*administrative sciences*

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# How Do the Labour Force Characteristics Encounter COVID-19 Economic Consequences—A Canadian Experience

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**Abstract:** This paper draws on a current international analysis of pandemic consequences in the labour market and on the way different segments have been impacted. The purpose is to provide a critical investigation of the facts and arguments regarding how and why the consequences of the same health epidemic are differently faced at an uneven socio-economic burden. The objectives are twofold: First, we aim to explore on an international level the inequality settings that COVID-19 has highlighted, focusing on the most affected economic pillars such as the labour market. Second, we provide an empirical analysis of the likelihood of Canadian labour force participants to be unemployed before and after COVID-19, as one of the measurable effects of the pandemic. We assess how the likelihood of the working-age population falling into the unemployment pool varies before, during and immediately after the pandemic restrictions ease, using Canadian Labour Force Survey microdata. The findings indicate that mainly immigrants and youth suffered the most, pointing out their probably higher participation in precarious jobs and calling for policy initiatives to fix the structural faults in the labour market.

**Keywords:** labour market; LFS; COVID-19; unemployment



**Citation:** Gjipali, Arsena, Valbona Karapici, and Nevila Baci. 2023. How Do the Labour Force Characteristics Encounter COVID-19 Economic Consequences—A Canadian Experience. *Administrative Sciences* 13: 209. https://doi.org/10.3390/admsci13090209

Received: 12 July 2023
Revised: 16 August 2023
Accepted: 12 September 2023
Published: 19 September 2023



## 1. Introduction

It is likely a once-in-a-century occurrence that humankind is so largely affected by a pandemic such as the novel coronavirus (COVID-19). Globally involving communities in its multidimensions, the COVID-19 epidemic is challenging the world not only in the health component, but also in the economic and socio-political spectrum. There is a general opinion that it has brought into light some structural issues that shape our modern society. The concern is that the present structural and social organization do not provide an immune system to be separately enjoyable by any individual, if that is not overseen and secured for the society as a whole.

This paper draws on a current international analysis of pandemic consequences in the labour market and on the way different segments have been impacted. The purpose is to provide a critical investigation of the facts and arguments regarding how and why the consequences of the same health epidemic are differently faced at an uneven socio-economic burden. The objectives are twofold: First, we aim to explore on an international level the inequality settings that COVID-19 has highlighted, focusing on the most affected economic pillars such as the labour market. Second, we aim to provide an empirical analysis of the likelihood of Canadian labour force participants to be unemployed before and after COVID-19, as one of the measurable effects of the pandemic.

The value added of this study is that it investigates the pandemic's socio-economic impact in terms of the labour market status on diverse groups in Canada. It shows how such a shock has different effects on those groups in a developed economy by empirically

focusing on the timing just before, after, and during the core months of the COVID-19 closure, providing a dynamic examination of the investigation.

There is a rationale for focusing on the labour market. Due to the human element it incorporates, it conveys influences into multidimensional aspects of societies, beginning with the household unit. Underutilization of human capital and/or increased risk while at work would highly affect the productivity of a country's labour force and, hence, its gross output. Moreover, social and mental concerns are associated with a disruption of the normal connection of the individuals in the labour force to the labour market.

In this paper, the unemployment probability affected by COVID-19 is empirically elaborated based on the Canadian Labour Force (LFS) microdata. The rationale is that labour market status translates into economic prospects at the individual and country aggregate level. Health risks associated with failure and/or partial social distancing measures and practices due to the COVID-19 pandemic, which are not able to be maintained in many work posts, represent other consequences. These are also discussed here, with the potential challenge to lay down the road for empirically exploring the COVID-19 risk dimension of those working. The emphasis is on the unequal impacts that COVID-19 had. Individuals and societies do not operate in closed nutshells. There is always the possibility of transmission effects such that the unequally larger burden carried by some would be reflected in the outcome for the whole society.

The rest of the paper follows with a critical up-to-date literature review on how COVID-19 has demonstrated some of the structural weaknesses that prevail not only in developing countries, but in developed economies as well. The focus will be on labour market experiences. Next, an empirical analysis of the COVID-19 impacts on the Canadian labour force will be developed, along with an explanation of the data, methodology and results. A discussion of the policy implications precedes the Conclusions section.

## 2. COVID-19 as a Showcase of Inequality

Although the COVID-19 pandemic has only been around for slightly more than a year, a whole literature has recently evolved on the effects it has had on health, the economy and other aspects of human life at the individual level and in the aggregate as well. Because it is a virus that does not make distinctions among the subjects it touches, the question raised is whether it would be an equalizing factor. The general agreement is that it is not. To begin with, health disparities are amplified universally, and this has prevailed not only in developing countries and emerging markets, where it is assumed that institutions of government and of public administration are much less well-developed than in advanced countries. Challenges have been faced in developed economies too, meaning that those were already existent before COVID-19. For example, Wiemers et al. (2020) find for US adults that income, education and race/ethnicity differently affect vulnerability to hospitalization from COVID-19. It is further argued that workers without a college degree and positioned at the lower end of work income are less likely to socially distance at work or to work from home.

Concerns related to COVID-19's effects are justified, as Furceri et al. (2020) investigate that past similar events, although much smaller in scale than the COVID-19 pandemic, have led to increases in the Gini coefficient as a measure of inequality. The employment-to-population ratio for those with basic education compared to those with higher education has been lowered, and people are pushed into precarious work in the form of self-employment or in the informal sector. In this context, an international issue raised by the pandemic is the extent to which the economy relies on a low-wage workforce and a public awareness of this fact (Fernandez-Reino et al. 2020).

There is a general accordance that precarious workers bear the most effects of COVID-19 (Matilla-Santander et al. 2021; ILO 2020). As the term precarious is becoming more commonly used at the international level, the usual context it is associated with is contingent, atypical or non-standard work, or "bad" job quality. According to the ILO (2011), it includes employment in the formal and informal economy, and is "*usually defined by uncer-*

*tainty as to the duration of employment, multiple possible employers or a disguised or ambiguous employment relationship, a lack of access to social protection and benefits usually associated with employment, low pay, and substantial legal and practical obstacles to joining a trade union and bargaining collectively*" (p. 5). Young people, women, migrants, low-skilled workers and combinations of these are mostly in precarious work (Keune 2011; Barratt et al. 2020), whilst education has emerged as the great divider between persons with good jobs and those with bad jobs. In Canada, youth, the less-educated and those in blue-collar occupations have been underrepresented in the best job quality group (Chen and Mehdi 2019).

There is evidence that the prevalence of temporary work in OECD countries has been increasing during recent decades, at a faster pace in the European Union (ILO 2011) and the US (Kalleberg 2011). A briefing from the European Parliament (2020) states that while the number of precarious workers in the EU has increased over the years, this trend, together with the emergence of new business models, is widening the gap between well-protected workers and non-standard workers. On the other side, as this pandemic has shown, precarious work is a means for employers to shift the risks and responsibilities on to workers. Thus, the sector producing goods that needed to remain available during the pandemic required mostly low-wage workers to produce these goods. As part of that, food industry workers, including meatpackers, agricultural workers and service workers, were left in the most vulnerable positions (Autin et al. 2020) and were the hardest hit by the event (The Guardian 2020).

Precarious employment may be a factor deterring control measures against new COVID-19 outbreaks (Matilla-Santander et al. 2021). Accordingly, as workers in those jobs may lack access to paid sick leave, they would be forced to work while sick to avoid losing income or the job. This would further accelerate the unequal spread of COVID-19. For example, as Clibborn and Wright (2020) argue, an underclass of migrant workers has generated public health risks, including from COVID-19. In Canada, many are calling for more favourable or permanent paid sick days given the many restrictions for lower-income, precarious and migrant workers that the federal COVID-19 sick leave benefit has.

There is a general agreement in the current literature that more women lost jobs than did men during the pandemic, which in turn increased significantly the gender income gap. The economic downturn following the coronavirus crisis has negatively affected women's attachment to the labour market compared to men's, both in term of overall employment level and in terms of working hours. Furthermore, Barneveld et al. (2020) state that women are more likely to be working in jobs requiring a continued risk of exposure to the virus, due to the feminised nature of sectors such as health, education and retail. Analysing Israeli data of the labour force in the first week of March 2020 prior to the lockdown of the economy, and again in the last week of April 2020 (after the economy was shut down, but before it was reopened), Kristal and Yaish (2020) find that the gender equality consequences of the economic downturn following the pandemic were severe, with women's employment and income more severely affected than men's.

Due to the pandemic, among the G20 countries, the unemployment in the United States reached the highest rate since the Great Depression (Autin et al. 2020), followed by Canada, increasing by considerably more than during the Global Financial Crisis (ILO 2020). Reflecting to a certain extent the differences in the treatment of workers, there are country differences in classifying temporary layoffs as unemployed in Canada and the US but as employed elsewhere, as, for example, in the EU, where job retention schemes were applied to prevent people from becoming unemployed in the first place. In large emerging economies, such as India, the estimated unemployment rate tripled during lockdown (Dhingra and Machin 2020).

Increases in unemployment rates were associated with a changing behaviour of the labour supply in terms of reduced participation, as employment is hardly recovering. For example, in Canada, April 2020 marks a sharp increase in the unemployment rate, and although there is a slightly decreasing trend beginning in summer 2020, it is not back to the pre-pandemic levels (Figure 1). It is higher for the young participants of 15–24 years of age,

for whom the discrepancy from the other age categories has been sharpened and remains larger than before.

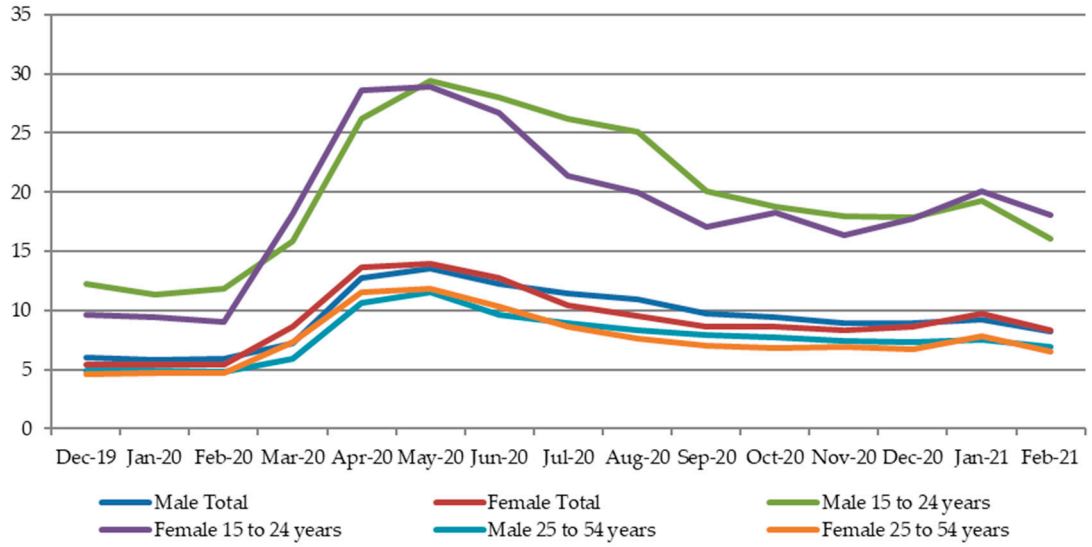


**Figure 1.** Monthly unemployment rate in Canada (in percentage). Source: Statistics Canada (2020).

Given the COVID-19 restrictions and health risks, it seems that many chose to withdraw, at least temporarily, from the labour market. As they have returned to the pre-pandemic level, the differences among the gender and age categories are the same as before, with just more than 90 percent of males in the age group 25–54 participating in the labour force (Figure 2). Employment rates, as almost everywhere else in the world, are not yet all recuperated (Figure 3). Young males and females seem to have recovered less of the jobs lost compared to other age groups.

It seems that the trends in unemployment rates has mostly reflected the pandemic consequences. Hence, in the following, an empirical investigation is provided to explore the measurable determinants in terms of those characteristics that were mentioned as featuring characteristics of precarious workers.

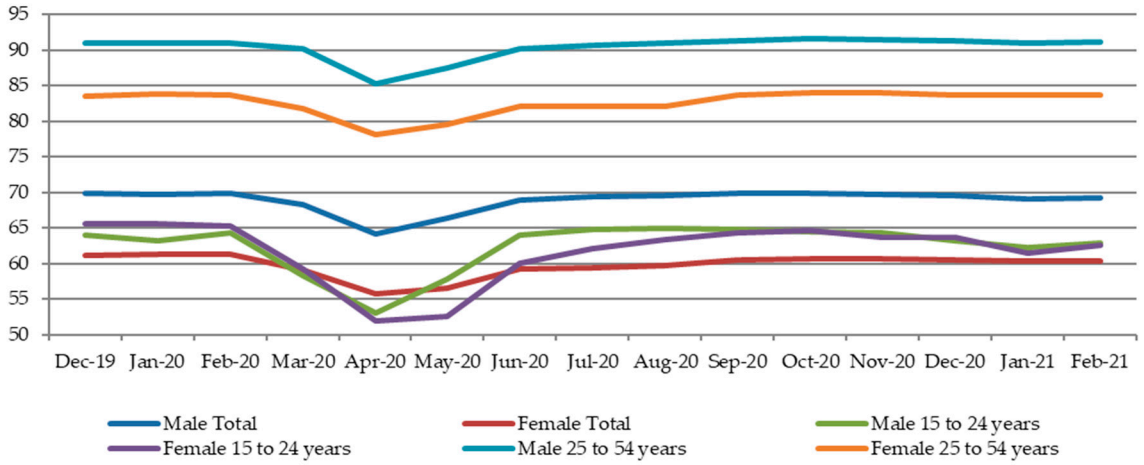


**Figure 2.** Monthly labour force participation rate in Canada (in percentage). Source: Statistics Canada (2020).

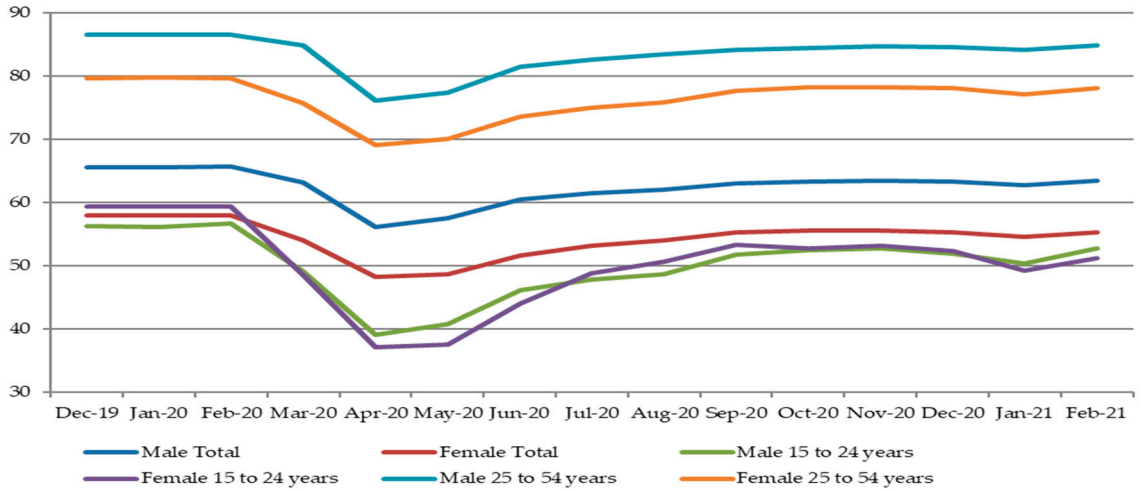


**Figure 3.** Monthly employment rate in Canada (in percentage). Source: Statistics Canada (2020).

## 3. Inequality of Casualties—Evidence from the Canadian Labour Market

According to the human capital theory, an individual's characteristics affect their labour market returns, in terms of earnings, underlined by the effect of employment likelihood. An increasing body of literature then also explores how economic shocks impact the latter, the individuals' labour market status. For example, Doran and Fingleton (2016) make use of probability employment estimations to analyse the resilience of individual employment to the 2008 economic crisis, employing individual-specific characteristics. Dustmann et al. (2010)'s findings suggest that for both Germany and the UK, the unemployment probabilities of immigrants, for example, are more sensitive to the economic cycle than those of natives, while also accounting for other individual characteristics.

Estimations of the unemployment probability before and immediately after the COVID-19 outbreak are explored in this section as being determined by individual education level, experience and other individual characteristics. Although the literature on the relationship between education and employment during recent decades has been mostly focused on developing and the emerging economies (Boeri 1998; Blanchflower 2001; Orazem and Vodopivec 1997; Sorm and Terrell 2000), more recent studies such as that of Cutuli and Grotti (2020) use the level of education along with other variables (marital status, gender and age) in an unemployment probit model focusing on drivers of the longitudinal accumulation of risks in terms of unemployment persistence in European countries (Denmark, France, Italy and the United Kingdom).

For developed economies, such as Canada's, for example, there is debate on the growth in high-skilled jobs and the rationale that higher education is expected more strongly than in the past to contribute to technological innovation and economic growth (Teichler 2000; Teichler and Kehm 1995). According to Brown (2003), the tightening bond between education and jobs contributes the most to the widening of access and opportunities and points to enduring social inequalities.

Regarding age, as Autin et al. (2020) highlight, older workers may face unique barriers regarding unemployment. Especially during the pandemic, they might find it hard to re-enter the job market. Moreover, citizenship status has been also found to determine labour market status. It is also argued that immigrants, those who have been in Canada for only a few years and younger participants in the labour market are more likely to be unemployed and even more likely to be in the unemployment pool due to the COVID-19 restrictions.

The Canadian Monthly Labour Force survey provides a rich possibility to scrutinise the working age population, individual and household characteristics, as well as their labour market status. Given the high frequency of the microdata, they allow us to identify whether COVID-19 restrictions have triggered any changes in the way individual characteristics

determine labour market status. Below, the methodology and data to which the empirical estimation is applied are explained.

## 4. Data and Methodology

In economic terms, we would expect that staying longer in school and completing higher levels of education increases the propensity of being employed. Skills, as proxied usually by experience and tenure, are assumed to affect employment status in the same way. Here, we investigate how the probability of being unemployed will be determined by factors that make a specific worker *less* attractive to an employer, especially in hardship times such as those during COVID-19. The factors considered here are education level, experience and tenure, which measures the number of months at the last/current employer (for the unemployed/employed, respectively). Other individual factors that may reflect labour market preferences and discrimination are gender, marital status and a dummy variable of being young (15–29 years of age).

### 4.1. Methodology

A probit model is used as an approach to the maximum likelihood estimation, which emerges from the normal cumulative distribution function. The alternative would be the logit model estimation, but in terms of predictive power there is very little reason to prefer either logit or probit (Long and Freese 1997, p. 122); both functions' distributions are closely similar (Amemiya 1981; Maddala 2001). The probit estimation applied is the following:

$$P_i = Pr\,(Y = 1|X) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\beta_1+\beta_2 X_i} e^{-t^2/2} dt \quad (1)$$

where $P_i$ = ($Y$ = 1) means the probability that an event occurs given that the values of $X$ and $t$ are standardized normal variables, i.e., $t$ ~ N(0, σ2) (Gujarati 2003, p. 609). The subscript $i$ stands for the individual. $P_i$ measures the probability of being unemployed (unemployment = 1) relative to employed.

Specification tests for the limited dependent variable models are less developed. In applying the probit model, it is easy to become confused about the problems of heteroscedasticity and non-normality, which stem from a failure to distinguish between the underlying latent variable formulation ($y^* \mid x$) and the response probability $P(y = 1 \mid x)$ (Wooldridge 2002, p. 479). We run the regression specifying the robust option and obtain similar standard errors, suggesting that heteroscedasticity may not be of concern for our data in this model. It is noted that most of the variables used are categorical (Table A1 in Appendix A), meaning that we are mostly dealing with a binomial distribution of the variables. The results of the regression estimations are presented in the following section.

### 4.2. Data

This paper makes use of data from the Canadian LFS, which is conducted at a monthly interval and withdrawn from Statistics Canada. Since the purpose is to detect how COVID-19 economic closures have shaped the individual chances of being unemployed, databases of several months before and after the immediate outbreak and economic closure (end of March–beginning of April 2020) are analysed. At a national level, the results from the month of April likely reflect the worst of the pandemic economic crisis (Lemieux et al. 2020) and may be considered as the bottom of the path trends that characterize the economic metrics of a society. Hence, the months regarded for the empirical analysis are: from the year 2019, April and October; from the year 2020, February, April and October, and from year 2021, February. The choice of months is made in order to benefit from an investigation of the most updated survey records; the February 2021 data were publicly available by the time this study was initiated. Keeping also in mind the seasonal effects in the labour market behaviour, we keep track of the same months in the previous year; thus, February of the last year before the outbreak in Canada is tracked; April 2020 is chosen since it represents

the drastic closure of the economy, and the same month of the previous year is considered as well. Data from October 2020 and that of the same month in the previous year were also added to the model estimation in order to observe any behavioural changes in the employment odds in a period when the Canadian economy was partially opened in most provinces (i.e., October 2020).

The LFS microdata file retrieved contained non-aggregated data for a wide variety of variables related to the labour market activities of Canada's working-age population. From the personal characteristics of all individuals in a household, use is made of those that relate to age, gender, marital status and educational attainment. The detailed labour force characteristics for household members 15 years of age and over deployed in this study include employment information such as employment status and job tenure (in current job for those employed and last job for the unemployed). Table A1 in Appendix A explains the variables used, which are in the form of dummy regressors, except for tenure (continuous variable in number of months) and age (limited continuous variable, as in LFS it is reported in 12 five-year age groups from age 15+). Table A2 in Appendix A gives the descriptive statistics. All the variables but the very last one make up the list of X regressors used in estimating Equation (1).

## 5. Results

The empirical estimates of the coefficients of Equation (1) are presented in Table 1. They indicate the likelihood of the Canadian labour force sample to be unemployed in the specific periods before, immediately after the COVID-19 emergency, and in the months thereafter. These specifications correspond, respectively, to the periods April 2019, October 2019, February 2020, April 2020, October 2020, and February 2021.

**Table 1.** Coefficient estimation of the probit model.

| Explanatory Variables | 2019 | | 2020 | | | 2021 |
|---|---|---|---|---|---|---|
| | April | October | February | April | October | February |
| Constant | −1.268 *** | −1.222 *** | −1.249 *** | −0.862 *** | −0.719 *** | −1.067 *** |
| BasicSCH | 0.438 *** | 0.332 *** | 0.341 *** | 0.544 *** | 0.295 *** | 0.386 *** |
| HighSCH | 0.374 *** | 0.289 *** | 0.332 *** | 0.425 *** | 0.256 *** | 0.396 *** |
| PostSecHSC | 0.142 *** | 0.079 *** | 0.14 *** | 0.307 *** | 0.12 *** | 0.268 *** |
| Immig10Y | −0.004 ** | 0.01 *** | 0.091 *** | 0.701 *** | 0.096 *** | 0.05 *** |
| Tenure | −0.022 *** | −0.024 *** | −0.023 *** | −0.013 *** | −0.02 *** | −0.019 *** |
| TenureSqr | 0.0001 *** | 0.0001 *** | 0 *** | 0 *** | 0 *** | 0 *** |
| Age | 0.029 *** | 0.043 *** | 0.033 *** | −0.012 *** | −0.039 *** | 0.012 *** |
| Age squared | 0.002 *** | 0.0003 ** | 0.002 *** | 0.003 *** | 0.006 *** | 0.003 *** |
| Young | −0.026 *** | −0.032 *** | −0.001 | 0.061 *** | −0.091 *** | −0.05 *** |
| Gender | 0.126 *** | 0.005 *** | 0.102 *** | 0.027 *** | 0.003 *** | 0.095 *** |
| MaritalStat | −0.165 *** | −0.217 | −0.212 *** | −0.127 *** | −0.274 *** | −0.212 *** |
| Log Likelihood | −3,411,216 | −2,935,407 | −3,385,862 | −6,105,058 | −4,253,631 | −4,462,337 |
| Prob > chi2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of observations | 60,226 | 59,143 | 58,695 | 49,880 | 48,952 | 48,429 |
| Mean dependent variable | 0.057 | 0.047 | 0.056 | 0.127 | 0.074 | 0.08 |

** and ***, significant at 5 and 1% of level of significance, respectively.

The general findings from Table 1 are that the coefficients have the expected signs and are statistically significant at the one percent level of significance in almost all cases. Crucially, as we anticipated, educational attainment impacts the likelihood of being employed. A general finding illustrated in Nickell (1979) is that increases in the level of an individual's education up to but not beyond university entrance lead to a strong reduction in the number of unemployment spells over their lifetime. Similarly, the empirical results here show that individuals at a lower education level than Bachelor studies are more likely to be unemployed, and the trend does not change for the period investigated.

Labour market participants at a longer job tenure are less likely to face unemployment, and the relationship of this variable with the dependent one seems to be U-shaped. However, although the coefficient size need not be quantitatively interpreted as the size of

regressor's effect on the regressand, the coefficient of the square of months of job tenure is quite small, approaching zero in April 2020 and thereafter. This could be indicative of a heightened negative relationship between unemployment likelihood and job tenure especially after COVID-19, which would be theoretically justified.

The results also show that males face higher odds than females of falling into the unemployment pool. This could be related to the relatively higher participation of males in the labour market compared to females. As expected, those who are married are less likely to be unemployed, as they face more family obligations. The behaviour of these two variables does not change with the period under investigation.

It would have been expected that age would be convexly related to the dependent variable: an increase in age decreases the likelihood of being unemployed as the relationship of an individual with the labour market matures, then after a minimum is reached, it would increase the odds of unemployment. However, age is also often used as a proxy for experience, which here is mostly approached with the tenure variable. On the other side, the measurement of age in 5-year groups largely reduces the variance of the variable and maybe also its power to predict the dependent variable. It is worth mentioning, though, that the likelihood of being unemployed falls with age for the outbreak period (April and October 2020), which might be indicative of the careful Canadian policies targeted at the mature/experienced labour force. However, that happens at a slower pace for the upper age scale, as indicated by the negative and positive signs, respectively, of the age and age squared variables in the high period of closure, in April and October 2020.

The variables discussed above affect the unemployment likelihood in the same direction during the different months considered. Interestingly, though, the dummy variable assigned to indicate the young group of 15–29 years of age is positive only for April 2020, meaning that being young increased the likelihood of being unemployed in the great closure month. Otherwise, the variable negatively affects the unemployment probability. On the other side, being a recent immigrant in the labour force who has landed in Canada anytime during the last 10 years has a positive effect on being unemployed, which is especially high in April 2020, although the relationship between the two variables is negative in the previous period of April 2019. The observation of different signs of the same explanatory variables in the econometric models for the various time periods considered (prior to, during the peak of closure and then after) indicates that different groups are subject to highly variable labour market statuses within short periods. Specifically, recent immigrants and young and old working age populations are more likely to be part of the weakest-link segments of the labour market, and this could presumably be related to their engagement in precarious work, which would be less characterised by long-term, regular work contracts. As such, they are those who risked unemployment the most during COVID-19.

With policies falling into several categories, like closure and restriction of businesses and services (closure of nonessential businesses, restaurants, entertainment venues, government offices and public transportation; work-from-home requirements) and the introduction of the state of emergency, the pandemic led more and more people to lose jobs or hours of work, especially women, mothers with a lower education level (Qian and Fuller 2020) and low-income workers (Lemieux et al. 2020). Mo et al. (2020) find that immigrants reported more severe challenges and concerns about employment and financial obligations than Canadian-born individuals, while facing acute challenges with revenue loss and layoffs. Zhang and Gunderson (2022) also bring evidence that the adverse effects of COVID-19 were generally larger for immigrants and especially recent immigrants as well as for immigrants at the bottom of the earnings distribution.

Lemieux et al. (2020) find a 32 percent reduction in aggregate weekly hours due to restriction measures following the outbreak in April 2020 and a reduction in employment of 15 percent. Accordingly, the workers in the bottom quartile of weekly earnings comprised more than one-half of job losses, and workers paid hourly (as opposed to salaried), younger workers and non-union workers lost the most work. Furthermore, as Lamb et al. (2022)

states, the labour market realities facing many recent immigrants before the pandemic were already quite precarious.

## 6. Discussion and Policy Implications

Using information on the skills needs of jobs from a survey of the EU labour market, according to which the jobs were categorized by the job's need for communication, teamworking and customer skills as well as moderate or advanced ICT level, Pouliakas and Branka (2020) build a COVID-19 social distancing risk score. They then regress this indicator against the individual characteristics of the workers, such as age and education level, gender, tenure and other labour-market-related metrics to come up with an estimation of the determinants of COVID-19 risks. It is shown that the COVID-19 social distancing risk disproportionately affects vulnerable groups of the employee population. Accordingly, women are more likely to be affected than men, especially new and less experienced job entrants, as are lower-skilled workers and non-natives.

A similar analysis making use of the COVID-19 risk score index by occupation groups already generated by Pouliakas and Branka (2020) and its application to the Canadian labour force data would be of benefit to make the analysis more complete. However, challenges arise in matching the International Standard Classification of Occupations (ISCO) groups used in the EU and UK to the terminology used in Canada. The benefit, though, would be to gain a deeper understanding of the Canadian labour market behaviour during the pandemic and to what extent different segments of the labour force face the burden.

Overall, the general agreement is that the COVID-19 pandemic has contributed to a growing insecurity and precariousness in the world of work. What many are calling for is a *re-adaption of policies* to make economies more resilient to such shocks in the future, along with a new attitude towards collective self-interest and mobilization of people's prosocial motives (Snower 2020; Stanford 2020; Hargreaves 2020). Tackling inequality while addressing precarious labour prompts structural reforms "before they destroy our economies and societies", as Guterres (2020) points out. Moreover, it is desirable that the COVID-19 pandemic reinforce global solidarity. The challenges facing us are global and will require international cooperation if they are to be dealt with effectively (Susskind and Vines 2020) in a new model of global governance (Roig 2021).

In the immediate timing of the pandemic, many governments around the globe stepped up to provide temporary social protection at a massive scale. This also opened the way to reintroduce discussion of a universal basic income (UBI) as a way to address the problems associated with the growth of precarious employment (Forget 2020) and create conditions of economic certainty, with all the pros and cons in place (as in Patel and Kariel 2021). It is argued that UBI would be positively related to health and well-being, as well as education of the new generations (Forget 2020).

The targeted measures from many OECD countries, including ensuring not only public health but also public education with the purpose of helping young people maintain their links with the labour market and education system (ILO 2020), would serve to pursue prosperity and a better quality of life for everyone (Hargreaves 2020). As Blundell et al. (2020) acknowledge, the lost education due to the COVID-19 pandemic will probably be most serious among lower-income families and those with lower educational qualifications. Thus, governments everywhere should consider education and skills formation as a public good and international obligation (Barneveld et al. 2020). This becomes an imperative to keep pace with technology and innovation, especially as it is predicted that the number of jobs destroyed will be surpassed by the number of "jobs of tomorrow" created, and in contrast to previous years, job creation is slowing while job destruction accelerates (WEF 2020).

## 7. Conclusions

The COVID-19 pandemic caused immediate knock-on effects on the livelihoods of individuals and the household incomes of families worldwide. There is a general accor-

dance among economic and policy analysts that the burden fell mostly on those positioned at the bottom section of job quality, in what has been defined as *precarious* work. The consequences were in the form of jobs lost or lives risked while continuing working at the job site (meaning not from home). As governments have often stepped in to ease the burden carried by the public, various segments of the labour market were differently affected by COVID-19, depending on individuals' characteristics.

Falling into the category of either facing increased health risk while continuing work or stopping work and falling into the unemployment pool, the less-educated (below the tertiary education level), younger workers and immigrants seem to have been challenged more than other labour market participants. While Canada pursued policy tools such as the Canada Emergency Response Benefit and Canada Emergency Wage Subsidy to ease the economic situation of its workforce, they had a broad objective and were not particularly targeted to more vulnerable groups. Furthermore, these disruptions to individuals' work histories would disproportionally affect access to EI benefits in the future, as that is related to the number of hours worked in the previous period. A general lesson learned from the pandemic crisis is that fixing the long-standing structural faults in the labour market is not just a moral imperative; it is also an economic necessity.

**Author Contributions:** Conceptualization, A.G. and V.K.; methodology, A.G. and N.B.; software, A.G.; validation, A.G., V.K. and N.B.; formal analysis, A.G. and V.K.; investigation, A.G.; data curation, A.G., V.K. and N.B.; writing—original draft preparation, A.G. and V.K.; writing—review and editing, A.G., V.K. and N.B.; visualization, V.K.; supervision, N.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** This study was conducted according to the guidelines of the Declaration of Helsinki, and ethical review and approval were waived for this study because this study was conducted individually and independently by the institution where they work, respecting the anonymity of the interviewer.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data used to support and prove the findings of this study are available from the corresponding author upon request.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** The explanatory variables for empirical analysis.

| Explanatory Variable | Definition of Variables |
|---|---|
| BasicSCH | Dummy = 1 if respondent has 0 to 8 years of school |
| HighSCH | Dummy = 1 if respondent has some high school or is a high school graduate |
| PostSecHSC | Dummy = 1 if respondent has some or graduated postsecondary school |
| Bachelor | Dummy = 1 if respondent has a Bachelor's degree |
| Above Bachelor | Dummy = 1 if respondent has above a Bachelor's degree |
| Immig10Y | Dummy = 1 if respondent is an immigrant of 10 years or less |
| Tenure | Job tenure with current/previous employer (in months) |
| TenureSqr | Job tenure squared |
| Age | Five-year age group of respondent; 12 groups from age 15+ |
| Age squared | Five-year age group of respondent squared |
| Young | Dummy = 1 if respondent is 15–29 years of age, 0 otherwise |
| Gender | Dummy = 1 if male, 0 otherwise |
| MaritalStat | Dummy = 1 if married, 0 otherwise |
| Unemployed | Dummy = 1 if respondent is unemployed |

**Table A2.** Descriptive statistics.

| | 19 Apr | | 19 Oct | | 20 Feb | | 20 Apr | | 20 Oct | | 21 Feb | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variables** | **Mean** | **St. Dev** | **Mean** | **St. Dev** | **Mean** | **St. Dev** | **Mean** | **St. Dev** | **Mean** | **St. Dev** | **Mean** | **St. Dev** |
| BasicSCH | 0.0162 | 0.126 | 0.015 | 0.120 | 0.015 | 0.122 | 0.014 | 0.119 | 0.013 | 0.113 | 0.013 | 0.112 |
| HighSCH | 0.2362 | 0.425 | 0.234 | 0.423 | 0.234 | 0.424 | 0.224 | 0.417 | 0.230 | 0.421 | 0.222 | 0.416 |
| PostSecHSC | 0.422 | 0.494 | 0.414 | 0.493 | 0.407 | 0.491 | 0.411 | 0.492 | 0.404 | 0.491 | 0.408 | 0.491 |
| Bachelor | 0.223 | 0.416 | 0.227 | 0.419 | 0.230 | 0.421 | 0.236 | 0.425 | 0.241 | 0.427 | 0.240 | 0.427 |
| Above Bachelor | 0.103 | 0.304 | 0.111 | 0.314 | 0.113 | 0.317 | 0.115 | 0.319 | 0.113 | 0.318 | 0.116 | 0.321 |
| Immig10Y | 0.078 | 0.268 | 0.086 | 0.281 | 0.081 | 0.272 | 0.077 | 0.266 | 0.082 | 0.274 | 0.077 | 0.266 |
| Tenure | 90.065 | 83.3 | 90.91 | 83.86 | 91.12 | 83.68 | 94.37 | 84.08 | 92.10 | 83.02 | 92.51 | 83.57 |
| Age | 6.2 | 2.689 | 6.194 | 2.705 | 6.201 | 2.694 | 6.120 | 2.680 | 6.192 | 2.676 | 6.211 | 2.689 |
| Young | 0.197 | 0.398 | 0.198 | 0.398 | 0.194 | 0.396 | 0.192 | 0.394 | 0.193 | 0.395 | 0.192 | 0.394 |
| Gender | 0.532 | 0.499 | 0.533 | 0.499 | 0.532 | 0.499 | 0.538 | 0.499 | 0.536 | 0.499 | 0.535 | 0.499 |
| MaritalStat | 0.651 | 0.477 | 0.659 | 0.474 | 0.661 | 0.473 | 0.670 | 0.470 | 0.663 | 0.473 | 0.663 | 0.473 |
| Unemployed | 0.057 | 0.231 | 0.047 | 0.211 | 0.056 | 0.231 | 0.127 | 0.332 | 0.074 | 0.262 | 0.080 | 0.27 |
| Number of observations | 60,226 | | 59,143 | | 58,695 | | 49,880 | | 48,952 | | 48,429 | |

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