Correction Appendix for "Remote Work and Employment Dynamics under Covid-19: Evidence from Canada [2020]"

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Abstract

Our paper Gallacher and Hossain [2020] contains coding errors. We have fixed and updated the code in the project online repository. Below we provide a preliminary update of the tables and figures from the paper. The estimate for Canada as a whole does not seem to change (after rounding) when correcting the error, but there are some minor differences in the estimates at the provincial and city level. The differences are however larger at the industry level (in particular Table A.6 of the paper; throughout the paper we used industry estimates closer to our updated estimates). The qualitative conclusions (signs of the relationships) from the worker heterogeneity regression analysis still hold. The employment dynamic regressions however suggest a stronger relationship with the remote work index: in the March-April 2020 variation, the coefficient on the remote work index is still positive and statistically significant at the ten NOC broad occupation level but now also for all specifications at the 2-digit occupation. Furthermore, we also observe a relationship for one of the specifications at the industry level in the March-April 2020 variation. We now observe a negative link at the provincial level for the February-March 2020 variation and a positive link at the city level for the March-April 2020 variation. We thank Morley Gunderson and Shelby Woodall for asking questions in May 2021 that led us to realize about our errors. We apologize for the errors and any further ones are our own.

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Table 1: Share of jobs that can be done at home

Unweighted	Weighted by Wages
0.41	0.51

Table 2: Share of jobs that can be done at home, by province

Province	Unweighted	Weighted by Wages
Ontario	0.43	0.56
Quebec	0.41	0.51
British Columbia	0.40	0.48
Alberta	0.38	0.47
Nova Scotia	0.37	0.45
Manitoba	0.37	0.45
New Brunswick	0.36	0.43
Saskatchewan	0.34	0.40
Prince Edward Island	0.33	0.43
Newfoundland and Labrador	0.31	0.37

Table 3: Share of jobs that can be done at home, by territory

Territory	Unweighted	Weighted by Wages
Northwest Territories	0.42	0.51
Yukon	0.41	0.49
Nunavut	0.40	0.54

Table 4: Share of jobs that can be done at home, 10 largest cities and (aggregated) smaller cities

City	Unweighted	Weighted by Wages	National Employment Share
Ottawa Gatineau	0.52	0.65	0.04
Toronto	0.49	0.64	0.17
Montreal	0.46	0.58	0.12
Calgary	0.45	0.60	0.04
Quebec City	0.45	0.55	0.02
Vancouver	0.45	0.55	0.07
Kitchener Cambridge Waterloo	0.42	0.53	0.02
Hamilton	0.42	0.53	0.02
Winnipeg	0.41	0.50	0.02
Edmonton	0.39	0.45	0.04
Rest of smaller cities	0.39	0.46	0.16

Table 5: Share of jobs that can be done at home, by city

City	Unweighted	Weighted by Wages
Ottawa Gatineau (Ontario part)	0.54	0.67
Ottawa Gatineau	0.52	0.65
Toronto	0.49	0.64
Ottawa Gatineau (Quebec part) City	0.48	0.60
Montreal	0.46	0.58
Calgary	0.45	0.60
Halifax	0.45	0.55
Quebec City	0.45	0.55
Vancouver	0.45	0.55
Moncton	0.43	0.53
Victoria	0.43	0.53
Regina	0.42	0.50
Kitchener Cambridge Waterloo	0.42	0.53
Oshawa	0.42	0.51
Hamilton	0.42	0.53
Winnipeg	0.41	0.50
St. John's	0.41	0.49
Kingston	0.41	0.50
Guelph	0.40	0.52
London	0.40	0.49
Saint John	0.40	0.46
Edmonton	0.39	0.45
Sherbrooke	0.38	0.46
Saskatoon	0.37	0.45
Barrie	0.37	0.45
Trois Rivieres	0.36	0.44
Peterborough	0.36	0.45
Kelowna	0.36	0.43
Thunder Bay	0.35	0.40
Greater Sudbury	0.35	0.40
Saguenay	0.35	0.40
Windsor	0.34	0.42
St. Catharines Niagara	0.34	0.43
Lethbridge	0.34	0.40
Belleville	0.33	0.39
Brantford	0.33	0.41
Abbotsford Mission	0.32	0.37

Figure 1: Remote-Work Index and City Size

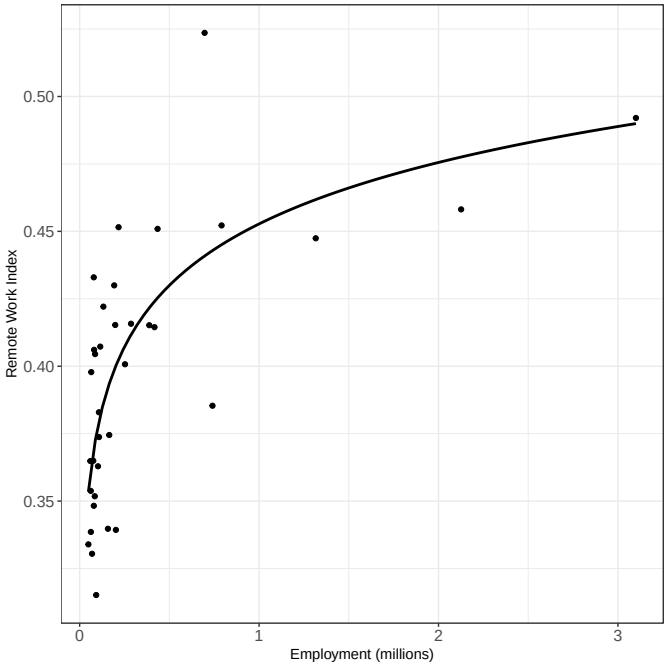
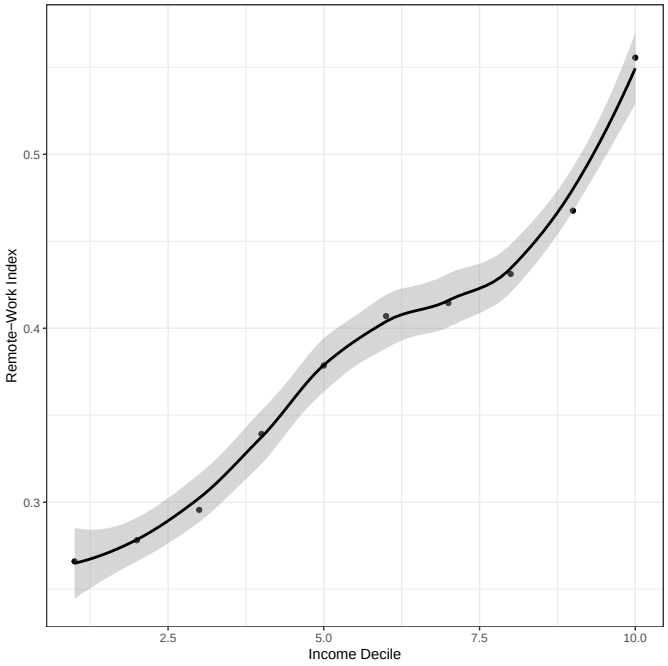


Figure 2: Remote-Work Index and the Distribution of Income



Note: Each dot represents the average of the corresponding decile, and the line represents the smoothed conditional mean with corresponding standard errors.

Figure 3: Worker characteristics and likelihood of having a job that can be done at home

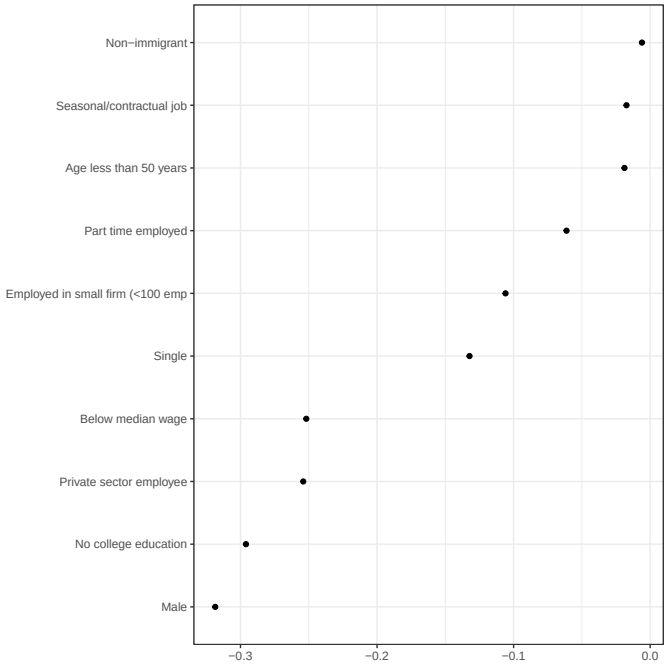


Table 6: Share of jobs that can be done at home, by industry (LFS estimates)

Industry	Benchmark	Alternative
Agriculture	0.15	0.25
Forestry and logging and support activities for forestry	0.23	0.22
Fishing, hunting and trapping	0.08	0.07
Mining, quarrying, and oil and gas extraction	0.29	0.29
Utilities	0.38	0.38
Construction	0.17	0.20
Manufacturing - durable goods	0.21	0.21
Manufacturing - non-durable goods	0.21	0.21
Wholesale trade	0.40	0.42
Retail trade	0.30	0.29
Transportation and warehousing	0.20	0.17
Finance and insurance	0.80	0.80
Real estate and rental and leasing	0.58	0.64
Professional, scientific and technical services	0.77	0.75
Business, building and other support services	0.29	0.24
Educational services	0.82	0.67
Health care and social assistance	0.34	0.26
Information, culture and recreation	0.48	0.48
Accommodation and food services	0.24	0.19
Other services (except public administration)	0.36	0.33
Public administration	0.64	0.62

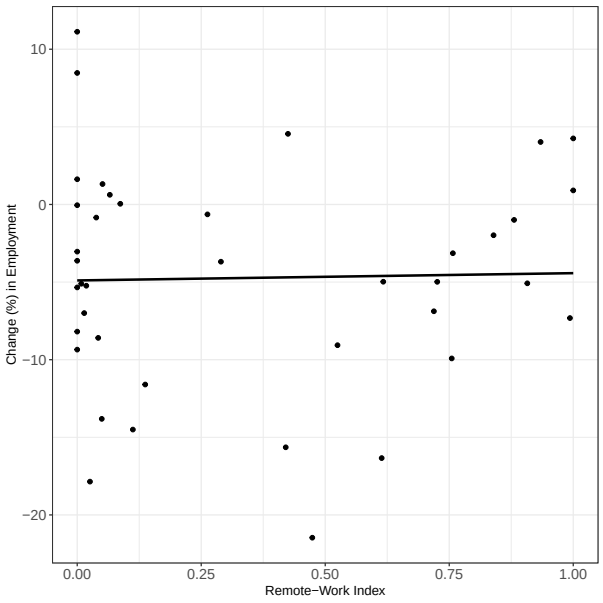
Table 7: Share of jobs that can be done at home, by 2-digit occupation

Occupation	Benchmark	Alternative
Senior management occupations	0.91	0.93
Specialized middle management occupations	0.93	0.88
Middle management occupations in retail and wholesale trade and customer services	0.72	0.68
Middle management occupations in trades, transportation, production and utilities	0.26	0.44
Professional occupations in business and finance	1.00	1.00
Administrative and financial supervisors and administrative occupations	0.88	0.87
Finance, insurance and related business administrative occupations	1.00	0.91
Office support occupations	0.73	0.58
Distribution, tracking and scheduling coordination occupations	0.29	0.09
Professional occupations in natural and applied sciences	0.84	0.81
Technical occupations related to natural and applied sciences	0.42	0.42
Professional occupations in nursing	0.00	0.04
Professional occupations in health	0.07	0.13
Technical occupations in health	0.01	0.04
Assisting occupations in support of health services	0.02	0.00
Professional occupations in education services	0.99	0.80
Professional occupations in law and social, community and government services	0.76	0.88
Paraprofessional occupations in legal, social, community and education services	0.76	0.11
Occupations in frontline public protection services	0.00	0.00
Care providers and educational, legal and public protection support occupations	0.61	0.46
Professional occupations in art and culture	0.52	0.46
Technical occupations in art, culture, recreation and sport	0.47	0.62
Retail sales supervisors and specialized sales occupations	0.62	0.88
Service supervisors and specialized service occupations	0.05	0.11
Sales representatives and salespersons wholesale and retail trade	0.14	0.14
Service representatives and other customer and personal services occupations	0.42	0.20
Sales support occupations	0.11	0.00
Service support and other service occupations, n.e.c.	0.03	0.01
Industrial, electrical and construction trades	0.05	0.06
Maintenance and equipment operation trades	0.00	0.07
Other installers, repairers and servicers and material handlers	0.04	0.00
Transport and heavy equipment operation and related maintenance occupations	0.01	0.00
Trades helpers, construction labourers and related occupations	0.00	0.00
Supervisors and technical occupations in natural resources, agriculture and related production	0.09	0.06
Workers in natural resources, agriculture and related production	0.00	0.00
Harvesting, landscaping and natural resources labourers	0.00	0.00
Processing, manufacturing and utilities supervisors and central control operators	0.00	0.05
Processing and manufacturing machine operators and related production workers	0.04	0.01
Assemblers in manufacturing	0.00	0.00
Labourers in processing, manufacturing and utilities	0.00	0.00

Employment Dynamics

Figure 4: Employment Dynamics and Remote Work Index (2-digit occupation)

(a) February - March 2020



(b) March - April 2020

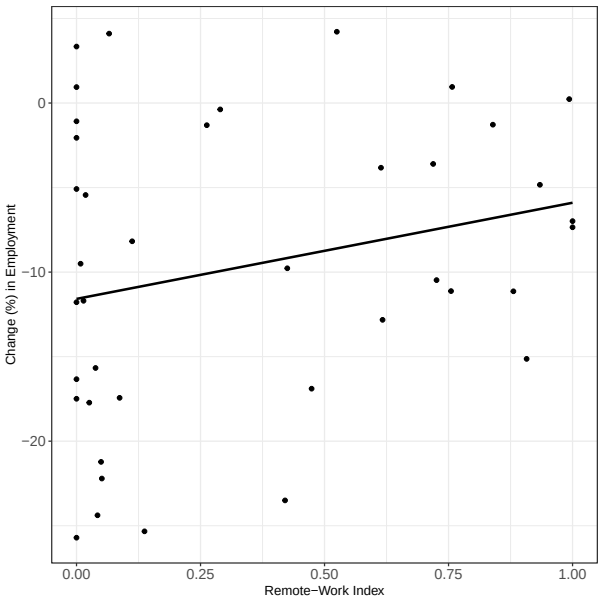


Table 8: Employment Change and Remote Work Index: Two-Digit level (Benchmark Remote Work Index and Essential Service Index)

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$		$\triangle q_{j,Feb,Mar}$		$\triangle q_{j,Mar,Apr}$		$\triangle q_{j,Feb,Apr}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	−0.097	−0.918	0.469	1.331	5.687	8.256**	5.678	8.914*
	(2.261)	(2.339)	(3.081)	(3.214)	(3.675)	(3.578)	(5.043)	(4.978)
ES_j		−2.724		2.862		8.530**		10.749**
		(2.185)		(3.002)		(3.342)		(4.649)
Constant	0.742	2.167	−4.895***	−6.392***	−11.585***	−16.046***	−15.681***	−21.303***
	(1.140)	(1.608)	(1.554)	(2.210)	(1.853)	(2.460)	(2.543)	(3.422)
Observations	40	40	40	40	40	40	40	40
R^2	0.00005	0.040	0.001	0.025	0.059	0.200	0.032	0.154
Adjusted R^2	−0.026	−0.012	−0.026	−0.028	0.035	0.157	0.007	0.109

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in occupation j,
$S_j(Benchmark)$ is the Remote Work Index and ES_j is the Essential Service variable.
Source: Author's calculations.

Table 9: Employment Change and Remote Work Index: Two-Digit level (Alternative Remote Work Index and Essential Service Index)

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$		$\triangle q_{j,Feb,Mar}$		$\triangle q_{j,Mar,Apr}$		$\triangle q_{j,Feb,Apr}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Alternative)$	−0.106	−0.766	1.745	2.501	6.014	8.014**	7.190	9.792*
	(2.328)	(2.375)	(3.160)	(3.242)	(3.777)	(3.652)	(5.147)	(5.011)
ES_j		−2.640		3.027		8.009**		10.420**
		(2.154)		(2.941)		(3.312)		(4.546)
Constant	0.743	2.059	−5.288***	−6.798***	−11.538***	−15.531***	−16.011***	−21.207***
	(1.114)	(1.542)	(1.512)	(2.106)	(1.807)	(2.372)	(2.463)	(3.255)
Observations	40	40	40	40	40	40	40	40
R^2	0.0001	0.039	0.008	0.036	0.063	0.190	0.049	0.167
Adjusted R^2	−0.026	−0.013	−0.018	−0.017	0.038	0.147	0.024	0.122

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in occupation j,
$S_j(Alternative)$ is the Alternative Remote Work Index and ES_j is the Essential Service variable.
Source: Author's calculations.

Table 10: Employment Change and Remote Work Index: Two-Digit level (Benchmark Remote Work Index and Essential Service Dummy Variable)

	Monthly Percentage Change in Employment							
	$\triangle q_{j,Jan,Feb}$		$\triangle q_{j,Feb,Mar}$		$\triangle q_{j,Mar,Apr}$		$\triangle q_{j,Feb,Apr}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	−0.097	0.006	0.469	1.079	5.687	6.369*	5.678	6.911
	(2.261)	(2.316)	(3.081)	(3.088)	(3.675)	(3.693)	(5.043)	(4.992)
D_j		0.512		3.034		3.392		6.135
		(1.739)		(2.320)		(2.774)		(3.750)
Constant	0.742	0.502	−4.895***	−6.319***	−11.585***	−13.177***	−15.681***	−18.560***
	(1.140)	(1.414)	(1.554)	(1.885)	(1.853)	(2.255)	(2.543)	(3.048)
Observations	40	40	40	40	40	40	40	40
R^2	0.00005	0.002	0.001	0.045	0.059	0.096	0.032	0.098
Adjusted R^2	−0.026	−0.052	−0.026	−0.007	0.035	0.047	0.007	0.049

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in occupation j,
$S_j(Benchmark)$ is the Remote Work Index and D_j is the Essential Service Dummy variable.
Source: Author's calculations.

Table 11: Employment Change and Remote Work Index: Two-Digit level (Alternative Remote Work Index and Essential Service Dummy Variable)

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$		$\triangle q_{j,Feb,Mar}$		$\triangle q_{j,Mar,Apr}$		$\triangle q_{j,Feb,Apr}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Alternative)$	−0.106	−0.014	1.745	2.315	6.014	6.616*	7.190	8.308
	(2.328)	(2.378)	(3.160)	(3.153)	(3.777)	(3.789)	(5.147)	(5.077)
D_j		0.510		3.135		3.310		6.155
		(1.735)		(2.301)		(2.764)		(3.704)
Constant	0.743	0.509	−5.288***	−6.724***	−11.538***	−13.053***	−16.011***	−18.829***
	(1.114)	(1.379)	(1.512)	(1.829)	(1.807)	(2.198)	(2.463)	(2.945)
Observations	40	40	40	40	40	40	40	40
R^2	0.0001	0.002	0.008	0.055	0.063	0.098	0.049	0.115
Adjusted R^2	−0.026	−0.052	−0.018	0.004	0.038	0.049	0.024	0.067

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in occupation j,
$S_j(Alternative)$ is the Alternative Remote Work Index and D_j is the Essential Service Dummy variable.
Source: Author's calculations.

Table 12: Employment Change and Remote Work Index: Ten-Occupation Group

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	−0.402	0.643	9.918*	9.931				
	(1.011)	(6.345)	(5.192)	(8.831)				
$S_j(Alternative)$					−0.384	0.168	10.787*	10.334
					(1.108)	(6.942)	(5.690)	(9.727)
Constant	0.793	−5.172	−12.826***	−17.197***	0.778	−4.992	−12.906***	−17.113***
	(0.502)	(3.150)	(2.578)	(4.384)	(0.511)	(3.200)	(2.623)	(4.484)
Observations	10	10	10	10	10	10	10	10
R^2	0.019	0.001	0.313	0.137	0.015	0.0001	0.310	0.124
Adjusted R^2	−0.103	−0.124	0.227	0.029	−0.108	−0.125	0.224	0.014

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in occupation j,
$S_j(Benchmark)$ is the Remote Work Index and $S_j(Alternative)$ is the Alternative Remote Work Index.
Source: Author's calculations.

Table 13: Employment Change and Remote Work Index: Industry

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	1.256	1.013	14.578	14.384				
	(3.722)	(5.912)	(8.722)	(11.421)				
$S_j(Alternative)$					1.026	3.487	16.162*	17.950
					(3.890)	(6.125)	(9.020)	(11.708)
Constant	0.113	−5.166*	−14.939***	−18.939***	0.214	−6.057**	−15.324***	−20.051***
	(1.621)	(2.576)	(3.800)	(4.976)	(1.632)	(2.570)	(3.785)	(4.913)
Observations	21	21	21	21	21	21	21	21
R^2	0.006	0.002	0.128	0.077	0.004	0.017	0.145	0.110
Adjusted R^2	−0.046	−0.051	0.082	0.028	−0.049	−0.035	0.100	0.063

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in industry j,
$S_j(Benchmark)$ is the Remote Work Index and $S_j(Alternative)$ is the Alternative Remote Work Index.
Source: Author's calculations.

Table 14: Employment Change and Remote Work Index: Province

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	−2.561	−30.955**	−6.364	−33.740				
	(5.939)	(10.585)	(16.931)	(20.502)				
$S_j(Alternative)$					−3.942	−27.780**	−4.337	−28.990
					(5.776)	(11.417)	(16.825)	(21.106)
Constant	1.498	7.069	−7.840	−1.646	1.915	5.044	−8.744	−4.312
	(2.287)	(4.076)	(6.519)	(7.894)	(2.057)	(4.066)	(5.992)	(7.517)
Observations	10	10	10	10	10	10	10	10
R^2	0.023	0.517	0.017	0.253	0.055	0.425	0.008	0.191
Adjusted R^2	−0.099	0.456	−0.105	0.160	−0.063	0.353	−0.116	0.090

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in province j,
$S_j(Benchmark)$ is the Remote Work Index and $S_j(Alternative)$ is the Alternative Remote Work Index.
Source: Author's calculations.

Table 15: Employment Change and Remote Work Index: City

	Dependent variable:							
	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$	$\triangle q_{j,Jan,Feb}$	$\triangle q_{j,Feb,Mar}$	$\triangle q_{j,Mar,Apr}$	$\triangle q_{j,Feb,Apr}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_j(Benchmark)$	−8.735	−4.059	24.170**	19.421				
	(5.231)	(11.314)	(7.869)	(16.189)				
$S_j(Alternative)$					−8.849	−4.284	25.445***	20.416
					(5.230)	(11.341)	(7.409)	(16.098)
Constant	4.443*	−4.245	−20.434***	−23.773**	4.232*	−4.273	−20.241***	−23.606***
	(2.297)	(4.967)	(3.455)	(7.108)	(2.143)	(4.647)	(3.036)	(6.596)
Observations	10	10	10	10	10	10	10	10
R^2	0.258	0.016	0.541	0.152	0.264	0.018	0.596	0.167
Adjusted R^2	0.166	−0.107	0.484	0.047	0.171	−0.105	0.545	0.063

Note: *p<0.1; **p<0.05; ***p<0.01
$\triangle q_{j,t,\tau}$ is the percentage change in employment between month t and τ in city j,
$S_j(Benchmark)$ is the Remote Work Index and $S_j(Alternative)$ is the Alternative Remote Work Index.
Source: Author's calculations.

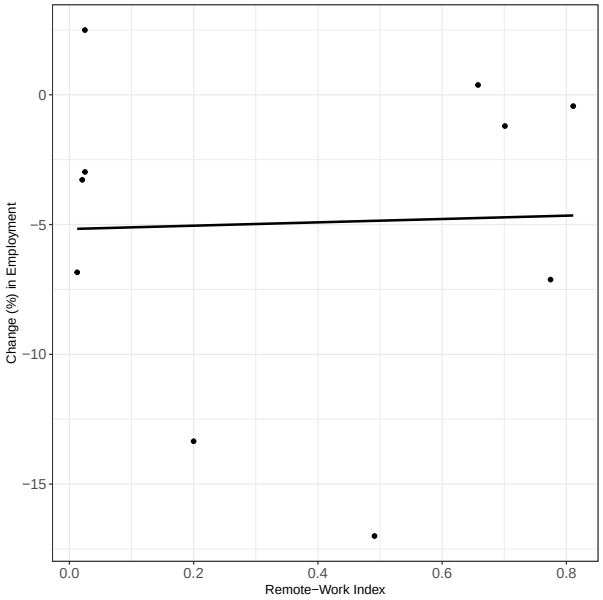
References

Gallacher, Guillermo and Iqbal Hossain, "Remote work and employment dynamics under COVID-19: Evidence from Canada," *Canadian public policy*, 2020, *46* (S1), S44–S54.

A Additional Scatter Plots

Figure A1: Employment Dynamics and Remote Work Index (10 NOC broad occupation groups)

(a) February - March 2020, % change



(b) March - April 2020, % change

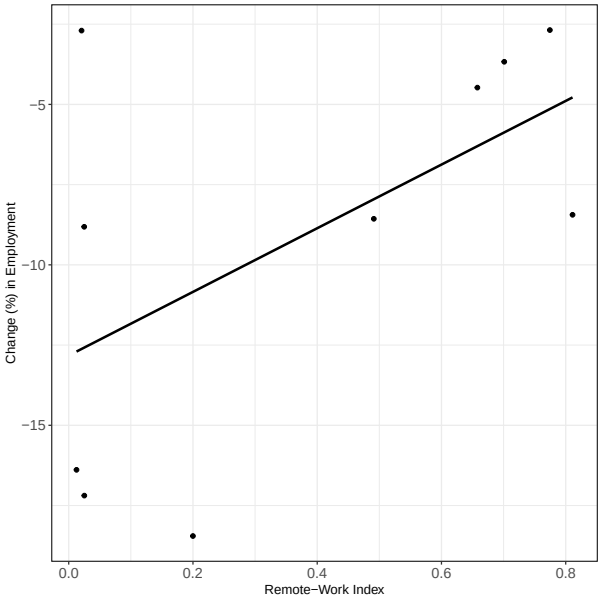
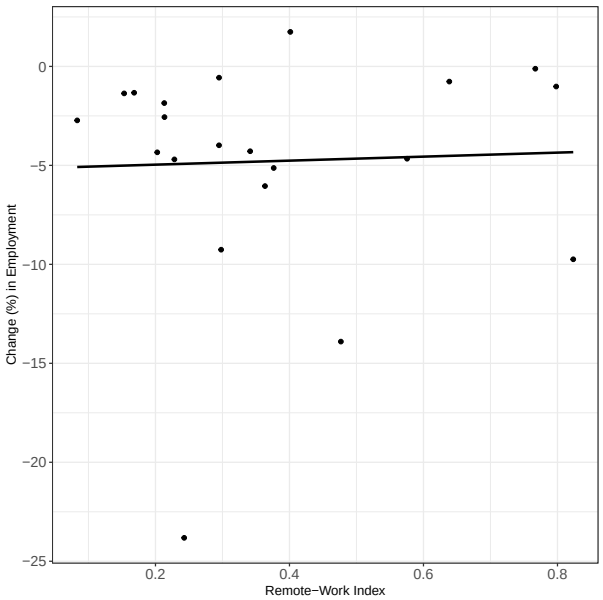


Figure A2: Employment Dynamics and Remote Work Index (by industry)

(a) February - March 2020, % change



(b) March - April 2020, % change

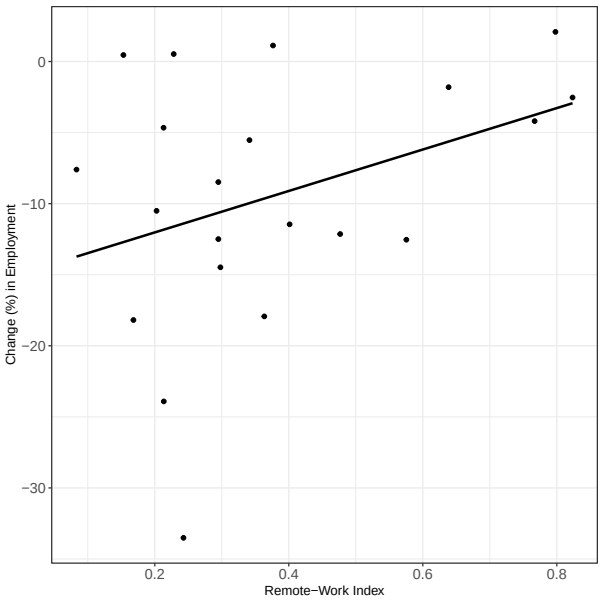
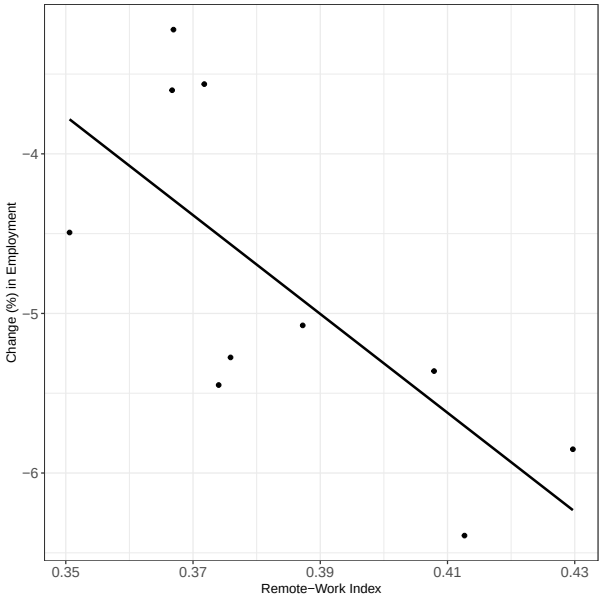


Figure A3: Employment Dynamics and Remote Work Index (by province)

(a) February - March 2020, % change



(b) March - April 2020, % change

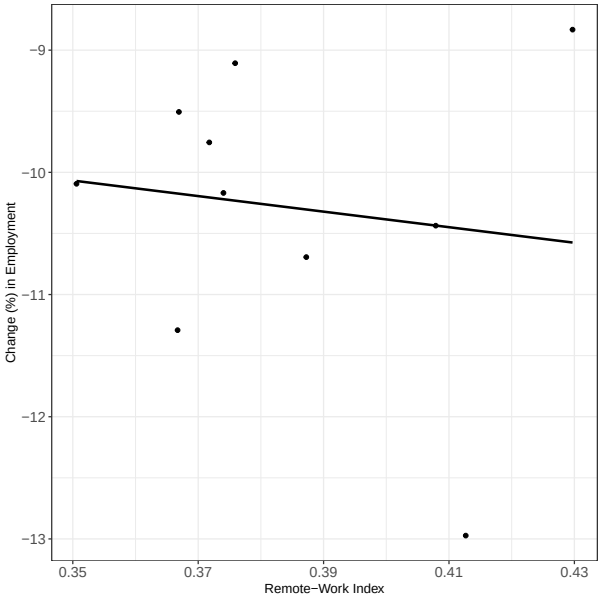
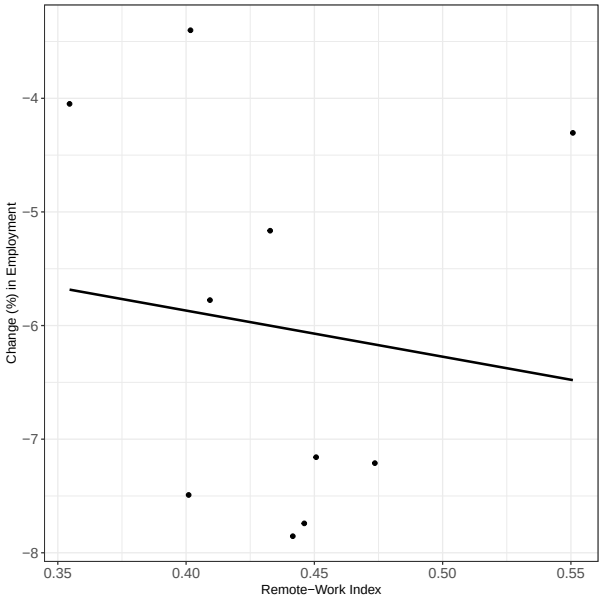


Figure A4: Employment Dynamics and Remote Work Index (by city)

(a) February - March 2020, % change



(b) March - April 2020, % change