

Licensing Barriers to Interstate Mobility: Evidence From Travel Nurses

Response to the Discussion

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Who Applies Where They Hold No License?

Suggestion: Who applies where they hold no license?

It is odd to apply somewhere you cannot legally work, so these nurses may be unusual in some way. For example, do the same nurses apply to many different places at once? Is there evidence they are not just a particular type of nurse?

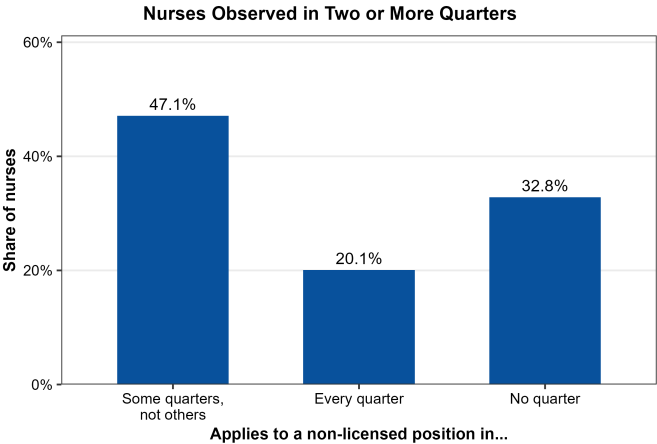
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- They cannot start working immediately, but that is an opportunity for them to get a new license
- For travel nurses, the agencies take care of application process so unless a posting requires immediate joining, the nurse can still get the license and then join
- Despite that, I find that not having a license restricts them from applying

Who Applies Where They Hold No License?



Source: Wanderly Data. 3,870 nurses observed in two or more quarters.

Is the Composition Changing?

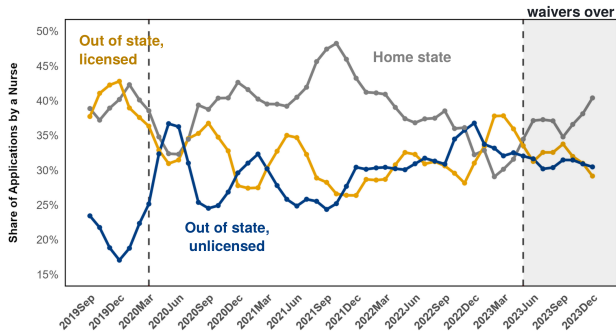
Suggestion: Is the composition changing?

Travel nursing roughly tripled from 2019 to 2022, so nurses applying in 2021 are largely not the ones applying in 2019, and a penalty that eases over these years could be a different population rather than the waivers. The appendix shows Wanderly counts tracking the national market; how the nurses compare is the open question.

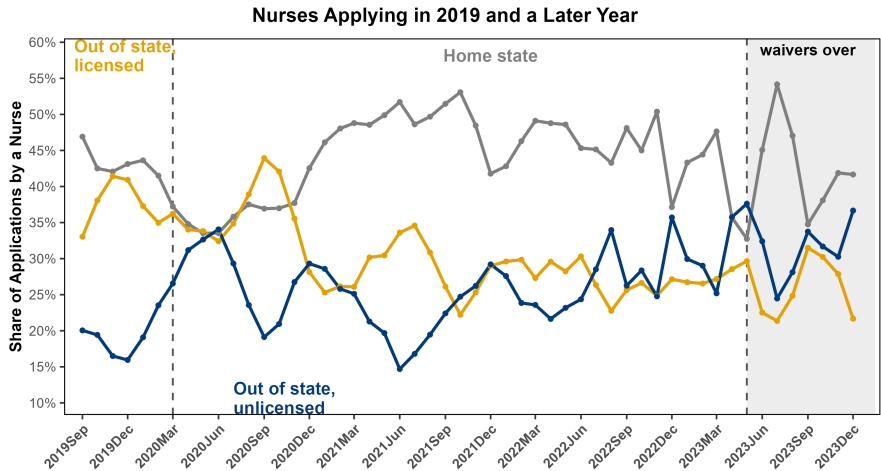
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Is the Composition Changing?



Source: Wanderly Data. RNs applying in 2019 and in at least one of 2020–2023; 3-month moving average.

The Wage Instrument

Suggestion: Does the allied wage meet the exclusion restriction?

Allied and RN wages both rise where a local market is becoming more desirable, and county fixed effects do not absorb changes over time. She also reports a second instrument, wages the same staffing agencies post in other counties, which is less exposed to local demand and gives $\delta_1 = 1.60$ against 2.12. Which does she prefer, and why?

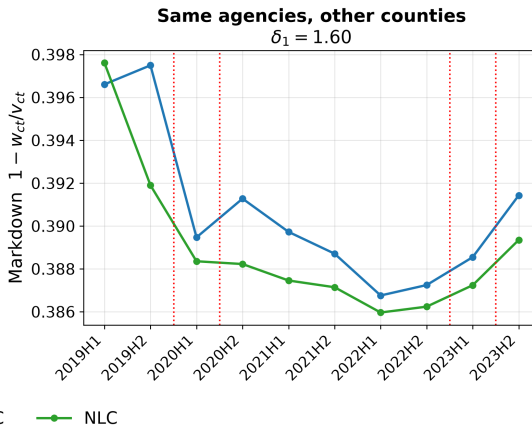
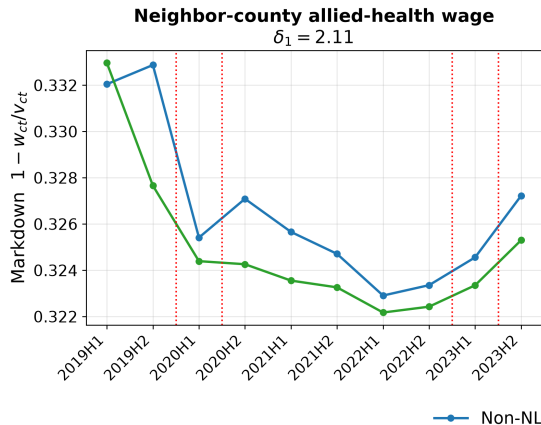
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- Preferred instrument: Wages the same staffing agencies post in other counties
- It is less exposed to local demand
- Issue: Agency-wide demand shock $\rightarrow$ potentially a weaker channel

The Wage Instrument: Markdown Under Each Instrument



Markdown $1 - w_{ct}/v_{ct}$, averaged over counties by destination NLC status. Red dotted lines bracket the emergency half-years.

Sensitivity to θ_{ct} and α

Suggestion: Sensitivity to θ and α

- θ_{ct} is held fixed. If the nurses drawn in by removing the barrier differ from those applying now, so does the value of a hire. Since θ is estimated county by county, the θ of comparable NLC counties could stand in for barrier counties.
- α is set at 0.2 from the literature, and the wage adjustment scales with it. How different does the counterfactual look at 0.1 or 0.3?

Sensitivity to θ_{ct}

County profit:

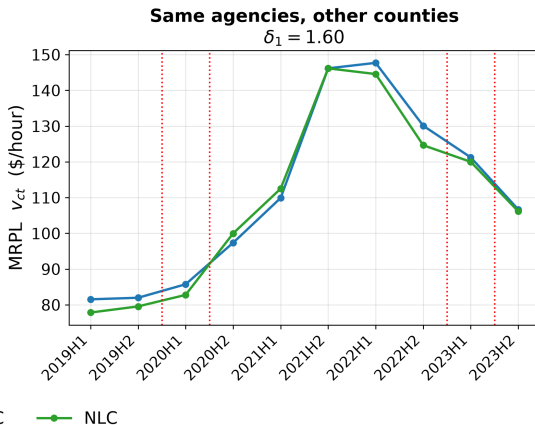
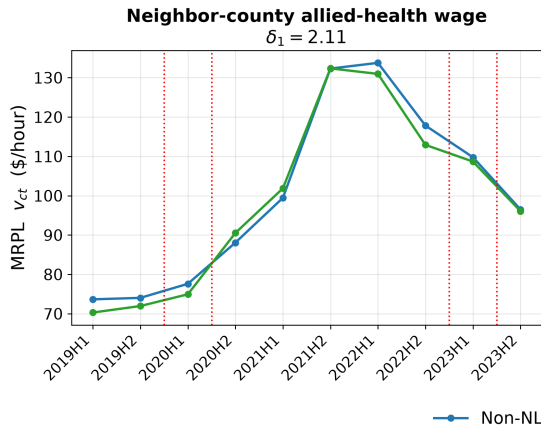
$$\pi_{ct} = \underbrace{\theta_{ct} L_{ct} (w_{ct})^{1-\alpha}}_{\text{value added } R(L_{ct})} - \underbrace{w_{ct} L_{ct} (w_{ct})}_{\text{wage bill}}, \quad \alpha \in [0, 1)$$

FOC:

$$\underbrace{R'(L_{ct})}_{\text{MRPL}_{ct}} = w_{ct} \left(1 + \frac{1}{\epsilon_{ct}} \right) \Rightarrow w_{ct} = \underbrace{(1 - \alpha) \theta_{ct} L_{ct}^{-\alpha}}_{\text{MRPL}_{ct}} \cdot \frac{\epsilon_{ct}}{1 + \epsilon_{ct}}$$

- θ_{ct} : county productivity shifter (value of a hire)
- $\epsilon_{ct} = \delta_1(1 - \bar{s}_{ct})$: wage elasticity of applications to county c
- If θ is affected by barrier:
 - More applications $\rightarrow$ can hire “better” nurses $\rightarrow$ wage effect reported in the paper is a lower bound
 - Since, same nurses often switch between applying to a licensed vs non-licensed position, θ_{ct} is likely not affected by the barrier

Sensitivity to θ_{ct} : Baseline MRPL



MRPL $v_{ct} = w_{ct}(1 + 1/\epsilon_{ct})$ backed out from the wage rule, averaged over counties by destination NLC status. Red dotted lines bracket the emergency half-years.

Sensitivity to α

$$\underbrace{\Delta \log w_{ct}}_{\text{total}} = \underbrace{-\alpha \Delta \log s_{ct}}_{\text{(i) compensating differential}} + \underbrace{\Delta \log \frac{\epsilon_{ct}}{1 + \epsilon_{ct}}}_{\text{(ii) supply elasticity}}$$

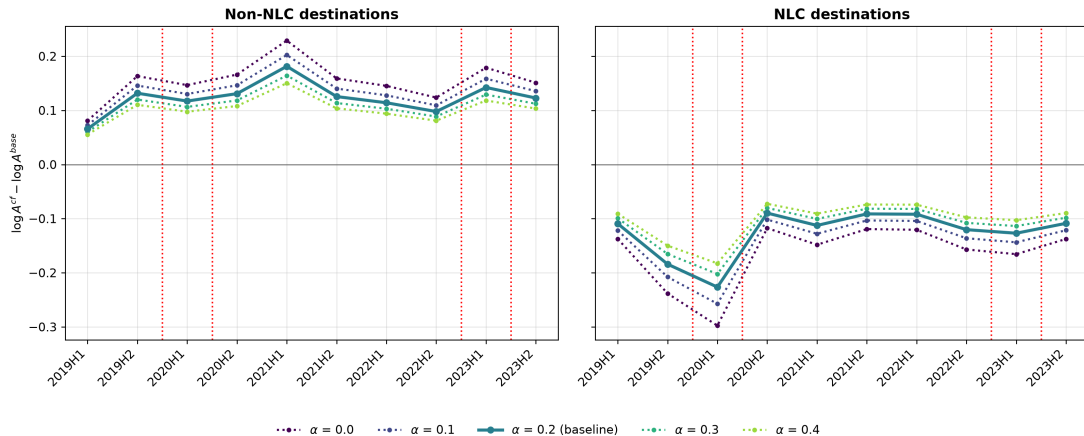
Wage change when the licensing barrier is removed (%)

α	Non-NLC	NLC	NLC – Non-NLC
0 (constant returns)	+0.54	+0.44	–0.10
0.1	–0.76	+1.87	2.62
0.2 (baseline)	–1.80	+2.92	4.73
0.3	–2.66	+3.74	6.40
0.4	–3.38	+4.38	7.77

- The sign holds for every $\alpha > 0$; the size scales with α
- The gap comes from channel (i); channel (ii) barely moves with α ($\approx +0.55$ Non-NLC, $+0.42$ NLC)

Barrier removed, wages re-equilibrate; $\delta_1 = 1.60$ (same agencies, other counties). Averages weighted by baseline applications.

Sensitivity to α : Counterfactual Applications



Barrier removed, wages re-equilibrate; $\delta_1 = 1.60$. Applications summed over each group's counties. Red dotted lines bracket the emergency half-years.

Who Is the Employer?

Suggestion: Who is the employer?

- A county with one hospital and a county with five are the same employer here, posting one wage and facing the county's whole application share. Hospital-level wage setting and monopsony power are outside the model.
- Hires may not be proportional to applications. A hospital filling five positions hires five however many apply. Is there a measure of placements to anchor this?

County level aggregation

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County level aggregation

- Required for discrete choice estimation of δ_{ct} otherwise cells are too thin at the hospital level
- **To do:** Check with multiple hospital counties and single hospital counties, if the response is different

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- **To do:** κ varies by licensing barrier and wages?
- Potential sources to get hires data:
 - Change in RN stock from CPS
 - AHRF RN vacancy and FTE data
 - NPI data on RNs and their practice location

State-Specific Waiver Dates

Suggestion: Waivers were not one national event

States waived at different dates and in different forms, some outright and some by temporary permit. The appendix contrasts New Jersey and Missouri; extending that to each state's own waiver dates might sharpen the comparison relative to a single emergency period.

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- Federal emergency allowed states to declare their own emergency rules
- Most states removed/eased the nurse licensing barriers in March
- The waiver expiration varied significantly across states, despite that the most prominent effect I see is that of the federal emergency

Deaths by Residence vs. Occurrence

Suggestion: Where do border-county residents go to the hospital?

Someone living in a NonNLC county may be treated across the line in an NLC state, where the nurses work under NLC rules, but the paper counts them as NonNLC. Counted by residence, the gap shrinks toward zero; counted by where the death occurs, the gap follows the hospitals. Which does the paper use, and how often do patients cross?

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- These are deaths by state of residence
- **To do:** CDC Wonder provides data by state of occurrence as well, can re-estimate the regressions on that

Thank You!

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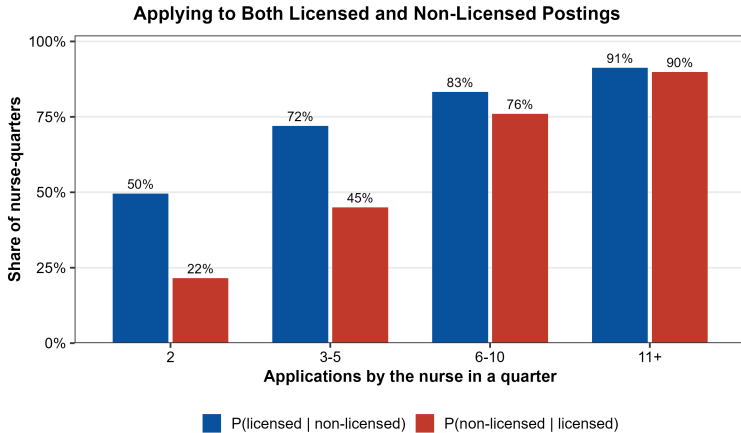
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Nurses who apply to at least one non-licensed position vs. nurses who never do

	Applies to at least one non-licensed position	Never applies to a non-licensed position	Difference
Average distance of applications (miles)	882.70	438.65	444.05*** (10.97)
Average loaded pay (\$/hour)	94.99	87.22	7.77*** (0.45)
Number of applications	8.90	2.56	6.34*** (0.17)
Number of states applied to	4.58	1.34	3.24*** (0.06)
NLC home state	0.74	0.71	0.03*** (0.01)
Nurses	4,690	5,276	

Source: Wanderly Data. Distance: home-state centroid to county applied to. NLC home state: share of applications made from an NLC home state.

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Source: Wanderly Data. Nurse-quarters with 2+ applications. Licensed: home state or a state in the nurse's licence list.