The Rise of Healthcare Jobs

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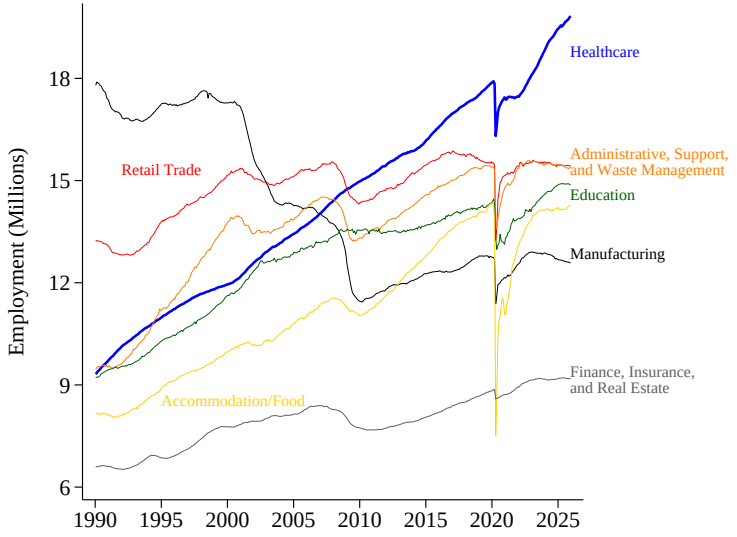
Healthcare largest sector by employment in U.S. economy



Source: Current Employment Statistics (BLS)

BLS vs. ACS

Is healthcare different?

- Healthcare is the economy's largest and fastest-growing sector — yet has received relatively less attention than other sectors
- Across the rest of the labor market, middle-class work has eroded
  - Manufacturing decline, automation, a polarizing wage distribution
- Healthcare may be different: strong and broad-based growth, heavily regulated, geographically dispersed
- **This paper:** what kinds of jobs are emerging, who gets them, how they pay, and where they are created

Roadmap

1. Overview of healthcare jobs
2. Who is working in healthcare
3. The rise of midlevels
4. Where are the jobs created

Data sources

- Main data source:
  - Restricted-access Decennial Census & ACS microdata (1980–2022)
- Additional analyses use:
  - IPEDS (training programs + graduates)
  - NPPES (physician and other practitioner registration)
  - MarketScan (private insurance claims data)

Overview of healthcare jobs

Clinical occupations

- **Aides:** high school + certificate (weeks to months)
- **LPN/LVN:** 1-year certificate; basic tasks under supervision
- **Registered Nurses (RNs):** associate's or bachelor's degree (increasingly the latter)
  - Role has expanded from bedside comfort care to operating complex ICU technology and exercising advanced clinical judgment
  - RN experience opens doors to midlevel training

Contemporary ICU nursing

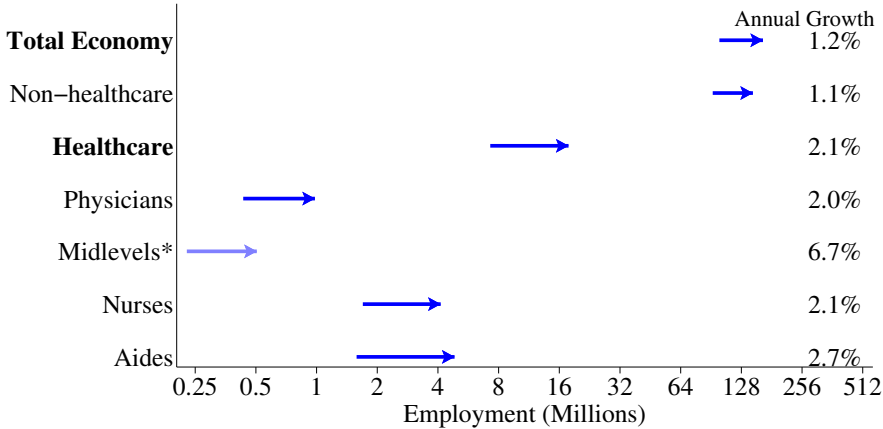
Midlevels train faster and can substitute for physicians

- **Nurse Practitioners (NPs):** master's/doctoral degree after RN experience; independent practice authority varies by state
- **Physician Assistants (PAs):** master's degree (not RN-based); generally physician-supervised
- **Certified Registered Nurse Anesthetists (CRNAs):** administer anesthesia; close substitute for anesthesiologists
- **Certified Nurse Midwives (CNMs):** pregnancy, birth, and women's health

- Train in $\sim$6–8 years vs. 11–15 for physicians $\Rightarrow$ faster and cheaper to deploy

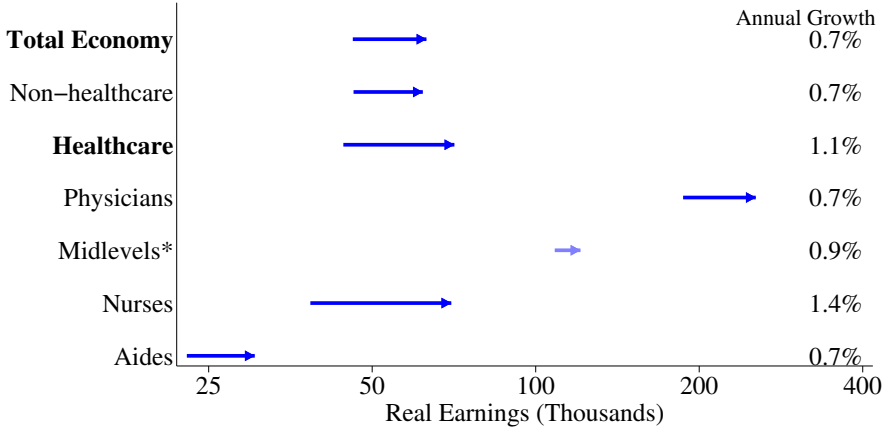
▸ Becoming an NP ▸ Becoming a physician

Employment growing across health jobs; dramatic for midlevels



Source: US Census/ACS. DRB number: CBDRB-FY24-0442.
Years: 1980–2022. *Midlevels: 2010–2022.

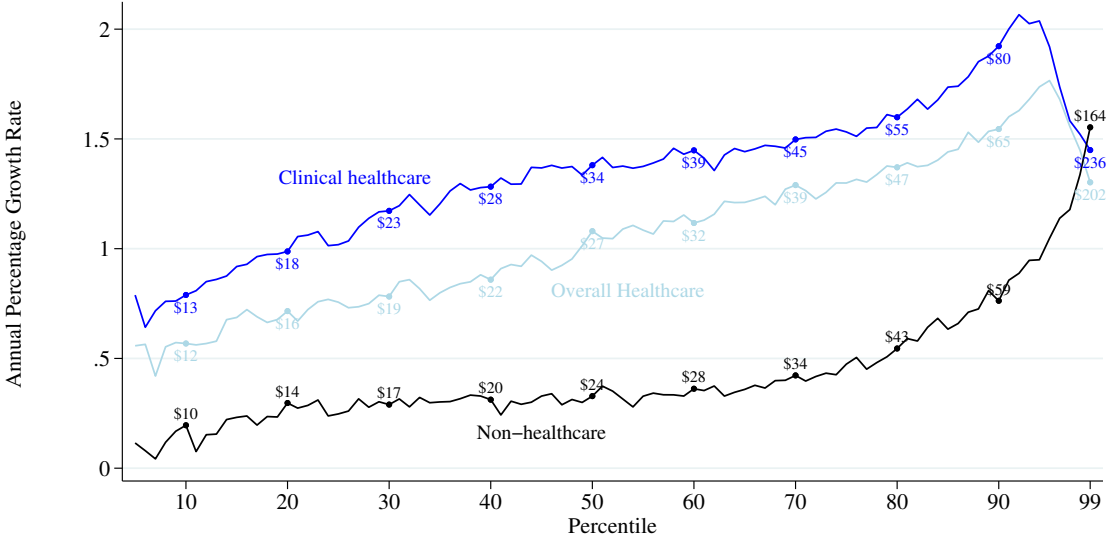
Earnings are growing faster across health jobs; especially nurses



Source: US Census/ACS. DRB number: CBDRB-FY24-0442.
Years: 1980–2022. *Midlevels: 2010–2022.

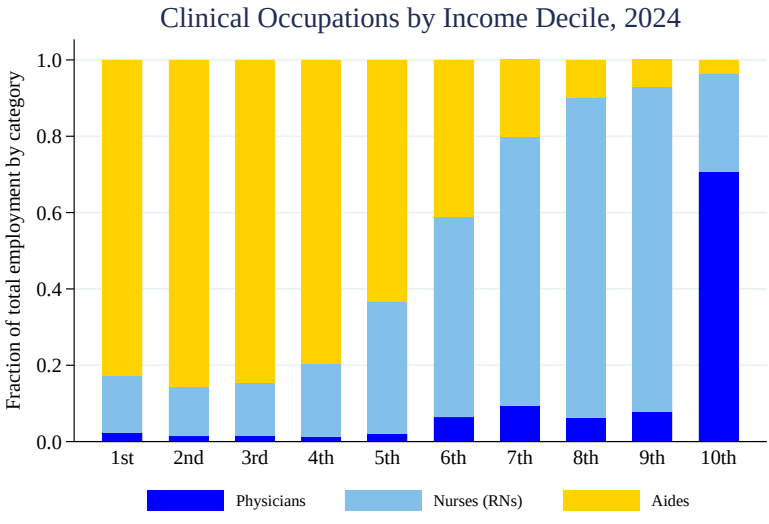
- Not driven (statistically) by increased education ▸ DFL reweighting

Faster wage growth in healthcare, especially middle to p95



Source: US Census/ACS. DRB number: CBDRB-FY24-0442. Years: 1980–2022.

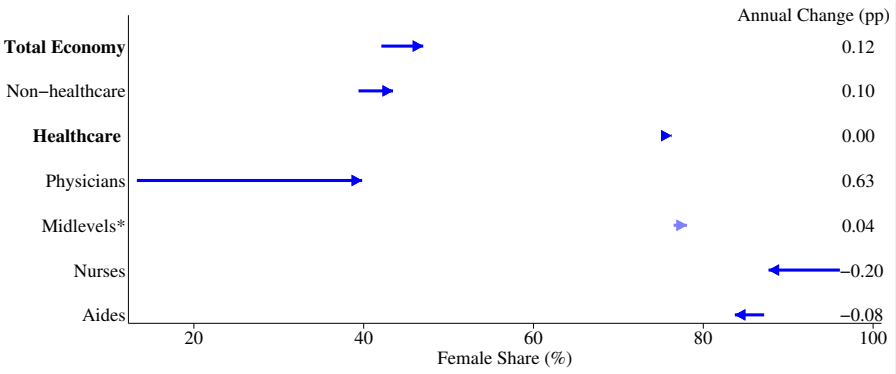
Nurses are healthcare's middle class; aides the bottom, physicians the top



Source: US Census/ACS. Years: 2024.

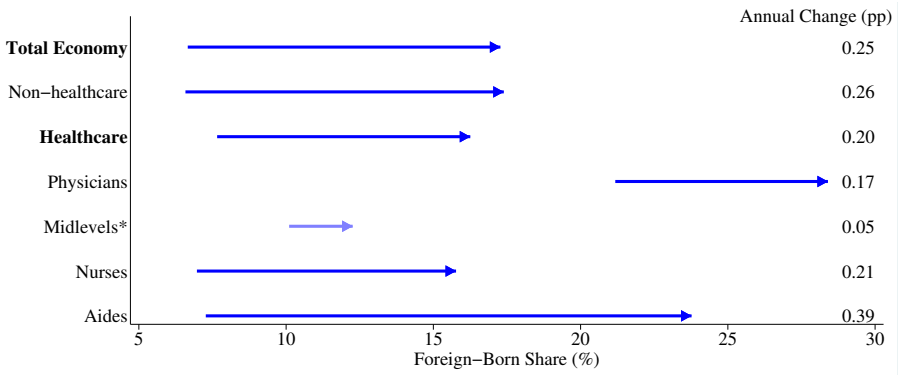
Who is working in healthcare

Still female-dominated, but occupation shares converging



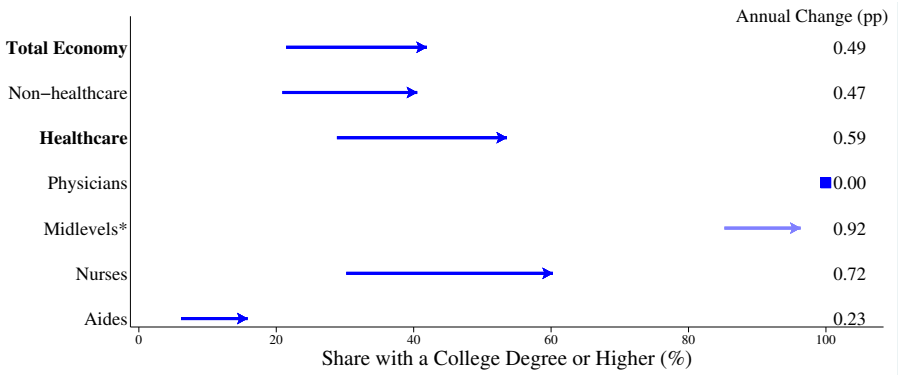
Source: US Census/ACS. DRB number: CBDRB-FY24-0442.
Years: 1980–2022. *Midlevels: 2010–2022.

Increasingly foreign-born; less so in middle skill group



Source: US Census/ACS. DRB number: CBDRB-FY24-0442.
Years: 1980–2022. *Midlevels: 2010–2022.

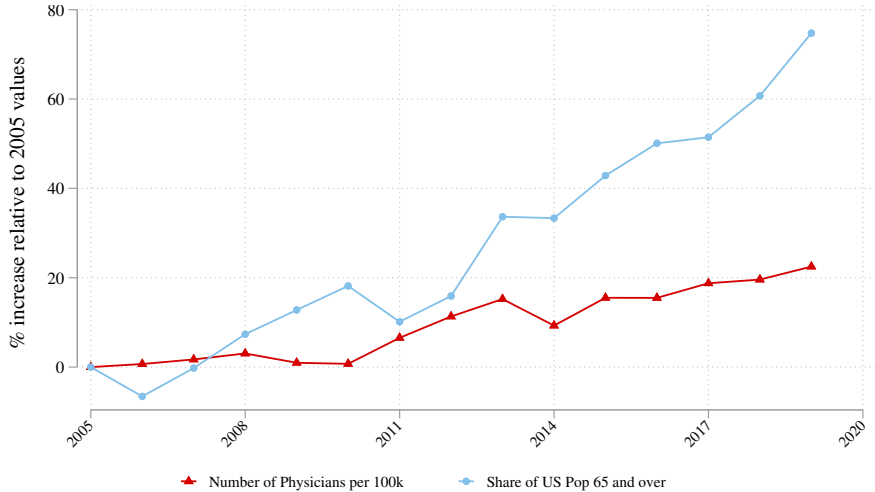
Increasing education across the board (especially nurses)



Source: US Census/ACS. DRB number: CBDRB-FY24-0442.
Years: 1980–2022. *Midlevels: 2010–2022.

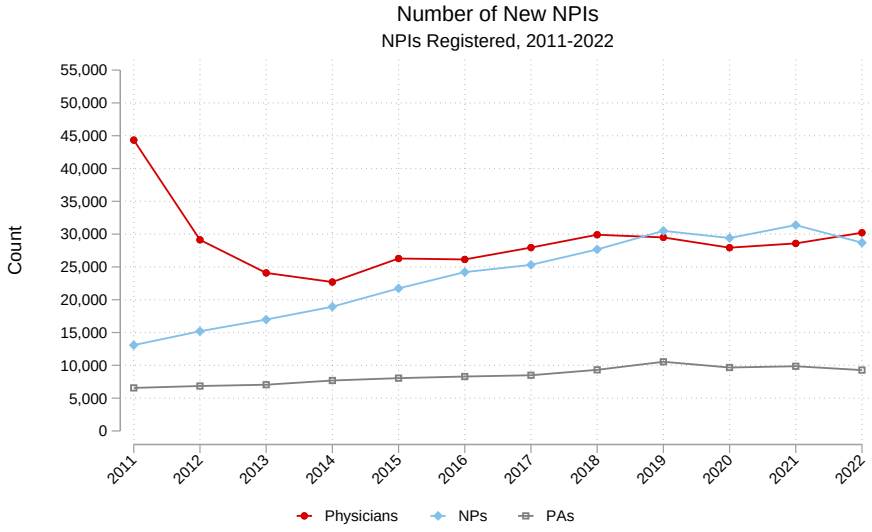
The rise of midlevels

The number of physicians has not kept up with demand



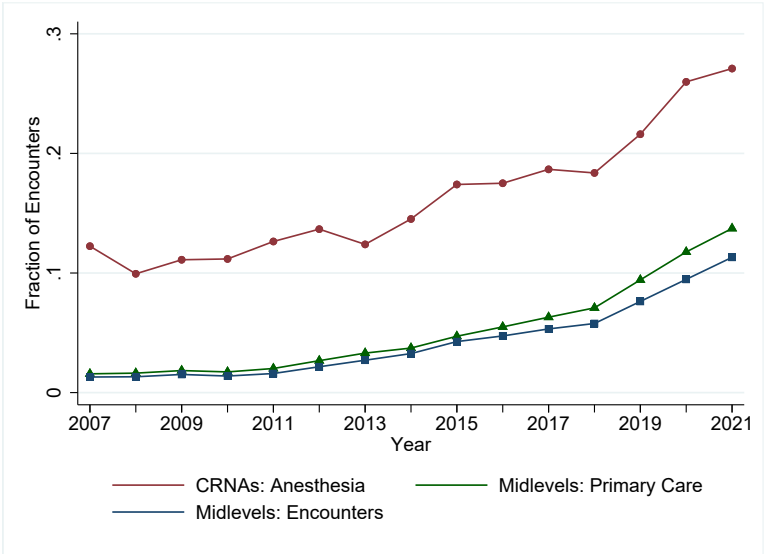
Source:
– ACS 1–year (2005–2019)

New midlevels now outnumber new physicians



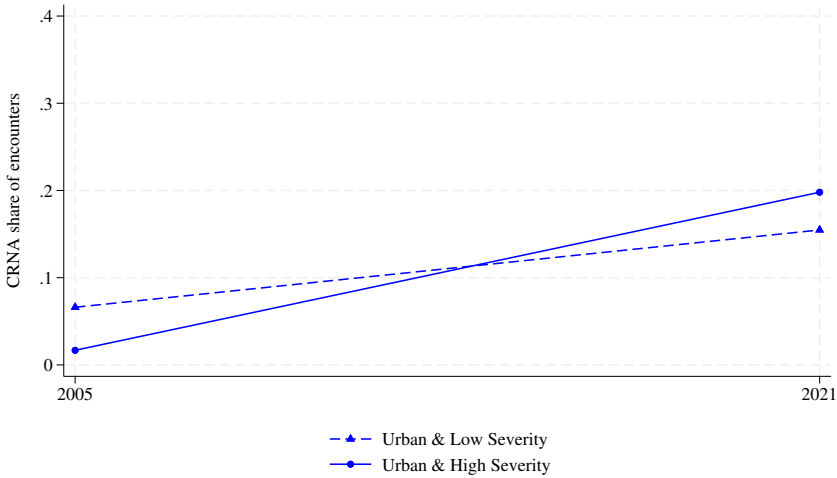
Source:
- Centers for Medicare & Medicaid Services (CMS) NPPES 01/10/2023 Monthly Data Dissemination

Midlevels provide an increasing share of care



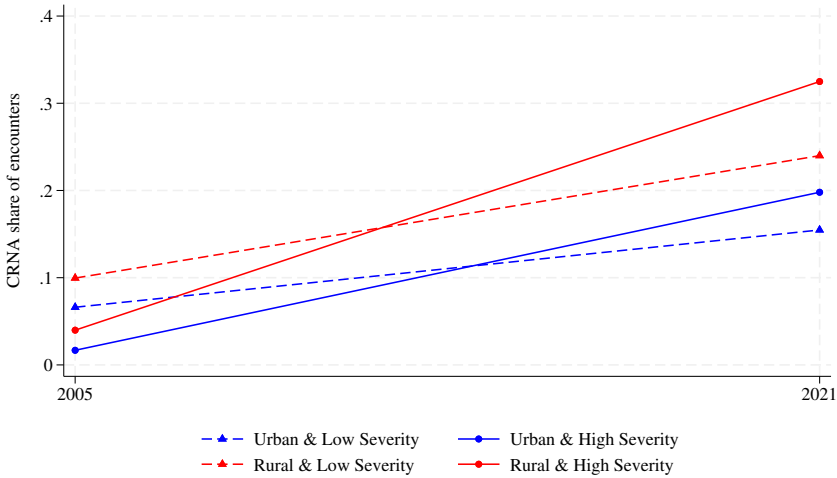
Source: MarketScan

CRNAs increasingly see high-severity patients



Source: MarketScan

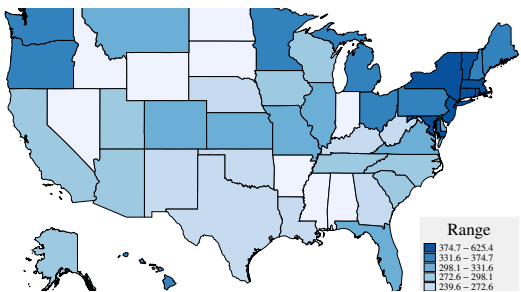
CRNAs increasingly see high-severity patients in rural areas



Source: MarketScan

NPs often present where physicians are not

Physicians per 100,000, 2017



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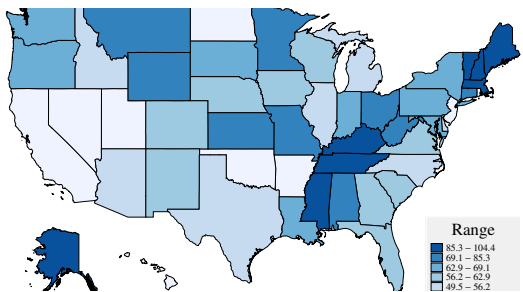
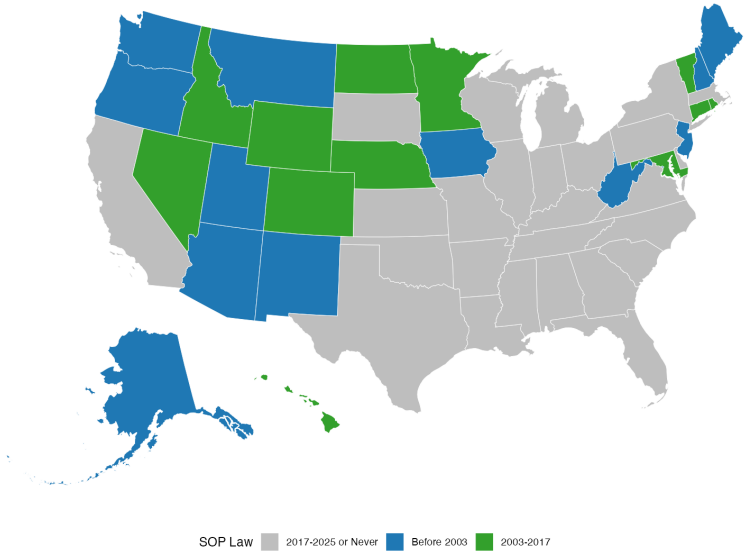


Many states have loosened NP scope-of-practice laws



Source: Gannaway (2019)

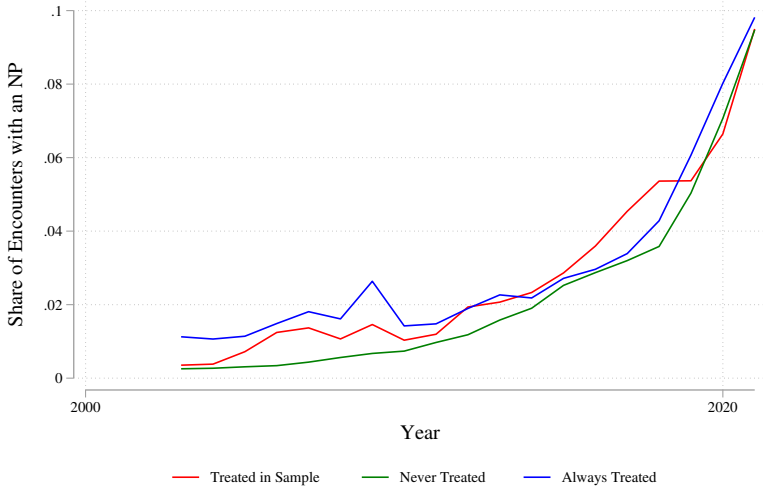
How do SOP laws affect use of NPs?

Replicate impact of SOP on use of NPs (Gannaway, 2019):

$$NP_{ist} = \sum_{t=-6}^{6} \beta_t (SOP_s \times Year_{t-\tau}) + \gamma_s + \lambda_t + \Theta X_{ist} + \epsilon_{ist}$$

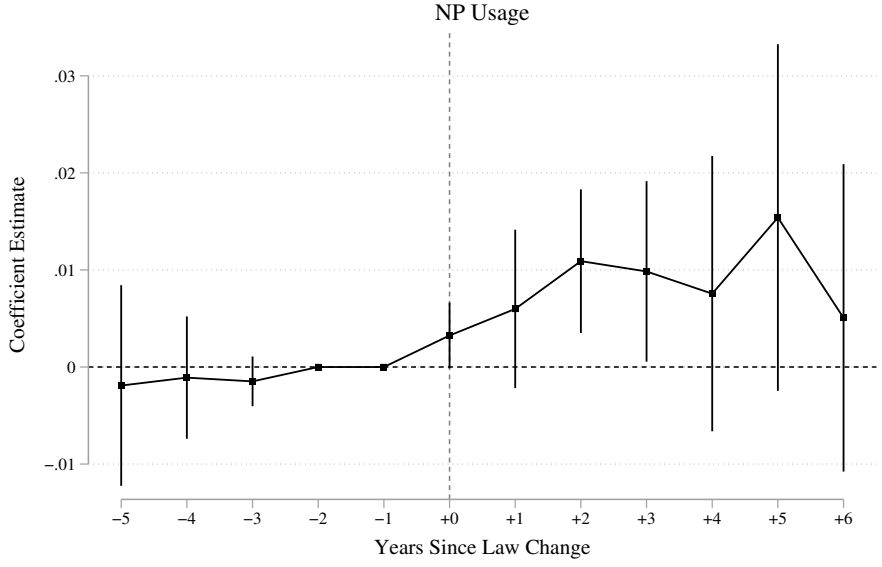
- X_{ist} is a vector of patient-level controls: age, gender, and rural status
- SOP_s is an indicator for whether state s had passed an expanded scope-of-practice law.
- s includes the 11 states that changed their laws between 2003 and 2017.

Trends in NP usage by treatment type



Source: MarketScan

Small impact of SOP relaxation on encounters with NPs



Scope-of-practice deregulation explains little of the rise

- In treated states, expanded SOPs explain only 4.83% of the growth in NP claim share
- Nationally, they explain just 0.41% of the growth in NP share

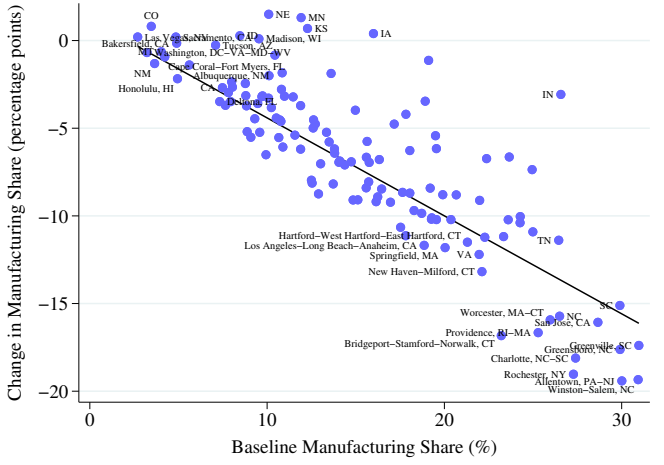
$\Rightarrow$ The rise of midlevels is broad-based, not a regulatory artifact

Where are the jobs created

Can healthcare rescue declining manufacturing regions?

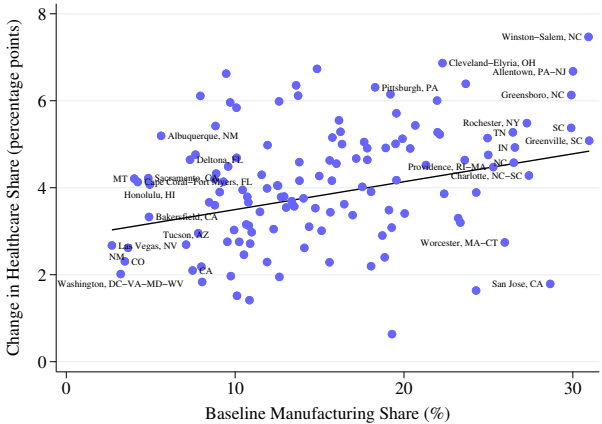
- Common narrative: Rust Belt regions pivoting from "manufacturing to meds"
  - Prominent examples include Pittsburgh, PA; Cleveland, OH; and Rochester, NY
- Autor et al. (2025): China-shock manufacturing losses "more than offset" by gains in education and healthcare
- **Question:** have places hit hardest by manufacturing decline seen disproportionate growth in healthcare jobs?
- **Benchmark:** has healthcare grown faster than other industries in those same places?

Manufacturing share fell in former manufacturing regions



R^2 =0.6495. Source: US Census/ACS. DRB number: CBDRB-FY24-0442.

Healthcare share rose only modestly in those regions



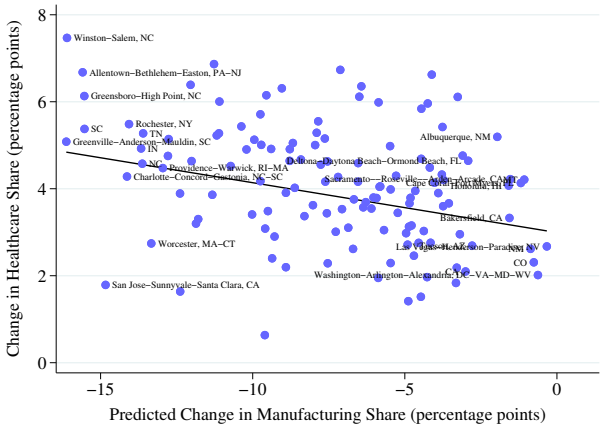
R^2 =0.1041. Source: US Census/ACS. DRB number: CBDRB-FY24-0442.

Comparing regression coefficients:

- Healthcare offsets 11% of manufacturing job losses
- This is in line with its overall labor force share

▸ Mfg decline vs 1980 health ▸ Mfg decline vs health growth

Modest reallocation from manufacturing to healthcare



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Manufacturing-to-meds transitions are weak for men

	Male				Female			
	1980 Share	2011 Share	Reg: emp. chg. vs. 1980 mfg. share	$\frac{\beta^{\text{Healthcare}}}{-\beta^{\text{Manufacturing}}}$	1980 Share	2011 Share	Reg: emp. chg. vs. 1980 mfg. share	$\frac{\beta^{\text{Healthcare}}}{-\beta^{\text{Manufacturing}}}$
Panel A: Any race								
Manufacturing	0.224	0.112	-0.716		0.097	0.046	-0.406	
Healthcare	0.028	0.037	0.022	0.031	0.083	0.131	0.122	0.301
Panel B: White (71%)								
Manufacturing	0.218	0.111	-0.719		0.088	0.040	-0.427	
Healthcare	0.027	0.036	0.022	**0.031**	0.079	0.130	0.131	0.306
Panel C: Black (12%)								
Manufacturing	0.222	0.080	-0.979		0.125	0.036	-0.661	
Healthcare	0.033	0.046	0.072	**0.073**	0.115	0.157	0.232	0.351
Panel D: Hispanic (7%)								
Manufacturing	0.256	0.116	-0.956		0.137	0.070	-0.413	
Healthcare	0.027	0.019	-0.040	-0.042	0.065	0.070	0.020	0.047
Panel E: Other (5%)								
Manufacturing	0.210	0.116	-0.576		0.120	0.056	-0.379	
Healthcare	0.084	0.068	-0.167	-0.291	0.114	0.130	-0.051	-0.135

Source: Census/ACS/IPUMS.

Manufacturing-to-meds transitions are more pronounced among black and white women

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Source: Census/ACS/IPUMS.

Limited evidence of a disproportionate shift from manufacturing to healthcare

- Healthcare employment growth is widespread nationally
- Slightly faster in former manufacturing areas, but only offsets 11% of manufacturing job losses
- Stronger offset for white and black women (30–35%)
- These “anchor institutions” are not anchoring a Rust Belt employment revival

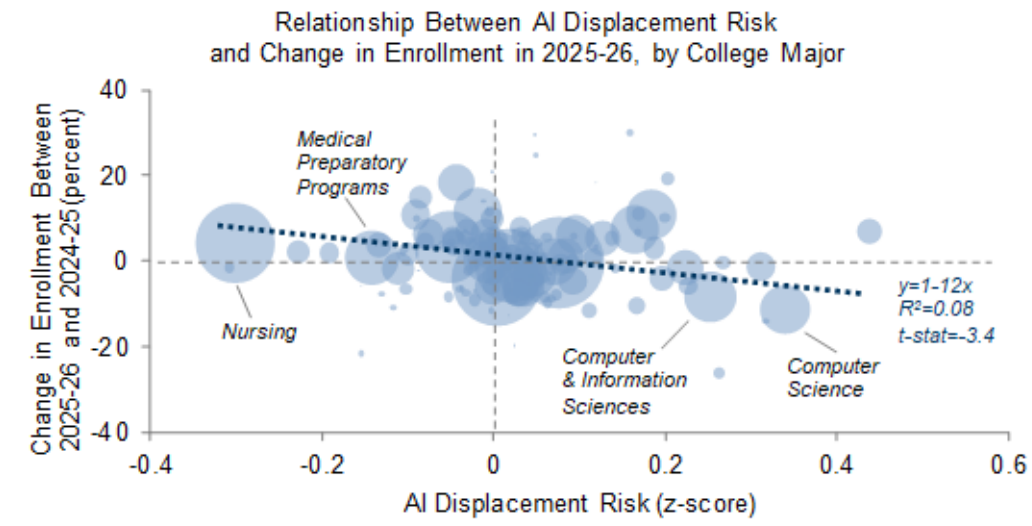
Conclusion

Healthcare is the exception to a polarizing labor market

- **Jobs & pay:** employment and earnings rise across healthcare, with wage growth concentrated in the *middle* — bucking the broader polarization
- **Workforce:** increasingly gender-balanced, foreign-born, and educated — a *broadening* middle class
- **Midlevels:** a fast-growing, lower-cost substitute for physicians; scope-of-practice deregulation explains little of their rise
- **Places:** growth is so widespread nationally that it only modestly offsets manufacturing decline ($\approx$11%) — larger for women and the college-educated

Healthcare has quietly become an engine of middle-class employment — resilient and broad-based, but not a cure for left-behind places.

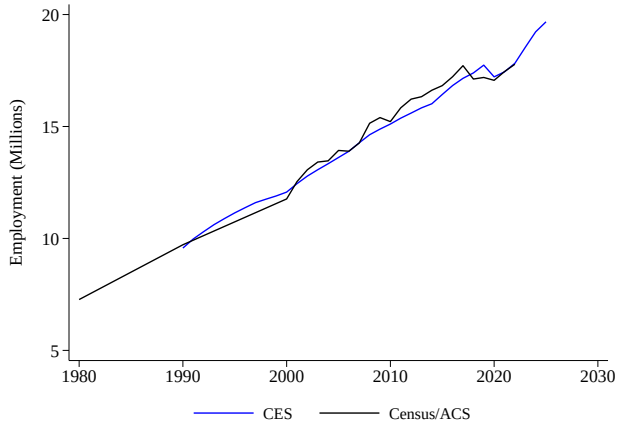
Bonus slide: Is healthcare a safe harbor from AI?



Note: Major-level AI displacement risk is calculated by multiplying the employment share of each occupation among recent graduates by its AI displacement risk (z-score), and then aggregating.

Thank you

Healthcare employment is consistent across surveys



Source: Current Employment Statistics (BLS) and US Census/ACS. DRB number: CBDRB-FY24-0442.

Back

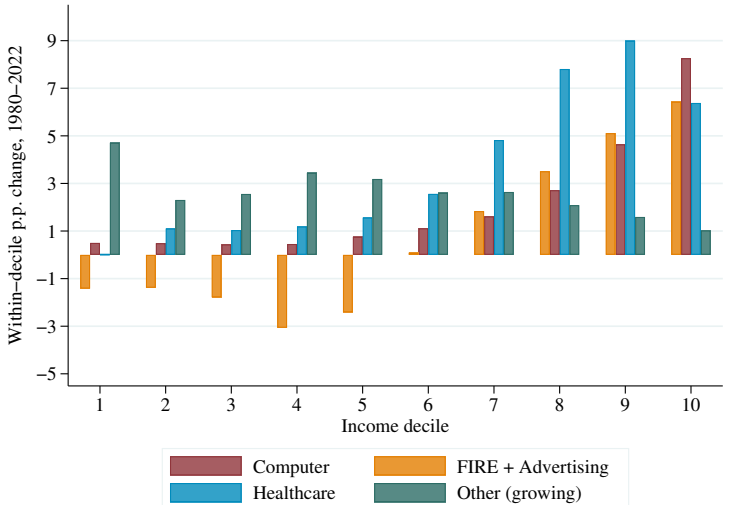
Educational composition has changed, but it cannot explain most earnings growth

	Earnings Growth (1980-2022)		
	(1) Actual (%)	(2) Reweighted (%)	(3) Reweighted / Actual
Physicians	0.74	0.74	1.000
Nurses	1.29	1.09	0.843
Aides	0.83	0.75	0.907

Source: US Census/ACS. DRB number: CBDRB-FY24-0442.

Back

Healthcare wage growth especially high in deciles 6–9



Source: US Census/ACS. Years: 1980–2022. "Other (growing)" comprises all non-highlighted industries with positive employment growth between 1980 and 2022: business/repair services, construction, entertainment, professional services (non-healthcare), retail, and transportation/communication.

Becoming an NP: training path and pipeline

- **Step 1:** Nursing degree ($\sim$2–4 yrs)
  - Associate's (ADN, 2 yrs) or Bachelor's (BSN, 4 yrs); BSN increasingly required for NP admission
- **Step 2:** Licensure and RN practice ($\sim$1–3+ yrs)
  - Pass NCLEX-RN exam; work as a registered nurse
  - Most NP programs require at least 1 yr of RN experience; many prefer 2–3+
  - ICU, ER, or specialty experience valued for advanced NP roles
- **Step 3:** NP graduate program ($\sim$2–3 yrs)
  - Master's (MSN) or doctoral (DNP) degree; choose a specialty track
  - Family, acute care, pediatric, psychiatric, oncology, and others
- **Step 4:** Board certification and state licensure
  - National exam (ANCC or AANP); scope of independent practice varies by state

Total: $\sim$7 years from college entry to NP practice

Back

Becoming a physician: training path and timeline

- **Step 1:** Bachelor's degree ($\sim$4 yrs)
  - Pre-med coursework (biology, chemistry, physics, math); MCAT exam
- **Step 2:** Medical school ($\sim$4 yrs)
  - Years 1–2: preclinical sciences; Years 3–4: clinical rotations
  - USMLE Step 1, 2 (and 3 in residency); MD or DO degree
- **Step 3:** Residency ($\geq$3 yrs; varies by specialty)
  - Internal medicine or family medicine: 3 yrs; general surgery: 5 yrs
  - Competitive match process; supervised hospital training
- **Step 4:** Fellowship (optional; 1–3 yrs)
  - Subspecialty training (e.g., cardiology, oncology, critical care)
- **Step 5:** Board certification and licensure
  - Specialty board exams; state medical license

Total: $\sim$11–15 years from college entry to independent practice

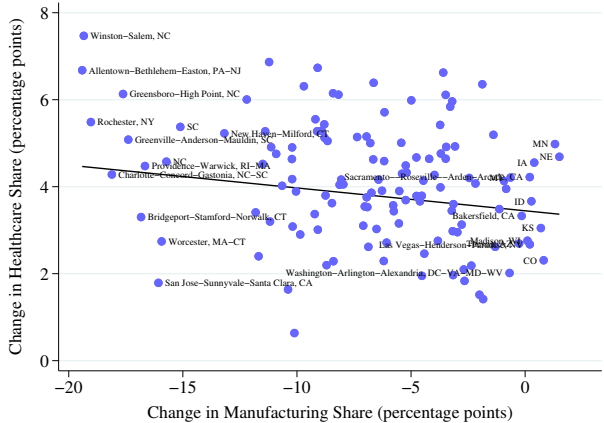
Back

Manufacturing decline is weakly correlated with 1980 healthcare employment

Source: US Census/ACS. DRB number: CBDRB-FY24-0442.

Back

Manufacturing decline is more strongly correlated with healthcare growth



Source: US Census/ACS. DRB number: CBDRB-FY24-0442.

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Adding controls does not change our conclusion

Dependent Variable (2SLS Stage):	Change Mfg. Share (First)		Change Health Share (Second)		Change Health Share (Reduced Form)	
	(1)	(2)	(3)	(4)	(5)	(6)
1980 Mfg. share	-0.559	-0.608			0.0641	0.0398
	(0.0434)	(0.0406)			(0.0198)	(0.0192)
Change in Mfg. Share			-0.115	-0.0654		
			(0.0377)	(0.0318)		
Log 1980 Population		-0.00850		-0.00170		-0.00114
		(0.00244)		(0.00158)		(0.00166)
Share of Population with Bachelor's or Higher		-0.279		-0.139		-0.121
		(0.0874)		(0.0290)		(0.0345)
Mean Log 1980 Earnings		0.0553		0.0112		0.00754
		(0.0262)		(0.0109)		(0.0116)
Constant	0.0118	-0.392	0.0299	-0.0364	0.0286	-0.0108
	(0.00659)	(0.247)	(0.00255)	(0.101)	(0.00286)	(0.106)
Observations	130	130	130	130	130	130
R^2	0.650	0.733	-0.014	0.270	0.104	0.270

Back

Autor et al. (2025) agree with our explanation of how the results relate

- "...if trade-exposed CZs experience greater population growth...then the number of new healthcare jobs can match the number of lost manufacturing jobs even if it falls short of rebalancing the employment-to-population ratio."
- "The combination of rising employment per initial population and falling employment per contemporaneous population implies that employment growth must primarily reflect new worker entry rather than rising employment among incumbents."

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