Online Appendix to:

The Short-Term Economic Consequences of COVID-19: Occupation Tasks and Mental Health in Canada*

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A1 O*NET Index calculations

O*NET's indexes for "Exposure to infection and disease" and "Physical proximity to others" are created based on survey responses. These survey responses are collected on a 1–5 scale. "Exposure to infection and disease" can take on values of "Never", "Once a year or more but not every month", "Once a month of more but not every week", "Once a week or more but not everyday", and "Every day". "Physical proximity to others" can take on values "I don't work near other people (beyond 100 ft.)", "I work with others but not closely (e.g. private office)", "Slightly close (e.g. shared office)", "Moderately close (at arm's length)", and "Very close (near touching)".

These scales are then converted into an index by O*NET with the following formula: $S = ((O-1)/(H-1)) * 100$

where S is the new index value, O is the original score on the 1–5 scale, and H is the highest possible score. As an example, a collected score of 4 becomes 75 ($= (4-1)/(5-1)) * 100$).

The next section then describes in detail how these indexes are aggregated and translated to the Canadian context.

A2 Index Adaptations for the Labour Force Survey

The Canadian Labour Force Survey (LFS) tracks information for an individual's occupation across the 40 major groups of Canada's National Occupation Classification (NOC) system. This paper makes use of four different indexes and adapts them for the LFS, utilizing a cross-walk between the 2016 Canadian National Occupation Classification (NOC) with O*NET-SOC codes. After merging various datasets using our cross-walk, we aggregate the NOC's 500 unit groups to NOC 40 major groups, weighting at successive aggregations by employment shares from Canada's 2016 census. This aggregation allows us to merge the index measures with the LFS. At the end of the process, each observation in the LFS that has assigned to them an NOC 40 major groups, is given the weighted index value.

The challenge is to adapt indexes to the LFS. The cross-walk developed by Brookfield Institute for Innovation and Entrepreneurship makes matching Canadian NOC with American O*NET data feasible.[1] The cross-walk is constructed such that at least one of every 500 unit groups (the smallest level of aggregation that the NOC system contains) is matched to at least one of the O*NET-SOC codes. This allows use to adapt the O*NET indexes to the Canadian data, such as the physical proximity to other workers and disease exposure measures as in Beland et al. (2020), the work from home index from O*NET used in Dingel and Neiman (2020), and the critical worker index from the LMI Institute.[2] For all four indexes, we merge the dataset based on the NOC-O*NET crosswalk. The physical proximity and exposure indexes from Beland et al. (2020), and the work from home index from Dingel and Neiman (2020), match to 484 of 500 NOC unit groups. The critical worker index from LMI Institute matches to 446 NOC unit groups. The LMI match less well because they are using 7-digit SOC codes which are not as fine as O*NET-SOC codes. We will return to these missing values when we aggregate our 500 NOC unit groups.

For each NOC unit group, we take the (unweighted) average index score across all matched (i.e. not missing) O*NET-SOC codes. This is because there may be multiple O*NET-SOC codes which map to a single NOC unit group. This leaves us with an average measure for each matched NOC unit groups. For example, since we had 484

[1] See https://github.com/BrookfieldIIE/NOC_ONet_Crosswalk.

[2] See this link for more details: https://www.lmiontheweb.org/more-than-half-of-u-s-workers-in- critical-occupations-in-the-fight-against-covid-19/.

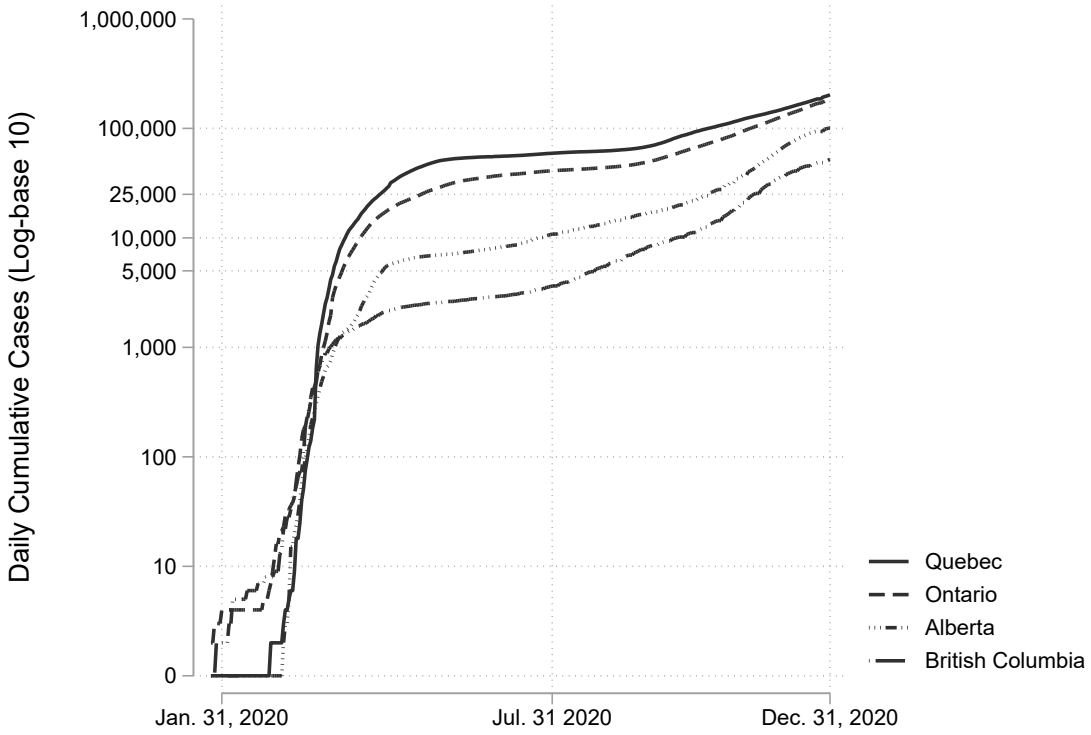
successful matches from Dingel and Neiman (2020)'s work from home index, we will now have an unweighted average unit group for 484 NOC unit groups. In this case, that leaves 16 NOCs without an index measure.

We solve the missing value problem using the structure of the NOC and how it aggregates into coarser classifications. The NOC maps their 500 unit groups into 140 minor groups, and maps their 140 minor groups into 40 major groups. To solve the missing value problem, we assign each unmatched unit group the *unweighted* average of their associated *minor* group. This unweighed average is the average of all other unit group members with known index values that belong to the same (more aggregate) minor group. We then construct the minor groups' *weighted* average using each unit groups' 2016 employment shares from Statistics Canada Table $98-400-X2016271$ as weights. This yields a complete list of weighted averages indexes for the 140 minor groups.[3] Doing this across all unit groups within a minor groups yields the weighted index for all minor groups. Similarly, we construct an employment share weighted index average for the 40 major groups using the same procedure as before except aggregating the minor groups up to the major group level. At this point, we are able to merge our weighted average index value to observations in the LFS that contain information on individuals' NOC major group. As noted in the text, we then standardize these indexes with a mean of zero and standard deviation of one.

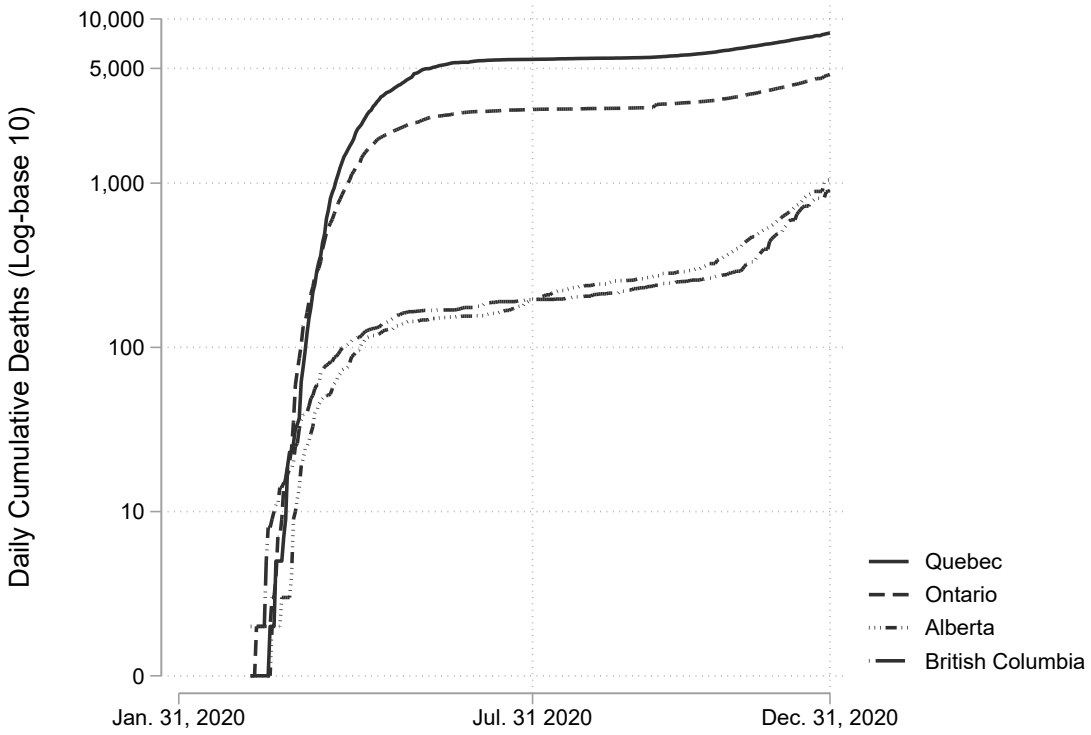
[3]For example, suppose we have two unit groups (A and B) who make up minor group (AB), where A has an index value of 1, B has a missing value, and they both have 0.5 employment shares of AB. We do as follows: assign B a value of 1 as its index (the unweighted average from the known unit groups, A). Then we weight both A and B by their employment shares to construct the minor group index: in this case AB has an index value of 1 ($= 0.5(1) + 0.5(1)$).

Figure A1: Cases and Deaths in Largest Four Provinces, Logarithmic Scale.

(a) Cumulative Cases, Log (base 10)



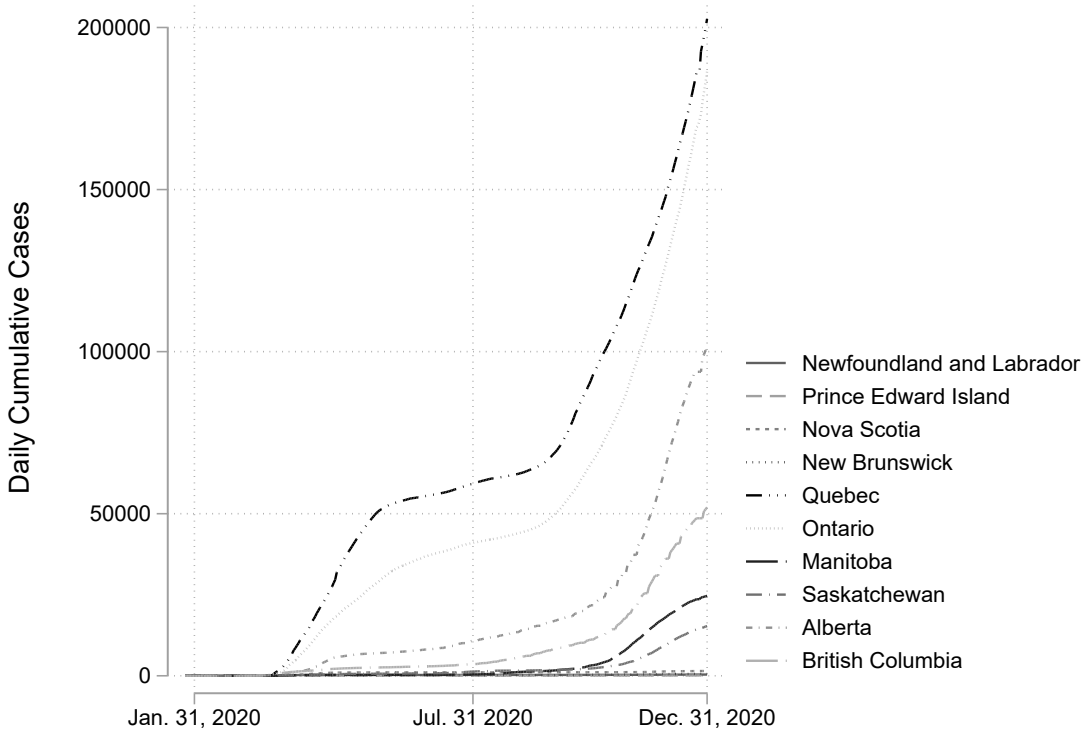
(b) Cumulative Deaths, Log (base 10)



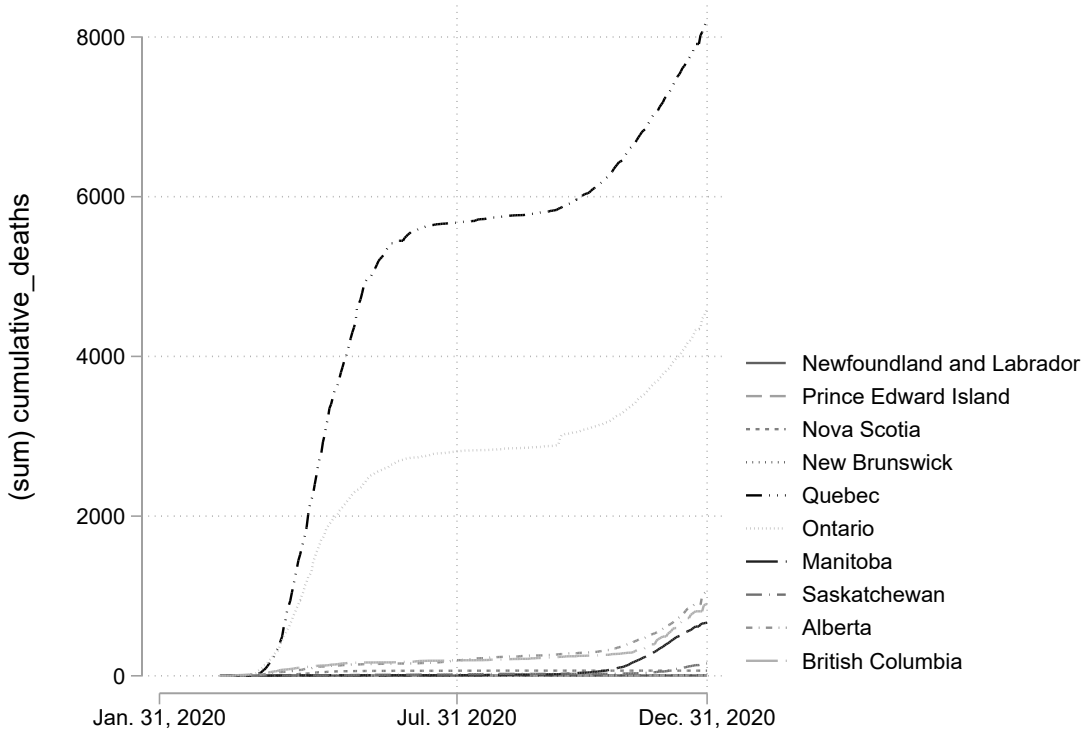
Authors' Calculations. Data from Berry et al. (2020). From the start of the pandemic to December 31, 2021.

Figure A2: Cases and Deaths in All Provinces, Linear Scale.

(a) Cumulative Cases, Linear



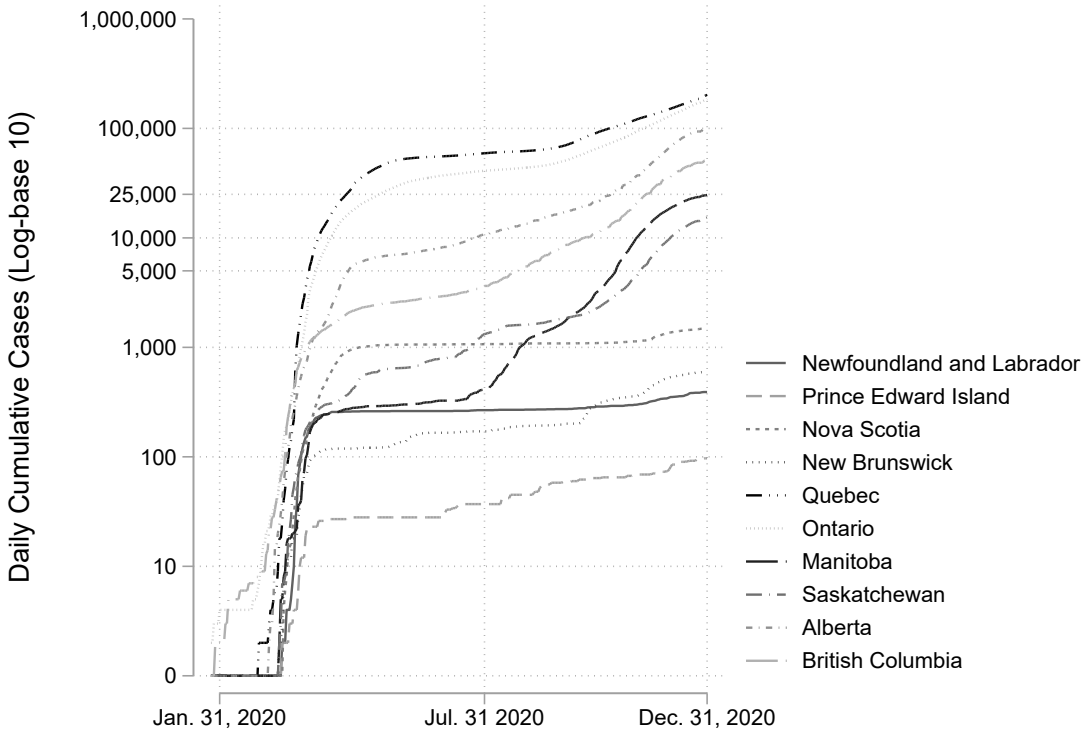
(b) Cumulative Deaths, Linear



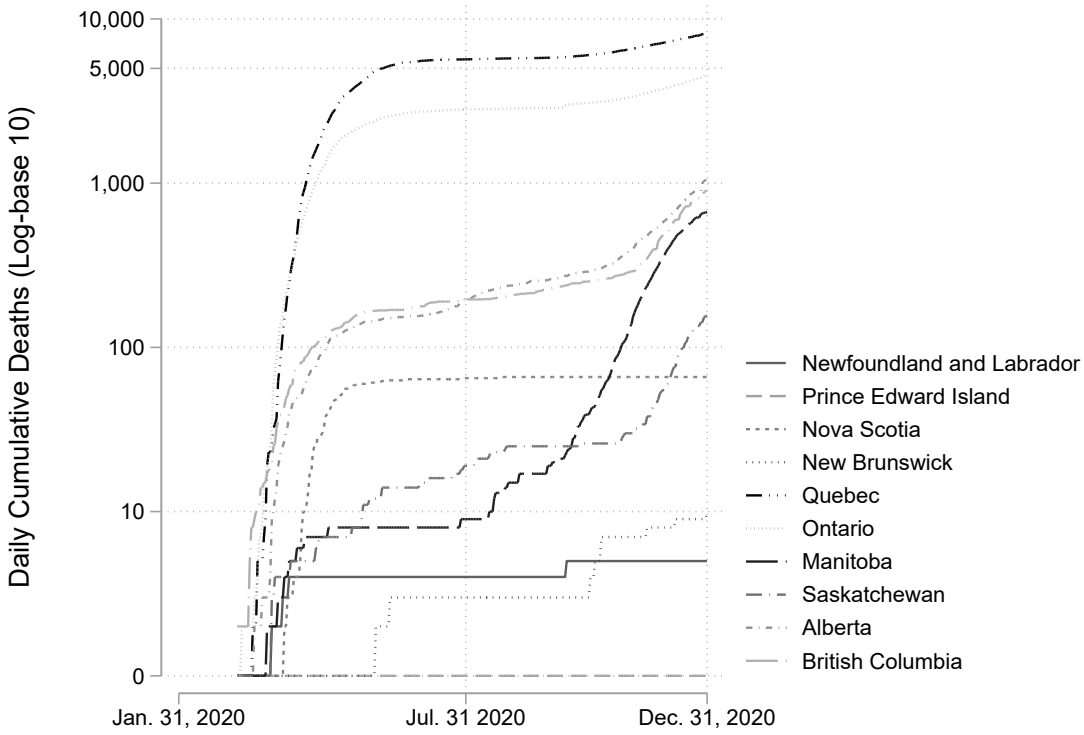
Authors' Calculations. Data from Berry et al. (2020).

Figure A3: Cases and Deaths in All Provinces, Logarithmic Scale.

(a) Cumulative Cases, Log (base 10)



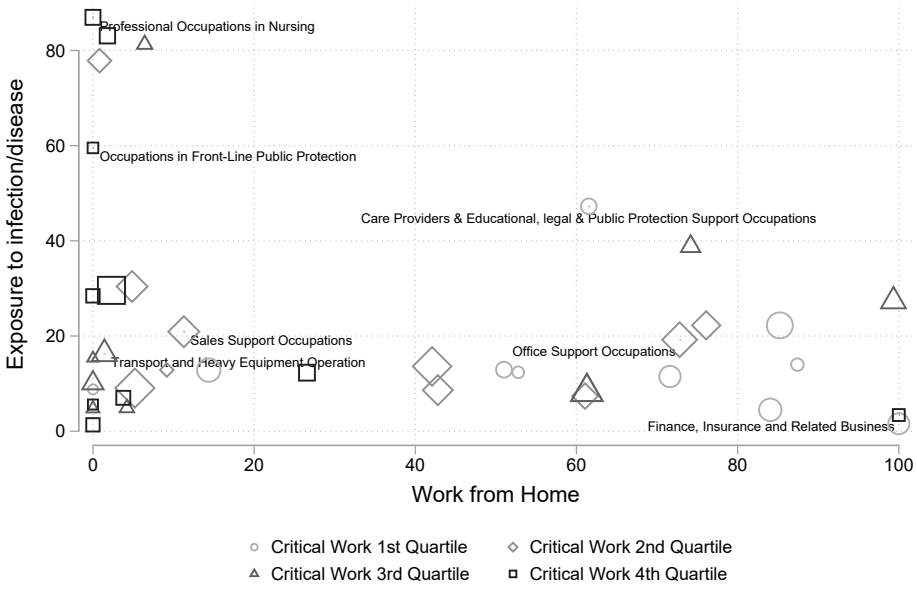
(b) Cumulative Deaths, Log (base 10)



Authors' Calculations. Data from Berry et al. (2020).

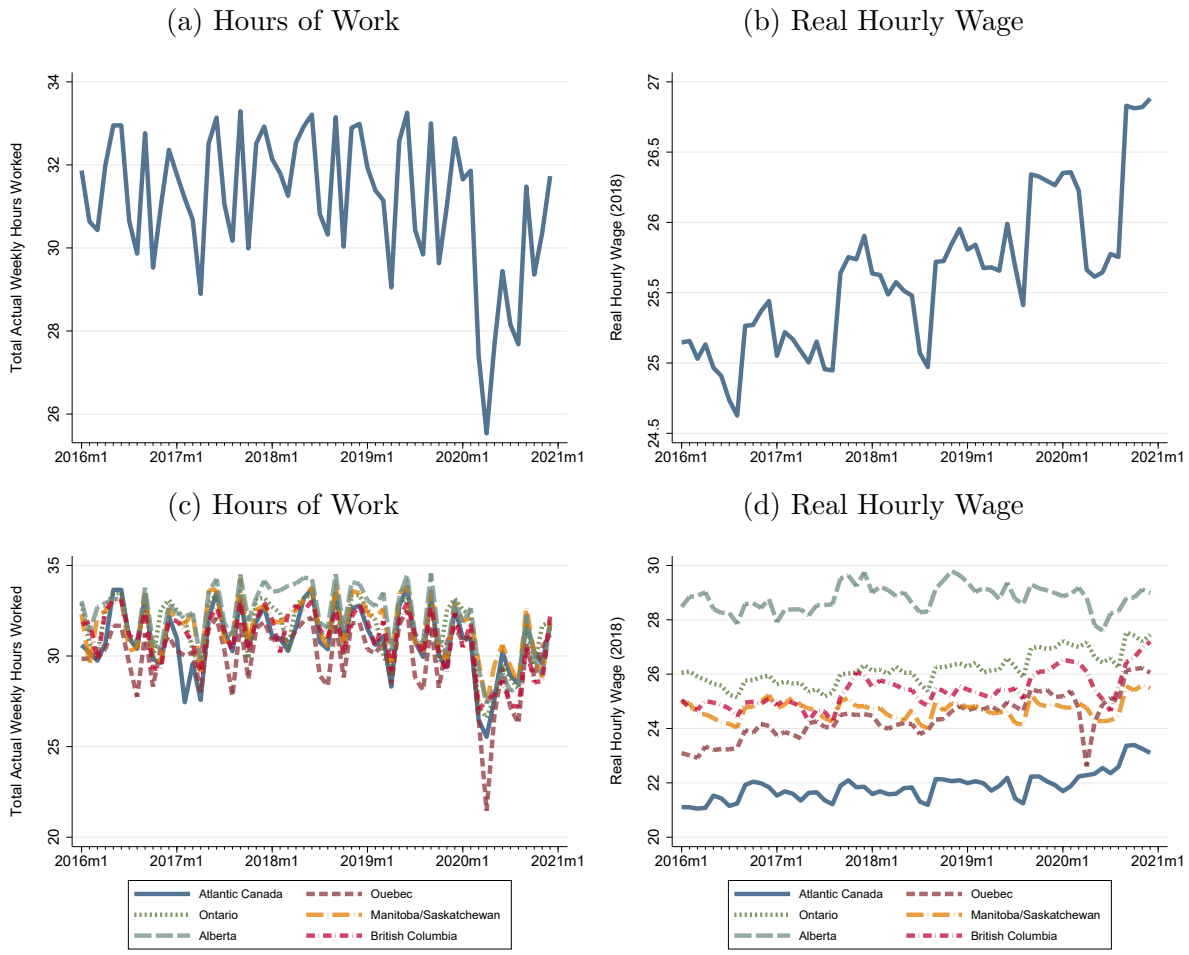
Figure A4: Exposure to Disease Indexes and Work from Home by NOC Occupations.

(a) Exposure to Disease, Work from Home and Critical Worker Indexes by Occupation



Each circle represents an occupation from the National Occupation Codes (2016). The size of each circle represents the number of LFS respondents employed in that occupation. The larger the circle, the greater the number of people employed in that occupation. The x-axis plots each occupation's work from home index adopted from (Dingel and Neiman 2020) and applied to the LFS. The further to the right, the more employees are able to work from home. The y-axis plots each occupation's exposure to infection and disease, also measured by O*NET's index. The further upwards from zero, the more frequently employees in that occupation are exposes to infection and disease. The color of the circles corresponds to the quartile of each occupation in the critical worker index we constructed. Occupations in the first quartile are less likely to be critical workers while those in the fourth quartile are most likely to be critical workers.

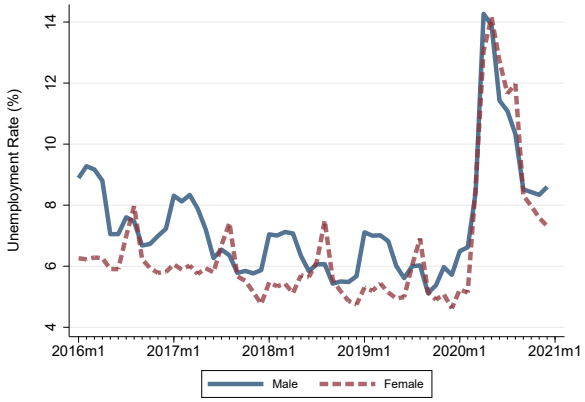
Figure A5: Hours of Work and Hourly Wages for Canada and its Regions.



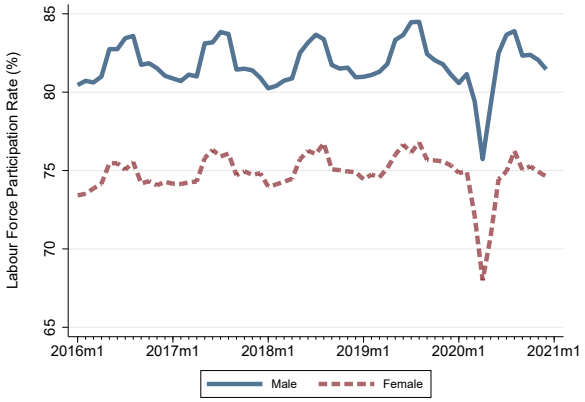
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Atlantic Canada includes Newfoundland and Labrador, Nova Scotia, Prince Edward Island, and New Brunswick. Panel A plots the total actual hours worked for Canada. This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero. Panel B plots the usual real hourly wages (January 2018, provincial) for Canada. This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero. Panel C plots the total actual hours worked for Canada's provinces and regions. This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) for Canada's provinces and regions. This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A6: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Sex.

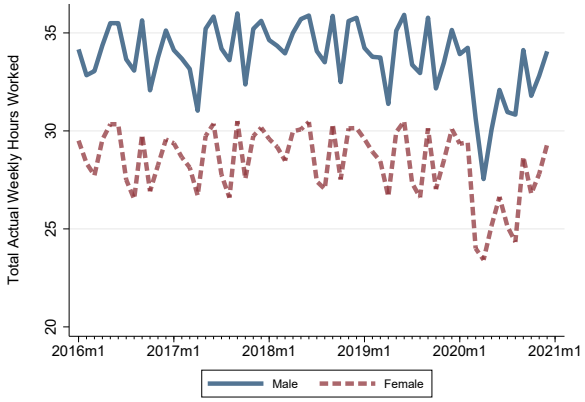
(a) Unemployment Rate



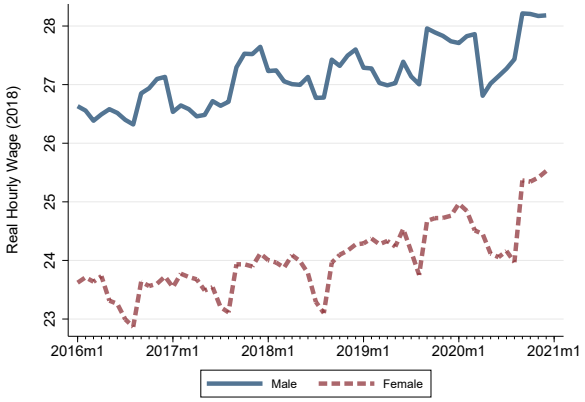
(b) Labour Force Participation



(c) Hours of Work



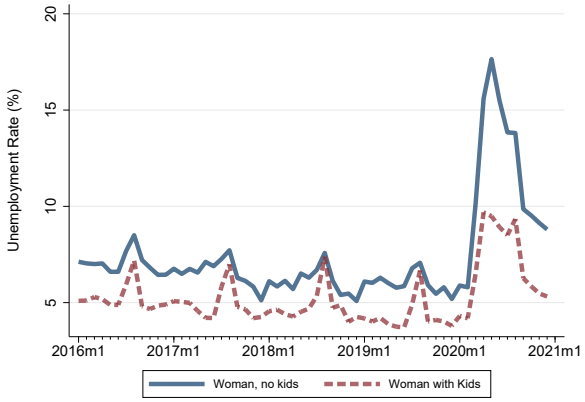
(d) Real Hourly Wage



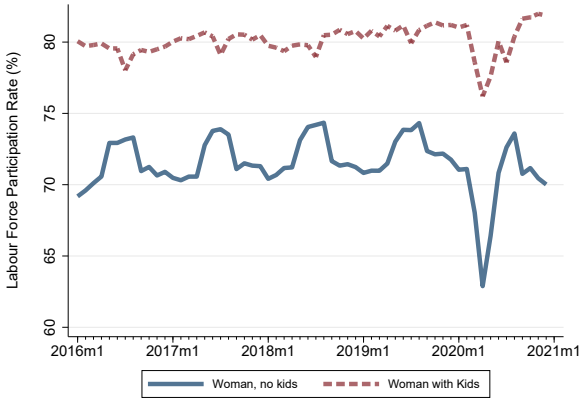
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Panel A plots the unemployment rate by sex. Panel B plots the labour force participation by sex. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by sex. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual hourly wages (January 2018, provincial) by sex. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A7: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages for Women with and without Children.

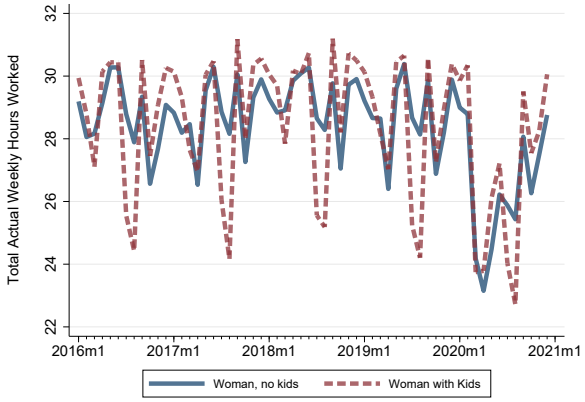
(a) Unemployment Rate



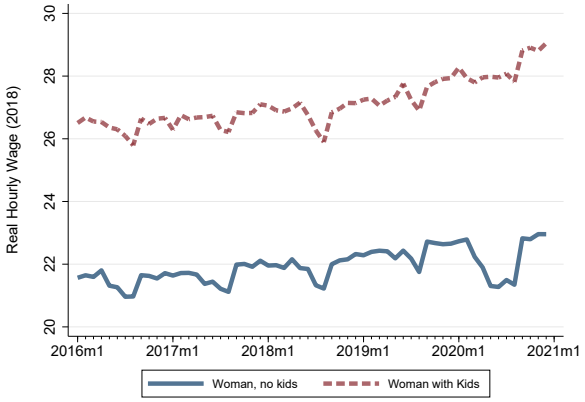
(b) Labour Force Participation



(c) Hours of Work



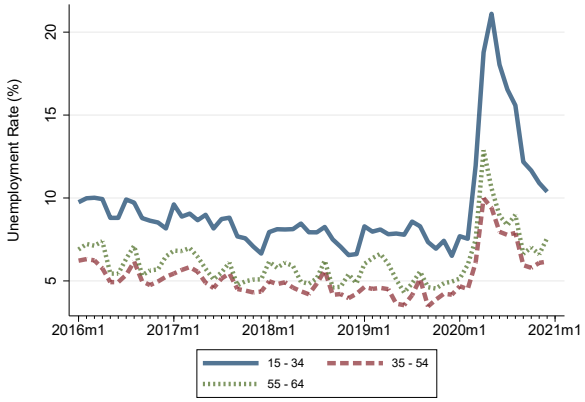
(d) Real Hourly Wage



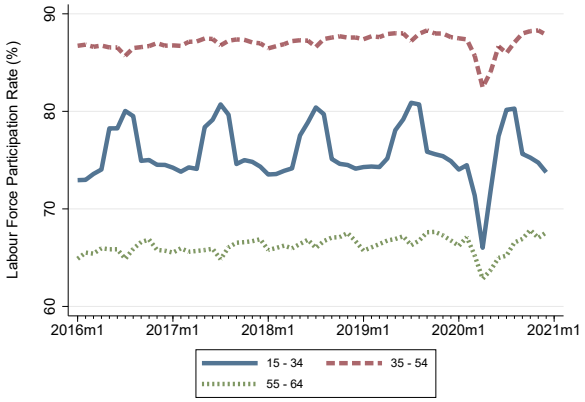
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Panel A plots the unemployment rate for women with and without children. Panel B plots the labour force participation for women with and without children. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked for women with and without children. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) for women with and without children. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A8: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Age Group.

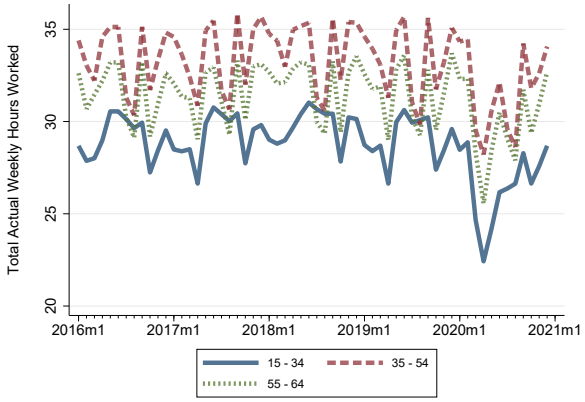
(a) Unemployment Rate



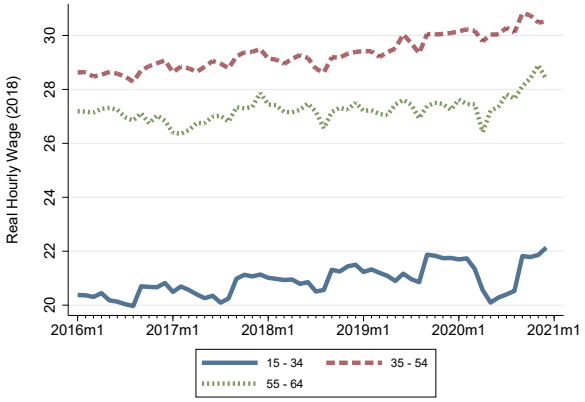
(b) Labour Force Participation



(c) Hours of Work



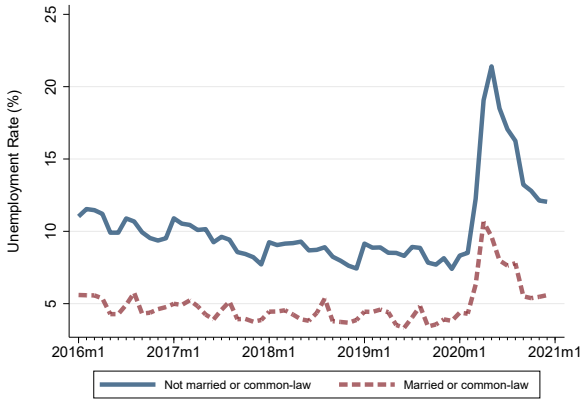
(d) Real Hourly Wage



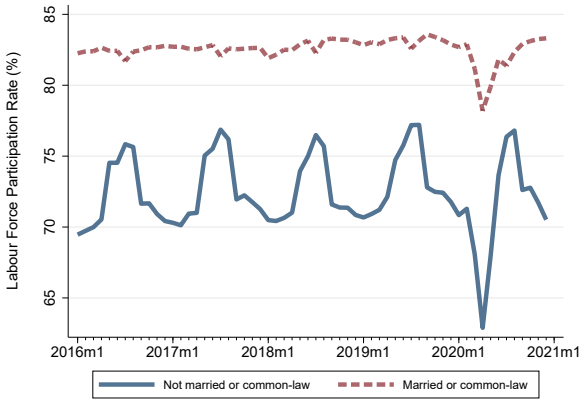
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Panel A plots the unemployment rate by age group. Panel B plots the labour force participation by age group. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by age group. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) by age group. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A9: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Marital Status.

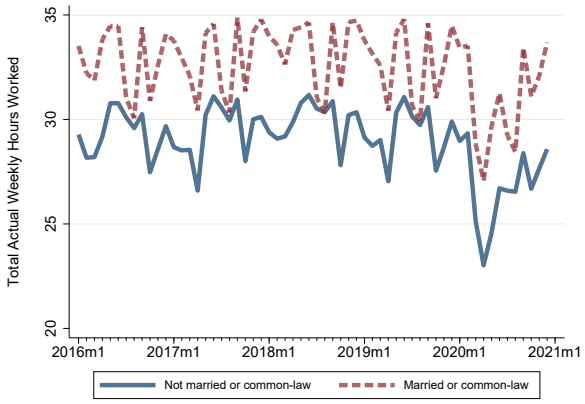
(a) Unemployment Rate



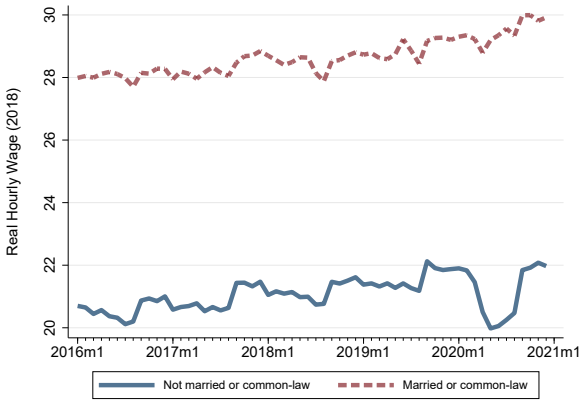
(b) Labour Force Participation



(c) Hours of Work



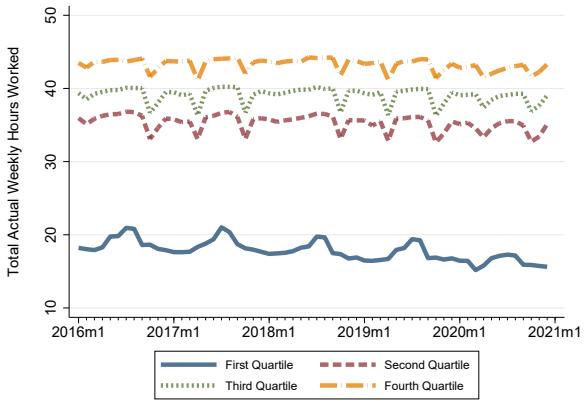
(d) Real Hourly Wage



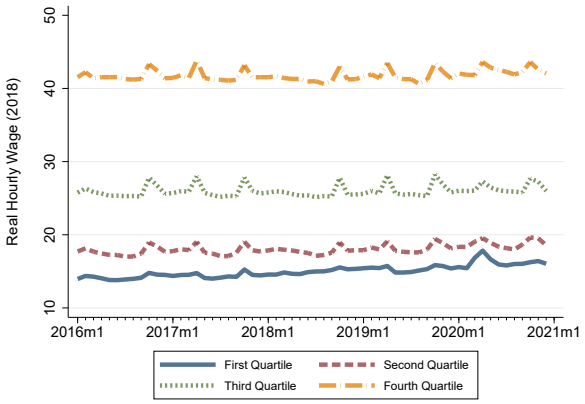
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Panel A plots the unemployment rate by marital status. Panel B plots the labour force participation by marital status. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by marital status. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) by sex. This includes individuals who were: civilian; 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A10: Hours of Work and Hourly Wages by Weekly Earnings Quartile.

(a) Hours of Work



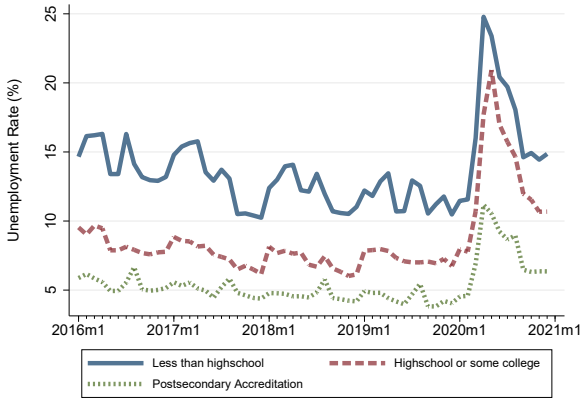
(b) Real Hourly Wage



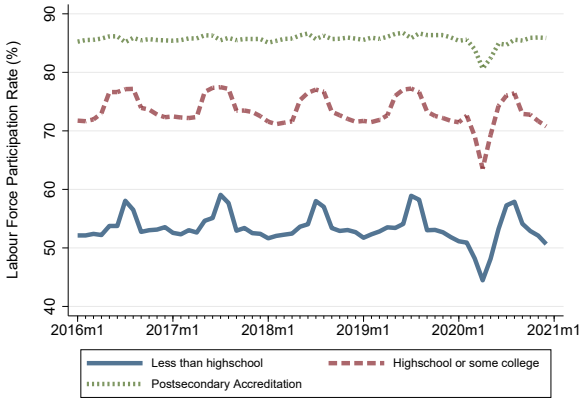
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. Panel A plots the total actual hours worked by weekly earnings quartile. Weekly earnings is calculated as the real hourly wage (January 2018, provincial) multiplied by the total usual hours of worked in a week. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed earned zero income and were omitted. Panel B plots the usual hourly wages (January 2018, provincial) by weekly earnings quartile. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed earned zero income and were omitted.

Figure A11: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Education Status.

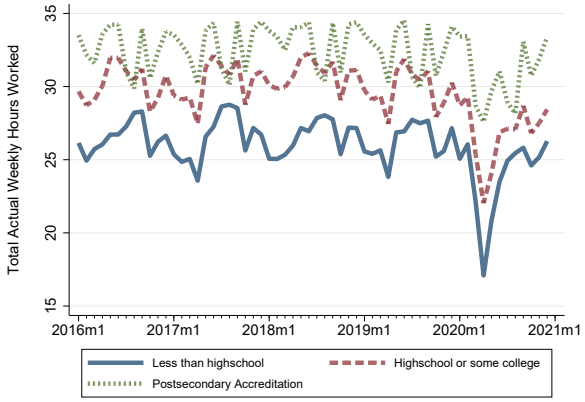
(a) Unemployment Rate



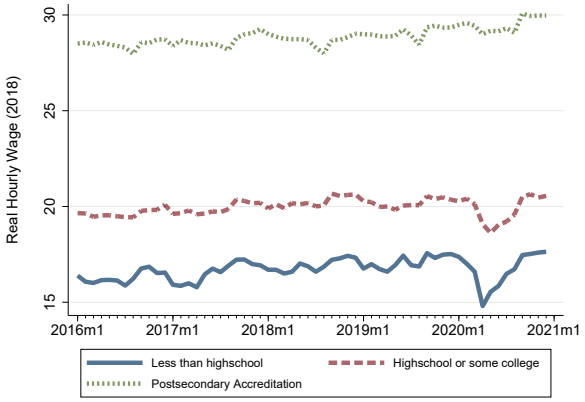
(b) Labour Force Participation



(c) Hours of Work



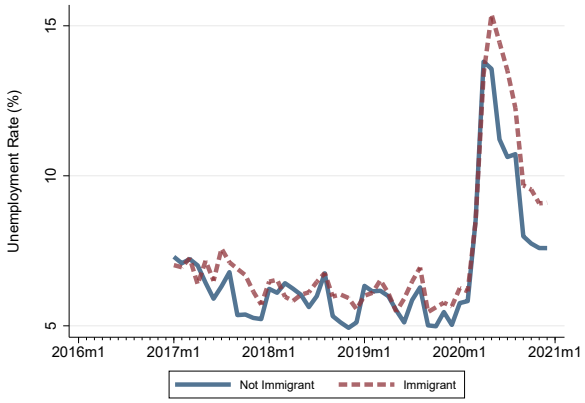
(d) Real Hourly Wage



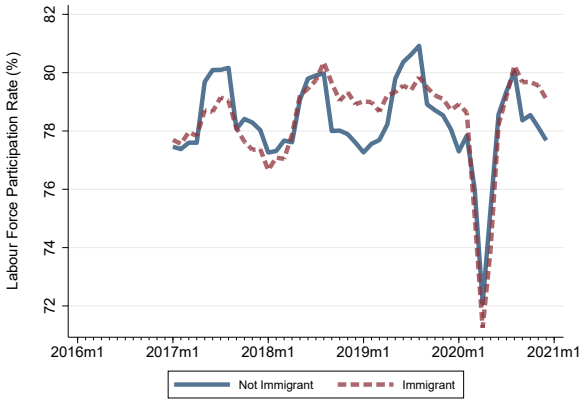
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020.
Panel A plots the unemployment rate by education status. Panel B plots the labour force participation by education status. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by education status. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) by education status. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A12: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Immigration Status.

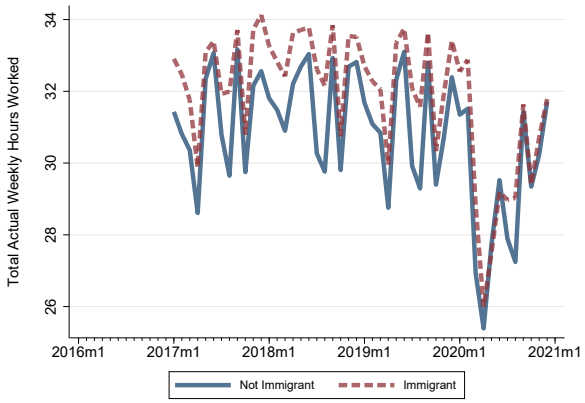
(a) Unemployment Rate



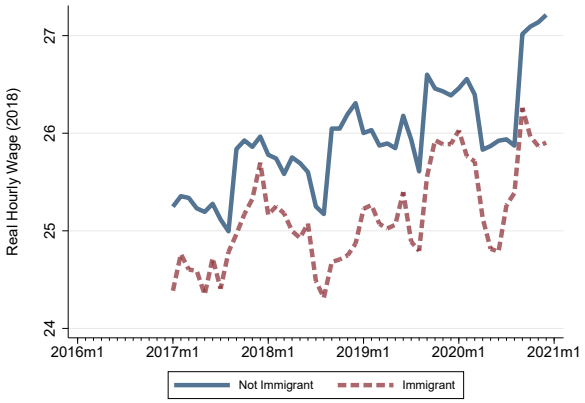
(b) Labour Force Participation



(c) Hours of Work



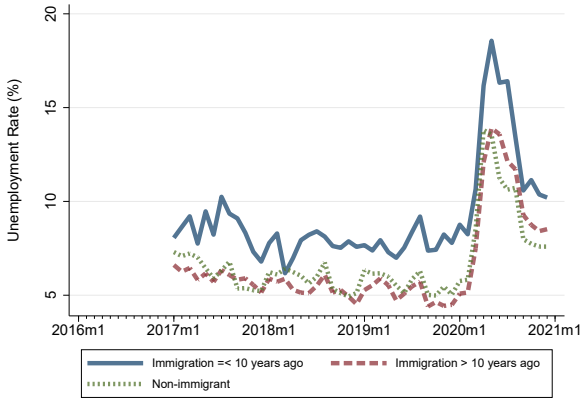
(d) Real Hourly Wage



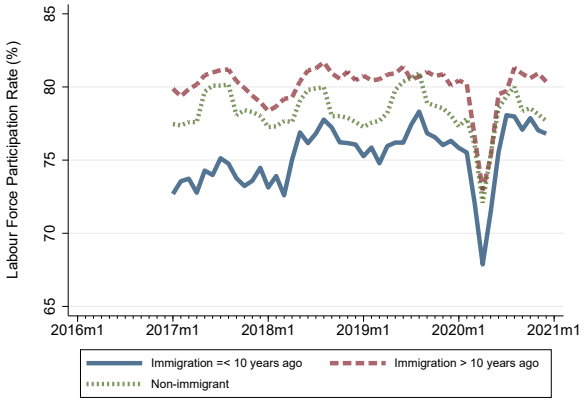
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2017 to December 2020. Panel A plots the unemployment rate by immigrant status. Panel B plots the labour force participation by immigrant status. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by immigrant status. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) by immigrant status. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A13: Unemployment Rate, Labour Force Participation, Hours of Work and Hourly Wages by Years Since Immigration.

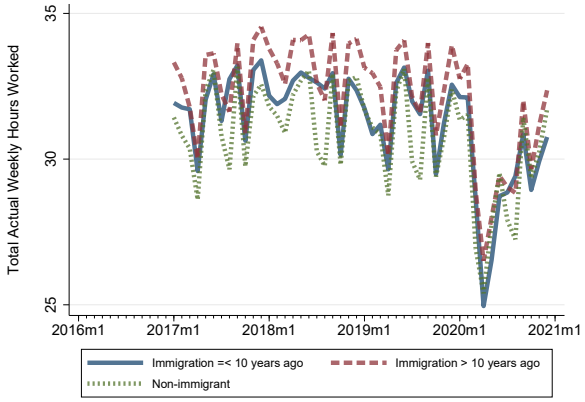
(a) Unemployment Rate



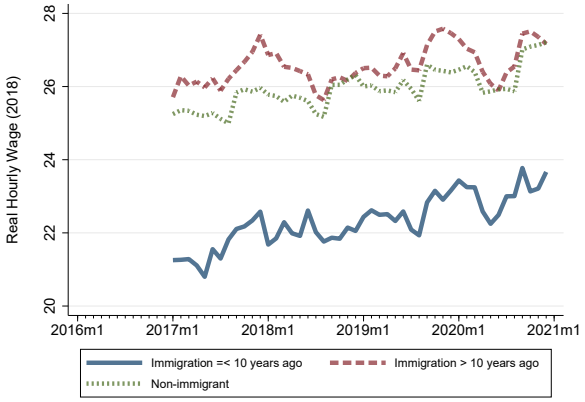
(b) Labour Force Participation



(c) Hours of Work



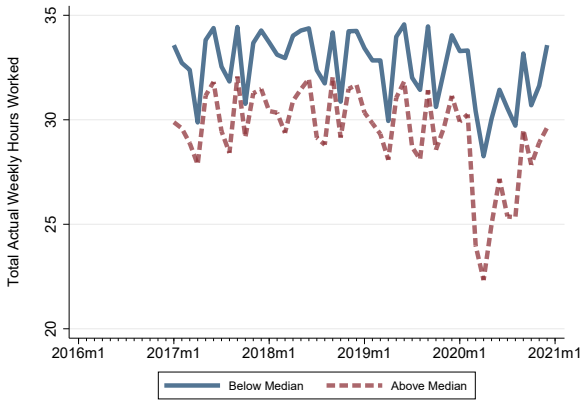
(d) Real Hourly Wage



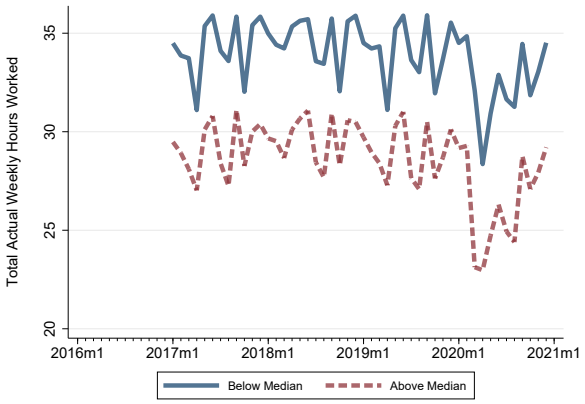
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2017 to December 2020. Panel A plots the unemployment rate by years since immigration. Panel B plots the labour force participation by years since immigration. Individuals in the labour force were: aged 15–64; employed at work, employed but absent from work, or unemployed during the survey week. Panel C plots the total actual hours worked by years since immigration. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero. Panel D plots the usual real hourly wages (January 2018, provincial) by years since immigration. This includes individuals who were: civilian; aged 15–64 and in the labour force. Those who were unemployed were assigned a value of zero.

Figure A14: Hours Worked for All Indexes by Median Value.

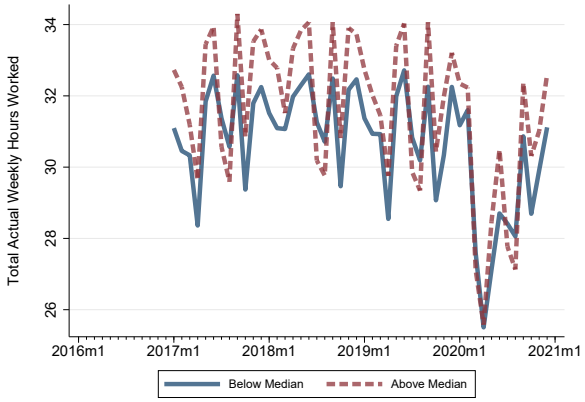
(a) Physical Proximity



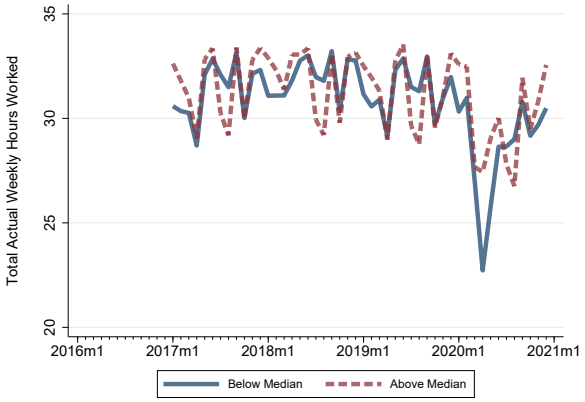
(b) Exposure to Disease



(c) Critical Worker



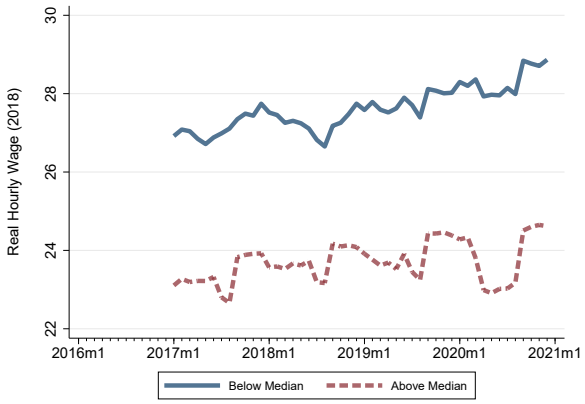
(d) Work from Home



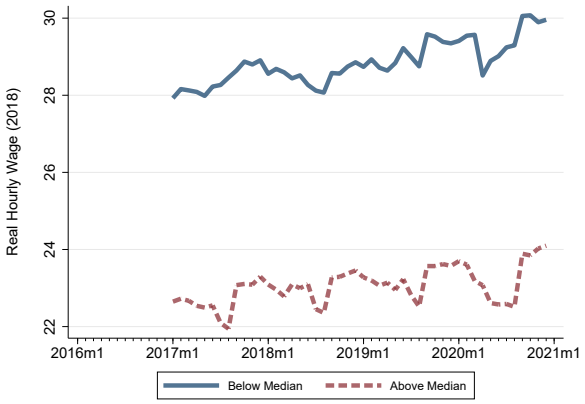
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. All panels plot the total actual hours worked. This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero. Each panel represents a different index and plots two lines which represent individuals who are above (below) the median index value. Panel A, B, C and D, represent the indexes for physical proximity, exposure to disease, critical worker status, and work from home status, respectively.

Figure A15: Real Hourly Wage for All Indexes by Median Value.

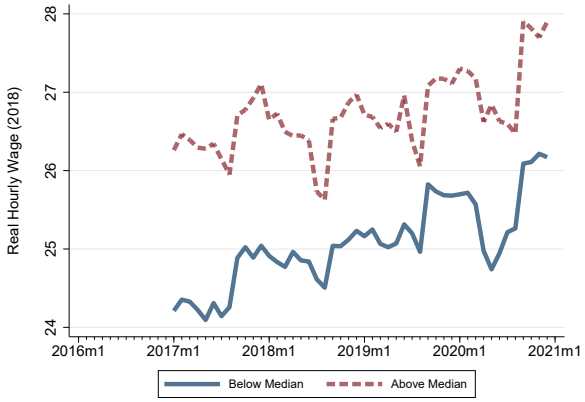
(a) Physical Proximity



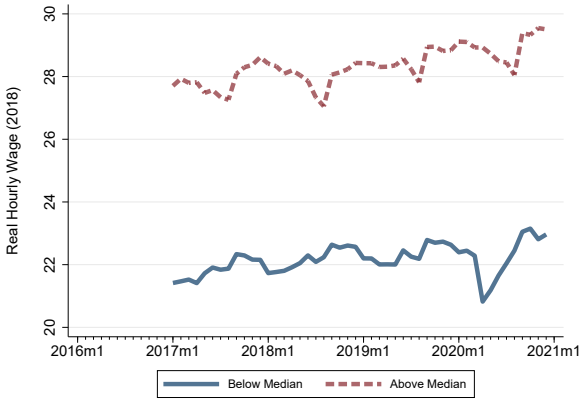
(b) Exposure to Disease



(c) Critical Worker



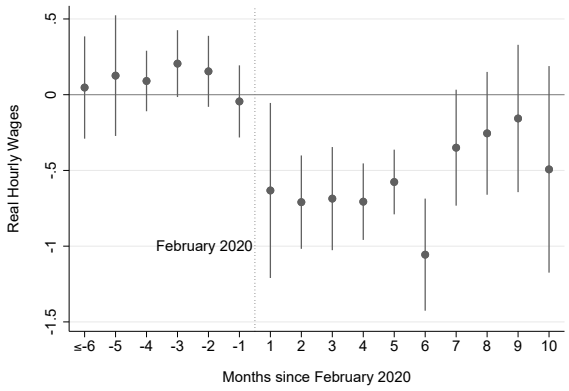
(d) Work from Home



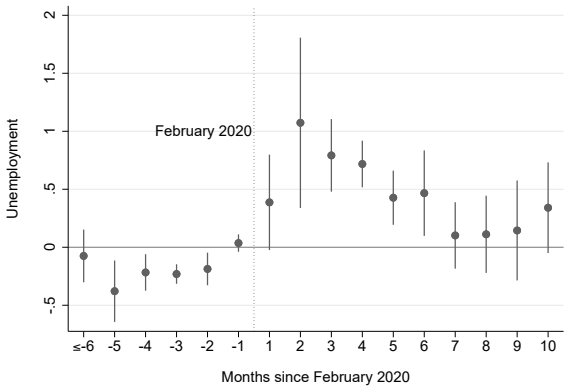
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2016 to December 2020. All panels plot the usual real hourly wages (January 2018, provincial). This includes individuals who were: civilian; aged 15–64; only public and private sector employees and in the labour force. Those who were unemployed were assigned a value of zero. Each panel represents a different index and plots two lines which represent individuals who are above (below) the median index value. Panel A, B, C and D, represent the indexes for physical proximity, exposure to disease, critical worker status, and work from home status, respectively.

Figure A16: Event Studies for Wages for each Index.

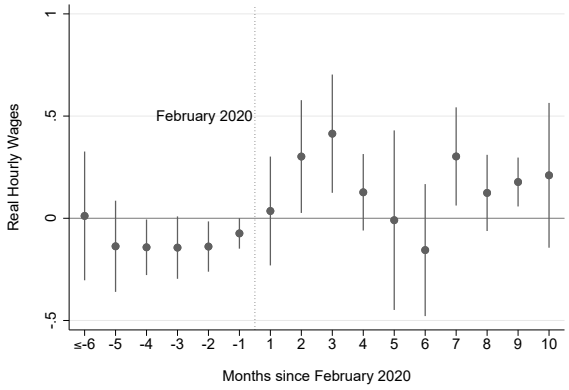
(a) Physical Proximity



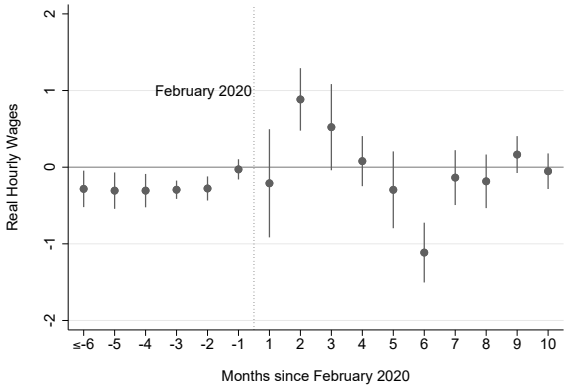
(b) Exposure to Disease



(c) Critical Worker



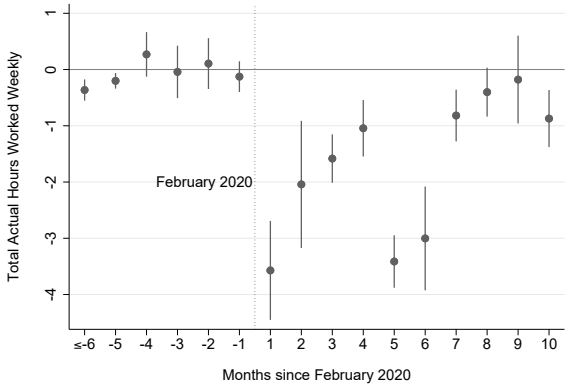
(d) Work from Home



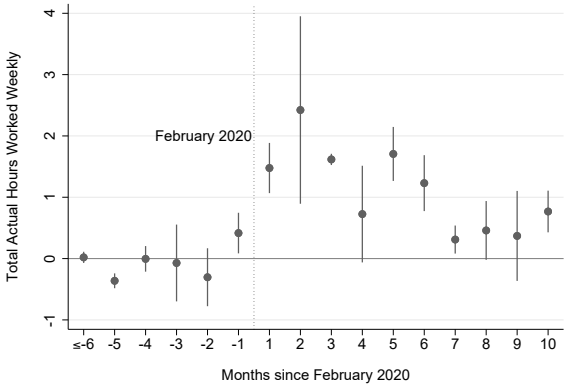
Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2017 to December 2020. All panels plot the coefficient estimates for a single index from a linear specification that regresses real hourly wages on various regressors that include all indexes, all indexes and their interactions with months, individual characteristics, highest educational attainment, provincial, year, month, and year × province fixed effects. The dependent variable is real hourly wage (January 2018, provincial). This includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. Standard errors are clustered at the provincial level. Panel A, B, C and D, represent the indexes for physical proximity, exposure to disease, critical worker status, and work from home status, respectively.

Figure A17: Event Studies for Total Actual Hours Worked Weekly for each Index.

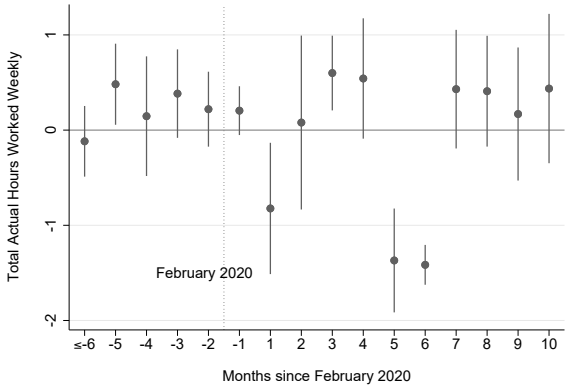
(a) Physical Proximity



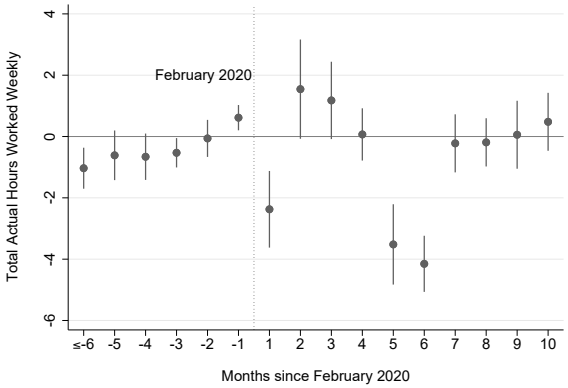
(b) Exposure to Disease



(c) Critical Worker



(d) Work from Home



Notes: Authors' calculations. Data from the Canadian Labour Force Survey with final weights applied to all subgraphs. The time period is January 2017 to December 2020. All panels plot the coefficient estimates for a single index from a linear specification that regresses real hourly wages on various regressors that include all indexes, all indexes and their interactions with months, individual characteristics, highest educational attainment, provincial, year, month, and year × province fixed effects. The dependent variable is the total actual hours worked across all jobs. This includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Standard errors are clustered at the provincial level. Panel A, B, C and D, represent the indexes for physical proximity, exposure to disease, critical worker status, and work from home status, respectively.

Table A1: Major Dates for Policy Responses in Canada

Province	First Reported Case	First Death	Emergency Declared	School Closures
Newfoundland and Labrador	March 14, 2020	March 30, 2020	March 18, 2020	March 16, 2020 (Public)
Nova Scotia	March 15, 2020	April 7, 2020	March 22, 2020	March 23, 2020 (Public)*
Prince Edward Island	March 14, 2020	NONE	March 16, 2020	March 23, 2020 (Public)*
New Brunswick	March 12, 2020	NONE	March 19, 2020	March 16, 2020 (Public)
Quebec	February 27, 2020	March 18, 2020	March 14, 2020	March 13, 2020 (Public and Private)
Ontario	January 25, 2020	March 11, 2020	March 17, 2020	March 16, 2020 (Public)**
Manitoba	March 12, 2020	March 27, 2020	March 20, 2020	March 23, 2020 (Public)*
Saskatchewan	March 11, 2020	March 30, 2020	March 18, 2020	March 20, 2020 (Public)
Alberta	March 5, 2020	March 19, 2020	March 17, 2020	March 15, 2020 (All)
British Columbia	January 1, 2020	March 8, 2020	March 18, 2020	March 18, 2020 (All)

* means they were coming off of March Break. ** means they were also closed for March Break. Information contained was hand-collected from official provincial news releases via their websites or from Canadian media sources.

Table A2: Canadian Perspectives Survey Series Summary Statistics

	Employment Status Categories					
	Employed					
	At Work	Absent, Not Covid	Absent, COVID	Unemployed	Not Stated	**Total**
Perceived mental health						
Excellent	23.1	13.8	17.1	22.5	32.1	22.1
Very good	30.1	20.2	34.5	31.7	17.7	30.7
Good	29.3	38.3	29.2	25.3	12.9	27.7
Fair	12.8	15.0	14.7	14.6	0.0	13.6
Poor	3.4	10.1	3.0	3.4	11.2	3.7
Not stated	1.3	2.5	1.5	2.4	26.0	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
COVID-19 impacts ability meet financial obligations or essential needs						
Major impact	11.7	16.1	38.3	10.0	19.6	13.6
Moderate impact	15.0	18.2	20.8	13.4	43.4	15.4
Minor impact	17.8	10.3	11.3	15.2	2.0	15.7
No impact	32.8	24.6	8.9	35.9	18.1	31.5
Too soon to tell	22.7	30.7	20.8	25.3	15.6	23.8
Not stated	0.0	0.0	0.0	0.2	1.3	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Scale - I might lose main job or main self-empl income next 4 weeks						
Strongly agree	14.6	20.2	46.2	0.0	27.8	11.6
Agree	14.8	7.3	14.8	0.0	2.5	8.1
Neither agree nor disagree	18.2	24.3	17.6	0.0	9.2	10.6
Disagree	26.4	13.5	12.7	0.0	2.7	13.3
Strongly disagree	26.0	34.8	8.8	0.0	1.1	13.6
Valid skip	0.0	0.0	0.0	100.0	36.2	42.4
Not stated	0.1	0.0	0.0	0.0	20.5	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Data from the Canadian Perspectives Survey Series. Authors' percentages with weights applied. All regressions are estimated using an ordered probit, with weights applied and robust standard errors. The dependent variable in columns 1–3 is a ranking of perceived mental health, ranging from 5 (Excellent), 4 (Very Good), 3 (Good), 2 (Fair), 1 (Poor) All explanatory variables are dummy variables. The base category across all columns is male, single or widowed or separated or divorced, over 55 years old, has above a high school education, and was born in Canada. We omit any observations who respond "Not Stated" to the dependent variable. Observations decrease in columns (2), (3), because our subsample are only those observations which are employed. Columns (1) has explanatory variables that are demographic variables and indicators for labour force status. The omitted category in columns (1) form employment status is "Employed and at work, at least part of the week" Columns (2) has explanatory variables that are demographic variables with indicators for where observations are working. The omitted category in columns (2) is if someone continues to working outside the home. Columns (3) has explanatory variables that are demographic variables with two indicator variables. The first, Impact on financial obligations, equals one if respondents answered "Major Impact" or "Impact" when asked if COVID will impact their ability to meet financial obligations or essential needs. The second is variable, Might lose job, equals one if respondents answered "Strongly Agree" or "Agree" to if they felt they would lose their job in the next 4 weeks.

Table A3: Comparing the Samples in the LFS and the CPSS

	Labour Force Survey								Canadian Perspectives Survey Series			
	All Months 2016 – 2020				March 2020				March/April 2020			
Summary Statistics	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Female	0.500	0.500	0.0	1.0	0.499	0.500	0.0	1.0	0.512	0.500	0.0	1.0
Married or common-law	0.582	0.493	0.0	1.0	0.586	0.492	0.0	1.0	0.604	0.489	0.0	1.0
15 - 34	0.390	0.488	0.0	1.0	0.393	0.488	0.0	1.0	0.393	0.488	0.0	1.0
35 - 54	0.401	0.490	0.0	1.0	0.396	0.489	0.0	1.0	0.397	0.489	0.0	1.0
55 - 64	0.208	0.406	0.0	1.0	0.211	0.408	0.0	1.0	0.211	0.408	0.0	1.0
Less than highschool	0.125	0.331	0.0	1.0	0.119	0.324	0.0	1.0	0.133	0.340	0.0	1.0
Highschool or some college	0.268	0.443	0.0	1.0	0.264	0.441	0.0	1.0	0.256	0.437	0.0	1.0
Postsecondary accreditation	0.606	0.489	0.0	1.0	0.617	0.486	0.0	1.0	0.610	0.488	0.0	1.0
Observations	4638530				71637				3422			

Notes: Authors' calculations. Data from the Canadian Labour Force Survey (LFS) and the Canadian Perspectives Survey Series (CPSS). The time period for the LFS is January 2016 to December 2020. All summary statistics are constructed with weights applied. Only individuals aged 15 – 64 were used in the construction of all summary statistics.

Table A4: COVID-19, Real Hourly Wages and Total Actual Hours Worked for Canada (National)

	Labour Force Survey					
	Real Hourly Wage			Total Actual Hours Worked Weekly		
	(1)	(2)	(3)	(4)	(5)	(6)
Post COVID	-0.184	-0.355	-0.371	-2.807	-2.918	-2.928
	(0.101)	(0.089)	(0.097)	(0.093)	(0.088)	(0.095)
Pre-COVID Mean	24.848	24.848	24.848	31.528	31.528	31.528
Observations	3048606	3048606	3048606	3048606	3048606	3048606
Indv. Char.		✓	✓		✓	✓
Educ.			✓			✓
Prov. FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓
Prov. X Year FE			✓			✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2016 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors clustered by province are in parentheses. The dependent variable in columns 1–3 is the real hourly wage (January 2018, provincial). This includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. The dependent variable in columns 4–6 is the total actual hours worked across all jobs. This includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns contain fixed effects for province, year and month. Columns (2) and (5) augment fixed effects with individual characteristics which include categorical variables for sex, marital status and ages. Columns (3) and (6) augment fixed effects and individual characteristics with a categorical variable for highest educational attainment and province × year fixed effects.

Table A5: COVID-19, Real Hourly Wages and Total Actual Hours Worked for Canada's Four Largest Provinces

	Labour Force Survey					
	Real Hourly Wage			Total Actual Hours Worked Weekly		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel 1:	QUEBEC					
Post COVID	-0.439	-0.596	-0.688	-3.125	-3.230	-3.260
	(0.165)	(0.156)	(0.149)	(0.188)	(0.183)	(0.182)
Pre-COVID Mean	24.005	24.005	24.005	30.235	30.235	30.235
Observations	541228	541228	541228	541228	541228	541228
Panel 2:	ONTARIO					
Post COVID	-0.117	-0.367	-0.327	-2.715	-2.871	-2.870
	(0.146)	(0.138)	(0.132)	(0.149)	(0.145)	(0.143)
Pre-COVID Mean	25.824	25.824	25.824	31.760	31.760	31.760
Observations	821336	821336	821336	821336	821336	821336
Panel 3:	ALBERTA					
Post COVID	-0.415	-0.534	-0.483	-2.787	-2.850	-2.828
	(0.247)	(0.233)	(0.224)	(0.260)	(0.254)	(0.252)
Pre-COVID Mean	28.751	28.751	28.751	32.932	32.932	32.932
Observations	339767	339767	339767	339767	339767	339767
Panel 4:	BRITISH COLUMBIA					
Post COVID	-0.465	-0.543	-0.495	-2.639	-2.698	-2.664
	(0.213)	(0.201)	(0.194)	(0.243)	(0.237)	(0.234)
Pre-COVID Mean	25.125	25.125	25.125	31.381	31.381	31.381
Observations	347291	347291	347291	347291	347291	347291
Indv. Char.		✓	✓		✓	✓
Educ.			✓			✓
Year FE	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2016 to December 2020 for observations aged 15 – 64. Panels represent Canada's four largest provinces. All regressions are estimated using OLS, with weights applied. Robust standard errors are reported in parentheses. The dependent variable in columns 1–3 is the real hourly wage (January 2018, provincial) and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. The dependent variable in columns 4–6 is the total actual hours worked across all jobs and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns contain fixed effects for year and month. Columns (2) and (5) augment fixed effects with individual characteristics which include categorical variables for sex, marital status and ages. Columns (3) and (6) augment fixed effects and individual characteristics with a categorical variable for highest educational attainment.

Table A6: COVID-19-related Layoffs and Absences

	Related Unemployed		
	(1)	(2)	(3)
Post COVID	0.229	0.222	0.221
	(0.011)	(0.011)	(0.011)
Pre-COVID Mean	0.545	0.545	0.545
Observations	419812	419812	419812
	Full Week Absence		
Post COVID	0.244	0.240	0.236
	(0.021)	(0.022)	(0.020)
Pre-COVID Mean	0.386	0.386	0.386
Observations	297443	297443	297443
	Part Week Absence		
Post COVID	0.003	0.004	0.005
	(0.048)	(0.048)	(0.048)
Pre-COVID Mean	0.068	0.068	0.068
Observations	485205	485205	485205
Indv. Char.		✓	✓
Educ.			✓
Prov. FE	✓	✓	✓
Year FE	✓	✓	✓
Month FE	✓	✓	✓
Prov. X Year FE			✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2016 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. In the top panel, the dependent variable is a binary variable which equals one if an unemployed individual said their reason for leaving work in the previous year was due to: (a) own illness or disability, or (b) being laid off. In the middle panel, the dependent variable is a binary variable which equals one if an employed individual reported a full week of absence during the reference week due to: (a) other reasons, or (b) own illness or disability. In the bottom panel, the dependent variable is a binary variable which equals one if an employed individual reported a part week of absence during the reference week due to: (a) other reasons, or (b) own illness or disability. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns contain fixed effects controlling for province, year and month. Column (2) augments the fixed effects with individual characteristics which include categorical variables for sex, marital status and ages. Column (3) augment the fixed effects and individual characteristics with a categorical variable for highest educational attainment and province × year fixed effects.

Table A7: The Impacts of COVID-19 on Wages and Hours Worked: Proximity, Exposure, Critical Workers, Work from Home

	Canada, Labour Force Survey			
	Real Hourly Wage		Total Actual Hours Worked Weekly	
	(1)	(2)	(3)	(4)
Post COVID	-0.503	-0.537	-2.865	-2.928
	(0.081)	(0.082)	(0.102)	(0.088)
Physical Proximity	-2.005	-1.882	-1.854	-1.578
	(0.207)	(0.209)	(0.096)	(0.099)
Exposure	2.579	2.472	0.286	0.069
	(0.150)	(0.148)	(0.081)	(0.097)
Critical Worker	0.866	0.835	0.174	0.185
	(0.081)	(0.078)	(0.058)	(0.062)
Work from Home	3.730	3.681	-0.513	-0.554
	(0.275)	(0.263)	(0.086)	(0.104)
Post COVID × Physical Proximity		-0.608		-1.345
		(0.095)		(0.104)
Post COVID × Exposure		0.535		1.073
		(0.070)		(0.129)
Post COVID × Critical Worker		0.154		-0.047
		(0.048)		(0.064)
Post COVID × Work from Home		0.226		0.182
		(0.081)		(0.180)
Observations	2413757	2413757	2413757	2413757
Indv. Char.	✓	✓	✓	✓
Educ.	✓	✓	✓	✓
Prov. FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable in columns 1 and 2 is the real hourly wage (January 2018, provincial) and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. The dependent variable in columns 3 and 4 is the total actual hours worked across all jobs and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. Index variables are standardized to be mean zero and standard deviation equal to 1. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, and fixed effects for province, province × year, year and month.

Table A8: The Impacts of COVID-19 on Wages and Hours Worked: Proximity, Exposure, Critical Workers, Work from Home - Only Non-Health Care Occupations

	Canada, Labour Force Survey Non-Health Care Workers			
	Real Hourly Wage		Total Actual Hours Worked Weekly	
	(1)	(2)	(3)	(4)
Post COVID	-0.607	-0.726	-2.984	-3.412
	(0.072)	(0.072)	(0.102)	(0.074)
Physical Proximity	-1.421	-1.315	-1.659	-1.422
	(0.181)	(0.185)	(0.079)	(0.082)
Exposure	-1.908	-1.925	-1.916	-1.827
	(0.240)	(0.244)	(0.147)	(0.146)
Critical Worker	1.115	1.081	0.296	0.295
	(0.086)	(0.083)	(0.058)	(0.065)
Work from Home	4.490	4.438	-0.209	-0.284
	(0.255)	(0.247)	(0.062)	(0.087)
Post COVID × Physical Proximity		-0.522		-1.151
		(0.072)		(0.109)
Post COVID × Exposure		0.108		-0.375
		(0.072)		(0.148)
Post COVID × Critical Worker		0.168		0.013
		(0.047)		(0.065)
Post COVID × Work from Home		0.237		0.338
		(0.050)		(0.163)
Observations	2221898	2221898	2221898	2221898
Indv. Char.	✓	✓	✓	✓
Educ.	✓	✓	✓	✓
Prov. FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64 and not in health care occupation. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable in columns 1 and 2 is the real hourly wage (January 2018, provincial) and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. The dependent variable in columns 3 and 4 is the total actual hours worked across all jobs and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. Index variables are standardized to be mean zero and standard deviation equal to 1. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, and fixed effects for province, province × year, year and month.

Table A9: The Impacts of COVID-19 on Unemployment and Labour Force Participation: Proximity, Exposure, *Essential* Workers, Work from Home

	Canada, Labour Force Survey			
	Unemployment		Labour Force Participation	
	(1)	(2)	(3)	(4)
Post COVID	0.049	0.049	-0.024	-0.025
	(0.002)	(0.002)	(0.003)	(0.003)
Physical Proximity	0.008	0.003	-0.011	-0.008
	(0.001)	(0.001)	(0.002)	(0.001)
Exposure	-0.013	-0.009	0.007	0.005
	(0.001)	(0.001)	(0.000)	(0.000)
Essential Worker	-0.004	-0.002	0.005	0.004
	(0.001)	(0.001)	(0.001)	(0.001)
Work from Home	-0.009	-0.008	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Post COVID × Physical Proximity		0.023		-0.015
		(0.001)		(0.002)
Post COVID × Exposure		-0.018		0.007
		(0.002)		(0.001)
Post COVID × Essential Worker		-0.009		0.006
		(0.001)		(0.002)
Post COVID × Work from Home		-0.004		0.001
		(0.001)		(0.001)
Observations	2779619	2779619	2974992	2974992
Indv. Char.	✓	✓	✓	✓
Educ.	✓	✓	✓	✓
Prov. FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable in columns 1 and 2 is a binary variable which equals one if an individual is unemployed and zero otherwise. The dependent variable in columns 3 and 4 is a binary variable which equals one if an individual is in the labour force and zero otherwise. Individuals in the labour force were employed at work, employed but absent from work, or unemployed during the survey week. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. Index variables are standardized to be mean zero and standard deviation equal to 1. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, and fixed effects for province, province × year, year and month.

Table A10: The Impacts of COVID-19 on Wages and Hours Worked: Proximity, Exposure, Essential Workers, Work from Home

	Canada, Labour Force Survey			
	Real Hourly Wage		Total Actual Hours Worked Weekly	
	(1)	(2)	(3)	(4)
Post COVID	-0.502	-0.537	-2.869	-2.931
	(0.081)	(0.082)	(0.102)	(0.085)
Physical Proximity	-2.224	-2.087	-1.970	-1.673
	(0.219)	(0.220)	(0.085)	(0.082)
Exposure	2.917	2.808	0.303	0.108
	(0.138)	(0.139)	(0.073)	(0.093)
Essential Worker	-0.152	-0.199	0.335	0.205
	(0.041)	(0.036)	(0.056)	(0.062)
Work from Home	3.304	3.252	-0.504	-0.585
	(0.258)	(0.242)	(0.074)	(0.100)
Post COVID × Physical Proximity		-0.669		-1.447
		(0.104)		(0.090)
Post COVID × Exposure		0.542		0.966
		(0.081)		(0.123)
Post COVID × Essential Worker		0.226		0.627
		(0.029)		(0.117)
Post COVID × Work from Home		0.241		0.372
		(0.099)		(0.161)
Observations	2413757	2413757	2413757	2413757
Indv. Char.	✓	✓	✓	✓
Educ.	✓	✓	✓	✓
Prov. FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable in columns 1 and 2 is the real hourly wage (January 2018, provincial) and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. The dependent variable in columns 3 and 4 is the total actual hours worked across all jobs and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. Index variables are standardized to be mean zero and standard deviation equal to 1. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, and fixed effects for province, province × year, year and month.

Table A11: The Impacts of COVID-19: Heterogeneity and Unemployment

	Unemployment			
	(1)	(2)	(3)	(4)
Post COVID	0.045	0.068	0.040	0.041
	(0.001)	(0.003)	(0.002)	(0.002)
Female	-0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Married or	-0.023	-0.017	-0.023	-0.023
common-law	(0.002)	(0.001)	(0.002)	(0.002)
15 - 34	0.010	0.009	0.004	0.010
	(0.003)	(0.003)	(0.003)	(0.003)
35 - 54	-0.004	-0.004	-0.003	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)
Less than	0.024	0.024	0.024	0.020
highschool	(0.002)	(0.002)	(0.002)	(0.002)
Highschool or	0.011	0.011	0.011	0.005
some college	(0.001)	(0.001)	(0.001)	(0.001)
Post COVID	0.008			
× Female	(0.001)			
Post COVID		-0.032		
× Married or common-law		(0.004)		
Post COVID			0.028	
× 15 - 34			(0.003)	
Post COVID			-0.004	
× 35 - 54			(0.002)	
Post COVID				0.019
× Less than highschool				(0.002)
Post COVID				0.027
× Highschool or some college				(0.001)
Observations	2779619	2779619	2779619	2779619
Standardized Indexes	✓	✓	✓	✓
Province, Year, Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable is a binary variable which equals one if an individual is unemployed and zero otherwise. Columns vary by models. Columns 1, 2, 3, and 4, interact Post COVID with sex, marital status, age group, and highest educational attainment, respectively. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, index values for our four indexes (physical proximity, exposure to disease, critical workers and work from home), and fixed effects for province, province × year, year and month.

Table A12: The Impacts of COVID-19: Heterogeneity and Labour Force Participation

	Labour Force Participation			
	(1)	(2)	(3)	(4)
Post COVID	-0.019	-0.028	-0.027	-0.021
	(0.003)	(0.004)	(0.002)	(0.003)
Female	-0.015	-0.017	-0.017	-0.017
	(0.002)	(0.002)	(0.002)	(0.002)
Married or	0.032	0.030	0.032	0.032
common-law	(0.001)	(0.001)	(0.001)	(0.001)
15 - 34	-0.016	-0.016	-0.016	-0.016
	(0.003)	(0.003)	(0.002)	(0.003)
35 - 54	0.036	0.036	0.035	0.036
	(0.003)	(0.003)	(0.003)	(0.003)
Less than	-0.070	-0.070	-0.070	-0.068
highschool	(0.009)	(0.009)	(0.009)	(0.008)
Highschool or	-0.040	-0.040	-0.040	-0.038
some college	(0.006)	(0.006)	(0.006)	(0.007)
Post COVID	-0.010			
× Female	(0.001)			
Post COVID		0.007		
× Married or common-law		(0.002)		
Post COVID			0.002	
× 15 - 34			(0.001)	
Post COVID			0.004	
× 35 - 54			(0.002)	
Post COVID				-0.012
× Less than highschool				(0.007)
Post COVID				-0.010
× Highschool or some college				(0.002)
Observations	2974992	2974992	2974992	2974992
Standardized Indexes	✓	✓	✓	✓
Province, Year, Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable is a binary variable which equals one if an individual is in the labour force and zero otherwise. Individuals in the labour force were employed at work, employed but absent from work, or unemployed during the survey week. Columns vary by models. Columns 1, 2, 3, and 4, interact Post COVID with sex, marital status, age group, and highest educational attainment, respectively. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns control for individual characteristics (categorical variables for female, marital status, ages), a categorical variable for highest educational attainment, index values for our four indexes (physical proximity, exposure to disease, critical workers and work from home), and fixed effects for province, province × year, year and month.

Table A13: The Impacts of COVID-19: Heterogeneity and Real Hourly Wage

	Real Hourly Wage			
	(1)	(2)	(3)	(4)
Post COVID	-0.600	-1.017	-0.434	-0.276
	(0.141)	(0.094)	(0.226)	(0.100)
Female	-6.029	-5.988	-5.987	-5.988
	(0.292)	(0.277)	(0.276)	(0.276)
Married or	3.457	3.284	3.454	3.456
common-law	(0.161)	(0.141)	(0.161)	(0.162)
15 - 34	-4.253	-4.248	-4.151	-4.254
	(0.272)	(0.272)	(0.231)	(0.273)
35 - 54	0.783	0.783	0.721	0.781
	(0.157)	(0.157)	(0.152)	(0.156)
Less than	-7.261	-7.263	-7.264	-7.136
highschool	(0.272)	(0.272)	(0.272)	(0.278)
Highschool or	-5.517	-5.515	-5.515	-5.366
some college	(0.208)	(0.208)	(0.209)	(0.219)
Post COVID	0.198			
× Female	(0.202)			
Post COVID		0.849		
× Married or common-law		(0.119)		
Post COVID			-0.494	
× 15 - 34			(0.280)	
Post COVID			0.297	
× 35 - 54			(0.194)	
Post COVID				-0.641
× Less than highschool				(0.161)
Post COVID				-0.737
× Highschool or some college				(0.115)
Observations	2413757	2413757	2413757	2413757
Standardized Indexes	✓	✓	✓	✓
Province, Year, Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable is the real hourly wage (January 2018, provincial) and includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. Columns vary by models. Columns 1, 2, 3, and 4, interact Post COVID with sex, marital status, age group, and highest educational attainment, respectively. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, index values for our four indexes (physical proximity, exposure to disease, critical workers and work from home), and fixed effects for province, province × year, year and month.

Table A14: The Impacts of COVID-19: Heterogeneity and total actual hours worked

	Total Actual Hours Worked Weekly			
	(1)	(2)	(3)	(4)
Post COVID	-2.158	-2.506	-1.885	-1.901
	(0.073)	(0.072)	(0.155)	(0.074)
Female	-3.621	-3.592	-3.592	-3.593
	(0.187)	(0.180)	(0.180)	(0.180)
Married or	2.900	2.760	2.898	2.899
common-law	(0.063)	(0.078)	(0.064)	(0.063)
15 - 34	-1.793	-1.789	-1.682	-1.791
	(0.258)	(0.258)	(0.294)	(0.258)
35 - 54	1.090	1.091	1.086	1.090
	(0.130)	(0.130)	(0.140)	(0.130)
Less than	-6.225	-6.227	-6.228	-6.291
highschool	(1.001)	(1.003)	(1.003)	(1.019)
Highschool or	-2.607	-2.605	-2.606	-2.426
some college	(0.170)	(0.170)	(0.170)	(0.169)
Post COVID	0.138			
× Female	(0.083)			
Post COVID		0.687		
× Married or common-law		(0.084)		
Post COVID			-0.539	
× 15 - 34			(0.225)	
Post COVID			0.024	
× 35 - 54			(0.102)	
Post COVID				0.376
× Less than highschool				(0.141)
Post COVID				-0.889
× Highschool or some college				(0.096)
Observations	2413757	2413757	2413757	2413757
Standardized Indexes	✓	✓	✓	✓
Province, Year, Month FE	✓	✓	✓	✓
Prov. X Year FE	✓	✓	✓	✓

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Outcomes use the period from January 2017 to December 2020 for observations aged 15 – 64. All regressions are estimated using OLS, with weights applied. Standard errors are clustered by province. The dependent variable is the total actual hours worked across all jobs. This includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero. Columns vary by models. Columns 1, 2, 3, and 4, interact Post COVID with sex, marital status, age group, and highest educational attainment, respectively. Post COVID is a binary variable which equals one if the observation occurs during or after March 2020. All columns control for individual characteristics (categorical variables for sex, marital status and ages), a categorical variable for highest educational attainment, index values for our four indexes (physical proximity, exposure to disease, critical workers and work from home), and fixed effects for province, province × year, year and month.

Table A15: Perceived Health, Employment, Work from home, and Stressors, Ordered Probit, Canadian, National-Level

	Perceived Health		
	(1)	(2)	(3)
Female	-0.0497	-0.0821	-0.0854
	(0.057)	(0.066)	(0.064)
Married or common-law	0.104	0.0457	0.0415
	(0.060)	(0.071)	(0.070)
15 to 34	0.450	0.268	0.229
	(0.085)	(0.092)	(0.092)
45 to 55	0.144	0.0985	0.0805
	(0.065)	(0.079)	(0.081)
Less than high school	-0.154	-0.354	-0.370
	(0.121)	(0.144)	(0.149)
High school diploma or equivalent	-0.106	-0.0159	-0.00631
	(0.062)	(0.087)	(0.085)
Immigrant	-0.0479	-0.0856	-0.0448
	(0.068)	(0.080)	(0.080)
Employed but absent, not COVID	-0.435		
	(0.149)		
Employed but absent due to COVID	-0.103		
	(0.086)		
Unemployed	-0.170		
	(0.069)		
Work changed from outside home to home		0.00771	
		(0.077)	
Work remains at home		0.214	
		(0.107)	
Absent from work		-0.160	
		(0.092)	
Impact on financial obligations			-0.139
			(0.069)
Might lose job			0.0277
			(0.075)
Observations	4572	2712	2765

Notes: Authors' calculations. Data from the Canadian Perspectives Survey Series. All regressions are estimated using an ordered probit, with weights applied and robust standard errors. The dependent variable in columns 1–3 is a ranking of perceived health, ranging from 5 (Excellent), 4 (Very Good), 3 (Good), 2 (Fair), 1 (Poor) All explanatory variables are dummy variables. The base category across all columns is male, single or widowed or separated or divorced, over 55 years old, has above a high school education, and was born in Canada. We omit any observations who respond "Not Stated" to the dependent variable. Observations decrease in columns (2), (3), because our subsample are only those observations which are employed. Columns (1) has explanatory variables that are demographic variables and indicators for labour force status. The omitted category in columns (1) form employment status is "Employed and at work, at least part of the week" Columns (2) has explanatory variables that are demographic variables with indicators for where observations are working. The omitted category in columns (2) is if someone continues to working outside the home. Columns (3) has explanatory variables that are demographic variables with two indicator variables. The first, Impact on financial obligations, equals one if respondents answered "Major Impact" or "Impact" when asked if COVID will impact their ability to meet financial obligations or essential needs. The second variable, Might lose job, equals one if respondents answered "Strongly Agree" or "Agree" to if they felt they would lose their job in the next 4 weeks.

Table A16: Pre and Post COVID Changes in Wages and Hours Worked by NOC Major Groups

	Unemployment (%)				Labour Force Participation (%)			
	Means				Means			
	Pre	Post	Δ	t-stat	Pre	Post	Δ	t-stat
Senior management occupations	1.6	3.6	2.0	4.6	98.3	97.0	-1.3	-3.0
Specialized middle management occupations	1.8	3.3	1.5	11.2	97.8	97.7	-0.1	-0.5
Middle management occupations in retail and wholesale trade and customer services	1.8	4.1	2.3	16.3	97.8	95.0	-2.8	-18.6
Middle management occupations in trades, transportation, production and utilities	1.4	2.9	1.5	13.9	98.1	97.2	-0.9	-7.2
Professional occupations in business and finance	2.0	4.4	2.4	20.0	97.2	96.6	-0.6	-4.4
Administrative and financial supervisors and administrative occupations	2.8	6.0	3.2	26.7	96.0	94.0	-1.9	-15.0
Finance, insurance and related business administrative occupations	2.3	4.5	2.2	10.6	95.7	95.6	-0.1	-0.6
Office support occupations	4.0	10.0	6.0	33.9	92.5	89.7	-2.8	-13.4
Distribution, tracking and scheduling co-ordination occupations	3.6	6.9	3.2	13.6	95.1	93.7	-1.3	-5.3
Professional occupations in natural and applied sciences	2.0	3.5	1.5	13.0	97.1	96.9	-0.2	-1.7
Technical occupations related to natural and applied sciences	3.3	6.3	2.9	18.7	94.8	94.5	-0.3	-1.9
Professional occupations in nursing	0.8	1.0	0.2	2.5	97.0	97.0	-0.0	-0.2
Professional occupations in health (except nursing)	0.6	1.3	0.8	7.8	98.2	97.6	-0.6	-3.9
Technical occupations in health	1.0	4.2	3.2	25.1	96.8	94.5	-2.3	-12.7
Assisting occupations in support of health services	1.6	4.0	2.4	16.3	95.5	92.8	-2.8	-13.0
Professional occupations in education services	3.1	6.4	3.3	24.4	93.5	92.4	-1.1	-6.2
Professional occupations in law and social, community and government services	1.8	2.4	0.6	4.4	97.2	96.6	-0.6	-3.8
Paraprofessional occupations in legal, social, community and education services	2.9	8.9	6.0	32.0	93.6	89.2	-4.3	-18.4
Occupations in front-line public protection services	0.4	0.5	0.1	1.2	97.5	97.3	-0.2	-0.7
Care providers and educational, legal and public protection support occupations	5.1	11.1	6.0	21.2	91.9	87.3	-4.6	-14.6
Professional occupations in art and culture	3.0	5.8	2.8	9.1	95.5	91.3	-4.2	-11.8
Technical occupations in art, culture, recreation and sport	5.5	17.1	11.7	37.3	83.3	80.2	-3.1	-7.8
Retail sales supervisors and specialized sales occupations	2.1	5.2	3.1	23.3	97.7	96.6	-1.1	-8.2
Service supervisors and specialized service occupations	4.1	12.8	8.7	46.9	94.3	88.5	-5.8	-30.3
Sales representatives and salespersons - wholesale and retail trade	4.5	13.5	9.1	50.5	92.3	87.3	-5.0	-25.0
Service representatives and other customer and personal service occupations	4.4	17.6	13.1	71.5	92.1	84.3	-7.8	-39.2
Sales support occupations	5.5	10.0	4.5	23.3	87.9	85.9	-2.0	-8.1
Service support and other service occupations, n.e.c.	5.8	14.8	9.0	52.6	87.8	83.5	-4.3	-21.2
Industrial, electrical and construction trades	6.6	9.7	3.1	18.7	95.6	94.2	-1.4	-10.7
Maintenance and equipment operation trades	2.7	6.8	4.1	29.5	97.4	96.1	-1.4	-10.9
Other installers, repairers and servicers and material handlers	6.9	11.0	4.1	12.6	92.5	90.7	-1.8	-5.7
Transport and heavy equipment operation and related maintenance occupations	5.2	9.7	4.5	25.8	95.4	93.5	-2.0	-13.0
Trades helpers, construction labourers and related occupations	15.1	17.5	2.4	4.7	85.4	84.4	-1.0	-2.1
Supervisors and technical occupations in natural resources, agriculture and related production	6.6	9.4	2.9	8.7	95.0	93.9	-1.1	-4.1
Workers in natural resources, agriculture and related production	11.5	11.8	0.3	0.6	84.7	84.4	-0.3	-0.6
Harvesting, landscaping and natural resources labourers	15.3	19.8	4.5	7.2	75.5	79.2	3.7	5.9
Processing, manufacturing and utilities supervisors and central control operators	2.0	4.0	2.0	9.4	97.3	97.0	-0.3	-1.3
Processing and manufacturing machine operators and related production workers	4.4	8.3	3.9	15.6	95.0	92.9	-2.1	-8.4
Assemblers in manufacturing	4.9	10.1	5.1	14.1	94.8	92.5	-2.3	-6.8
Labourers in processing, manufacturing and utilities	8.4	12.5	4.1	8.6	88.8	85.7	-3.1	-6.3

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Statistics calculated on the period from January 2017 to December 2020 for observations aged 15 – 64. Each row consists of the subsample for their specific NOC category. The "Pre" column calculates the mean on the observations which come before March 2020; the "Post" column calculates the mean on observations that occurs during or after March 2020. Unemployment is a binary variable which equals one if an individual is unemployed and zero otherwise. Labour force participation is a binary variable which equals one if an individual is in the labour force and zero otherwise. Individuals in the labour force were employed at work, employed but absent from work, or unemployed during the survey week.

Table A17: Pre and Post COVID Changes in Wages and Hours Worked by NOC Major Groups

	Real Hourly Wages ($ CAD)				Total Actual Hours Worked Weekly			
	Means				Means			
	Pre-COVID	Post-COVID	Difference	t-statistic	Pre-COVID	Post-COVID	Difference	t-stat
Senior management occupations	52.5	56.7	4.2	5.3	41.0	41.9	0.8	1.
Specialized middle management occupations	45.8	47.2	1.4	8.5	36.7	35.8	-0.8	-5.
Middle management occupations in retail and wholesale trade and customer services	33.4	33.7	0.3	1.1	38.2	35.5	-2.7	-12
Middle management occupations in trades, transportation, production and utilities	41.0	40.6	-0.4	-1.5	39.0	37.7	-1.3	-5.
Professional occupations in business and finance	35.0	35.4	0.4	2.7	34.2	33.4	-0.8	-6.
Administrative and financial supervisors and administrative occupations	25.2	25.5	0.3	5.0	31.7	30.0	-1.6	-17
Finance, insurance and related business administrative occupations	25.5	27.1	1.6	10.5	30.9	30.5	-0.4	-1.
Office support occupations	20.4	20.1	-0.3	-4.4	29.2	26.2	-3.0	-24
Distribution, tracking and scheduling co-ordination occupations	20.8	20.8	-0.0	-0.3	32.9	30.0	-2.9	-15
Professional occupations in natural and applied science	39.1	40.2	1.1	8.8	35.4	34.8	-0.6	-6.
Technical occupations related to natural and applied sciences	30.5	30.1	-0.4	-3.4	34.8	32.8	-2.0	-15
Professional occupations in nursing	36.4	37.6	1.2	11.9	29.3	29.6	0.3	1.
Professional occupations in health (except nursing)	38.3	39.8	1.5	6.4	33.8	32.1	-1.6	-5.
Technical occupations in health	27.2	26.9	-0.3	-3.1	29.8	27.4	-2.4	-14
Assisting occupations in support of health services	20.6	20.1	-0.5	-7.7	29.5	26.8	-2.7	-15
Professional occupations in education services	35.8	35.9	0.0	0.3	29.1	25.1	-4.0	-30
Professional occupations in law and social, community and government services	36.1	37.4	1.3	7.9	32.7	31.7	-1.0	-6.
Paraprofessional occupations in legal, social, community and education services	21.1	20.4	-0.7	-7.3	27.9	23.6	-4.2	-25
Occupations in front-line public protection services	41.0	43.4	2.4	11.2	37.7	35.9	-1.9	-5.
Care providers and educational, legal and public protection support occupations	20.8	20.0	-0.9	-7.2	26.4	22.2	-4.1	-19
Professional occupations in art and culture	26.5	27.8	1.3	4.5	29.5	27.8	-1.7	-4.
Technical occupations in art, culture, recreation and sport	20.3	18.4	-1.9	-12.0	26.3	21.1	-5.2	-20
Retail sales supervisors and specialized sales occupations	22.3	23.1	0.8	9.4	34.8	32.2	-2.6	-18
Service supervisors and specialized service occupations	16.5	15.9	-0.6	-9.1	30.9	24.3	-6.6	-46
Sales representatives and salespersons - wholesale and retail trade	17.6	17.0	-0.6	-8.0	28.0	23.8	-4.2	-34
Service representatives and other customer and personal service occupations	16.9	15.3	-1.5	-26.7	27.1	21.2	-5.9	-47
Sales support occupations	13.1	13.1	-0.0	-0.1	22.4	20.5	-1.9	-16
Service support and other service occupations, n.e.c.	14.6	14.1	-0.5	-12.0	25.0	20.2	-4.8	-44
Industrial, electrical and construction trades	27.2	27.1	-0.1	-0.7	34.8	31.6	-3.2	-26
Maintenance and equipment operation trades	28.6	28.3	-0.3	-3.1	37.6	34.6	-3.0	-21
Other installers, repairers and servicers and material handlers	18.9	18.2	-0.8	-6.9	32.6	29.5	-3.1	-15
Transport and heavy equipment operation and related maintenance occupations	21.7	21.2	-0.5	-6.9	36.4	32.1	-4.3	-27
Trades helpers, construction labourers and related occupations	19.1	18.9	-0.2	-1.2	30.9	28.5	-2.4	-8.
Supervisors and technical occupations in natural resources, agriculture and related production	30.4	29.8	-0.6	-2.5	40.2	36.3	-3.9	-10
Workers in natural resources, agriculture and related production	17.2	17.6	0.4	2.7	33.5	31.2	-2.2	-7.
Harvesting, landscaping and natural resources labourers	15.7	15.0	-0.7	-4.1	29.2	24.8	-4.5	-12
Processing, manufacturing and utilities supervisors and central control operators	31.1	31.7	0.6	3.2	38.3	35.7	-2.6	-11
Processing and manufacturing machine operators and related production workers	19.7	19.9	0.2	2.1	35.2	31.6	-3.6	-19
Assemblers in manufacturing	20.1	19.8	-0.4	-2.7	34.6	30.8	-3.8	-15
Labourers in processing, manufacturing and utilities	16.3	16.1	-0.2	-1.7	32.0	29.6	-2.5	-8.

Notes: Authors' calculations. Data from the Canadian Labour Force Survey. Statistics calculated on the period from January 2017 to December 2020 for observations aged 15 – 64 with weights applied. Each row consists of the subsample for their specific NOC category. The "Pre" column calculates the mean on the observations which come before March 2020; the "Post" column calculates the mean on observations that occurs during or after March 2020. Real hourly wage (January 2018, provincial) includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a value of zero. Total actual hours worked across all jobs includes individuals who were: civilian, only public and private sector employees, and in the labour force. Those who were unemployed were assigned a wage value of zero.

References

Beland, L.-P., Brodeur, A. and Wright, T.: 2020, The short-term economic consequences of COVID-19: Exposure to disease, remote work and government response. IZA Discussion Paper 13159.

Berry, I., Soucy, J.-P. R., Tuite, A. and Fisman, D.: 2020, Open access epidemiologic data and an interactive dashboard to monitor the COVID-19 outbreak in Canada, *CMAJ* **192**(15), E420–E420.

Dingel, J. I. and Neiman, B.: 2020, How many jobs can be done at home?, *Journal of Public Economics* **189**, 104235.