AI/Software/Automation and the Future of Work:
Lessons from Working-From Home in the COVID-19 Pandemic in Canada

Theme

Technology increased inequality in the pandemic by relocating white collar jobs to workers' homes while doing little to save the jobs of lower wage blue collar and service sector workers. Remote work software allowed digital workers to do at home what they had done at their workplace.

The result is a new location-of-work divide.

The divide challenges

Unions to organize/represent workers at both sites;

HRM to apply work rules and managerial oversight fairly to both

Labor law & reg agencies to protect both sets of location of work.

The labor relations system writ large to develop policies that encourage technologies to protect blue collar jobs in the next pandemic, that alter what workers do and where they do it in ways that improve worker well-being (as well as company bottom lines).

Richard B. Freeman and Qingnan Xie, June 10, 2022

# Working-From Home in the Pandemic in Canada
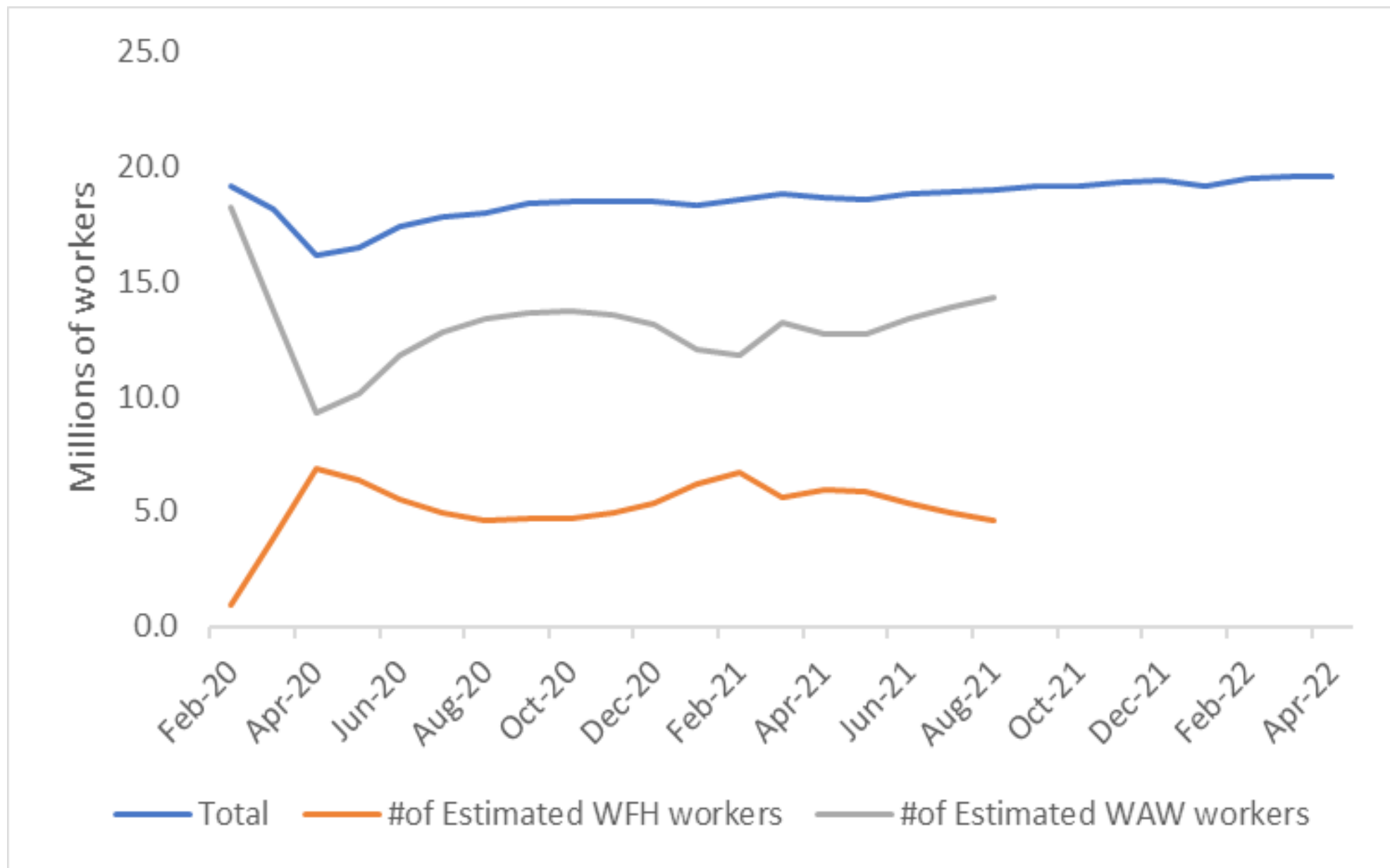
Table 1. Employment by Occupation in the Pandemic Period, Feb 2020 - Apr 2022

Tag	Occupation	Millions employed			Percent of employed		
		Before Feb, 2020	Peak Apr, 2020	After Apr, 2022	Before Feb, 2020	Peak Apr, 2020	After Apr, 2022
White-collar-digital	Business, finance and administration occupations	3.07	2.80	3.31	16.0	17.4	16.9
	Management occupations	1.74	1.66	1.80	9.1	10.3	9.2
	Natural and applied sciences and related occupations	1.58	1.52	1.86	8.3	9.4	9.5
	Occupations in education, law and social, community and government services	2.15	1.93	2.30	11.2	11.9	11.8
Personal interaction	Health occupations	1.45	1.36	1.53	7.6	8.4	7.8
	Occupations in art, culture, recreation and sport	0.56	0.43	0.58	2.9	2.7	2.9
Sales and service	Sales and service occupations	4.64	3.27	4.30	24.3	20.2	21.9
Traditional blue-collar	Natural resources, agriculture and related production occupations	0.38	0.33	0.37	2.0	2.1	1.9
	Occupations in manufacturing and utilities	0.83	0.66	0.85	4.3	4.1	4.3
	Trades, transport and equipment operators and related occupations	2.74	2.18	2.70	14.3	13.5	13.8
All occupations		19.14	16.15	19.60	100	100	100

Source: Statistics Canada, Tables of "Employment by occupation, monthly, seasonally adjusted"

The remarkable divergence between market income and after-tax income in pandemic

Figure 2. Percentage change in average market income and average after-tax income by income quintile, economic families and unattached individuals, Canada, 2019 to 2020
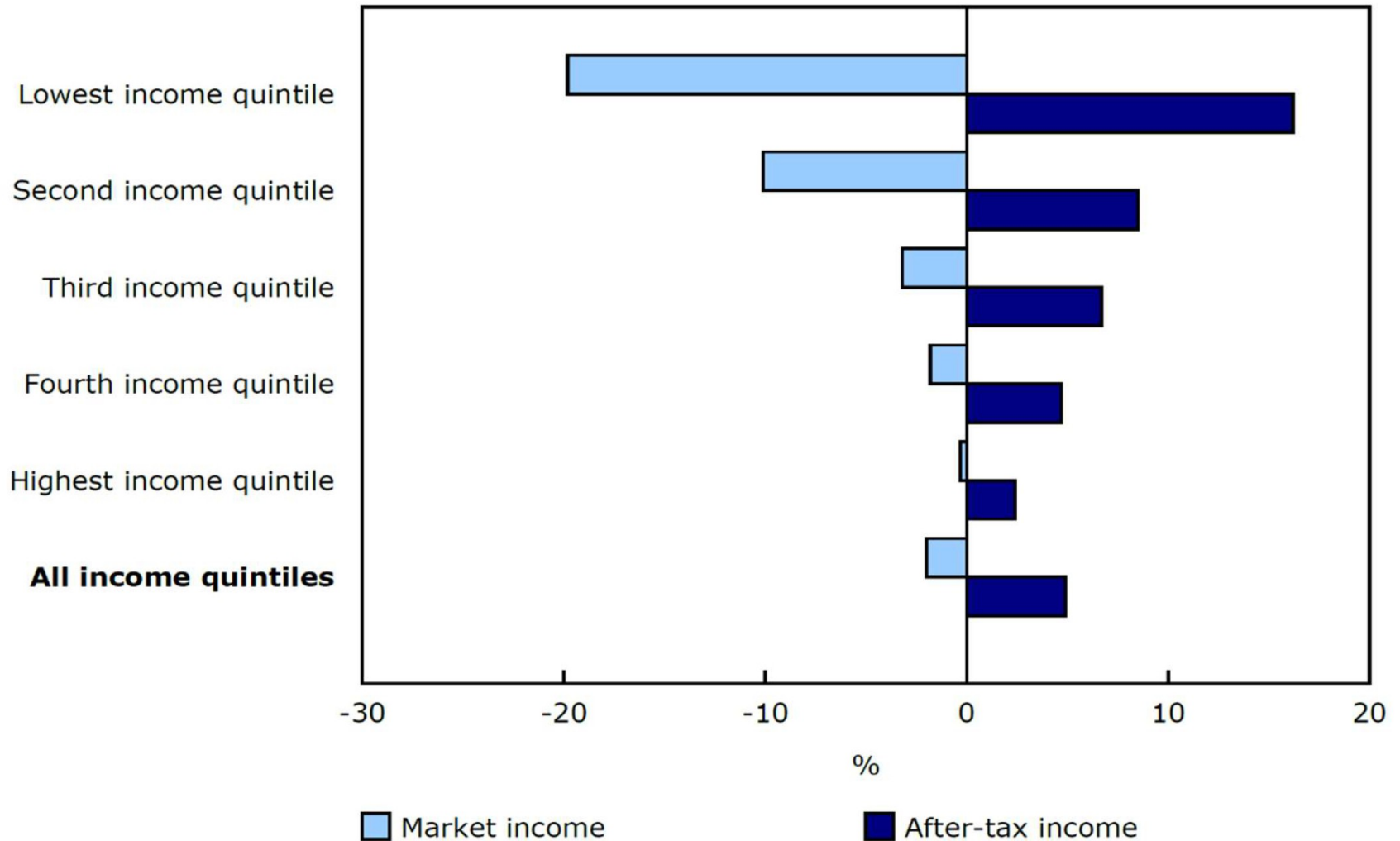
Experience and Attitudes on Work from home

1) at-home workers, the vast majority of whom found WFH to be a pleasurable experience (Panel A), with a substantial number saying they would be upset if told to return to the office (Panel B).

2)**all workers** preferences between WFH and WAW evince considerable heterogeneity.

3) proportion of all workers favoring WFH in the pandemic period far exceeds the 6-8% who worked from home before the pandemic.

Implication is that will be permanently higher

Table 2. Views and Preferences of Canadian Workers to WFH

Panel A. Views of WFH (Asked only of WFH workers)

How would you describe working from home? *March 2022 (Angus Reid)*	Really great	Good	Challenging	Horrid
	42%	36%	18%	4%
How would you describe your experience working from home? *May 2021(Leger)*	Very positive	Somewhat positive	Somewhat negative	Very negative
	37%	45%	13%	4%
How hard or easy has working from home been for you over the last few weeks? *May 2021(Leger)*	Very easy	Somewhat easy	Somewhat hard	Very hard
	33%	34%	25%	8%

Panel B. Views of workers about returning to the office (Asked only of WFH workers)

Suppose your employer demands that you return to the office full time, what would you do?	Roll with it and return full time	Go back to office but may start looking for new job	Likely quit/look for another job right away	Not sure
March 2022 (Angus Reid)	29%	33%	23%	14%
August 2021 (Angus Reid)	39%	25%	19%	17%

	Yes
If my superiors ordered me to go back to the office, I would start to look for another job where I can work from home. *May 2021(Leger)*	35%
Working from home was great for a while, but now I feel need to go back to the office. *May 2021 (Leger)*	47%

Panel C. Preferences to work arrangements (Asked only of WFH workers)

Which would you prefer, if it were up to you?	Work from home all the time	Mostly from home, some office time	Mostly from office, some home time	Work at office all the time
March 2022 (Angus Reid)	36%	43%	17%	4%
August 2021 (Angus Reid)	29%	33%	24%	14%

As … restrictions relax and people are able to return to pre-pandemic routines, what would you prefer when it comes to returning to the workplace?	Entirely at home	Only at office/ work-place when needed… home rest of the time	Mix a few days a week at office/ workplace and a few at home	Work back at office/workplace each day
May 2021 (Leger)	19%	19%	40%	20%

Preferences for home office *once the COVID-19 pandemic is over Feb 2021 (Mehdi and Morrissey)*	All at home	Mostly home	Half at home/ outside home	Mostly outside home	All outside home
	15%	24%	41%	11%	9%

Panel D. Ideal work scenario (Asked of all workers)

What is your ideal work scenario? *Sept 2021 (Angus Reid)*	Entirely Remotely	Mostly Remotely	Half workplace/ half remotely	Mostly at workplace	Entirely at workplace
	15%	25%	25%	17%	18%

Share of total hours employees might prefer working from home post-pandemic *May 2021 (Mehdi and Morrissey, 2021b)*	24%

"Digital connected to Internet? I can work at home! the beach! the pub! - Alpha Centauri! Cyberspace everywhere ... anywhere!"

11 hire
2 genie

9.. VPN

11 Ways to Make Working From the Beach Easier
    Are you working from the beach? Here are some tips to make working from the beach more productive: 1. Portable Wi-Fi Hotspot Device; 2. Noise-Cancelling Headphones or Earbuds 3. Portable Folding Chair4. Device Power Bank 5. Plug Adapter & Power Strip 6. Waterproof Gadget Bags. 7. Laptop Locks 8. Anti-Glare Screen Protectors 9. VPN

Table 3. List of remote work relevant software categories in Capterra in 2022

Type	Category Title	When first appeared in Capterra	#Products	#Vendors	#Reviews
General Remote Work	Remote Work	after 2019	596	575	216,332
	Internal Communications	2018	263	258	68,504
	Digital Workplace	after 2019	251	248	106,846
	Remote Support	2016	164	152	54,344
	Remote Monitoring and Management	after 2019	139	127	10,366
	VPN	2018	118	117	2,747
	Remote Desktop	after 2019	80	75	15,977
	Screen Sharing	after 2019	67	62	39,999
	Virtual Desktop Infrastructure	after 2019	48	43	2,009
	Desktop as a Service	after 2019	26	26	1,188
Labor	Human Resources	2014	1,399	1,341	63,007
	Recruiting	2014	768	747	50,438
	Onboarding	2015	443	432	57,433
	Video Interviewing	2015	197	195	37,068
Cyber security	Cybersecurity	2018	639	603	11,089
	Cloud Security	after 2019	325	297	22,183
	Computer Security	2016	298	268	21,330
	Endpoint Protection	2016	209	184	11,963
Tele -medicine	Telemedicine	2017	334	327	12,895
	Remote Patient Monitoring	after 2019	85	84	221

Note: We use the archive information of Capterra software category between 2014 and 2019 to tell when one category appeared in the Capterra website. But if one category was is created after 2019, we cannot tell the exact year that it first appeared in the website.

Figure 3. Number of products in 4 types of remote work software categories, 2014-2019 & 2022
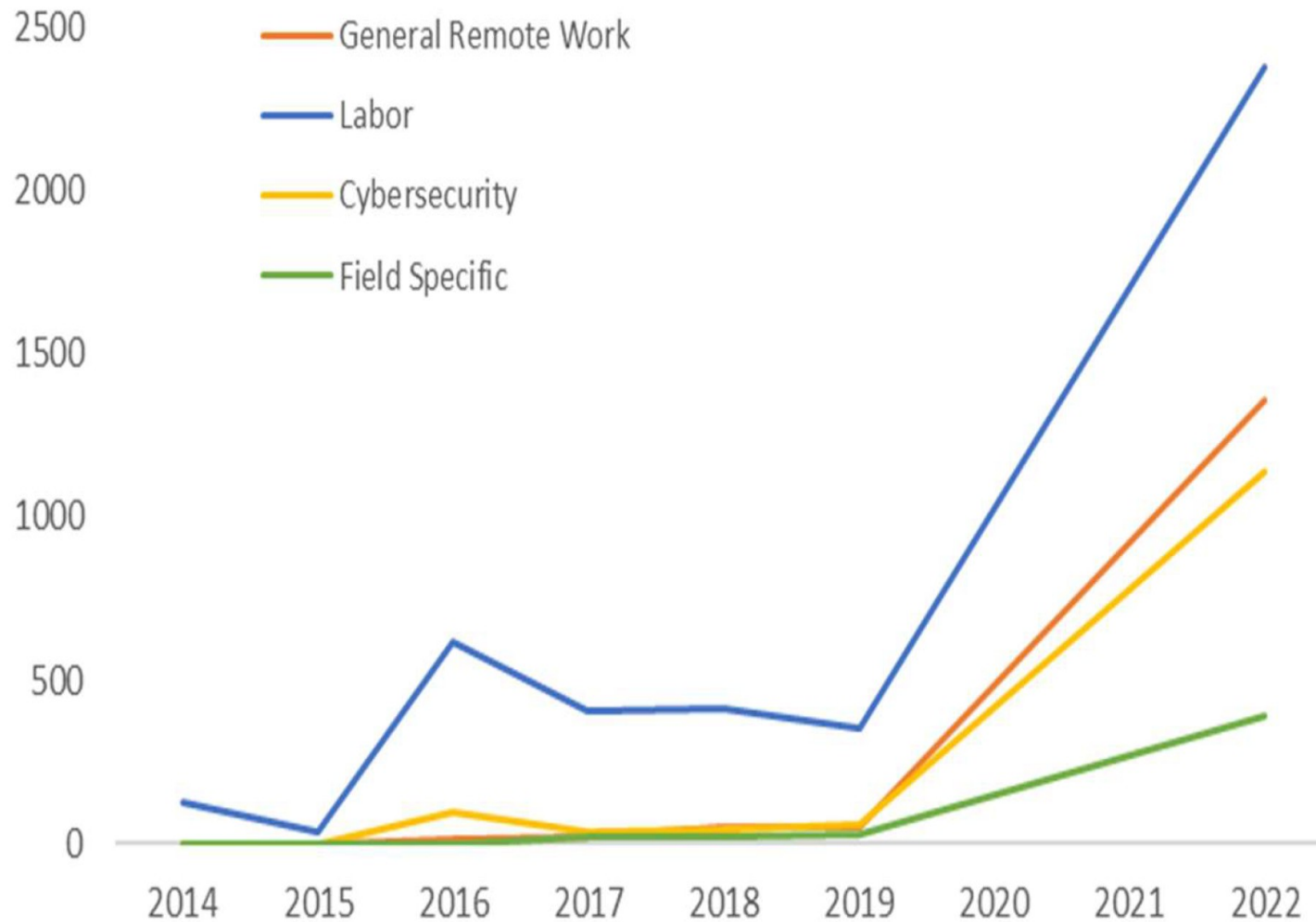
Source: Calculated by authors form Capterra website as described in text.

Who Determines Software Determines what workers do and where they do it.

Private fixed investment: Nonresidential: Intellectual property products: Software

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