

Contract Staffing Diffusion in U.S. Nursing Homes

Elwood Research

PBJ Staffing Study

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Background: The Post-Pandemic Workforce Crisis

- **Transitioning Landscapes:** The COVID-19 pandemic triggered an unprecedented reliance on external staffing agencies.
- **Workforce Crisis:** Acute labor shortages forced facilities to adopt contract staffing as a temporary emergency measure.
- **Structural Shift:** Post-pandemic data suggests this "temporary" solution is becoming a structural feature of specific regional markets.
- **Market Dynamics:** Rising costs and labor market competition have created new vulnerabilities in the long-term care sector.

Research Question & Hypotheses

Research Question: How has the geographic distribution and diffusion of contract staffing evolved in the post-pandemic era?

Hypotheses

- **H1: Spatial Clustering:** Contract staffing is not randomly distributed; it exhibits significant geographic clustering.
- **H2: Temporal Expansion:** The practice has diffused and intensified in specific regional hotspots over time.
- **H3: Contagion Effect:** A facility's reliance on contract labor is positively influenced by the practices of its geographic neighbors.

Theoretical Framework: Spatial Diffusion Theory

- **Hägerstrand's Diffusion Theory:** Processes spread through geographic space via social and economic networks.
- **Expansion vs. Intensification:** While the "rising tide" of the pandemic may have receded, the practice is "pooling" in specific areas.
- **Neighborhood Effect:** Facilities adopt labor practices observed in their local market to remain competitive or survive.
- **Agency Capture:** In specific clusters, the labor supply becomes mediated by third-party agencies, creating a dependency loop.

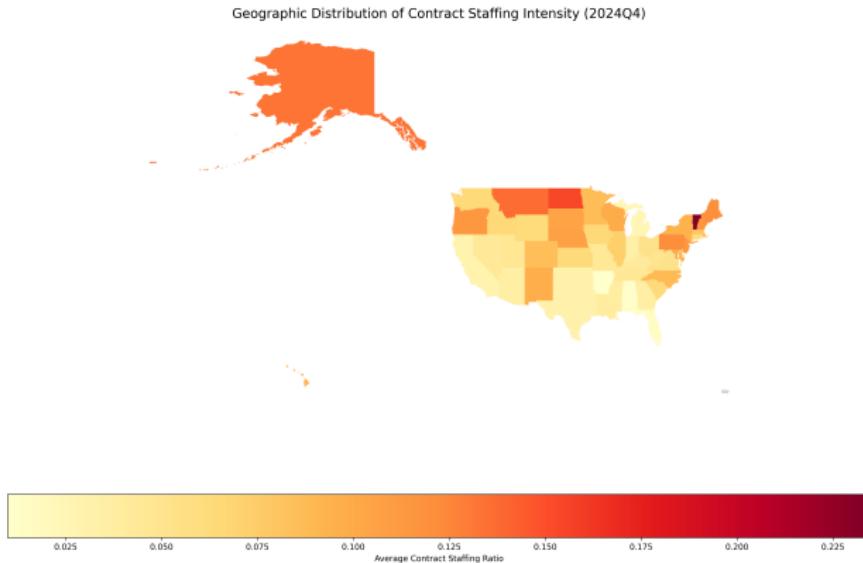
Methodology

- **Data Source:** CMS Payroll-Based Journal (PBJ) data from 2022 Q1 to 2024 Q4.
- **Sample:** Over 14,000 skilled nursing facilities across the United States.
- **Spatial Autocorrelation:** Calculated Global Moran's I to detect non-random geographic patterns.
- **Proximity Regression:** Modeled the relationship between a facility's contract ratio and the mean ratio of its geographic neighbors.
- **Outlier Control:** Strict screening ($z\text{-score} > 4$) to ensure results represent structural trends rather than noise.

Results: Intensified Clustering

- **Spatial Signal:** The Global Moran's I nearly **doubled** between 2022 and 2024.
- **2022 Q1 Moran's I:** 0.0501 ($p < 0.001$)
- **2024 Q4 Moran's I:** 0.1068 ($p < 0.001$)
- **Interpretation:** Even as overall mean usage slightly decreased, the geographic "clumping" of high-usage facilities became significantly more pronounced.
- **Shift:** From a broad nationwide surge to concentrated regional hotspots.

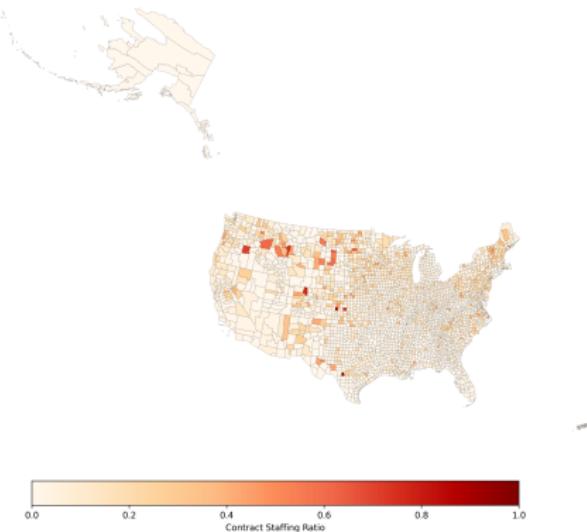
Results: Geographic Trends



- **Hotspot States (2024):** Vermont (0.235), North Dakota (0.155), and Montana (0.137) show extreme reliance.
- **Regional Variation:** The Northeast and Midwest maintain the highest structural dependency.

Results: The Contagion Effect

County-Level Distribution of Contract Staffing Intensity (2024Q4)



Proximity Regression:

- **Neighbor Effect:** 0.3963 ($p < 0.001$)
- **Finding:** A 10% increase in neighbors' usage predicts a 4% increase in own usage.
- **Contagion:** Strong evidence that staffing practices spread through local competition.

Discussion: Rural Vulnerability & Agency Capture

- **Rural Fragility:** High ratios in states like VT, ND, and MT highlight a "vicious cycle" where thin labor pools are easily monopolized by agencies.
- **Agency Capture:** Facilities in these markets face "take-it-or-leave-it" pricing, threatening financial sustainability.
- **Policy Mismatch:** Traditional facility-level staffing mandates may be impossible to meet in "captured" markets without addressing the agency supply side.
- **Market Concentration:** The clustering effect suggests that agencies target specific regions to maximize their market power.

Conclusion & Policy Recommendations

Key Takeaways

- Contract staffing has transitioned from a crisis response to a structural regional feature.
- Geographic proximity is a primary driver of adoption (The Contagion Effect).

Recommendations

- **Cluster-Based Interventions:** Policy must address regional markets, not just individual facilities.
- **Rural Support:** Specific workforce pipelines and distance-based reimbursement for rural "hotspots."
- **Price Transparency:** Regionally coordinated caps on agency margins to prevent "jurisdiction hopping."