*** (0.040)	-0.249*** (0.034)	-0.251*** (0.058)	-0.244*** (0.041)	-0.251*** (0.035)	-0.254*** (0.058)	-0.243*** (0.041)
[Below high school]									
High school	0.168* (0.068)	0.198* (0.097)	0.119 (0.081)	0.171* (0.067)	0.194* (0.095)	0.132 (0.081)	0.179** (0.069)	0.210* (0.098)	0.128 (0.082)
College	0.298*** (0.065)	0.334*** (0.096)	0.213* (0.084)	0.296*** (0.064)	0.320*** (0.093)	0.226** (0.083)	0.324*** (0.066)	0.360*** (0.098)	0.239** (0.083)
Bachelor's	0.490*** (0.078)	0.523*** (0.118)	0.392*** (0.094)	0.476*** (0.077)	0.497*** (0.113)	0.394*** (0.093)	0.529*** (0.079)	0.560*** (0.120)	0.431*** (0.092)
Above bachelor's	0.607*** (0.082)	0.659*** (0.121)	0.494*** (0.104)	0.588*** (0.081)	0.638*** (0.116)	0.484*** (0.105)	0.652*** (0.083)	0.703*** (0.121)	0.537*** (0.103)
Experience	0.039*** (0.005)	0.039*** (0.008)	0.040*** (0.006)	0.039*** (0.005)	0.039*** (0.008)	0.040*** (0.006)	0.040*** (0.005)	0.041*** (0.008)	0.040*** (0.006)
Experience squared	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Sample N	4100	2000	2100	4100	2000	2100	4100	2000	2100
Full controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*p<0.1, **p<0.05, ***p<0.001

Table A3: Decomposition of Mean in Hourly Earnings, Standard and Non-Standard Workers

Standard workers	2.662***		
Mean in hourly wage	(0.017)		
Non-standard workers	2.251***		
Mean in hourly wage	(0.032)		
Overall raw gap	0.411***		
Standard - Non-standard	(0.036)		
Overall Decomposition for Each Skill Set			
	Literacy (A)	**Numeracy (B)**	**Problem Solving (C)**
Total explained	0.159***	0.161***	0.158***
	(0.019)	(0.019)	(0.019)
Total unexplained	0.252***	0.249***	0.252***
	(0.034)	(0.034)	(0.035)
Detailed Sub-decomposition of the Explained Component			
Skill A, B or C	0.012*	0.021**	0.002
	(0.005)	(0.007)	(0.003)
Female	0.020***	0.017***	0.021***
	(0.005)	(0.005)	(0.006)
Education	0.035***	0.034***	0.040***
	(0.009)	(0.008)	(0.010)
Language	0.002	0.001	0.001
	(0.004)	(0.004)	(0.004)
Marital status	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
Presence of children	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)
Visible minority	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)
Immigrant	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)
Indigenous person	0.004	0.004	0.004
	(0.003)	(0.003)	(0.003)
Firm size	0.023***	0.022***	0.023***
	(0.006)	(0.006)	(0.006)
Experience	0.006	0.006	0.006
	(0.023)	(0.023)	(0.023)
Experience squared	0.031	0.031	0.032
	(0.017)	(0.017)	(0.017)

Self-reported health	0.002	0.002	0.002
	(0.003)	(0.003)	(0.003)
Reside in urban area	0.004	0.004	0.005
	(0.002)	(0.002)	(0.003)
Industry	0.026**	0.025**	0.028**
	(0.009)	(0.009)	(0.009)
Region (geography)	-0.006	-0.006	-0.006
	(0.004)	(0.004)	(0.004)

*p<0.1, **p<0.05, ***p<0.001

Notes for Tables A2 and A3*:* The outcome in Table A2 is the natural logarithm of hourly earnings. The sample excludes students, unemployed and self-employed. Control variables not shown here include: no test (in models 1c - 3c for those who did not have the ability to take the problem-solving test), industry, firm size, language, marital status, presence of children, visible minority indicator, Indigenous person, immigrant status, self-reported health status, residence in an urban area and geographic region of residence. Experience is a continuous variable and, following convention, is measured as Age-years of schooling (5). Sample sizes are rounded to the nearest multiple of 100. Models in Table A2 control for working in a non-standard job. Models (not shown) used in the decomposition in Table A3 are estimated separately for standard and non-standard workers and include a control variable for sex. In the display of the decomposition results (Table A3) sets of dummy variables are grouped together for ease of interpretation. Standard errors are displayed in parentheses below the coefficients.

Higher Education Quality Council of Ontario

An agency of the Government of Ontario