The Broken Ladder: AI, Remote Work, and Early-Career Hiring

Peter John Lambert (LSE and Warwick)
Yannick Schindler (EIT and Oxford)

Stanford Remote Work Conference, October 2026

Headlines blame AI for the drop in entry-level jobs

AXIOS May 2025

Behind the Curtain: A white-collar bloodbath

Anthropic CEO Dario Amodei says AI could wipe out half of all entry-level white-collar jobs within five years

THE NEW YORK TIMES May 2025

For Some Recent Graduates, the A.I. Job Apocalypse May Already Be Here

Unemployment for recent college graduates has jumped as companies try to replace entry-level workers with artificial intelligence

THE ATLANTIC April 2025

Something Alarming Is Happening to the Job Market

A new sign that AI is competing with college grads

SCOTTISH FINANCIAL NEWS June 2025

Big Four slash graduate jobs as AI takes over entry-level tasks

Graduate intake down 29% at KPMG, 18% at Deloitte, 11% at EY and 6% at PwC

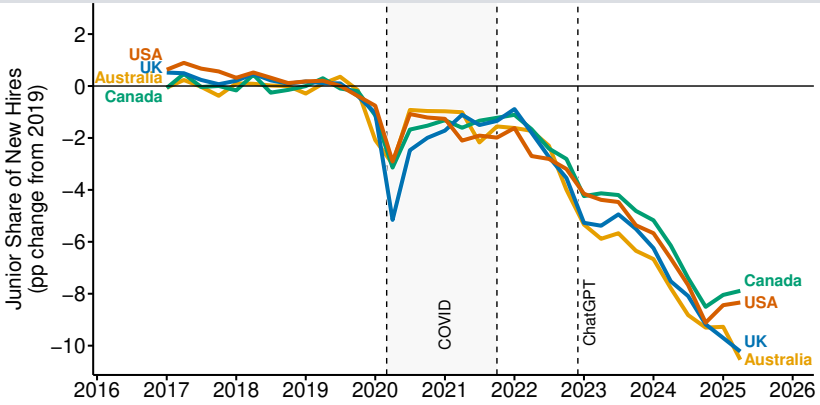
IBTIMES UK August 2026

UK graduate jobs hit lowest level since 2020 as AI hiring reaches record high

Graduate vacancies 7% lower than a year earlier; AI mentioned in a record 9.4% of UK job adverts

GenAI studies | Skip to the data

Firms have shifted hiring away from juniors since 2020



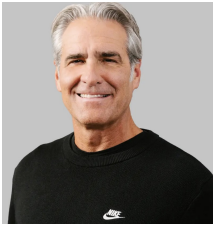
- Junior share of hires down **8–11 pp** by 2025
- Flat to 2019, brief 2020 dip, drop from mid-2022
- Entry-level hires down **14–29%**; senior up **5–21%**

US by seniority | AI vs WFH timing | Data | Missing experience

Junior workers build the pipeline of future talent



Bob Iger
Disney
ABC studio supervisor
1974



Elliott Hill
Nike
sales intern
1988



Mary Barra
GM
co-op student
1980



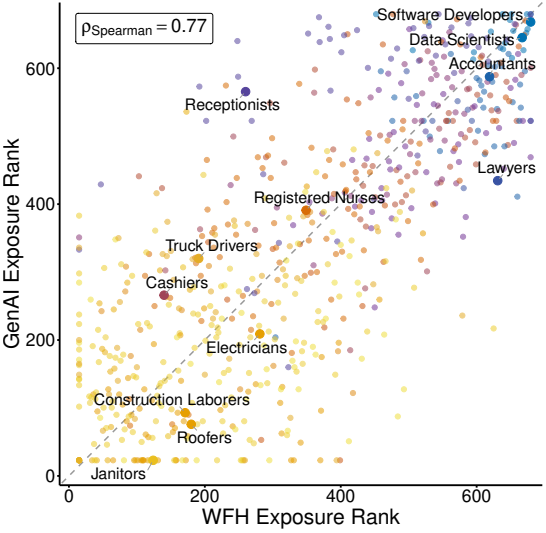
Fred Turner
McDonald's
grill cook
1956

Skip to the data

We test whether WFH or GenAI cut junior hiring

- **Work from home (WFH)** slows learning and makes mentoring harder
  - Emanuel et al. (QJE 2026): 18% more feedback near teammates
- **Generative AI (GenAI)** can do routine junior tasks
  - Brynjolfsson et al. (2025): 16% drop at ages 22–25 in exposed jobs
- **Data**: **407 million** job ads and **243 million** hires
- **Three ways we separate WFH from GenAI:**
  - Compare occupations by their exposure to WFH and GenAI
  - Compare firms that adopted WFH with similar firms that did not
  - Use 2020 local COVID rules as a shock to firm WFH adoption (IV)

WFH and GenAI hit the same occupations



- **WFH exposure**: share of 2021–22 ads offering remote or hybrid work (Hansen et al. 2023)
- **GenAI exposure**: share of tasks GenAI speeds up by at least 50% (Eloundou et al. 2024)
- Developers and accountants score high on both; janitors and roofers score low
- Rank correlation is **0.77** across 683 jobs

Measures Other indices

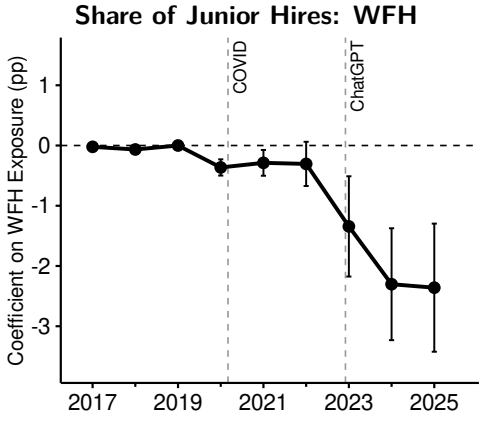
Empirical Design I: Exposure-based Difference-in-Differences

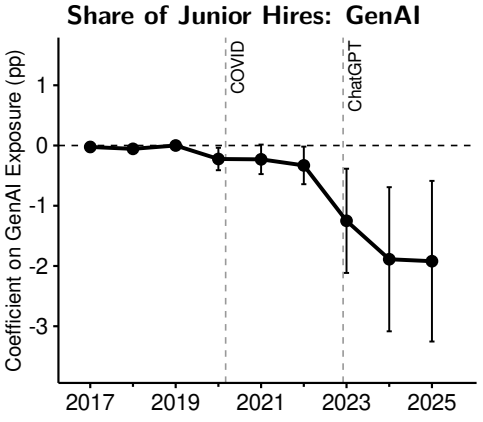
$$y_{it} = \beta^{\text{WFH}} Z_i^{\text{WFH}} \times \text{Post}_t + \beta^{\text{GenAI}} Z_i^{\text{GenAI}} \times \text{Post}_t + \alpha_i + \delta_t + \varepsilon_{it}$$

- **Outcome** y_{it}: junior share of job ads or new hires (in pp)
- **Exposures** Z_i^k: occupation WFH and GenAI scores (in SD units)
- **Effect** β^k: change in junior share per 1 SD of exposure
- **Period**: 2023–25 vs. 2017–19 (plus yearly event studies)
- **Data cells**: state×occupation×month or firm×occupation×year

Full specification | Data | Missing experience | Model

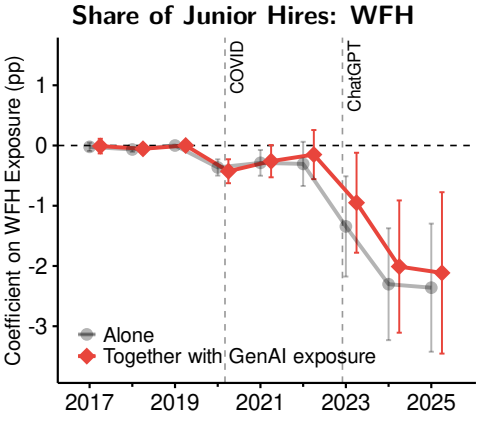
Tested separately, both WFH and GenAI predict fewer juniors

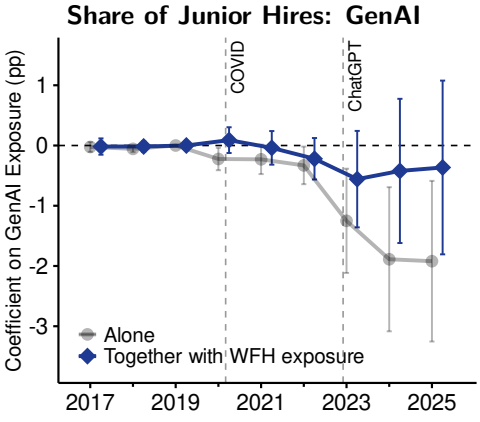




Details | Job ads | Design | Missing experience

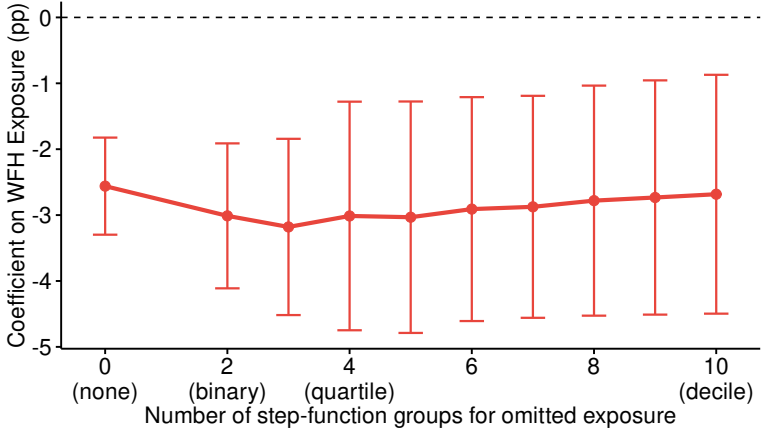
Tested together, WFH keeps its effect and GenAI loses it





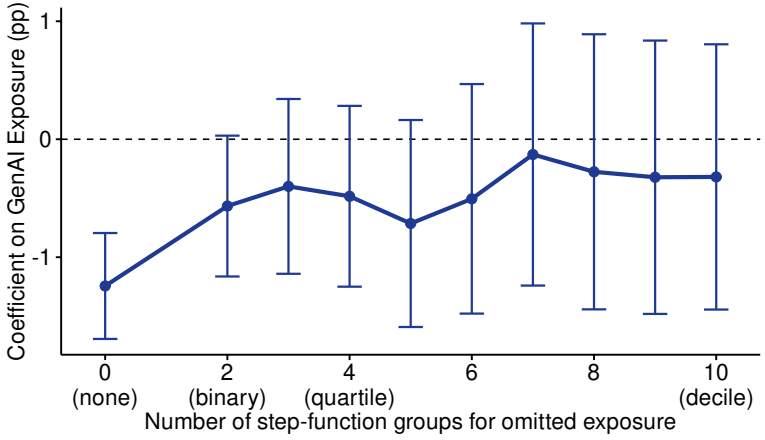
Details | Job ads | Table | By country | Robustness

WFH remains significant even with highly non-parametric GenAI exposure control



All four | Robustness values | Monte Carlo | Leave-one-out

GenAI shrinks to zero with non-parametric WFH exposure control



All four | Robustness values | Monte Carlo | Leave-one-out

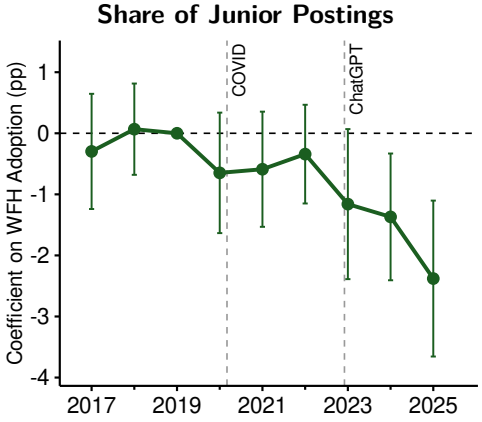
Empirical Design II: Actual WFH Adoption as Treatment

$$y_{it} = \gamma\, D_i^{\text{WFH}} \times \text{Post}_t + \alpha_i + \delta_t + \varepsilon_{it}$$

- **Outcome** y_{it}: junior share of job ads or new hires (in pp)
- **WFH adopter** D_i^{WFH}: firm posted a remote or hybrid ad in 2021–22
- **Effect** γ: extra change in junior share at WFH-adopting firms
- **Matched sample**: exact match on WFH and GenAI exposure quintiles
- **Data cells**: firm×occupation×year; 2023–25 vs. 2017–19

Table II | Occupation level | Exposure design | Data

Firms that adopted WFH cut junior hiring more



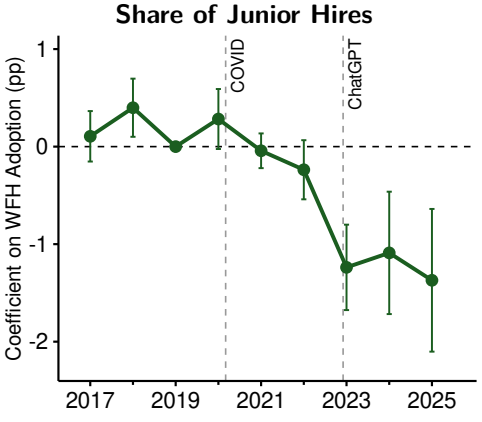


Table II | Occupation level | AI vs WFH timing | Wage premium

Empirical Design III: Instrumenting WFH with COVID Rules

$$y_{ist} = \beta\, D_{it}^{\text{WFH}} + \alpha_{is} + \delta_{st} + \varepsilon_{ist}$$

- **Outcome** y_{ist}: junior share of hires for firm×job i in state s (pp)
- **Treatment** D_{it}^{WFH}: firm's WFH ad share, instrumented by $Z_{i,-s} \times \text{Post}_t$
- **Instrument** $Z_{i,-s}$: 2020 COVID rules P_q at firm sites outside state s

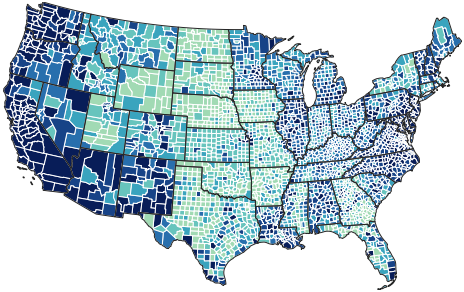
$$Z_{i,-s} = \sum_{q \notin s} w_{iq}^{2019} \left(P_q - \bar{P}_{s(q)}\right) \Big/ \sum_{q \notin s} w_{iq}^{2019}$$

- **Fixed effects** α_{is}, δ_{st}: firm×job×state and state×job×year
- **Controls**: matched-group fixed effects, GenAI exposure, and firm size

Map and example firms | All IV designs | Instruments | Reduced form

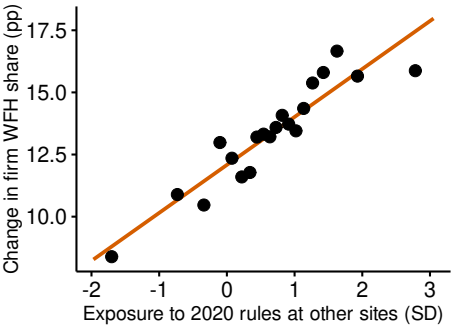
Stricter 2020 rules at other sites push firms to go remote

County COVID rules P_q, 2020



Sextiles of 2020 stay-at-home days, local-order days, and remote-school weeks

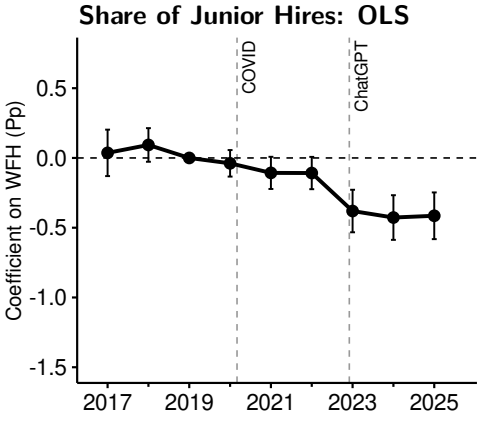
First stage of the IV

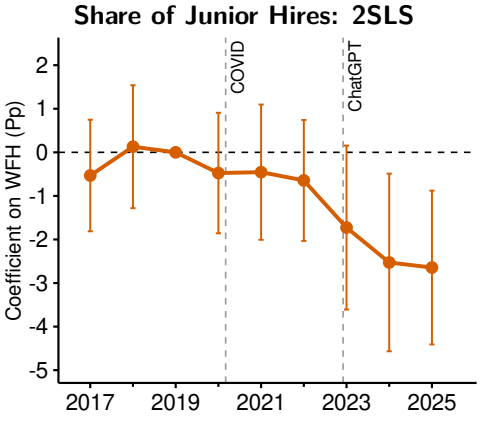


20 bins of firm×occupation×state cells, design FE and controls removed; slope 1.93 pp per SD (SE 0.31), $F = 39$

WFH adoption map | Back to design | Instruments | Results

Firms pushed into WFH by COVID rules hire fewer juniors





IV design | Unit weights | Job postings | Reduced form | Table

Conclusion

By 2025, comparing financial analysts with carpenters:

- **1 in 33** job ads shifted to requiring more than 3 years of experience
- **1 in 20** new hires shifted from junior to senior

What this means:

- Remote work explains a fall in relative hiring/recruitment of junior workers with less experience
- Good news! firms can fix mentoring and onboarding in hybrid work
- Better in-person days—not more of them—can balance benefits and costs
- AI is getting much better rapidly, still very much a live concern for labor markets

Thanks

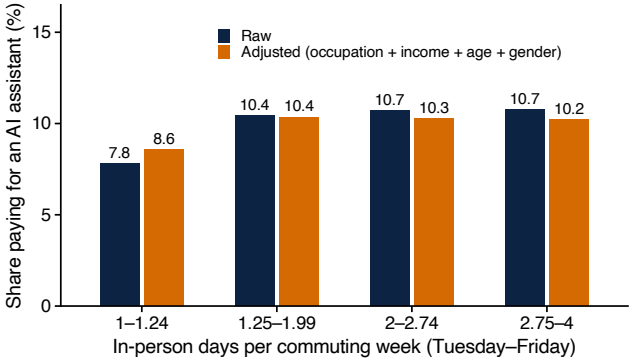
@pj_lambert

p.j.lambert@lse.ac.uk



Paper on SSRN

People who commute least are the least likely to pay for AI



Note: UK bank data for 19,959 salaried rail and bus commuters, 2024–26. Bars show the share paying for an AI subscription in June 2026 by average in-office days per week, before and after adjusting for occupation, income, age, and gender (mean = 9.9%).

Within-account regression | AI vs WFH timing

Paying for AI does not go with more remote days

	Remote days a week (Tuesday–Thursday, 0–3)			
	(1)	(2)	(3)	(4)
Fixed effects	None	Month, occupation	Month, occupation, local authority, income	Month, account
A. Pays for an AI assistant (direct or app store)				
Coefficient	-0.131^{***}	-0.098^{***}	-0.082^{***}	-0.080^{***}
	(0.019)	(0.018)	(0.016)	(0.012)
B. Direct subscription only				
Coefficient	-0.119^{***}	-0.082^{***}	-0.066^{***}	-0.077^{***}
	(0.021)	(0.021)	(0.018)	(0.015)
C. Controlling for monthly card spending				
Coefficient	-0.061^{***}	-0.028^{*}	-0.009	-0.019^{*}
	(0.017)	(0.016)	(0.014)	(0.010)

420,873 person-months across 19,956 UK commuters, 2024–26. Outcome: remote days per week on Tue–Thu (days with no transit fare, mean 2.37). Treatment: paid for an AI tool that month (mean 5.6%). Panel C controls for log other card spending. SEs clustered by local authority. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Figure AI vs WFH timing

Junior hiring fell with WFH, not with GenAI

What we find

- Junior share of hires fell **8–11 pp** from 2019 to 2025 in all four countries
- Tested together (per SD): WFH cuts the junior share by **−1.1 to −1.6 pp**; GenAI is near zero (−0.45 to +0.11 pp)
- WFH-adopting firms cut their junior share **1.0–1.3 pp** more than matched firms
- Across four IV designs, a 10 pp rise in WFH cuts the junior share by **0.2–3.8 pp**

Questions on Lightcast data

- 54–80% of ads omit experience. Would flagging "no experience required" ads help?
- How does Lightcast's remote-work flag compare with text-based measures (WHAM)?
- Can AI skill demands in job ads measure firm AI adoption separately from WFH?

Back to closing slide | Joint estimates | WFH adopters | IV results

Prior studies link falling junior hiring to GenAI

ADP payroll	**Brynjolfsson, Chandar & Chen (2025)**: employment at ages 22–25 fell **16%** in AI-exposed jobs
Firm studies	Klein Teeselink (2025), Hosseini Maasoum & Lichtinger (2025): junior hiring fell at AI-exposed firms Azar et al. (2025): junior starting pay fell 6.3%
Other studies	Demirer et al. (2026), Gans & Goldfarb (2026), Garicano, Li & Wu (2026): task exposure need not cut jobs Humlum & Vestergaard (2025), Hartley et al. (2025), Yotzov et al. (2026): small effects ▪ Althoff & Reichardt (2026), Brynjolfsson, Li & Raymond (2025): AI helps juniors
Our reading	AI-exposed jobs are also WFH-exposed (rank correlation 0.77)

Back to headlines | Back to the question | WFH and learning

Other studies find WFH slows juniors' learning

Feedback and learning	**Emanuel, Harrington & Pallais (QJE 2026)**: sitting near teammates raises feedback by **18%**, especially for young workers Atkin, Schoar & Shinde (2023): WFH slows learning
Unemployment	**Emanuel et al. (Liberty Street 2026)**: young graduate unemployment rose in remote-capable jobs before ChatGPT; WFH explains **64%** of the rise
Onboarding	Aksoy et al. (2025, 2026): in-person onboarding and office days boost productivity Pallais (2014): firms hire too few beginners
Our model	WFH raises mentoring costs (ϕ) and slows learning (λ), cutting junior hiring and raising the senior pay gap

Back to the question | Model | Wage premium | GenAI studies

We combine Lightcast job ads with Revelio Labs new hires

Job ads: Lightcast

Country	Job Postings	Firms	Regions	Occupations
United States	318,529,861	1,467,726	51	702
United Kingdom	56,791,794	293,189	391	631
Australia	9,901,723	66,058	88	631
Canada	21,862,295	209,051	13	631
Pooled	407,085,674	2,036,024	543	702

Junior = ads asking for $\leq$3 years of experience. 54–80% of ads omit experience; we reweight the rest (IPW)

New hires: Revelio Labs (LinkedIn)

Country	New Hires	Firms	Regions	Occupations
United States	166,491,524	5,989,773	51	722
United Kingdom	38,743,924	1,990,651	4	722
Australia	15,765,880	853,187	8	722
Canada	22,429,542	1,112,501	13	722
Pooled	243,430,870	9,946,112	76	722

Junior = bottom two of seven seniority levels (Entry Level, Junior), based on job titles and work history

Data cells: state$\times$6-digit occupation$\times$month or firm$\times$2-digit occupation$\times$year.
Exposures: WFH = 2021–22 remote/hybrid ad share (Hansen et al. 2023); GenAI = exposed task share (Eloundou et al. 2024)

Back to the question | Back to facts | Back to exposures

Many job ads omit experience, so we reweight the sample

- Experience is missing in 54% of US ads, 60% in Canada, 75% in the UK, and 80% in Australia (stable over time)
- Missing experience does not always mean "no experience needed," so we do not assume zero
- We predict whether an ad lists experience using ad length, occupation, source, and month
- We weight ads with experience by the inverse of this probability ($1/\hat{\pi}_i$)
- Results hold for any junior cutoff from 1 to 6 years: WFH **-0.8 to -1.8 pp**; GenAI near zero

Cutoffs table | Back to facts | Design | Back to summary

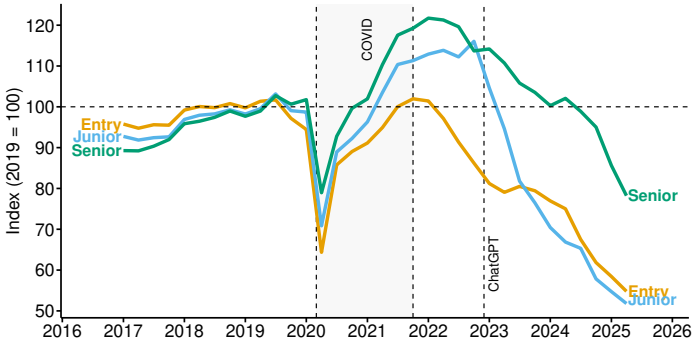
The WFH effect holds across all experience cutoffs

	Share of ads requiring at most k years of experience					
	$k=1$	$k=2$	$k=3$	$k=4$	$k=5$	$k=6$
Panel A: occupation×state×month cells (3,453,516 cells)						
WFH	-1.76^{***}	-1.01^{***}	-1.07^{***}	-0.84^{***}	-0.94^{***}	-0.83^{***}
	(0.54)	(0.30)	(0.28)	(0.28)	(0.23)	(0.21)
GenAI	−0.07	−0.03	−0.01	0.18	0.10	0.05
	(0.34)	(0.24)	(0.20)	(0.18)	(0.13)	(0.12)
Panel B: firm×2-digit occupation cells (672 six-digit occupation shocks)						
WFH	-1.60^{**}	-1.13^{*}	-1.17^{***}	-1.04^{***}	-1.10^{***}	-1.09^{***}
	(0.66)	(0.57)	(0.21)	(0.20)	(0.16)	(0.19)
GenAI	0.25	−0.14	−0.15	-0.31^{*}	−0.16	−0.17
	(0.57)	(0.44)	(0.17)	(0.17)	(0.13)	(0.16)

Lightcast ads that state experience. Post (2023–25 vs 2017–19) × exposure, WFH and GenAI entered together; pp per SD of exposure. Panel A is unweighted by IPW (Table I with IPW gives -1.12 at $k=3$); SEs clustered by occupation and state. Panel B uses shock-level SEs clustered by 2-digit occupation. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Back to IPW Design

In the US, junior hires fell while senior hires rose

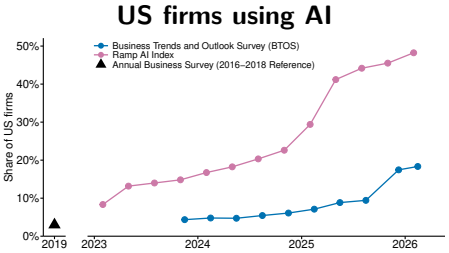


Revelio Labs US new hires, quarterly, seasonally adjusted; 3-digit occupations at fixed 2019 weights; index, 2019 = 100. Entry level and junior: seniority levels 1 and 2 of 7; senior: levels 3–7

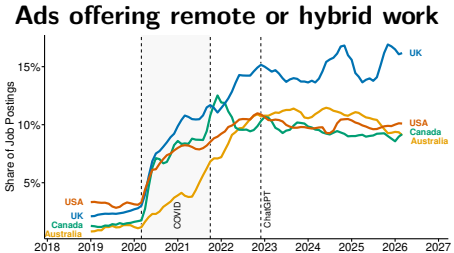
Change in average monthly hires from 2017–19 to 2023–25 (holding 2019 occupation weights fixed): entry level −25%, junior −24%, senior +6%

Back to facts

WFH ads jumped in 2020, while firm AI use rose after 2023



Census BTOS (last two points: broader question); Ramp: card spend on AI vendors



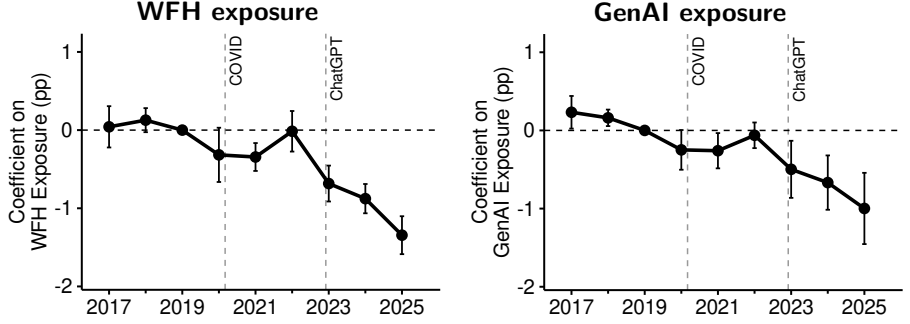
Lightcast ads, WHAM classifier (Hansen et al. 2023); 3-month moving average

- US firms using AI (2023–25): rose from 8% to 46% in Ramp card data, and 4% to 9% in Census data
- Share of ads offering WFH: jumped from 1–3% in 2019 to 9–15% in 2023–25
- The junior share of hires started falling in mid-2022—before ChatGPT launched

Back to facts Back to adoption

In job ads, WFH and GenAI look similar when tested alone

$$y_{it} = \sum_{\tau \neq 2019} \phi_\tau^k Z_i^k \mathbf{1}\{\text{year}_t = \tau\} + \alpha_i + \delta_t + \varepsilon_{it}, \quad \text{separately for } k = \text{WFH, GenAI}$$



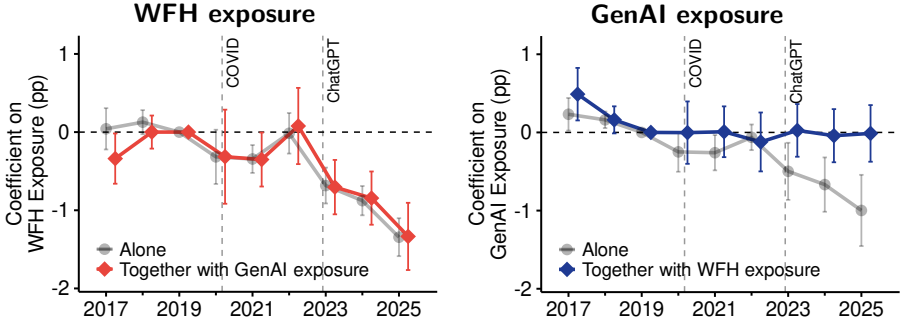
2025 effect in pp per SD (SE): WFH $-\mathbf{1.3}$ (0.1); GenAI $-\mathbf{1.0}$ (0.2)

y: share of Lightcast ads asking for $\leq$3 years; firm×2-digit occupation×year; 2019 = 0; 95% CI

Together | New hires | Back

In job ads, WFH keeps its effect and GenAI loses it

$$y_{it} = \sum_{\tau \neq 2019} \left(\phi_\tau^{\text{WFH}} Z_i^{\text{WFH}} + \phi_\tau^{\text{GenAI}} Z_i^{\text{GenAI}} \right) \mathbf{1}\{\text{year}_t = \tau\} + \alpha_i + \delta_t + \varepsilon_{it}$$



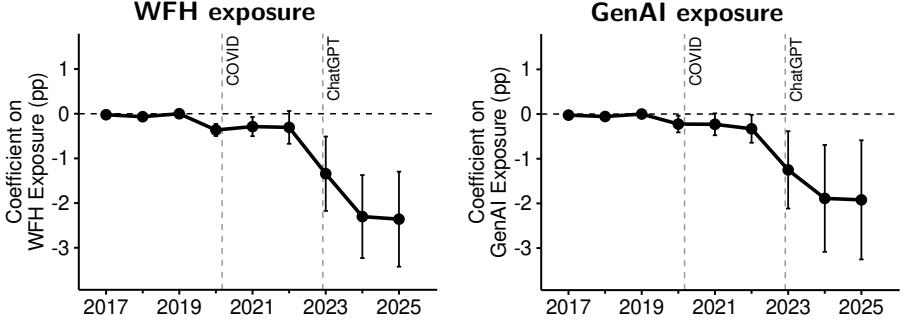
2025 effect in pp per SD (SE): WFH $-\mathbf{1.3}$ (0.2); GenAI 0.0 (0.2)

y: share of Lightcast ads asking for $\leq$3 years; firm$\times$2-digit occupation$\times$year; 2019 = 0; 95% CI

Alone | New hires | Back

In new hires, WFH and GenAI look similar when tested alone

$$y_{it} = \sum_{\tau \neq 2019} \phi_\tau^k \, Z_i^k \, \mathbf{1}\{\text{year}_t = \tau\} + \alpha_i + \delta_t + \varepsilon_{it}, \quad \text{separately for } k = \text{WFH, GenAI}$$



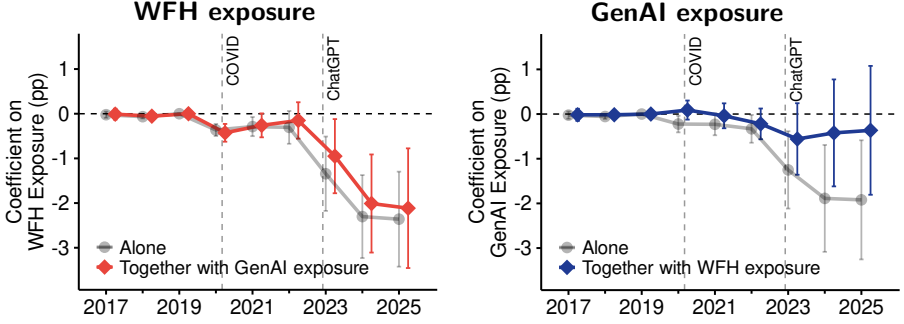
2025 effect in pp per SD (SE): WFH $-$**2.4** (0.5); GenAI $-$**1.9** (0.7)

y: junior share of Revelio Labs new hires; firm×2-digit occupation×year; 2019 = 0; 95% CI

Together | Job ads | Back

In new hires, WFH keeps its effect and GenAI loses most of it

$$y_{it} = \sum_{\tau \neq 2019} \left(\phi_\tau^{\text{WFH}} Z_i^{\text{WFH}} + \phi_\tau^{\text{GenAI}} Z_i^{\text{GenAI}} \right) \mathbf{1}\{\text{year}_t = \tau\} + \alpha_i + \delta_t + \varepsilon_{it}$$



2025 effect in pp per SD (SE): WFH $-\mathbf{2.1}$ (0.7); GenAI -0.4 (0.7)

y: junior share of Revelio Labs new hires; firm×2-digit occupation×year; 2019 = 0; 95% CI

Alone | Job ads | Back

We put WFH and GenAI exposure in the same regression

$$y_{it} = \beta^{\text{WFH}} Z_i^{\text{WFH}} \, \text{Post}_t + \beta^{\text{GenAI}} Z_i^{\text{GenAI}} \, \text{Post}_t + \alpha_i + \delta_t + \varepsilon_{it}$$

- **Outcomes**: share of ads asking for $\leq$3 years of experience (reweighted); junior share of new hires
- **Exposures & timing**: Z_i in SD units; Post_t compares 2023–25 with 2017–19 (2019 = 0 in event studies)
- **Market level**: 6-digit occupation$\times$state$\times$month cells; state$\times$month fixed effects; SEs clustered by occupation and state
- **Firm level**: firm$\times$2-digit occupation$\times$year cells; country$\times$year fixed effects; exposure based on 2017–19 job mix; shock-level SEs

Back to estimates | Full Table I | Model | Missing experience

Tested together, the WFH effect holds and GenAI shrinks

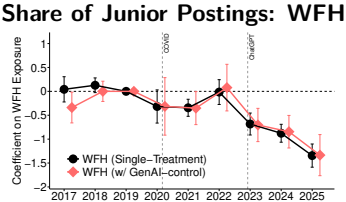
	Share of ads requiring ≤3 years (pp)				Junior share of new hires (pp)			
	Alone		**Together**		Alone		**Together**	
	WFH	GenAI	**WFH**	**GenAI**	WFH	GenAI	**WFH**	**GenAI**
Occupation×state	-1.04^{***}	-0.63^{***}	-1.12^{***}	0.11	-1.69^{***}	-1.34^{***}	-1.42^{***}	-0.41
	(0.25)	(0.18)	(0.31)	(0.19)	(0.24)	(0.27)	(0.36)	(0.36)
Firm×occupation	-1.29^{***}	-1.03^{***}	-1.17^{***}	-0.15	-1.88^{***}	-1.59^{***}	-1.57^{***}	-0.45
	(0.13)	(0.19)	(0.21)	(0.17)	(0.42)	(0.51)	(0.45)	(0.49)

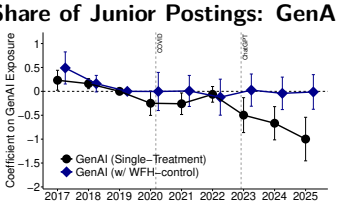
Lightcast ads, Revelio Labs hires. 2023–25 vs 2017–19, pp per SD of exposure (SE). *** $p < 0.01$

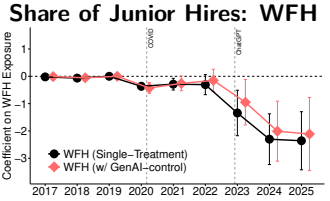
- With GenAI in the model, WFH cuts the junior share by **−1.1 to −1.6 pp** per SD (84–108% of its standalone effect)
- With WFH in the model, GenAI shrinks to −0.45 to +0.11 pp per SD and is never significant
- A 2 SD higher WFH score lowers the junior share by **3 pp** in job ads and **4–5 pp** in hires by 2025

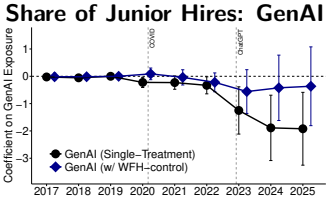
Back to joint estimates | Full Table I | By country | Design

Within firms, the WFH effect holds and GenAI shrinks





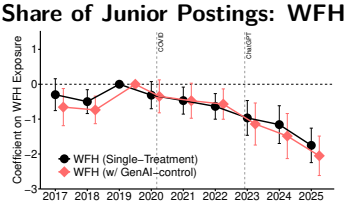


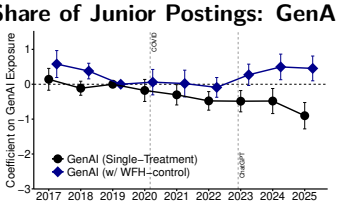


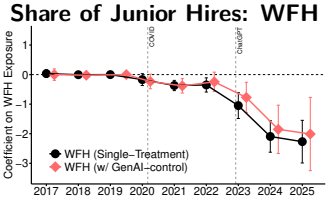
Lightcast ads, Revelio Labs hires; firm×2-digit occupation×year cells, shock-level SEs. Black: one exposure alone; colour: both together. pp per SD, 2019 omitted, 95% CI

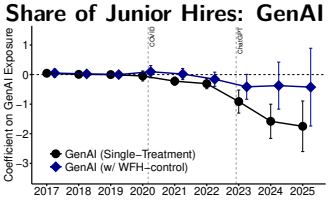
Occupation×state | Back to joint estimates

Across occupation-state cells, WFH holds and GenAI shrinks









Lightcast ads, Revelio Labs hires; occupation×state×month cells. Black: one exposure alone; colour: both together. pp per SD, 2019 omitted, 95% CI. Job ads: some 2017–18 CIs exclude zero

Firm level | Back to joint estimates

WFH stays significant when we control for GenAI (Table I)

	Junior Worker Share of New Hires (Pp.)				Share of Job Postings Requiring ≤ 3 Years Experience (Pp.)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: State × Occupation × Month Cells								
Post × WFH (1sd)	-1.69***		-1.42***	-1.63***	-1.04***		-1.12***	-1.05***
	(0.24)		(0.36)	(0.37)	(0.25)		(0.31)	(0.34)
Post × GenAI (1sd)		-1.34***	-0.41	0.04		-0.63***	0.11	0.05
		(0.27)	(0.36)	(0.42)		(0.18)	(0.19)	(0.25)
Post × WFH × GenAI (1sd)				0.66***				-0.11
				(0.23)				(0.31)
Observations	47,003 units / 2,312,186 cells / 120,659,812 hires				158,182 units / 3,323,594 cells / 86,201,833 postings			
Panel B: Firm × 2-Digit Occupation × Year Cells								
Post × WFH (1sd)	-1.88***		-1.57***	-1.57***	-1.29***		-1.17***	-1.15***
	(0.42)		(0.45)	(0.42)	(0.13)		(0.21)	(0.21)
Post × GenAI (1sd)		-1.59***	-0.45	-0.45		-1.03***	-0.15	-0.16
		(0.51)	(0.49)	(0.55)		(0.19)	(0.17)	(0.15)
Post × WFH × GenAI (1sd)				-0.01				-0.03
				(0.28)				(0.10)
Observations	603,650 units / 3,621,900 cells / 31,706,183 hires				132,714 units / 796,284 cells / 25,673,884 postings			

Coefficients in pp per SD of exposure; Post = 2023–25 vs 2017–19. Cols 3 and 7 enter both exposures: GenAI -0.45 to $+0.11$ pp, none significant at 10%; VIF 1.8–2.4. Cols 4 and 8 add WFH×GenAI: WFH -1.05 to -1.63 pp. SEs clustered by occupation and state (A); BHJ shock level (B). $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Back to joint estimates | Design

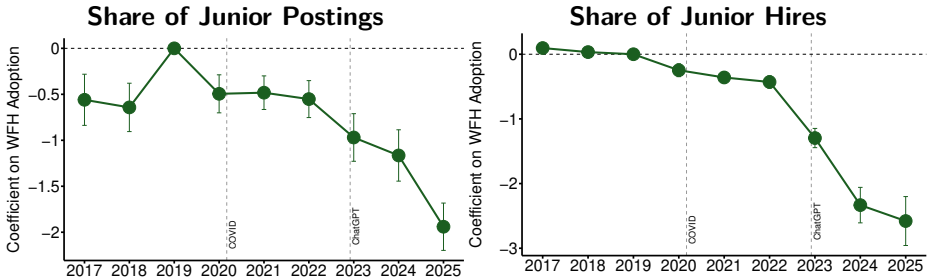
Firms that adopted WFH cut junior hiring more (Table II)

	Junior Worker Share of New Hires (Pp.)				Share of Job Postings Requiring ≤ 3 Years Experience (Pp.)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Firm × 2-Digit Occupation × Year (binary actual-WFH treatment)								
Post × 1[Any firm WFH 2021–22]	-1.28***	-1.00***	-1.09***	-1.00***	-1.33***	-0.97***	-1.06***	-0.97***
	(0.22)	(0.21)	(0.20)	(0.22)	(0.35)	(0.35)	(0.34)	(0.34)
Post × Occ. WFH (1sd)		-2.55***		-2.80***		-0.95***		-1.00***
		(0.31)		(0.69)		(0.10)		(0.20)
Post × Occ. GenAI (1sd)			-1.90***	0.31			-0.75***	0.06
			(0.53)	(0.66)			(0.16)	(0.19)
Observations	155,428 units / 1,370,970 cells / 19,752,086 hires				126,856 units / 1,112,990 cells / 39,446,833 postings			
Panel B: Country × State × 6-Digit Occupation × Year (continuous actual-WFH treatment)								
Post × Realised WFH share (1sd)	-1.98***	-0.13	-1.94***	-0.12	-0.90***	-0.44**	-0.92***	-0.44**
	(0.12)	(0.26)	(0.15)	(0.26)	(0.11)	(0.20)	(0.13)	(0.20)
Post × Occ. WFH (1sd)		-1.68***		-1.67***		-0.40**		-0.43**
		(0.23)		(0.24)		(0.18)		(0.19)
Post × Occ. GenAI (1sd)			-0.14	-0.05			0.09	0.11
			(0.14)	(0.15)			(0.11)	(0.11)
Observations	38,129 units / 448,375 cells / 221,725,397 hires				34,224 units / 290,637 cells / 125,405,099 postings			

CEM-matched on both exposures; Post = 2023–25 vs 2017–19. Panel A: firm posted any remote or hybrid ad in 2021–22 (pp). Panel B: 2021–22 share of such ads (pp per SD); with occupation WFH exposure (VIF 6.6, 13.6), hires −0.13 pp (SE 0.26), ads −0.44 pp (SE 0.20). SEs clustered by firm and country×occupation (A), by cell (B). $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Back Occupation level

Occupations that adopted more WFH cut junior hiring more



Country×state×6-digit occupation×year cells, CEM-matched on both exposures; treatment: 2021–22 share of ads offering remote or hybrid work; pp per SD, 2019 omitted, 95% CI

- 2023–25 vs. 2017–19: **−0.90 pp** (SE 0.11) in job ads and **−1.98 pp** (SE 0.12) in hires
- Pre-trends in 2017 and 2018 are small for ads (−0.56, −0.64 pp) and flat for hires (+0.10, +0.03 pp)
- Controlling for pre-pandemic WFH exposure: −0.44 pp (SE 0.20) in ads, [illegible] (SE 0.26) in hires

Back Table II

In every country, WFH exposure predicts fewer junior hires

	State × 6-Digit Occupation × Month Cells				Firm × 2-Digit Occupation × Year Cells			
	US	UK	Australia	Canada	US	UK	Australia	Canada
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Dep. Var. Junior Share of New Hires								
Post × WFH (1sd)	-1.40***	-1.28***	-1.66***	-1.70***	-2.44***	-2.58***	-2.74***	-2.65***
	(0.39)	(0.20)	(0.41)	(0.31)	(0.75)	(0.70)	(0.80)	(0.69)
Post × GenAI (1sd)	-0.35	-0.92***	-0.40	-0.08	-0.11	-0.16	0.33	0.34
	(0.37)	(0.23)	(0.35)	(0.28)	(0.72)	(0.72)	(0.73)	(0.64)
Partial *F*-Statistic	13.0/0.9	41.9/16.0	16.5/1.3	29.7/0.1	10.7/0.0	13.6/0.1	11.7/0.2	14.9/0.3
Variance Inflation Factor	1.8	1.7	1.7	1.8	2.8	2.6	2.6	2.7
Condition number	2.2	2.2	2.1	2.2	3.0	2.9	2.9	3.0
Observations	1,663,257	134,136	225,016	289,777	3,677,092	798,663	349,245	434,144
Panel B: Dep. Var. Share of Postings Requiring ≤ 3 Years Experience								
Post × WFH (1sd)	-1.12***	-1.71*	-0.27	0.20	-1.06***	-0.59	-1.72	-0.57*
	(0.35)	(0.89)	(0.51)	(0.36)	(0.20)	(0.82)	(1.17)	(0.35)
Post × GenAI (1sd)	0.18	-0.99	-0.23	0.49**	0.08	-0.22	-0.04	-0.31
	(0.21)	(0.93)	(0.47)	(0.21)	(0.20)	(0.60)	(1.03)	(0.24)
Partial *F*-Statistic	10.3/0.7	3.7/1.1	0.3/0.2	0.3/5.5	27.4/0.2	0.5/0.1	2.1/0.0	2.7/1.6
Variance Inflation Factor	1.8	1.7	1.6	1.8	3.2	3.4	3.3	3.0
Condition number	2.2	2.2	2.0	2.2	3.3	3.4	3.3	3.1
Observations	1,457,706	1,557,454	149,249	159,185	820,506	267,063	15,093	53,077

Joint specification of Table I by country; exposures standardised on the pooled sample. Firm columns use firm×occupation cells rather than Table I's shock-level panel. Ads: WFH negative in 7 of 8 columns, significant at 10% in 4. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Back to joint estimates Robustness

No single occupation group drives the WFH effect

		Panel A: State×Occ×Month				Panel B: Firm×2d-Occ×Year			
		New Hires		Postings ≤ 3 yrs		New Hires		Postings ≤ 3 yrs	
Code	Occupation Group Name	WFH (1)	GenAI (2)	WFH (3)	GenAI (4)	WFH (5)	GenAI (6)	WFH (7)	GenAI (8)
11	Management	-1.59***	-0.37	-1.13***	0.14	-1.90***	-0.31	-1.25***	-0.09
13	Business and Financial Operations	-1.46***	-0.27	-1.46***	0.15	-1.64***	-0.39	-1.25***	-0.09
15	Computer and Mathematical	-1.40***	-0.39	-1.03***	0.10	-1.39***	-0.18	-1.19***	-0.14
17	Architecture and Engineering	-1.43***	-0.42	-1.13***	0.19	-1.57***	-0.46	-1.19***	-0.13
19	Life, Physical, and Social Science	-1.34***	-0.57*	-1.10***	0.11	-1.52***	-0.54	-1.17***	-0.15
23	Legal	-1.23***	-0.57*	-1.15***	0.13	-1.50***	-0.50	-1.21***	-0.11
27	Arts, Design, Entertainment, Sports, and Media	-1.54***	-0.48	-1.07***	0.06	-1.64***	-0.51	-1.14***	-0.15
29	Healthcare Practitioners and Technical	-1.54***	-0.37	-1.10***	0.08	-1.70***	-0.42	-0.95***	-0.28*
31	Healthcare Support	-1.38***	-0.43	-1.13***	0.10	-1.53***	-0.43	-1.16***	-0.24
35	Food Preparation and Serving Related	-1.41***	-0.29	-1.10***	0.08	-1.54***	-0.35	-1.14***	-0.14
37	Building and Grounds Cleaning and Maintenance	-1.43***	-0.40	-1.13***	0.13	-1.57***	-0.44	-1.17***	-0.14
39	Personal Care and Service	-1.44***	-0.41	-1.12***	0.10	-1.56***	-0.46	-1.16***	-0.17
41	Sales and Related	-1.50***	-0.17	-0.93***	0.04	-1.62***	-0.39	-1.14***	-0.14
43	Office and Administrative Support	-1.11**	-0.88*	-1.17***	0.18	-1.14***	-1.03***	-1.21***	-0.16
47	Construction and Extraction	-1.45***	-0.35	-1.14***	0.23	-1.57***	-0.44	-1.18***	-0.12
49	Installation, Maintenance, and Repair	-1.42***	-0.35	-1.12***	0.12	-1.56***	-0.42	-1.15***	-0.17
51	Production	-1.44***	-0.35	-1.11***	0.12	-1.56***	-0.42	-1.15***	-0.18
53	Transportation and Material Moving	-1.42***	-0.38	-1.15***	0.06	-1.56***	-0.44	-1.17***	-0.17

Joint specification of Table I, dropping one 2-digit O*NET group at a time (18 groups). WFH significant at 5% in all 72 estimates. Without group 43, GenAI in hires is -0.88 ($p < 0.1$) and -1.03 ($p < 0.01$). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Back to joint estimates | Robustness

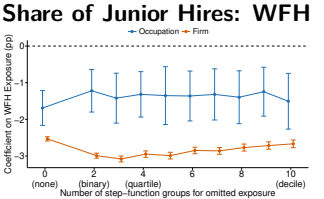
The WFH effect holds across different exposure measures

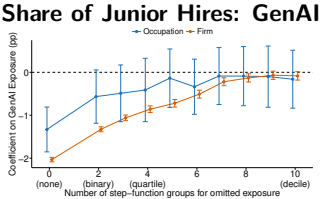
		Junior Worker Share of New Hires (Pp.)			Share of Job Postings Requiring ≤ 3 Years Experience (Pp.)		
WFH	GenAI	WFH (1)	GenAI (2)	WFH×AI (3)	WFH (4)	GenAI (5)	WFH×AI (6)
Panel A: State × Occupation × Month Cells							
Hansen et al.	Eloundou et al.	-1.63***	0.04	0.67***	-1.05***	0.05	-0.11
Hansen et al.	Felten et al.	-1.14***	-0.64	0.49	-1.45***	0.51	0.14
Hansen et al.	Anthropic Economic Index	-1.78***	0.17	0.28	-0.94***	-0.05	-0.22
Dingel–Neiman	Eloundou et al.	-2.54***	-1.17***	1.00*	-1.03	0.01	-0.90
Dingel–Neiman	Felten et al.	-1.66**	-1.43***	0.43	-1.74***	-0.08	0.28
Dingel–Neiman	Anthropic Economic Index	-3.72***	0.57	-0.95	-1.27**	-0.16	-0.35
Panel B: Firm × 2-Digit Occupation × Year Cells							
Hansen et al.	Eloundou et al.	-1.57***	-0.51	-0.01	-1.14***	-0.18	-0.03
Hansen et al.	Felten et al.	-1.36***	-0.88***	-0.00	-0.53	-0.93*	-0.59
Hansen et al.	Anthropic Economic Index	-1.82***	-0.13	-0.32	-1.12***	-0.34**	0.10
Dingel–Neiman	Eloundou et al.	-1.22***	-1.23**	-0.15	-0.93***	-0.50***	-0.24
Dingel–Neiman	Felten et al.	-0.89**	-1.57***	-0.32	-0.98***	-0.38	0.11
Dingel–Neiman	Anthropic Economic Index	-1.70***	-0.60*	-0.61*	-1.00***	-0.47***	-0.01

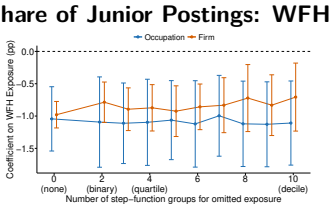
Interaction specification of Table I; 24 WFH estimates = 6 measure pairs × 2 outcomes × 2 cell levels. WFH larger in magnitude than GenAI in 21 of 24. GenAI negative and significant at 10% in 10 of 24. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

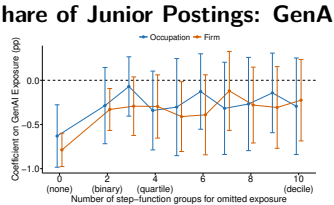
Back to exposures | Back to joint estimates | Robustness

WFH holds and GenAI fades with non-parametric controls









Lightcast ads, Revelio Labs hires. Other exposure as Post×bin dummies, 2 to 10 bins. Blue: state×6-digit occupation×month; orange: firm×2-digit occupation×year. pp per SD, 95% CI

Back | Robustness values | Monte Carlo | Leave-one-out

It takes a much larger confounder to zero out WFH

	WFH coefficient	GenAI coefficient
Exposure design, both exposures (Table I)		
Panel A: Share of ads requiring $\leq$3 years		
$RV_{q=1}$	0.04	<0.01
$RV_{q=1,\,\alpha=0.05}$	0.04	<0.01
Panel B: Junior share of new hires		
$RV_{q=1}$	0.08	0.02
$RV_{q=1,\,\alpha=0.05}$	0.07	0.02
Firm WFH adoption design (Table II)		
Panel C: Share of ads requiring $\leq$3 years		
$RV_{q=1}$	0.01	—
$RV_{q=1,\,\alpha=0.05}$	<0.01	—
Panel D: Junior share of new hires		
$RV_{q=1}$	0.02	—
$RV_{q=1,\,\alpha=0.05}$	0.01	—

- **Robustness value ($RV_{q=1}$)**: share of leftover variation an omitted variable must explain to reduce the effect to zero
- **Joint regression (Panels A–B)**: a confounder must explain **4–8%** to zero out WFH, vs. only **0.4–2%** for GenAI
- **Firm WFH adoption (Panels C–D)**: requires **1–2%**
- We omit Oster's $\delta^{\star}$, which is unstable with correlated treatments and many fixed effects

Back to robustness Back to joint estimates

Measurement error in GenAI rarely creates a false WFH effect

	Noise in GenAI index		Median estimate (pp)		Misattributed
Severity	Noise/signal SD ν	Reliability R	$\hat{\beta}_{\text{WFH}}$	$\hat{\beta}_{\text{GenAI}}$	draws (%)
Panel A: Junior share of new hires; true GenAI effect −1.83 pp					
None (clean signal)	0.00	1.00	0.01	−1.83	0.0
Slight	0.25	0.94	−0.14	−1.69	0.0
Modest	0.50	0.80	−0.36	−1.43	0.0
Moderate	0.75	0.64	−0.61	−1.14	1.2
Equal noise & signal	1.00	0.50	−0.79	−0.93	4.8
Panel B: Share of ads requiring ≤ 3 years; true GenAI effect −0.63 pp					
None (clean signal)	0.00	1.00	0.00	−0.62	0.0
Slight	0.25	0.94	−0.03	−0.59	0.0
Modest	0.50	0.80	−0.11	−0.50	0.2
Moderate	0.75	0.64	−0.21	−0.39	0.8
Equal noise & signal	1.00	0.50	−0.26	−0.33	2.2

True WFH effect = 0; true GenAI effect = sum of the joint WFH and GenAI estimates for hires (A) or the GenAI-only estimate for ads (B). Noise drawn per occupation; 500 draws.
Misattributed = $|\hat{\beta}_{\text{WFH}}| \geq 3|\hat{\beta}_{\text{GenAI}}|$, WFH significant at 5%, GenAI not

Back to robustness Back to joint estimates

The senior wage premium rose with WFH exposure

	Log Wage Premium: Starting Salary log(Senior) − log(Junior) (×100)				Log Relative Junior Replacement Rate (×100)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: State × Occ. × Month								
Post × WFH	5.76***		6.08***	6.82***	-1.924***		-2.385**	-2.860**
	(0.83)		(1.18)	(1.11)	(0.576)		(1.023)	(1.117)
Post × GenAI		3.41***	-0.51	-2.34**		-0.862***	0.705	1.755
		(0.79)	(1.08)	(1.09)		(0.314)	(0.804)	(1.165)
Post × WFH × GenAI				-2.88***				1.570**
				(0.60)				(0.741)
State × Occ. FE	✓	✓	✓	✓	✓	✓	✓	✓
State × Month FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	1,259,935 Cells / 115,825,863 Hires				1,878,851 Cells / 120,341,661 Hires			
R^2	0.56	0.55	0.56	0.56	0.32	0.32	0.32	0.33
Panel B: Firm × 2-Digit Occ. × Year								
Post × WFH	5.86***		7.20***	7.91***	-2.919***		-3.540***	-3.546***
	(0.12)		(0.21)	(0.23)	(0.064)		(0.098)	(0.111)
Post × GenAI		4.81***	-1.55***	-2.17***		-2.323***	0.740***	0.746***
		(0.13)	(0.22)	(0.23)		(0.055)	(0.072)	(0.109)
Post × WFH × GenAI				-0.59***				0.005
				(0.10)				(0.061)
Firm × Occ. FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	3,300,042 Cells / 88,413,784 Hires				2,344,999 Cells / 46,283,695 Hires			
R^2	0.52	0.52	0.52	0.52	0.15	0.15	0.15	0.15

Revelio Labs new hires. Post (2023–25 vs 2017–19) × exposure, per SD of exposure. (1)–(4): log senior minus log junior starting salary, ×100; salaries partly imputed by Revelio. (5)–(8): log junior share of hires minus log junior share of separations, ×100. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Back to adoption | WFH and learning | Model

Harder mentoring and slower learning cut junior hiring

Team production: $s = \ell_S - \phi\,\ell_J$, $j = \eta\,\ell_J$; a marginal junior adds $\psi F_s = \eta F_j - \phi F_s$

$$V_J = \frac{\psi F_s - w_J + \lambda V_S}{r + \lambda + \delta_J}$$

$$z^\star = \left[1 + \frac{\kappa_J}{\kappa_S}\,\frac{V_S}{V_J}\right]^{-1}$$

$$\frac{\partial z^\star}{\partial \lambda} > 0, \qquad \frac{\partial z^\star}{\partial \phi} < 0$$

$$\text{if} \quad \frac{\lambda}{\lambda + r + \delta_J} < \frac{V_J}{V_S} < 1$$

- WFH raises mentoring costs (ϕ) and slows how fast juniors learn (λ)
- Firms value turning juniors into seniors ($V_S > V_J$); slower learning (λ) delays this payoff, so firms hire fewer juniors
- Costlier mentoring (ϕ) takes up senior time and reduces a junior's net output
- Even when wages adjust, both channels cut junior hiring and widen the senior–junior pay gap

We test four instruments for long-run changes in WFH

$$\Delta y_i = \beta\, \Delta D_i + X_i'\gamma + \mu_{g(i)} + \Delta\varepsilon_i, \qquad \mathrm{Cov}(Z_i, \Delta\varepsilon_i \mid X_i, \mu_{g(i)}) = 0$$

Δy_i: change in junior share of hires (2017–19 to 2023–25). ΔD_i: change in WFH share of ads (2019 to 2023–25). X_i: controls including GenAI exposure. Taking changes removes permanent differences across units.

- **1. Local COVID rules**: US firm×occupation×state cells; state×occupation fixed effects
- **2 & 4b. WFH abroad**: country×state×occupation cells; country and state fixed effects
- **3. Firm WFH in other jobs**: US firm×occupation cells; job, industry, age, and size fixed effects
- **4a. Pre-pandemic firm WFH**: US firm×occupation cells; job and matched-group fixed effects

Instruments | Back to IV results | Back to the question

We recentre each instrument to isolate unexpected shocks

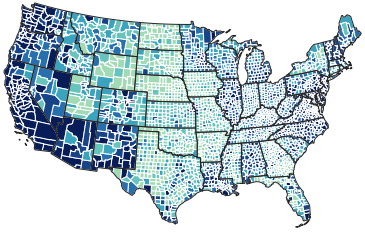
- **1. Local COVID rules**: 2020 county rules (minus the state average) at the firm's sites in other states
- **2 & 4b. WFH abroad**: the occupation's WFH in other countries (minus the broad occupation average)
- **3 & 4a. Firm WFH**: the firm's WFH in other jobs (minus peer firms in the same jobs)
- **Two-way clustered SEs**: by firm and state (1), state and job (2, 4b), or firm and job (3, 4a)
- **County-shock SEs in Design 1**: first-stage $F = 21$; 95% AR confidence set $[-3.29, -0.57]$ pp

Recentring follows Borusyak & Hull (2023) and subtracts each instrument's expected value when shocks are reassigned. IV tables report Montiel Olea–Pflueger effective F and Anderson–Rubin (AR) 95% confidence sets.

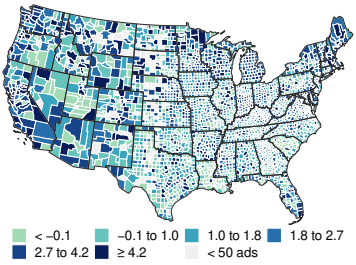
IV design | All instruments | Back to IV results

Counties with stricter 2020 rules adopted more WFH

COVID-policy severity, 2020



WFH adoption, 2019 to 2023–25 (pp)

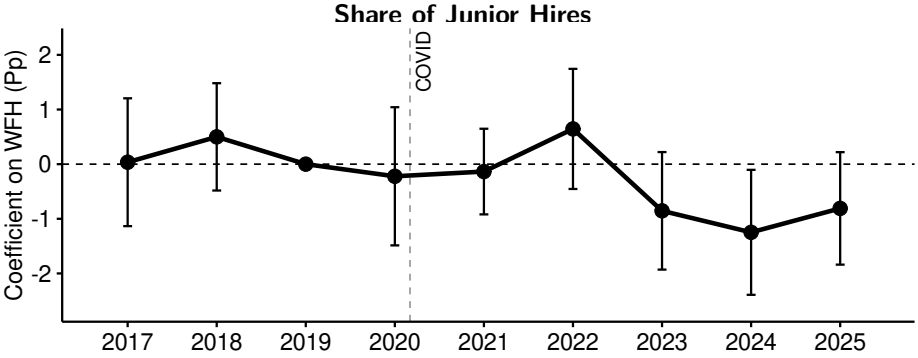


- **COVID rules**: average 2020 stay-at-home orders, local restrictions, and school closures (instrument uses within-state differences)
- **Strong first stage**: correlation is **0.35**; a 1 SD stricter county rule raises WFH by **1.80 pp** (SE 0.28) within states

Continental US counties; grey: fewer than 50 classified ads in 2019 or 2023–25. Sources: CDC, Keystone, Hikma, HHS, COVID AMP; Lightcast ads classified by WHAM

Back to IV design | IV results | Instruments

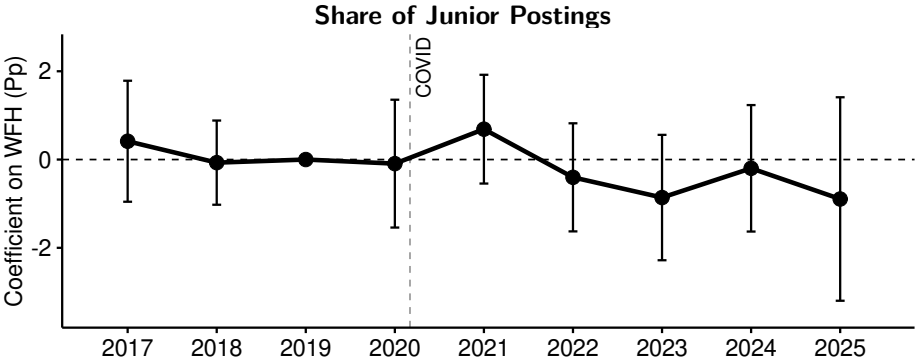
Equal weights give the same drop and a stronger first stage



Note: 2SLS effect of firm WFH adoption on the junior share of hires, instrumented by 2020 county COVID rules at the firm's sites in other states. First-stage $F = 74$; Anderson–Rubin 95% CI: $[-2.35, -0.67]$. Error bars show 95% CIs.

Back to IV results | Job postings | Reduced form | Table

In job ads, the COVID-rule IV is negative but noisier

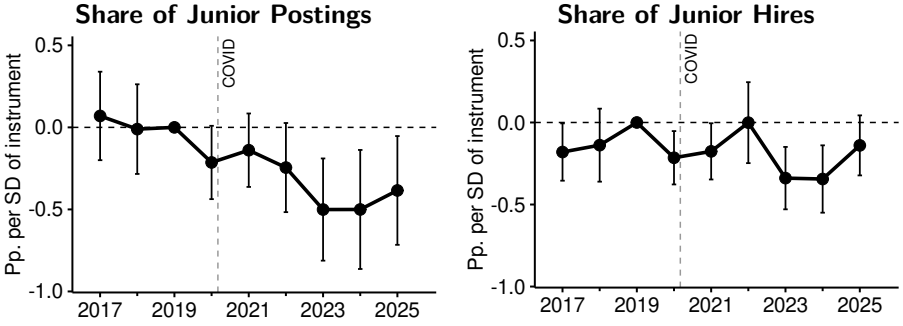


Note: 2SLS effect of firm WFH adoption on the junior share of job postings, instrumented by 2020 county COVID rules at the firm's sites in other states. First-stage $F = 139$; Anderson–Rubin 95% CI: [−2.46, 0.40]. Error bars show 95% CIs.

Back to IV results | Unit weights | Full footprint | Table

Firms in stricter COVID counties cut junior hiring more

Reduced form: junior share vs. 2020 county COVID rules across all of the firm's US sites



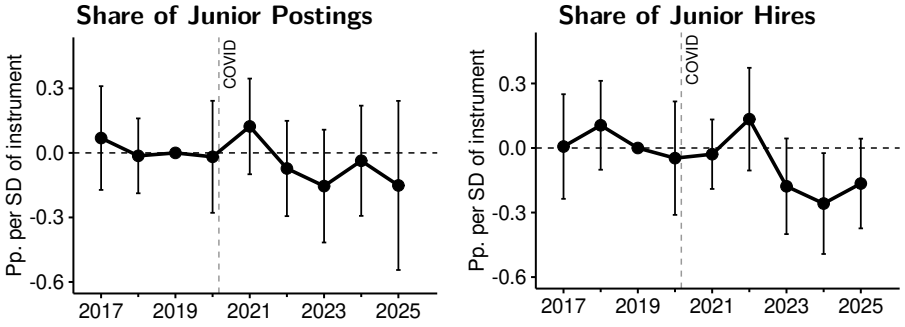
2SLS, pp per 10 pp of WFH (SE): ads $-\mathbf{2.00}$ (0.56); hires $-\mathbf{1.25}$ (0.45). Preliminary

US firm×2-digit occupation×state×year cells; recentred instrument; 2019 = 0; 95% CI

Back to IV results | Leave-out | Adoption abroad | Table

COVID rules at a firm's other sites reduce local junior hiring

Reduced form: junior share vs. 2020 county COVID rules at the firm's sites in other states



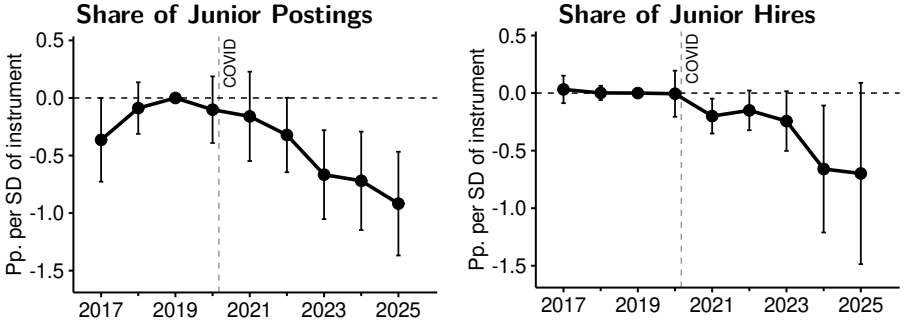
2SLS, pp per 10 pp of WFH (SE): ads −1.05 (0.70); hires **−1.47** (0.41). Preliminary

US firm×2-digit occupation×state×year cells; recentred instrument; 2019 = 0; 95% CI

Back to IV results | Full footprint | Adoption abroad | Table

Jobs shifting to WFH abroad also cut junior hiring at home

Reduced form: junior share vs. the occupation's shift to WFH in the other three countries



2SLS, pp per 10 pp of WFH (SE): ads $-\mathbf{1.92}$ (0.58); hires $-\mathbf{1.40}$ (0.66). Preliminary

Country×state×6-digit occupation×year cells; recentred instrument; 2019 = 0; 95% CI

Back to IV results | Leave-out exposure | All four designs

All four IV designs show WFH reduces junior hiring

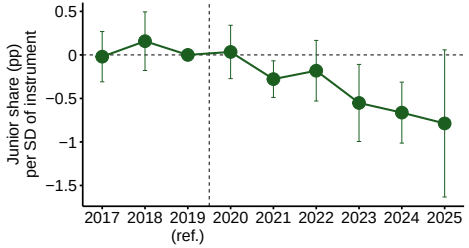
Design	Cells	2SLS (SE)	Eff. F	AR 95% set	OLS
1. COVID policy at the firm's other sites	firm×occ.×state	−1.47 (0.41)	74	[−2.35, −0.67]	−0.35
2. Adoption abroad	occ.×state	−1.40 (0.66)	62	[−2.91, −0.18]	−0.95
3. Firm WFH policy	firm×occ.	−0.42 (0.09)	1,245	[−0.62, −0.22]	−0.31
4a. Pre-pandemic adoption, firm	firm×occ.	−0.20 (0.18)	278	[−0.57, 0.17]	−0.34
4b. Pre-pandemic adoption, occ. abroad	occ.×state	−3.78 (1.12)	26	[−6.39, −1.51]	−0.95

Preliminary estimates. Change in the junior share of Revelio Labs new hires, 2017–19 to 2023–25, in pp per 10 pp of WFH adopted 2019 to 2023–25 (4a: 2023–25 WFH level). Recentred instruments; two-way clustered SEs; AR: Anderson–Rubin

- Designs 1–3: a 10 pp rise in WFH cuts the junior share by **−0.4 to −1.5 pp** (1.3 to 4.2 times OLS)
- Pre-pandemic WFH instruments: −0.2 pp at the firm level (4a) and −3.8 pp across occupations (4b)
- At the average rise in WFH (12.7 pp), Design 1 explains **−1.9 pp** of the 7.7 pp drop in junior hiring

Back to IV results | IV design | Firm-policy table | All instruments

Firms shifting other jobs to WFH also hire fewer juniors



Lightcast ads, Revelio Labs hires; US firm×2-digit occupation×year cells. Junior share (pp) per SD of the recentred instrument, 2019 omitted, 95% CI

- **Instrument**: rise in WFH across the firm's other occupations (2019 to 2023–25)
- **Strong first stage**: +17.2 pp of WFH per SD ($F = \mathbf{1{,}245}$)
- **Flat pre-trends**: 2017 and 2018 estimates are near zero ($p = 0.32$)
- **2SLS effect**: **−0.42 pp** (SE 0.09) per 10 pp of WFH (vs. −0.31 pp in OLS)

Back | Firm-policy table | All instruments | Pooled IV | Lockdowns

The firm-policy IV reduces junior hiring in every specification

	Change in junior share of new hires (pp), 2017–19 to 2023–25			
	Treatment: ΔWFH 2019 to 2021–22		Treatment: ΔWFH 2019 to 2023–25	
	Raw IV (1)	Recentred IV (2)	Raw IV (3)	Recentred IV (4)
Panel A: OLS, pp per 10 pp of WFH				
ΔWFH share	−0.23***	−0.23***	−0.31***	−0.31***
	(0.08)	(0.08)	(0.06)	(0.06)
Panel B: First stage, pp of WFH per SD of instrument				
Instrument (1 SD)	13.05***	12.27***	18.03***	17.16***
	(0.43)	(0.39)	(0.48)	(0.49)
Effective F	904	973	1,385	1,245
Panel C: Reduced form, pp per SD of instrument				
Instrument (1 SD)	−0.72***	−0.59***	−0.80***	−0.72***
	(0.16)	(0.15)	(0.16)	(0.16)
Panel D: 2SLS, pp per 10 pp of WFH				
ΔWFH share	−0.56***	−0.48***	−0.45***	−0.42***
	(0.12)	(0.12)	(0.09)	(0.09)
Anderson–Rubin 95% set	[−0.82, −0.30]	[−0.75, −0.23]	[−0.64, −0.26]	[−0.62, −0.22]
Cells	25,638	25,638	25,638	25,638
Clusters (firm / occupation)	7,539 / 18	7,539 / 18	7,539 / 18	7,539 / 18

Lightcast ads, Revelio Labs hires; US firm×2-digit occupation cells, weighted by 2017–19 hires; GenAI exposure control. Instrument: WFH change in the firm's ads in its other 2-digit occupations over the treatment window; raw = unrecentred. Column 4 is design 3. *** $p < 0.01$

Back Event study All instruments

Most instruments show WFH cuts junior hiring

Instrument	Cells	Eff. F raw / rec. (1)	2SLS raw (2)	2SLS recentred (3)	AR set below 0 raw / rec. (4)
1. COVID policy at the firm's other sites	firm×state	115 / 74	-1.44^{***} (0.39)	-1.47^{***} (0.41)	yes / yes
3. Firm WFH policy, other occupations	firm	1,385 / 1,245	-0.45^{***} (0.09)	-0.42^{***} (0.09)	yes / yes
4a. Firm 2019 WFH share (2023–25 level)	firm	463 / 278	-0.31^{*} (0.16)	−0.20 (0.18)	no / no
Peer firms' WFH adoption	firm	68 / 28	-1.33^{***} (0.37)	-1.03^{**} (0.43)	yes / yes
Teleworkable task mix, 2017–19 hires	firm	25 / 8	-1.16^{**} (0.45)	−1.02 (0.73)	yes / no
Firm 2019 WFH, other occupations	firm	8 / 14 (wrong sign)	0.58 (1.04)	0.11 (0.86)	no / no
CEO youth	firm	1 / 2 (wrong sign)	6.97 (8.17)	2.83 (3.51)	unbounded
2. Occupation WFH abroad	market	100 / 62	-2.09^{***} (0.54)	-1.40^{**} (0.66)	yes / yes
Occupation WFH outside the cell	market	878 / 188	-1.84^{***} (0.38)	-0.96^{**} (0.43)	yes / yes
Dingel–Neiman teleworkability	market	54 / 28	-3.27^{***} (0.79)	-3.50^{***} (1.00)	yes / yes
Occupation 2019 WFH outside the cell	market	27 / 14	-3.45^{***} (0.86)	-2.53^{*} (1.37)	yes / no
4b. Occupation 2019 WFH abroad	market	39 / 26	-4.23^{***} (1.04)	-3.78^{***} (1.12)	yes / yes

Change in the junior share of Revelio Labs hires, 2017–19 to 2023–25, in pp per 10 pp of WFH adopted 2019 to 2023–25 (4a: 2023–25 WFH level). Numbered rows are the designs on the results slide. Firm = US firm×2-digit occupation; market = country×state×6-digit occupation. AR: Anderson–Rubin 95% set. OLS −0.24 to −0.46 (firm), −0.92 to −0.98 (market).
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Back to IV results | Pooled IV | Lockdowns

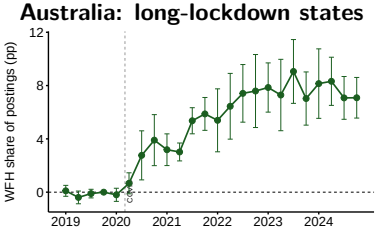
Combining instruments still shows WFH cuts junior hiring

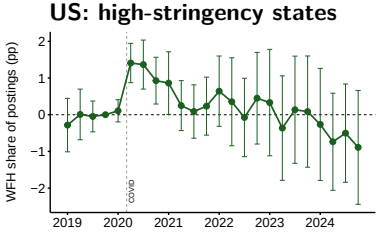
- **Firm level (hires)**: **−0.45 pp** (SE 0.11) per 10 pp of WFH; instruments agree (overid $p = 0.28$)
- **Market level (hires)**: **−1.14 pp** (SE 0.23); overid $p = 0.04$
- **Why market instruments differ**: 2021–22 WFH shocks give −1.1 to −1.5 pp; pre-2020 measures give −3.5 to −4.6 pp
- **Market level (job ads)**: **−1.30 pp** (SE 0.28); instruments agree (overid $p = 0.14$)
- **Early vs. late firm WFH**: both 2021–22 (−0.22 pp) and 2023–25 (−0.31 pp) WFH reduce junior hiring

2SLS in pp of junior share per 10 pp of WFH (SE). Combines the unit's own 2021–22 WFH adoption with 4 (firm) or 5 (market) recentred outside instruments; dropping own 2021–22 adoption gives −0.56 (firm), −0.70 (hires), and −1.85 (ads).

Back to IV results | All instruments

State lockdowns left a lasting WFH gap only in Australia





Lightcast ads, office occupations: WFH share vs other states (pp), relative to 2019Q4; 95% CI

- A US firm's shift to WFH in other states strongly predicts its local WFH ($F \approx$ **1,900**), while state lockdowns alone do not ($F \leq 1.3$)
- Having more 2019 staff in strict-lockdown US states predicts higher firm WFH ($F = 38$, shock-adjusted $F =$ **14**)
- In Australia, long lockdowns left a lasting WFH gap ($F = 58$–63), but the sample is small (8 states)

WFH change 2019 to 2023–25. Design 1 uses county rules at the firm's other sites instead

Back to IV results | All instruments