

Minimum Wages and Employment during COVID-19: The Case of Canada

Luis F. Ocampo

1. INTRODUCTION

1.1. COVID-19 and the Economy

COVID-19 is a contagious respiratory disease that first emerged in December 2019 and spread around the world within months. The infectious virus has created numerous health, social, and economic challenges worldwide, among others. On March 11, 2020 the World Health Organization (WHO, 2020) announced COVID-19 as a global health crisis, while declaring the disease as a pandemic.¹ The disease has created an unprecedented global economic recession: The World Bank (2020) projects a 5.2 percent contraction in global GDP in 2020, the deepest global recession in decades.

In Canada, the first case of COVID-19 appeared in January 2020. By the end of August 2020, there were approximately 129,000 active cases in Canada. Figure 1 shows a timeline of the outbreak in Canada from January 2019 to August 2020. Starting in March 2020, most Canadian provinces had imposed restrictions on companies, which included the closing non-essential businesses. While necessary, these measurements have placed economic constraints that led the country into a recession. In addition, unemployment rates have been soaring around the world, and Canada is no exception. The federal and provincial governments have put in place different economic response plans to support businesses and individuals, such as the Employment Insurance and the Canada Emergency Response Benefit (CERB). Along with this policies, provincial governments have maintained yearly increases in the minimum wage. Figure 3 shows the minimum wage across those provinces that increased it throughout the pandemic.

¹ Retrieved from: <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic#:~:text=COVID%2D19%20can%20be.growing%20number%20of%20countries.>

1.2. Minimum Wage and Employment Throughout COVID-19

The relationship between the minimum wage and employment is a controversial subject that has been broadly studied by several academics. The Neo-classical economic theory suggests a downward sloping labour demand curve and hence an increase in the minimum wage *should* lead to decreases in employment.² This inverse relationship between the wage and the demand for labour has been shown by numerous studies such as Stigler (1946) and Shannon and Beach (1995). Contrariwise, there are empirical papers that have demonstrated just the opposite effect: that an increase in the minimum wage has a positive or no effect on employment – e.g., Card (1992), and Card and Krueger (1994). If the Neo-classical theory is true, then increases in minimum wage during the pandemic could lead to greater decreases in employment, worsening the crisis.

The following study attempts to provide an understanding of the effect on employment from increases in the minimum wage as well as the impact of COVID-19 on employment using Canadian data. More specifically, I study the effect on employment in the Canadian retail-trade industry - one of the principal employers of minimum wage workers. If any, the effects of the legislation should mostly affect these type of industries as they heavily employed low wage workers.

In order to measure the impact, this paper uses the public-use files of the Labour Force Survey (LFS) to estimate four different models where the dependent variable is employed individuals in the retail and trade industry, and the control variables include a minimum wage variable, a control variable for the post-COVID months, an interaction variable between the last two, individual control variables, and fixed effects.³ The control variables are added sequentially across the four specifications. Furthermore, the robustness check section further investigates the

² See Blanchflower & Oswald (1995)

³ All regressions are weighted and use Ordinary Least Square Estimators.

impact of COVID-19 on the decision to participate in the labour force as well as an analysis of the effect on the Accommodation and Food Services Industry.

The main finding suggests that increases in the minimum wage have no negative effects on employment. In contrast, the data implies that raising the minimum wage increases the probability of being employed. The results indicate that the raises in minimum wages before COVID-19 increases the probability of being employed by 2.85 percentage points in the Retail and Trade industry. The results are even larger for the Accommodation and Food Services Industry, suggesting a gain of 9 percentage points in the likelihood of being employed following the increase. When using the ln of the minimum wage for the Retail and Trade Industry, the regression reveals that a 10 percent increase, pre-COVID times, increases the probability of being employed by 3.7 percent.

However, the probability of being employed is reduced if raises in the minimum wage are enforced during COVID-19, implying negative partial effects on employment. For instance, the increase during COVID-19 reduces the probability of being employed from 2.8 to 1.38 percentage points in the case of the Retail and Trade Industry. In the Accommodation and Food Services Industry the reduction goes from 9 to 6.8 percentage points, while in the case of the ln of minimum wage, a 10 percent increase reduces the probability of being employed by roughly 51 percent, from 3.7 to 1.8 percent.

The rest of the paper is organized in the following way: Section 2 provides a literature review that extend the findings in this study; Section 3 discusses the data used in the study; Section 4 shows the empirical model and presents its results; section 5 provides the results of the study; section 6 provides the robustness check, and section 7 concludes the main findings of the study.

2. LITERATURE REVIEW

The following part contains three sections that include further findings from literature on the relation between the minimum wage and employment, including those from COVID times. The opening section includes theoretical studies from the Post-Keynesian and Neo-Classical employment and wage models. The succeeding section discusses empirical findings on the effect on employment following an increase in the minimum wage from different countries. The final section contains empirical findings of the effect of COVID-19 on the labour market.

2.1. Theoretical Evidence

Employment effects derived from variation on wages have been widely recognised by Neo-classical economists. Free market neoclassical theorists claim that government intervention to increase minimum wage reduces labor market efficiency and that that factors of production can be easily substituted in the short-term and, thus, the less costly will always prevail. More specifically, this school of economic thought claims that there is a positive relationship between minimum wage and unemployment.

Stigler (1946) argues that in competitive markets, each worker is paid his/her marginal product. In the case of an increase in the minimum wage, inefficient workers that are valued less than the wage floor may be dismissed or substituted by other more-efficient production techniques. As inefficient workers are discharged, organizations must find new ways to improve labour productivity, requiring higher skilled -and more expensive- labor. As a result, production costs increase and production falls, augmenting unemployment.

Wood (1889) supports this theory by explaining that the market price of labour is determined by supply and demand, and as long as the former equals the latter, there exists price equilibrium. Wood (1889) further explains that supply of labour is fixed, so when equilibrium is

not achieved, price will merely act on companies demanding labor. Moreover, that industries can use either capital, labor or both for production, but most importantly that their choice depends on the price that must be paid for them, and thus, an increase of the cost of labour will encourage companies to use capital, which will increase unemployment. Wood (1889) argues that “Every rise in price of labour restricts its uses and curtails the demand; every fall in price creates new uses and increased demand” and, hence, that an increase in the minimum wage will decrease demand for labour and create unemployment.

On the contrary, Post-Keynesian theory states that in the short-term there are fixed coefficients in the production function, which does not allow factors of production to be substituted as input prices change. In other words, that an increase in wages will not lead companies to replace labour for capital, and hence, will not affect employment. Moreover -and contrary to the neoclassical theory- post-Keynesians argue that demand for labour does not depend on wages but on production. Changes in labour costs will result in changes in prices for products, while changes in demand will lead to changes in employment. It is to say, then, that Post-Keynesian theory considers that wage and employment are determined independently.

Appelbaum (1979) argues that initially, firms forecast the level of production for a specific period based on the market share desired. Prices are then determined to cover average variable costs, covering fixed costs and providing profit for organizations. A fixed quantity of workers is hired for capital utilization (i.e., plants, machinery, tools, etc.) and once production increases, new capital is brought along with new employees. Consequently, labour demand is directly linked to increases in demand.

In addition, Appelbaum (1979) claims that the proportion of production inputs, capital and labour, are not subject to change in the short run; in other words, that they are fixed. Instead, firms

operate with unused capacity, and that output can be increased by, for instance, adding a second shift of workers. Rather than substituting labour for capital, the addition of the second shift of workers will increase capacity utilization. Appelbaum (1979) contends that average variable and marginal costs are constant for different levels of output, which are increased only when full capacity utilization is reached.

2.2 Empirical Evidence

2.2.1 Minimum Wage and Employment

The following section provides empirical evidence to complement the theoretical models indicated in the section above. Portugal and Cardoso (2006) study labour market transitions of young workers' separations and accessions as a result of increases in youth minimum wages in Portugal. Brochu and Green (2013) examines minimum wage effects on labour transitions rates of separations and accessions as well, but in Canada. Moreover, this study includes not only younger, but also older workers, and further break down the effects of separation rates by studying quit and layoff outcomes.⁴ Campolieti, Fang, & Gunderson (2005) analyse transitions from employment to non-employment of young individuals in Canada as a consequence of an increase in the minimum wage. Shannon and Beach (1995) analyse the distribution of employment effects related to a suggested increase in Ontario's minimum wage back in 1991. Card (1992) compares the effects on employment and unemployment in California following the increase in California's minimum wage in 1988, focusing on teenagers and the retail-trade's industry. Card and Krueger (1994) study changes in employment and prices in the fast-food industry from New Jersey and Pennsylvania, following the increase in New Jersey's minimum wage.

⁴ Older workers are defined as those aged 15-59.

Zavodny (2000) focuses on studying the demand of work hours for teenagers -aged 16 to 19- as a response to an increase in the minimum wage by using US data from the Current Population Survey for the years 1979-1993. The study argues that instead of reducing employment, companies might find easier to decrease the number of hours demanded. Furthermore, that those individuals in the low-wage group may increase leisure as a result of the increase -an income effect-, and thus decrease the number of hours worked supplied. The paper examines the effects by using state and individual level panel data. At the individual level, Zavodny (2000) compares changes in employment and hours worked between workers earning less than the real minimum wage imposed in the next year -affected group- and those that already earned more than the new minimum wage -comparison group-. At the state level, the results suggest that higher minimum wages have a small negative impact, but do not reduce the number of hours worked. Similar results are shown at the individual level, suggesting that raises in the minimum wage do not have a significant negative effect on hours worked.

Brochu and Green (2013) examines labour market transitions rates in low and high minimum wages legislations between 1979 and 2008 across provinces in Canada by using the provincial minimum wage data and the Labour Force Survey. The study compares transition rates between high and low minimum wage regimes in periods *before* and *after* increases in minimum wages in the following way: the *before (t-1 period)* group contains those individuals in the low minimum wage regime, while the *after (t+1 period)* group contains those individuals in the high minimum wage regime; individuals affected during the *between (t period)* group are excluded.⁵ Furthermore, it only studies those workers with under a year of job tenure. Brochu and Green

⁵ Defined as quit, layoff and hiring rates.

(2013) focus on examining if those individuals that have been hired following an increase in the minimum wage are treated differently from those that were hired within the low wage regimes.

The results of the study suggest that quit and layoff rates of low-skilled workers decrease as a response to increases in the minimum wage. More specifically, that there is a 5% reduction in the probability that a worker is separated from his/her job in the following year due to a 10% increase in the minimum wage. For high minimum wage regimes, separation rates -both quit and layoff- and hiring rates are lower for all ages, but the decrease in hiring rates for teenagers is greater. Moreover, the decrease in layoff rates is larger than the decrease in quit rates. This specific finding suggests that minimum wage effects on transition rates affect not only teenagers, but also older workers. To this end, this study includes workers aged 15-59 with high school or less education. Furthermore, it excludes 1) full-time students as working is not their principal occupation; 2) self-employed as they do not always comply with minimum wage legislations and 3) those in the military.

Portugal and Cardoso (2006) compare separation and employment rate effects between teenagers and older workers before and after the increase in Portugal's youth minimum wage back in 1987 using data from the Quadros de Pessoal data set. From 1979 to 1986, those aged 15-17 earned 50% of the general minimum wage, while individuals aged 18-19 received 75%. In 1987, there was an increase to 75% and 100% of the general minimum wage for workers aged 17 and 18+, respectively. Then in 1988, minimum wage for workers 15-16 increased to 75% of the general minimum wage. By 1988, those aged 15-17 earned 75% of the minimum wage, while the rest received the full amount.

In regard to the changes in employment for the youth due to the raise in the minimum wage, the paper suggests that there is no negative impact as a result of the increase. In contrast, Portugal

and Cardoso (2006) find that employment for teenagers increased more rapidly during that period in comparison to total employment; total employment increased by 3.3% while employment for workers aged 17-19 increased by 6.1%, and even higher for the group aged 20-23. The study further investigates hirings and separations from companies by finding the share of teenagers hired/separated with respect to those individuals aged 20-35. Similarly, to Brochu and Green (2013), findings reveal that the share of teenagers hired and separated decline as a response to increases in minimum wages. In comparison to 1986, the share of teenagers hired decreased by 4% for continuing firms in both 1988 and 1989.

In the case of newly set up firms, recruitment of teenagers declined by 4%. However, in comparison with 1986, the share of teenagers in job separation also decreased by 15% and 14% in 1988 and 1989, respectively. On one hand, firms hire less teenagers, but at the same time they keep a greater share of them within their workforce. Given that the job separation declined (15%) is greater than the hiring rate (4%), the increase in minimum wage led to an increase in employment for this cohort.

Campolieti, Fang, & Gunderson (2005) study minimum wage impacts on youth employments (aged 16-24) transitions from employment to non-employment in Canada from 1993 to 1999 using the Master File of the Survey of Labour and Income Dynamics (SLID). The study compares the probability of being employed in a subsequent period for two different groups: minimum wage earners that live in locations where the minimum wage was increased (at risk-group) versus those that live in provinces where the minimum wage did not change and earn a wage greater than their own minimum wage but less than a hypothetical wage increase similar to the one that occurred in provinces where the minimum wage increased (low-wage comparison group). This hypothetical wage increase goes from \$0.25 to \$4.00, but the authors conclude that

increases ranging from \$0.50 and \$1.00 are the preferred comparison groups as this cohort most likely contains those low-wage workers with similar employment instability than the at risk-group.

For those in the hypothetical wage increase groups ranging from \$0.25 to \$1.00, there was a decrease in the probability of being employed by approximately 4%. In the case of the group including all individuals earning a salary greater than the minimum wage -restricted to less or equal to \$50.00 in this study-, the decline is 6.6%. More generally, the results imply that increases in minimum wage decrease the probability of an individual to be employed in the following year -given that it was employed in the present year-.

Shannon and Beach (1995) study the distribution of possible employment effects for different workers and jobs related to a suggested increase in Ontario's minimum wage from \$5.40 to \$6.75 back in 1991. The paper uses Canadian cross-sectional labour market microdata from the 1989 Labour Market Activity Survey (LMAS). The survey contains a dataset sample from Ontario of employed individuals as well as those who had at least one paid job in 1989; the sample excludes those self-employed and unpaid (family) workers. There are three main findings from this study. First, it indicates that an increase in the minimum wage will result in a decrease between 1.2 and 1.5 percent of the number of jobs. Second, that women, young and part-time workers, as well as those with high school education or less would be the most affected ones. Finally, that the most affected industry is the Retail and Services industry.

Card (1992) discusses the effect on labour market outcomes from an increase in California's minimum wage in 1988 using US data from the Current Population Survey (CPS), the Bureau of Labour Statistics, the U.S. Department of labour, and the Employment and Wages-Annual Averages editions 1984 and 1990. The paper gives greater consideration to two different groups: the retail-trade industry as well as teenagers; the first group hires a large number of

minimum wage workers and the second one contains a high percentage of minimum wage earners. In order to measure the effect, California is first compared with the country as a whole and then with a weighted average data of workers from Arizona, Florida, Georgia, New Mexico, Dallas-Fort Worth (called the comparison group) before and after the increase. All groups have similarities in employment, unemployment and labour force participation rates.

There are three main findings when comparing the U.S. with California. First, unemployment rates from 1987 to 1989 in California decreased in a larger proportion than the ones from U.S. (3 percentage points compared to 1.9 percentage points). Furthermore, the teenage employment-population ratio increased 4.1 percentage points in California while the national increased was only 2 percentage points. Finally, that there was almost no difference in retail-trade's employment growth between California and the U.S. from 1986 to 1989.

When comparing California with workers from Arizona, Florida, Georgia, New Mexico, and Dallas-Forth in Texas, the author finds two important outcomes. The first one is that the teenage employment-population ratio in California increased from 43 percent to 47.1 while there was no change in the comparison group. The second outcome indicates a very similar employment growth in California's retail-trade industry relative to the comparison group between 1987 and 1989.

All the findings from comparing California with the U.S. as well as the comparison group suggest that the minimum wage has either no effect or a positive effect on labour outcomes. After the rise in minimum wage, California's unemployment rates decreased in a greater proportion than the U.S. and the teenage employment-population ratio in California increased more relative to both the U.S. and the comparison group. Finally, Card (1992) reached the same conclusion as my paper by showing that relative to both control groups-U.S. and the weighted average-, employment

growth shows very similar trends after the increase in minimum wage, suggesting very little or no negative employment effect from a rise in the minimum wage.

Card and Krueger (1994) examine the effect on New Jersey's employment, and prices following an increase in the minimum wage on April 1992. The paper uses its own data by interviewing 410 restaurants in the fast-food industry from Pennsylvania and New Jersey before and after the increase; the first interview was conducted between February and March of 1992 and the second one was done between November and December of 1992. The industry was chosen as it hires a large number of minimum wage workers. Furthermore, Pennsylvania and New Jersey have very similar patterns of seasonal employment, establishing a good base for comparison. In order to measure the effect of employment, the authors first compare employment changes between New Jersey and Pennsylvania and then employment changes between high-wage and to low-wage restaurants within New Jersey. The first finding indicates that relative to Pennsylvania, New Jersey's prices for a full meal increased 4 percent faster. Within New Jersey, full meal prices increased at the same rate.⁶ Finally, following the increase in New Jersey's minimum wage, average employment per store increased from 20.44 to 21.03, while in Pennsylvania decreased from 23.33 to 21.17., suggesting an increase in employment after the rise in minimum wage. As Card (1992) and my paper, the results show that there are no negative effects in employment following an increase in the minimum wage.

2.2.1 COVID-19 and Its Effect on the Labour Market

Béland, Brodeur, Mikola, & Wright (2020) study the short-term effect of COVID-19 on the Canadian labour market by using data from the Labour Force Survey -from January 2016 to April 2020- and the Canadian Perspective Survey Series 1 – Impacts of COVID-19 -from March

⁶ Full meal is described in the paper as a medium soda, a small order of French fries, and the main course. The price is after tax.

2020 to April 2020. More specifically, the paper analyses the short-term impacts of COVID-19 on the labour market across different groups, the employment effects of those occupations that are at-risk and cannot work from home, the labour market effects on essential workers, and the COVID-19 effect on mental health. To study the short-term impacts on the labour market, the study uses the Labour Force Survey. To answer the employment effects of at-risk occupations, the study developed three indexes to capture those workers that are more exposed to the disease and proximity to coworkers -based on data from O*NET- and to include essential workers. To analyze the labour market effects on essential workers, the paper uses both the Labour Force Survey and the three indexes mentioned above.

The paper finds that the pandemic has had a negative effect on the Canadian labour market, increasing unemployment, and decreasing both number of hours and labour force participation. More specifically, the results show that the unemployment rate increased by 8 percentage points, hours decreased from 34 to less than 32, and that labour force participation declined from 65% to less than 60%. As my paper, these results suggest that there is a negative employment and labour force participation effects from COVID-19. Furthermore, the study suggests that the effect was considerably higher for those at-risk workers unable to work from home, such as the retail and trade industry, while the impact is less severe for essential workers.

Similarly, Béland, Brodeur, & Wright (2020) study the short-term effects of COVID-19 on the US labour market. The paper analyses the short-term impacts of COVID-19 on employment and wages, if the effect is more severe for those states with larger number of cases and deaths, and the employment effects of 1) those occupations that are at-risk, and 2) those occupations that cannot work from home. As in the previous study, the authors developed three different indexes capture those workers that are more exposed to the disease and proximity to coworkers to answer

the employment effects of at-risk occupations and those that cannot work remotely. To study the short-term effects of COVID-19 and the effect on those states with greater number of deaths and cases, the paper uses the Current Population Survey from January 2016 to March 2020. The findings reveal that the US unemployment rate increased by approximately one percentage points while the labour force participation decrease by about 0.7 percentage points due to the pandemic. In regard to the wages, they remained stable for the time of the study. In contrast with the study from Canada, US at-risk workers are less affected; the study explains that this can be due to the large number of essential employees in these occupations.

Forsythe, Kahn, Lange, & Wiczer, (2020) examine the impact of COVID-19 on the US labour demand by analysing job vacancies and unemployment insurance, using three different sources of data: job vacancy data collected by Burning Glass Technologies, the unemployment insurance claims from the U.S. department of Labour, and the Current Employment Statistics (CES) and Current Population Survey from the Bureau of Labour Statistics (BLS) data from February 2020 to April 2020.⁷ In order to measure the effect, the authors compare time series for measures from Burning Glass Technologies, Current Employment Statistics on employment, UI initial claims, and the Current Population Survey. Findings suggest that job vacancies declined by 44% while employment decreased by 13% from mid-March 2020 to April 26, 2020. At the same time, there were over 30 million initial claims filed. These results are comparable with the previous studies, that suggest that COVID-19 has had a large negative effect on employment levels.

Brochu, Créchet, & Deng (2020) analyze Canadian employment dynamics throughout the COVID-19 pandemic by using the confidential Labour Force Survey from 2018 to July 2020,

⁷ Burning Glass Technology (BTG) is an employment analytics and labour market information firm.

focusing on the months February 2020 to July 2020. More specifically, the paper studies gross employment during COVID-19 to measure the labour reallocation process in Canada. As employment outflows are partially offset by the inflows and net employment gains can be the result of employment outflows, instead of focusing exclusively on net employment, the paper further investigates employment outflows versus inflows to better understand employment creation and jobs lost as a result of the pandemic.

Findings suggest that from February to March and March to April of 2020, gross outflows were 7.5% and 13.9%, respectively, while the gross outflows for the same periods in year 2019 were between 2-3%. In terms of gross inflows, the results suggest similar results between 2019 and 2020, implying that the decrease in employment is not due a decline in hiring rates, but to outflows of employment. Similarly, the months of May-June and June-July had gross outflows of 6.5% and 5%, respectively. Among these, two-thirds of those individuals that were temporary laid off at the beginning of the pandemic decided to be out of the labour force, suggesting a permanent job lost. Furthermore, the paper finds that those individuals that were unemployed before the pandemic, more specifically in February, were largely impacted by COVID-19. On the other hand, two-thirds of those that were employed in February and lost their job as of April, were able to find a job in July, suggesting an employment retrieval. However, the large number of individuals moving towards non-participation and the negative impact on those unemployed before February, suggests an incomplete analysis of the recovery.

The paper concludes that even though there has been a rebound of employment in the months May-June and June-July for those that lost their job during the pandemic, the scenario is different for those that were unemployed before the pandemic. Furthermore, that a large number of laid-off workers have decided to leave the labour force. As a result, the high excess flows from

those months that suggest a rebound of employment (i.e., May-June and June-July), hide significant job losses.

Baylis, Beauregard, Connolly, Fortin, Green, Cubillos, ... & Siu (2020) examine viral and employment risks and their distribution across the Canadian population by using the VSE COVID Risk/Reward Assessment Tool, which includes a risk index constructed based on Canadian Census data and the Labour Force Survey.⁸ More specifically, the study focuses on investigating 1) the most exposed to viral transmission in a workplace, 2) demographic characteristics of individuals at high-risk of losing their job due to COVID-19. The results indicate that females tend to hold jobs in occupations that have higher risks of viral transmission. In contrast, most immigrants have jobs that do not required high direct contact with others, decreasing the risk. Furthermore, that those occupations with a high proportion of individuals aged 45-54 have a higher risk of transmission, while those with high proportion of 55-64-year-old have a lower risk.

In terms of demographic characteristics of those at high-risk of unemployment, the results indicate that immigrants, lower educated individuals, and women have been the most affected ones. More specifically, total employment fell by 22.45% and 20.4% for low educated individuals and recent immigrants, respectively, while total unemployment decreased by 15.4%. Finally, that women have been largely impacted by COVID-19, as they accounted for 68.9% of total job loss from February 2020 to June 2020.

3. DATA

This study uses the public-use file of the Labour Force Survey. The Labour Force Survey collects Canadian labour market data that provides information about where the labour market

⁸ The VSE COVID Risk/Reward Assessment Tool was created to help policymakers assess which occupations and sectors face the greatest risks of COVID-19 virus transmission.

stands. This information is public and can be used to analyse different employment factors, including unemployment, job status, current wages, hours worked and education, among many others. The LFS excludes full-time personnel from the Canadian Forces and institutionalized population as well as individuals that reside in Aboriginal reserves and isolated parts of the country with low concentrations of people. Furthermore, it only includes those from the age of 15 and above. The survey includes approximately 56,000 persons per month. This paper uses the LFS from January 2019 to August 2020.

This paper only includes individuals aged 15-59 that work or have worked in the retail and trade industry in the 12 months preceding August 2020, and that are not full-time students. This industry employs a high proportion of minimum wage earners, and so any increase in the minimum wage will primarily affect these businesses⁹. Moreover, including individuals in the labour force between 15 and 59 years of age is representative for this study. The lower age range was chosen due to the fact that a large number of studies claim that a high proportion of young individuals earn the minimum wage and thus, including them helps me examine and comprehend how increases in the minimum wage affected the labour market during COVID-19. Full-time students are excluded as working is not their principal activity. Self-employed persons are also omitted given the complexity of recognizing their real wage. Besides, an owner of a company does not have to comply with minimum wage legislation when paying himself/herself (e.g., obtaining less than the minimum wage). Finally, unpaid family workers are also excluded, as they do not report any salary.

Table 1 presents summary statistics of minimum wage earners by industry from January 2019 to August 2020. The data suggest that the retail and trade industry is the largest employment

⁹ <https://www150.statcan.gc.ca/n1/pub/75-004-m/75-004-m2019003-eng.htm>

sector for minimum wage workers, counting for approximately 40%. Table 2 presents summary statistics of minimum wage earners by age from January 2019 to August 2020. The results show that the majority of minimum wage earners are between 15 and 24 years old. Approximately 39% and 20% of minimum wage earners are between 15-19 and 20-24 years old, respectively. Contrary to the majority of literature on minimum wage effects on employment that only measure the effect on young individuals, such as Portugal and Cardoso (2006) and Campolieti, Fang, & Gunderson (2005), this study aims to examine if there are any effects on older workers as a response to an increase in the minimum wage, as suggested by Brochu and Green (2013) that state “minimum wage increases change the labour market equilibrium for workers of all ages...”. Thus, the upper age range contains workers aged 59. Table 2 implies that roughly 33% of minimum wage workers age are from 30 to 59.

Those that are unemployed or not in the labour force and their last job was held in the retail and trade industry in the 12 months preceding August 2020, are also included. The LFS specifically asks the individual’s industry of main job, current or held in the last year. Hence, the survey identifies those that have lost their job to a specific industry.

4. EMPIRICAL SPECIFICATION

The following specification presents the main estimated equations from the study:

$$EMPLOYED_{i,p,t} = \beta_0 + \beta_1 MinWage_{p,t} + \beta_2 COVID_t + \beta_3 COVID_t * MinWage_{p,t} + Z_i \Psi + \alpha_t + \delta_p + \varepsilon_{i,p,t} \quad (1)$$

where $EMPLOYED_{i,t,p}$ is a binary variable that equals one if the individual i is employed at month t in province p , and zero otherwise. $MinWage_{p,t}$ is the nominal minimum wage observed at month

t in province p . $COVID_t$ is a binary variable that equals one for months from March to August of 2020, and zero for all previous months. The vector Z_i contains sets of individual control variables, including individual's age group, educational attainment and gender, that will vary across specifications. α_t represents month-year fixed effects. δ_p represents province fixed effects. All the regressions are performed using weighted observations; the weights assigned to each individual correspond to the inverse probability of selection, so that each individual represents an estimated amount of the population to enable estimations at the national level.

In the first specification, $EMPLOYED_{i,p,t}$ is regressed on $MinWage_{p,t}$, $COVID_t$, and an interaction term between $MinWage_{p,t}$ and $COVID_t$. The goal of this specification is to illustrate how the link between the minimum wage and employment changed during the pandemic. In the second and third specifications, province and month-year fixed effects are added, respectively. The goal is to control for potential constant effects across provinces over the specified periods, while measuring the effect of increases in the minimum wage and COVID-19 on employment. Adding month-year fixed effects in the third specification allows to control monthly (e.g., seasonal) employment effects of the pandemic over the specified periods. To that end, the $COVID_t$ variable is excluded in the third specification as the effect of COVID-19 on employment is captured by the month-year fixed effects. In the last specification, an education, gender and age-group control variables are added; the reference group for the age are individuals aged 30 to 39. Education dummies control for four different levels of education attainment, and the reference group is high school graduates. The reference group for the gender variable is female.

The main parameters of interest are β_1 and β_3 . In the regression, β_1 is meant to capture the effect of increasing the minimum wage on employment before the pandemic. The change in the minimum-wage on employment during COVID-19 is determined by the coefficient β_3 .

5. RESULTS

Table 3 shows the results from the regressions on employed individuals in the retail-trade industry using four different models. The first column contains the regression of the first specification described above. In this case it can be observed that the coefficient on the minimum wage variable, β_1 , is not statistically significant.

The coefficient on the $COVID_t$ variable, β_2 , is statistically significant at 5%. Something very important to note is the positive sign, which do not reflect the negative employment effects that COVID-19 has had on employment. Figure 2 shows the employment rate in the retail and trade industry from January 2019 to August 2020. Contrary to the suggested sign of β_2 the graph reflects the negative employment effects from COVID-19. The reason is that the partial effect of COVID on employment cannot simply be determined by looking at the coefficient of the post-COVID control variable when the interaction variable is included. Instead, the partial effect of COVID on employment can be expressed as:

$$\frac{\Delta EMPLOYED}{\Delta PostCOVID} = \beta_2 + \beta_3 MinWage_{p,t}. \quad (2)$$

For example, adding β_2 (0.0852295) to the multiplication of the coefficient of the interaction term β_3 (-0.01460) by the average of the minimum wage (13.07509) we obtain:

$$(0.0852295) + (-0.01460) * (13.07509) = -0.10566$$

The result suggests that the effect of COVID on employment is negative for provinces with minimum wages close to the average minimum wage. At the average minimum wage, the effect of COVID-19 decreased employment by 10.56 percentage points. To test whether this estimate is statistically significant from zero, I simply replace the interaction variable with $(MinWage_{p,t} -$

Average $MinWage_{p,t}$ * $COVID_t$ in the regression. Table 4, column two present the results of this regression. The coefficients on the $COVID_t$ and the new interaction variables are statistically significant at 1 percent. Furthermore, the value of the coefficient, -0.106 from the $COVID_t$ variable is comparable with result above. The effect and size for the rest of the coefficients are identical from the first specification (Table 4, column1).

The interaction term determines how the effect of increasing in minimum wage on employment changed during the pandemic. The negative sign of its coefficient, β_3 , which is statistically significant at 1%, shows that the additional increase in minimum wage yields a lower increase in employment. From both regressions in columns 1 and 2, it can be observed that a one dollar increase in the minimum wage during the pandemic yields a lower increase the probability of being employed by 1.5 percentage points.¹⁰

The third column of Table 3 contains the second specification. For brevity, the estimated coefficients on the province fixed effects are not presented. It can be observed that the coefficient on the COVID-19 variable, β_2 , is not statistically significant. However, when replacing the interaction term with the new interaction variable mentioned above, the coefficient on the $COVID_t$ variable becomes statistically significant at 1 percent.¹¹ Table 4, column 4 shows the result from this regression. The data suggests that at the average minimum wage, COVID-19 decreases employment by 11.5 percentage points.

The rest of the coefficients as well as their significant are identical from regressions in column 3 and 4. The coefficient on the minimum wage variable is statistically significant at 1%. The sign suggests that increases in minimum wages have positive effects on employment; a one dollar increase in minimum wage increases the probability of being employed by 4.41 percentage points.

¹⁰ The sum of the coefficients on the $MinWage_{p,t}$ and $COVID_t * MinWage_{p,t}$ ($\beta_1 + \beta_3$) is significant at 1 percent.

¹¹ Variable defined as: $(MinWage_{p,t} - Average MinWage_{p,t}) * COVID_t$

Different studies, such as Card (1992), Portugal and Cardoso (2006), and Card and Krueger (1994) reached the same conclusion as my paper suggesting very little or no negative employment effect from a rise in the minimum wage.

The negative sign the coefficient on the interaction variable β_3 is statistically significant at 1%, suggesting that additional increase in minimum wage yields a lower increase in employment. From the regression, it can be observed that a one dollar increase in the minimum wage during the pandemic yields a lower increase the probability of being employed by 1.21 percentage points. I can also express the regression to show the decrease of the probability of being employed during COVID-19 in the following way:

$$EMPLOYED_{i,p,t} = \beta_0 + \beta_2 + (\beta_1 + \beta_3)MinWage_p + \varepsilon_{i,p,t} \quad (3)$$

The partial effect of an increase in the minimum wage during the pandemic is shown by the additional effect of the coefficient β_3 . Thus, it can be observed that a one dollar increase in the minimum wage during the pandemic, increases the probability of being employed by (4.416-1.21) 3.206 percentage points as opposed to 4.416, such as $\beta_1 > (\beta_1 + \beta_3)$.¹²

Column 5 of Table 3 add month-year fixed effects. Time fixed effects are from January 2019 to August 2020. However, for brevity the table only includes the results from January 2020 to August 2020. The coefficient on the minimum wage variable is statistically significant at 5%. As in the previous specification, the sign suggests that increases in minimum wages have positive effects on employment. The results indicate that a one dollar increase in minimum wage increases the probability of being employed by 2.81 percentage points. The sign of the coefficient from the

¹² The sum of the coefficient on the $MinWage_{p,t}$ and $COVID_t * MinWage_{p,t} (\beta_1 + \beta_3)$ is significant at 1 percent.

interaction term suggests that a one dollar increase in the minimum wage during the pandemic yields a lower increase the probability of being employed by 1.43 percentage points. However, the sum of coefficients ($\beta_1 + \beta_3$) is not statistically significant, implying that the effect is insignificant throughout COVID-19.

One can observe that the coefficients from the month-year effects from March 2020 to August 2020 are positive, which do not reflect the negative effect that COVID-19 has had on employment. As in the previous specifications, to measure the partial effect of COVID-19 on employment, I run a regression using the new interaction variable.¹³ Table 4, column 6 presents these results. One can observe that the at the average minimum wage, COVID has had a significant negative effect on employment, starting in March[†] 2020. The worst effects happened in April[†] and May[†] 2020, showing a decrease in employment by approximately 18 and 17 percentage points. As months passes by, the negative effect seems to be improving. Finally, the significance from the coefficients of interest (interaction term and the minimum wage variable) as well as the value are identical from both regressions in column 5 and 6.

Column 7 of Table 3 contains the results from the last specification. The results from the real minimum wage and the interaction term are comparable with the third specification, almost identical, suggesting positive effects on employment from increasing the minimum wage and negative partial effects of COVID on employment. Results suggest a 2.9 percentage points increase in the probability of being employed with increases in the minimum wage before the pandemic.

The coefficient on the interaction term suggest a decrease of 1.5 percentage points in the probability of being employed during the pandemic. However, the sum of ($\beta_1 + \beta_3$) is not statistically significant, implying that the effect is insignificant throughout COVID-19. To measure the effect of

¹³ Variable defined as: $(MinWage_{p,t} - Average MinWage_{p,t}) * COVID_t$

[†] Statistically significant at 1%

COVID-19 on employment, the interaction variable is replaced with the new interaction variable. These results are presented on Table 4, column 8. As in the previous specification, the negative partial effect of COVID on employment are reflected on the negative coefficients starting in March[†] 2020 to August[†] 2020. Lastly, controlling for individual characteristics has a very little effect on the size and magnitude of the estimates. One notable difference occurs on the interaction variable with the replacement of $COVID_t * MinWage_{p,t}$ with $(MinWage_{p,t} - Average MinWage_{p,t}) * COVID_t$. The replacement variable provides an accurate measurement of the impact of COVID-19 on employment, so I can observe a change in the sign and value of the coefficients from the month-year fixed effects and the COVID-19 variable, as expected. Also, when comparing the last specification with the first one, the size of the coefficient on the Minimum Wage variable significantly changes. However, as shown on column one, this coefficient is not statistically significant in the first model.

6. ROBUSTNESS CHECKS

The following section pertains to carrying out robustness checks to demonstrate that the main result does not change when using other similar samples or imposing different conditions. First, the minimum wage variable is replaced for the ln of minimum wage, such as $EMPLOYED_{i,p,t}$ is regressed on the ln of minimum wage, an interaction term between the ln of the minimum wage, the control variable for the post-COVID months $COVID_t$, the province and month-year fixed effects, and the individual control variables. The same restrictions than the previous specifications are applied. Second, I use the original model but exclude those out of the labour force. Since this paper focuses on employment effects from increases in the minimum wage during the pandemic, one can argue that including those individuals that are not even considered as unemployed may

alter the results of the study. Omitting this group will confirm the results of the previous two models. Finally, I use the accommodation and food industry as a comparison base; in this case, the same restrictions and the same model of the last specification are used. This industry is similar to the retail-trade in the sense that employs a large number of minimum wage earners, and so increases during the pandemic should also affect these businesses. To accurately measure the effect of COVID-19 on employment, I also run a regression with the replacement variable for each of the robustness check specifications. Table 4 shows all the results for robustness checks.

Column one shows the regression using the ln of minimum wage. The sign and significance of the coefficients of interest in comparison with the four specification are comparable, suggesting that the main result do not change. Besides, the size and magnitude of the month-year effect coefficients from the regressions with the new interaction terms are identical (Table 4, column 2 in comparison with Table 3, column 8). The data suggests positive effects of increasing the minimum wage on employment, and a negative impact of COVID-19 on employment. The coefficients on the ln of minimum wage and the interaction term are statistically significant at 5 and 1 percent, respectively. Thus, a 10 percent increase in the pre-COVID months increases the probability of being employed by 3.7 percent. The results also suggest that a 10 percent increase during the pandemic decreases the probability of being employed by 1.8 percent.¹⁴ However, the sum of $(\beta_1 + \beta_3)$ is not statistically significant, implying that the effect is insignificant throughout COVID-19.

Table 4, column 3 presents the results of the model excluding those in the labour force. In this case, the sign of the coefficients is alike with respect to the four specification, which are also significant at 1 percent. However, when excluding those out of the labour force, the effect of the

¹⁴ The sum of the coefficient on the $MinWage_{p,t}$ and $COVID_t * MinWage_{p,t}$ ($\beta_1 + \beta_3$) is significant at 10 percent.

increase on employment before and during pandemic seems to be smaller. A one dollar increase in the minimum wage pre-COVID increases the probability of being employed by 1.7 percentage points in comparison with 2.9 (Table 3, column 7), while the increasing it during COVID times reduces the probability by 0.6 percentage points in comparison with 1.5 percentage points (Table 3, column7).¹⁵ Similarly, the regression that use the new interaction variable (Table 4, column 4 in comparison with Table 3, column 8) show that the impact of COVID-19 on employment is lesser when excluding individuals out of the labour force.

Table 5 presents the results of a simple regression, where the dependent variable equals to one for those individuals that are voluntarily out of the labour force due dissatisfaction or other responsibilities, and zero otherwise.¹⁶ The independent variables are the same as specification 1 plus the individual control variables. The goal is to differentiate between the effects of COVID and increases in the minimum wage on individuals' decisions to leave the labour force.

The results suggest that a one dollar increase in the minimum wage in the pre-COVID months decreases the probability of individuals' decision to leave the labour force by 0.01 percentage points. However, the coefficient is only significant at 15%.

The coefficient on the $COVID_t$ variable, is statistically significant at 5%. To measure the partial effect of COVID on individuals' decision to leave the labour force, I can use the same method mentioned above and multiply the coefficient of the interaction variable times the average minimum wage and add the coefficient of the $COVID_t$ variable:

$$(-0.033249) + (0.0029868) (13.07509) = 0.0058036$$

¹⁵ The sum of the coefficient on the $MinWage_{p,t}$ and $COVID_t * MinWage_{p,t} (\beta_1 + \beta_3)$ is significant at 10 percent.

¹⁶ Includes: Job leavers for: own illness or disability, caring for children, pregnancy, personal or family responsibilities, going to school, dissatisfied. Excludes those that retired.

To test the significance of this result, the regression with the new interaction variable is performed. Table 5, column 2 shows the result of this model. The data suggests that the coefficient on the COVID variable, which is comparable with the result above, is statistically significant at 1 percent. Thus, at the average minimum wage, COVID increases the individuals' decision to be out of the labour force by 0.6 percentage points. One logical reason could be that employees quit their jobs to care for family members, including children as daycares closed for months during the pandemic. Another reason could be the illness or disability of a member of a family, including infection of COVID-19. Finally, one could also say that some employees did not feel safe in their working environment due to the pandemic and decided to leave their jobs.

Finally, the results of the Accommodation and Food Service Industry, presented in column 5 and 6, suggest the same outcome than all the previous models for increases in the minimum wage before and during the pandemic: positive effects of increasing the minimum wage on employment, negative partial effects of increasing the minimum wage on employment during the pandemic, and a negative impact of COVID-19 on employment. In comparison with the Retail and Trade Industry, it can be seen that changes in the minimum wage have larger effects in the Accommodation and Food Services industry in comparison with the Retail and Trade industry; the impact of COVID-19 on employment as well as the effect of increases in minimum wages before the pandemic are significantly larger. For instance, before the pandemic a one dollar increase in the minimum wage increases the probability of being employed by 9 percentage points, in comparison with 2.9 from the Retail and Trade industry, while for example in April 2020, at the average minimum wage, COVID-19 decreases employment by 44 percentage points (Table 4, column 6) in comparison with 18 percentage points (Table 3, column 8) from the Retail and Trade industry.

The results from the three models in this section are comparable with the fourth specification, suggesting positive effects on employment from increases in the minimum wage pre-pandemic, and a negative marginal effect of the increase during the pandemic.

7. CONCLUSION

This study has documented the effects of changes in the minimum wage on employment before and throughout the COVID-19 pandemic. To measure the effect, this paper investigates the employment effects in the retail and trade industry following minimum wage increases across Canadian provinces. Currently, the retail and trade industry is the largest employer of minimum wage workers in Canada, so any changes in the legislation impacts this industry. My analysis contains four different models that examine 1) whether increases in minimum wages across Canadian provinces before and during the pandemic have positive or negative impacts on employment, and 2) the impact of COVID-19 on employment in the retail and trade industry.

My estimates suggest that pre-pandemic increases in minimum wage have no negative effects on employment levels. Instead, the results imply that there are relative increases on employment following raises in minimum wage. Even though these relative gains are not large, the finding indicates that a rise in the minimum wage does not reduce employment, as suggested by the downward sloping labour demand curve.

On the other hand, this paper finds that increases in the minimum wage during the COVID-19 pandemic decreases the probability of being employed in comparison with the probability of being employed before COVID. However, none of the results show a negative probability, and thus, increases even during pandemic times, do not have negative effects on employment.

I also find that COVID-19 has had a negative effect on employment in industries that heavily employ minimum wage earners. This study includes the analysis of the Retail and Trade as well as the Accommodation and Food Service industries, the latter in the robustness check section. The results suggest that there are larger effects in the Accommodation and Food industry from minimum wage changes in both, pre-COVID and during COVID periods. Finally, the results indicate that the pandemic has also had negative effects on labour force participation. Different reasons, including the closing of schools and daycares, caring for family members, and anxiety derived from getting infected at workplaces, among others, could explain the reduction in labour force participation.

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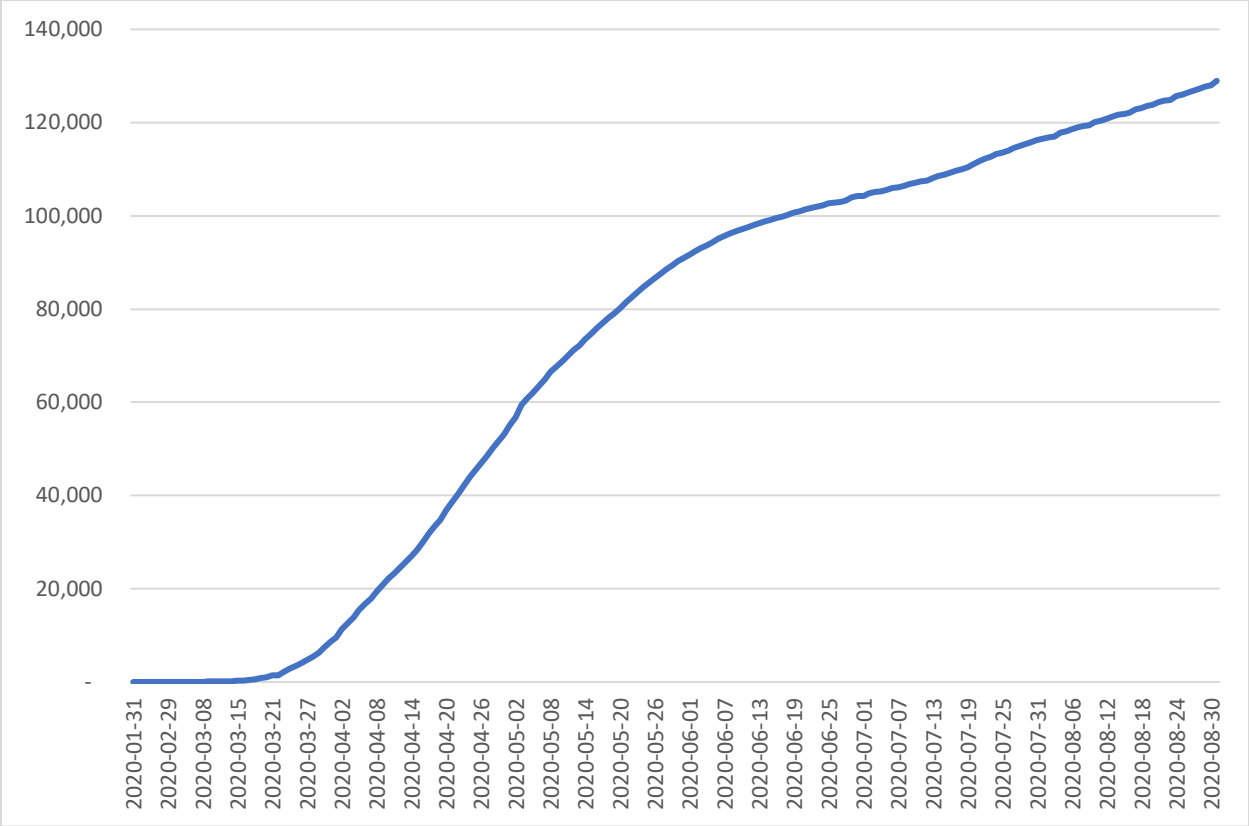


Figure 1: Count of Active Cases of COVID-19, January 31, 2020 – August 30, 2020.

(Source: Government of Canada. Retrieved from <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>.)

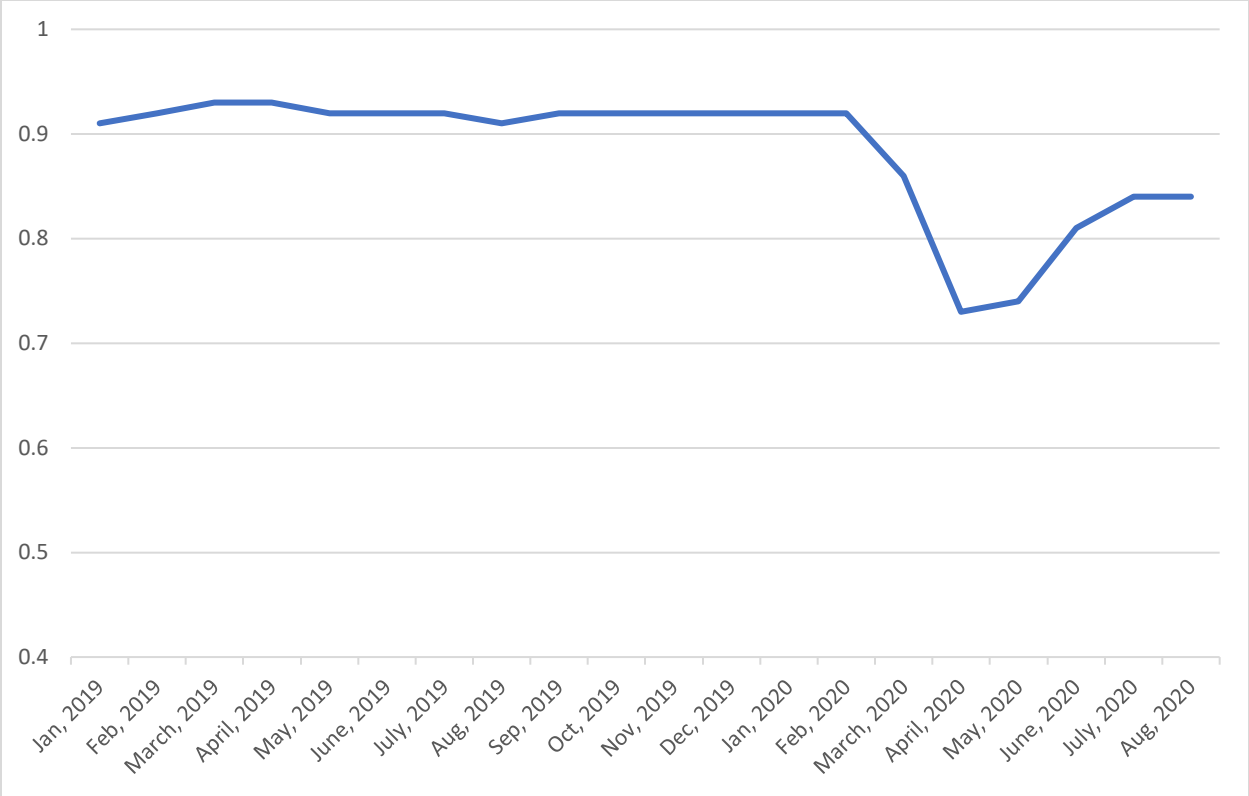


Figure 2: Employment Rate Retail-Trade Industry, January 2019 – August 2020

Notes: Author’s calculations. Data from the Labour Force Survey with final weights applied.

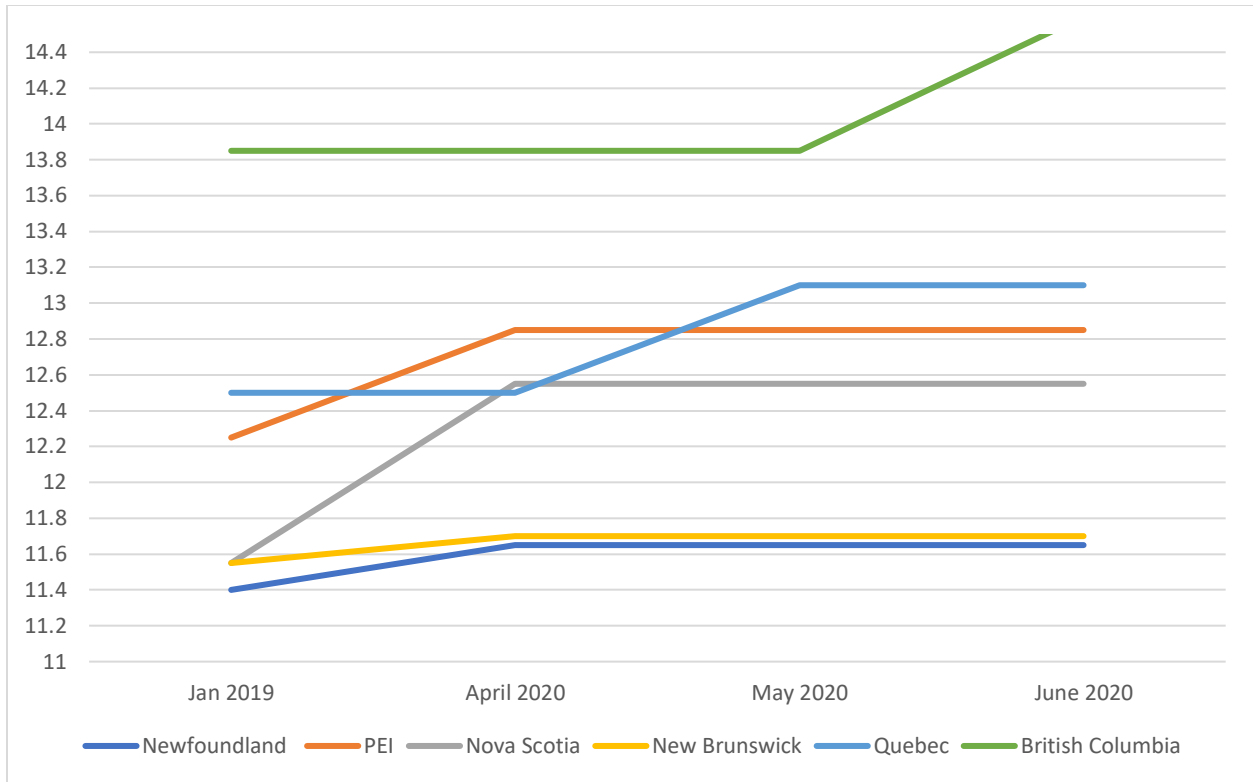


Figure 3: Nominal minimum wage for provinces that increased it during COVID-19, January 2019 – June 2020

(Source: Retail Council of Canada. Retrieved from <https://www.retailcouncil.org/resources/quick-facts/minimum-wage-by-province/>)

Table 1
Descriptive Statistics: Distribution of Minimum Wage Earners by Industry

Industry	Distribution
Retail trade (%)	40.39
Accommodation and food services (%)	27.67
Information, culture and recreation (%)	5.42
Business, building and other support services (%)	4.23
Health care and social assistance (%)	4.09
Other services -except public administration (%)	3.26
Manufacturing - non-durable goods (%)	2.63
Educational services (%)	2.16
Agriculture (%)	1.92
Transportation and warehousing (%)	1.56
Wholesale trade (%)	1.20
Construction (%)	1.08
Manufacturing - durable goods (%)	1.07
Professional, scientific and technical services (%)	0.99
Real estate and rental and leasing (%)	0.74
Public administration (%)	0.74
Finance and insurance (%)	0.47
Mining, quarrying, and oil and gas extractions (%)	0.13
Forestry and logging and support activities for forestry (%)	0.11
Fishing, hunting and trapping (%)	0.08
Utilities (%)	0.04
Number of Observations	53,185

NOTE.- Minimum wage earners are define as those that earn a wage within 50 cents of the minimum wage. Those individuals that reported earnings below the minimum wage minus 50 cents are not taken into account as it can been mistakenly reported.

Table 2
Descriptive Statistics: Proportion of Minimum
Wage Earners by Age from January 2019 to

Age Range	Proportion
15 to 19	38.6%
20 to 24	19.7%
25 to 29	8.7%
30 to 34	5.9%
35 to 39	5.4%
40 to 44	5.1%
45 to 49	5.1%
50 to 54	5.5%
55 to 59	6.1%
Number of Observations	53,185

Table 3
Effects of Minimum Wage Increases on Employment, Retail and Trade Industry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Minimum Wage	0.000 (0.001)	0.000 (0.001)	0.044*** (0.011)	0.044*** (0.006)	0.028** (0.012)	0.028** (0.012)	0.029*** (0.012)	0.029*** (0.012)
COVID	0.085** (0.032)	-0.106*** (0.002)	0.043 (0.043)	-0.115*** (0.002)				
Interaction Variable	-0.015*** (0.002)	-0.015*** (0.002)	-0.012*** (0.003)	-0.012*** (0.002)	-0.014*** (0.002)	-0.014*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)
January 2020					0.005 (0.006)	0.005 (0.006)	0.004 (0.006)	0.004 (0.006)
February 2020					0.004 (0.006)	0.004 (0.006)	0.003 (0.006)	0.003 (0.006)
March 2020					0.142*** (0.006)	-0.045*** (0.006)	0.146*** (0.006)	-0.044*** (0.006)
April 2020					0.007 (0.030)	-0.180*** (0.006)	0.012 (0.030)	-0.179*** (0.006)
May 2020					0.019 (0.030)	-0.168*** (0.006)	0.028 (0.030)	-0.162*** (0.006)
June 2020					0.084*** (0.031)	-0.103*** (0.006)	0.096*** (0.031)	-0.094*** (0.006)
July 2020					0.111*** (0.031)	-0.077*** (0.006)	0.127*** (0.031)	-0.063*** (0.006)
August 2020					0.116*** (0.031)	-0.071*** (0.006)	0.133*** (0.031)	-0.057*** (0.006)
Number of Observations	98,147	98,147	98,147	98,147	98,147	98,147	98,147	98,147
Interaction Variable = Minimum Wage x COVID	Yes	No	Yes	No	Yes	No	Yes	No
Interaction Variable = (Minimum Wage - Average Minimum Wage) x COVID	No	Yes	No	Yes	No	Yes	No	Yes
Province Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Month-Year Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
Individual Control Variables	No	No	No	No	No	No	Yes	Yes

NOTE - The dependent variable in these sets of regressions is employment in the retail and trade industry. OLS regression results. Standard errors are heteroskedastic robust and in brackets. All regressions are weighted.

**Significant at the 5% level.

***Significant at the 1% level.

Table 4
Effects of Minimum Wage Increases on Employment, Retail and Trade Industry

	<i>LN Minimum Wage</i>		<i>Excluding Out of the Labour Force</i>		<i>Accommodation and Food Services</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Minimum Wage	0.373** (0.150)	0.373** (0.150)	0.017*** (0.006)	0.017*** (0.005)	0.09*** (0.011)	0.09*** (0.011)
Interaction Variable	-0.184*** (0.029)	-0.184*** (0.006)	-0.006*** (0.000)	-0.006*** (0.001)	-0.022** (0.000)	-0.022*** (0.003)
January 2020	0.004 (0.006)	0.004 (0.006)	0.006 (0.005)	0.006 (0.005)	-0.02 (0.011)	-0.02 (0.010)
February 2020	0.003 (0.006)	0.003 (0.006)	0.005 (0.005)	0.005 (0.005)	-0.014 (0.011)	-0.014 (0.010)
March 2020	0.428*** (0.075)	-0.044*** (0.006)	0.048** (0.025)	-0.024*** (0.005)	0.067*** (0.048)	-0.218*** (0.010)
April 2020	0.293*** (0.075)	-0.179*** (0.006)	-0.03 (0.025)	-0.102*** (0.005)	-0.155 (0.048)	-0.441*** (0.010)
May 2020	0.31*** (0.076)	-0.162*** (0.006)	-0.033 (0.025)	-0.105*** (0.005)	-0.148*** (0.048)	-0.433*** (0.010)
June 2020	0.378*** (0.076)	-0.094*** (0.006)	0.001 (0.025)	-0.071*** (0.005)	0.01 (0.049)	-0.276*** (0.011)
July 2020	0.409*** (0.076)	-0.064*** (0.006)	0.028 (0.025)	-0.044*** (0.005)	0.094 (0.049)	-0.192*** (0.010)
August 2020	0.415*** (0.076)	-0.058*** (0.006)	0.033 (0.025)	-0.04*** (0.005)	0.127 (0.049)	-0.158*** (0.010)
Number of Observations	98,147	98,147	93,276	93,276	55,426	55,426
Interaction Variable = ln Minimum Wage x COVID	Yes	No	No	No	No	No
Interaction Variable = ln Minimum Wage - ln Average Minimum Wage) x COVID	No	Yes	No	No	No	No
Interaction Variable = Minimum Wage x COVID	No	No	Yes	No	Yes	No
Interaction Variable = (Minimum Wage - Average Minimum Wage) x COVID	No	No	No	Yes	No	Yes
Province and month-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Individual Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

NOTE.- The dependent variable in these sets of regressions is employment in the retail and trade industry. OLS regression results. Standard errors are heteroskedastic robust and in brackets. All regressions are weighted.

**Significant at the 5% level.

***Significant at the 1% level.

Table 5
Effects of Minimum Wage Increases on Labour Force Participation, Retail and Trade Industry

	(1)	(2)
Minimum Wage	0.001 (0.001)	0.001 (0.001)
COVID	-0.033** (0.015)	0.006*** (0.001)
Interaction Variable	0.003** (0.001)	0.003** (0.001)
Number of Observations	91,980	91,980
Interaction Variable = Minimum Wage x COVID	Yes	No
Interaction Variable = (Minimum Wage - Average Minimum Wage) x COVID	No	Yes
Province Fixed Effects	No	No
Month-Year Fixed Effects	No	No
Individual Control Variables	Yes	Yes

NOTE.- The dependent variable in these sets of regressions is Labour Force participation in the retail and trade industry. OLS regression results. Standard errors are heteroskedastic robust and in brackets. All regressions are weighted.

**Significant at the 5% level.

***Significant at the 1% level.