



Where Have All the Healthcare Workers Gone: Healthcare Workforce Internal Migration Profile and Spatial Distribution

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Background

- COVID-19 demonstrated healthcare equity also includes local supply of healthcare workers
- Communities will continue to compete for healthcare human resources
 - Population aging
 - Healthcare worker shortage
- Provide macro and temporal context for healthcare workforce landscape

Literature

Labor Migration

- Labor migration research has not sufficiently investigated healthcare workforce internal migration inside the U.S., despite overwhelming concerns on healthcare workforce shortage and maldistribution

Health Geography

- Health Geography has largely neglected serious consideration of the human resources central to healthcare
- Far more attention given to healthcare consumption than production

Objective

- Conduct Logistic regression models to investigate factors associated with internal migration of different healthcare occupational groups at the local level (groups of public-use microdata areas)
- Estimate the Local Indicator of Spatial Association (LISA) to demonstrate spatial clusters of healthcare worker internal migration patterns

Data

2005–2019 American Community Surveys (IPUMS)

Geographic unit of analysis

Areas of destination (current residence): Publicly available data has information on Public Use Microdata Areas (PUMAs) as the lowest level of geographic aggregation (100,000+ residents)

2,101 PUMAs in the 2005-2011 ACS; 2,378 in the 2012-2019 ACS

Areas of origin (previous residence): For confidentiality issues, data can only be obtained by groups of PUMAs (also known as MIGPUMAs)

1,000 MIGPUMAs in 2005-2011 ACS; 1,005 MIGPUMAs in 2012-2019 ACS

To harmonize origins and destinations, group PUMAs of current destination at the same level as areas of origin.

Data

Dependent variable

Internal migration between MIGPUMAs (excluding international migrants)

Independent variables

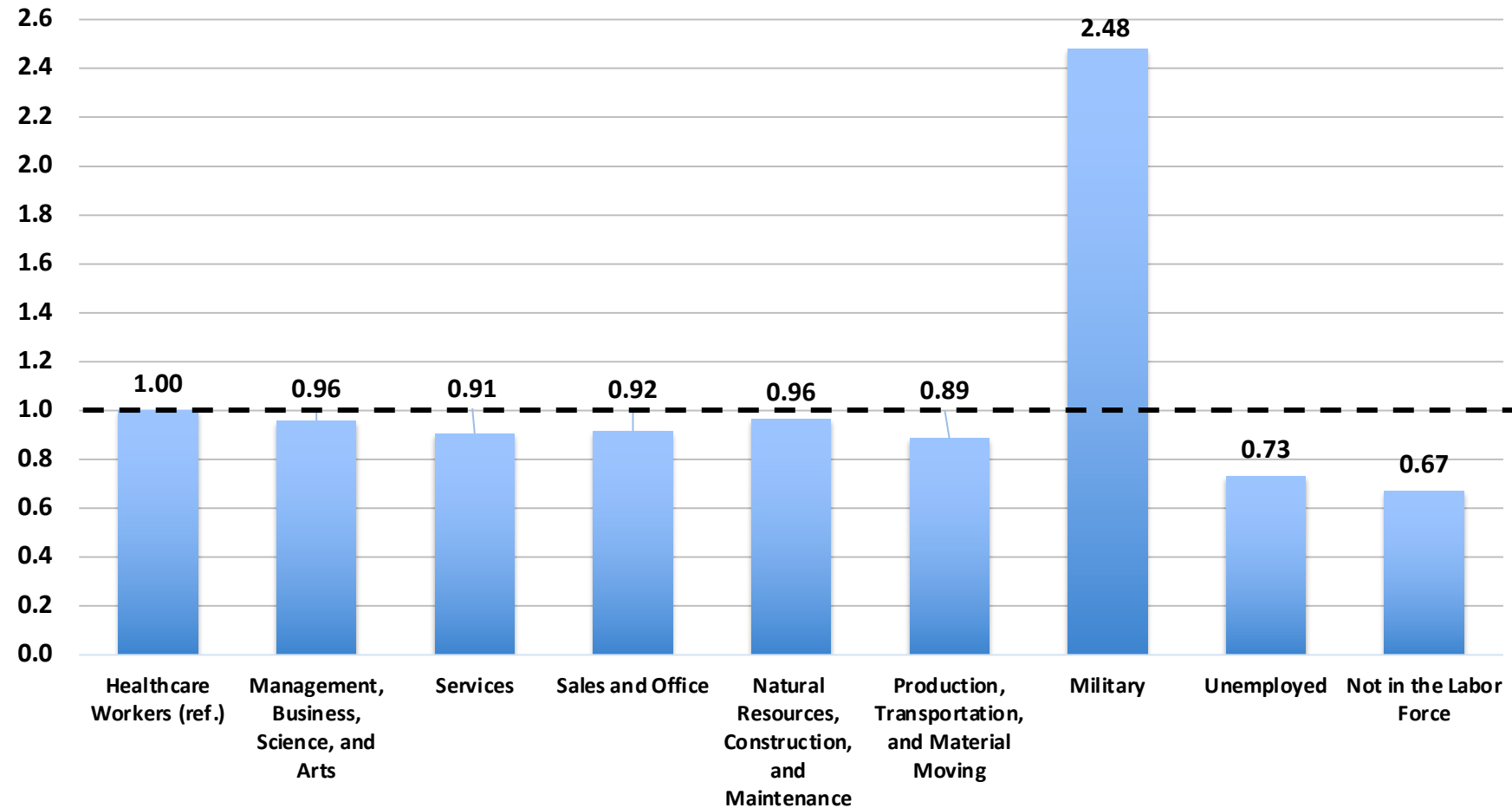
- Race-Ethnicity, Education, Age, Citizenship, Foreign-born status
- English speaking ability, Disability status
- Marital status, presence of children in the household, Home ownership status
- Healthcare occupational categories, Wage quartiles
- Region (Northeast, Midwest, South, West), Year

Healthcare Occupational Groups

- Highly Trained Healthcare Practitioners
 - Require doctoral or professional degrees
 - Example: physicians, surgeons, registered nurses
- General Healthcare Practitioners
 - Require other advanced degrees
 - Example: Nutritionists, therapists
- Healthcare Technicians
 - Require up to a bachelor's degree
 - Example: dental hygienists, emergency medical technicians
- Healthcare Support
 - May not require a four-year degree
 - Example: dental assistants, home health aids

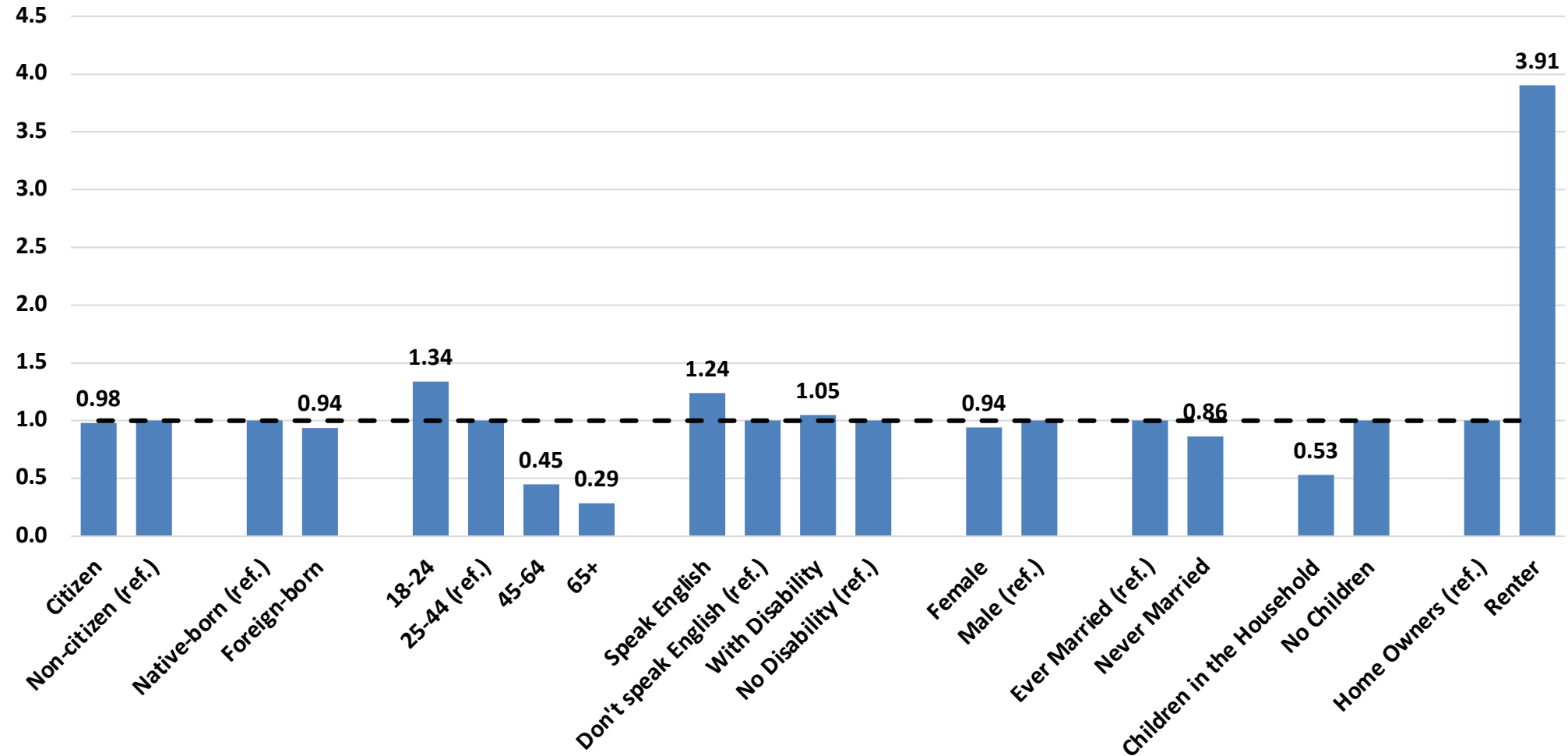
Healthcare Workers are more likely than other occupations to be internal migrants

Odds Ratio of Being Internal Migrant by Occupation



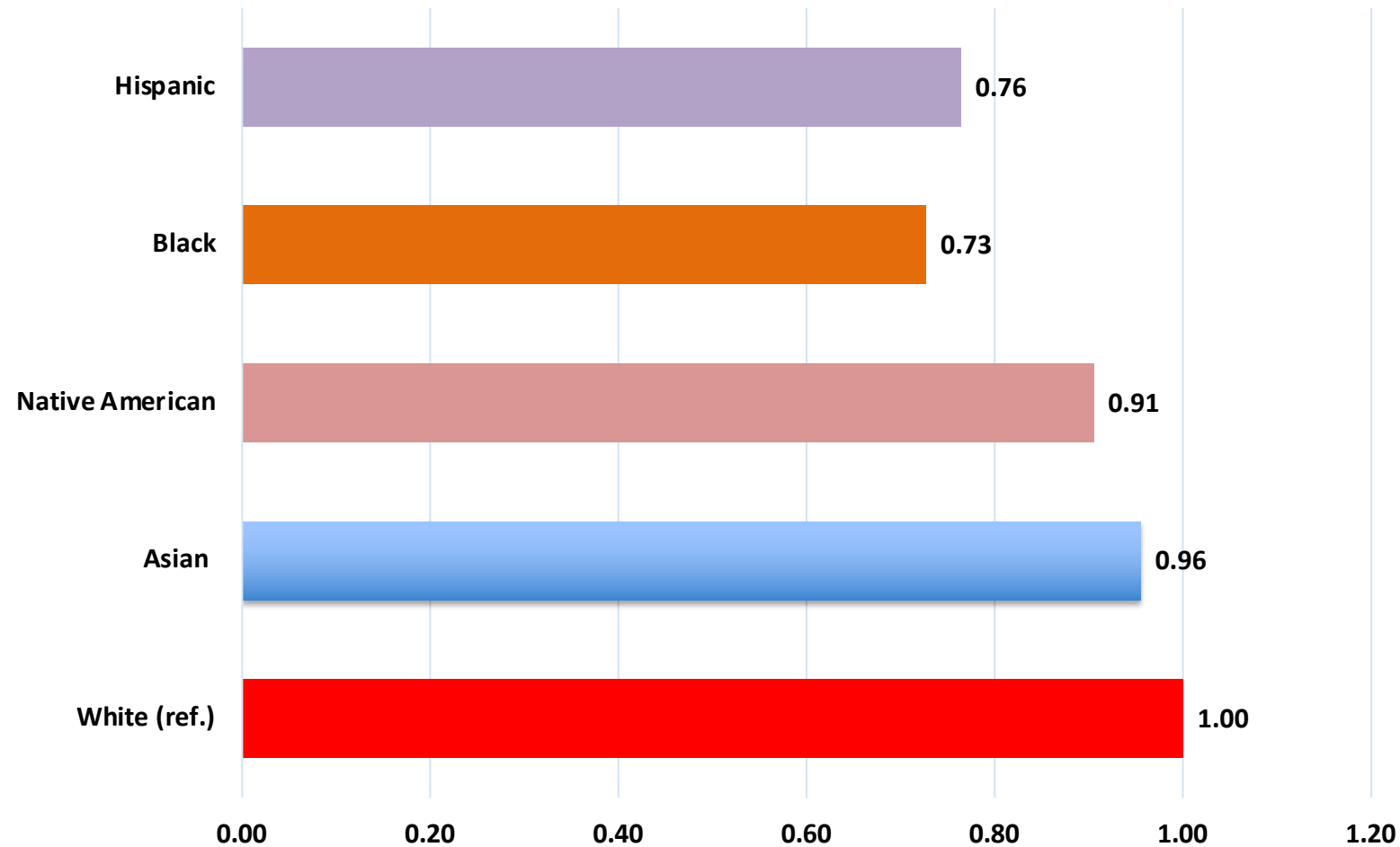
Individual Factors Associated With Healthcare Worker Migration

Odss Ratio of Being a Healthcare Migrant



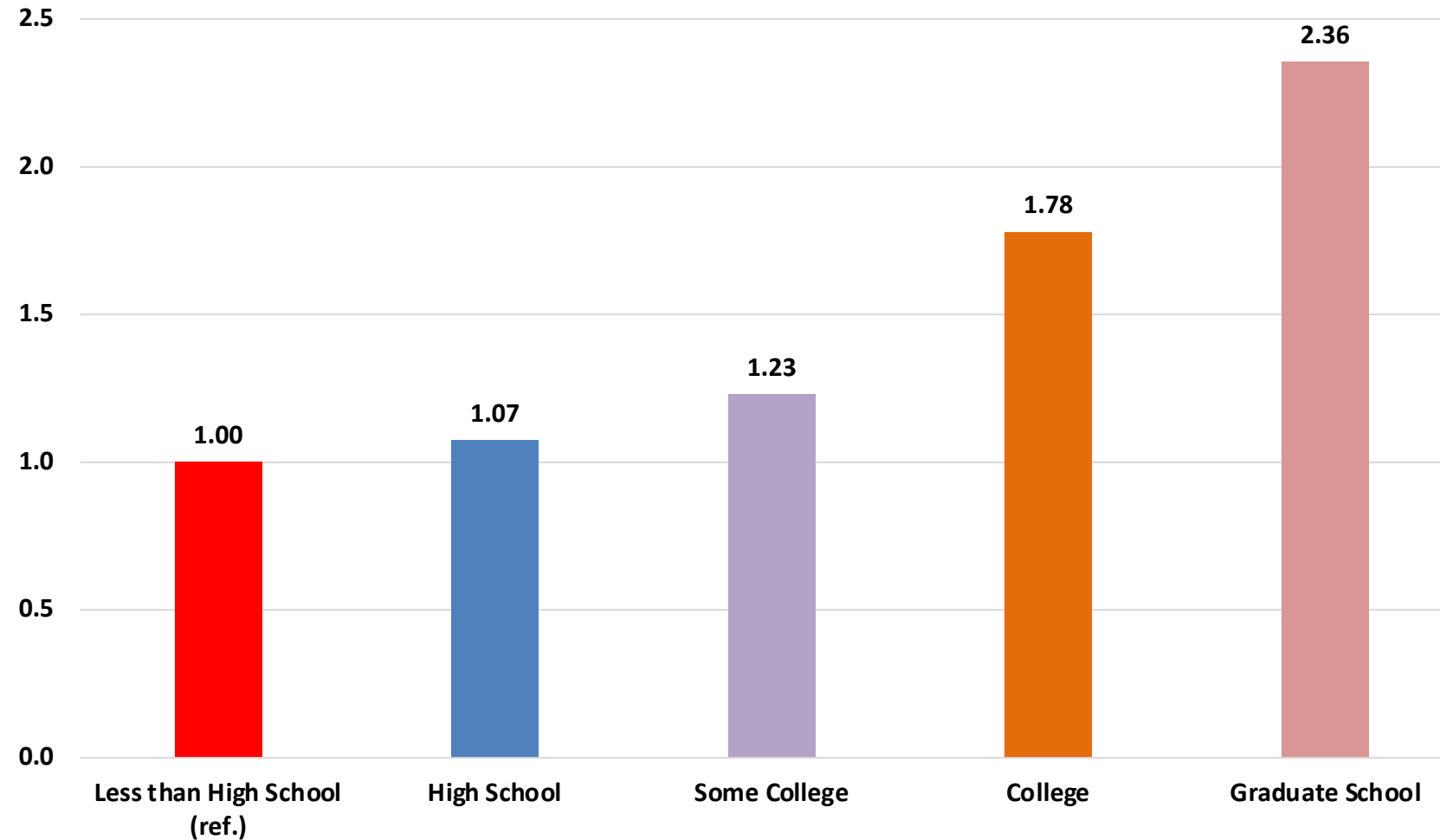
Individual Factors Associated With Healthcare Worker Migration

Odds Ratio of Being a Healthcare Migrant



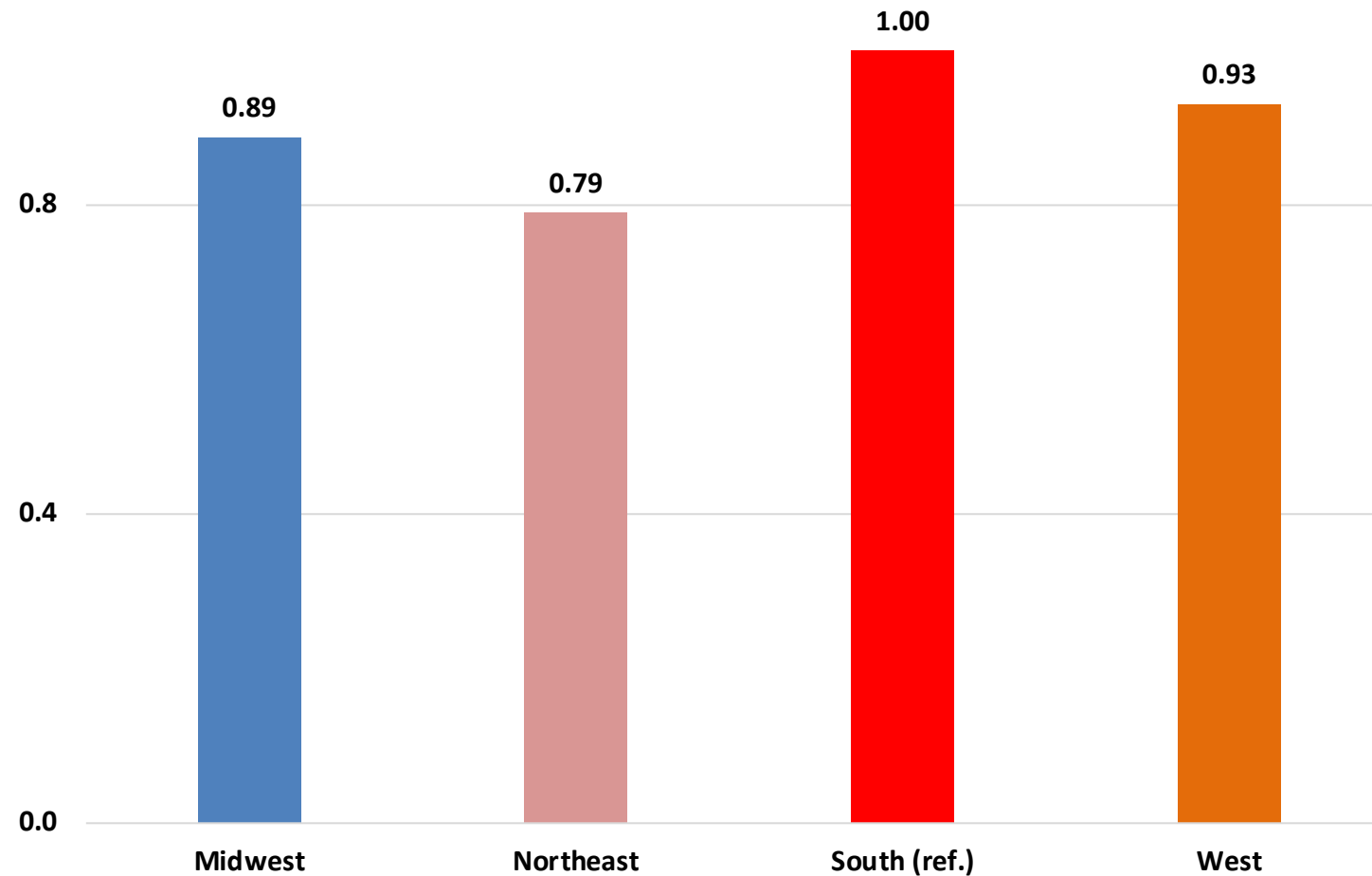
Individual Factors Associated With Healthcare Worker Migration

Odds Ratio of Being a Healthcare Migrant



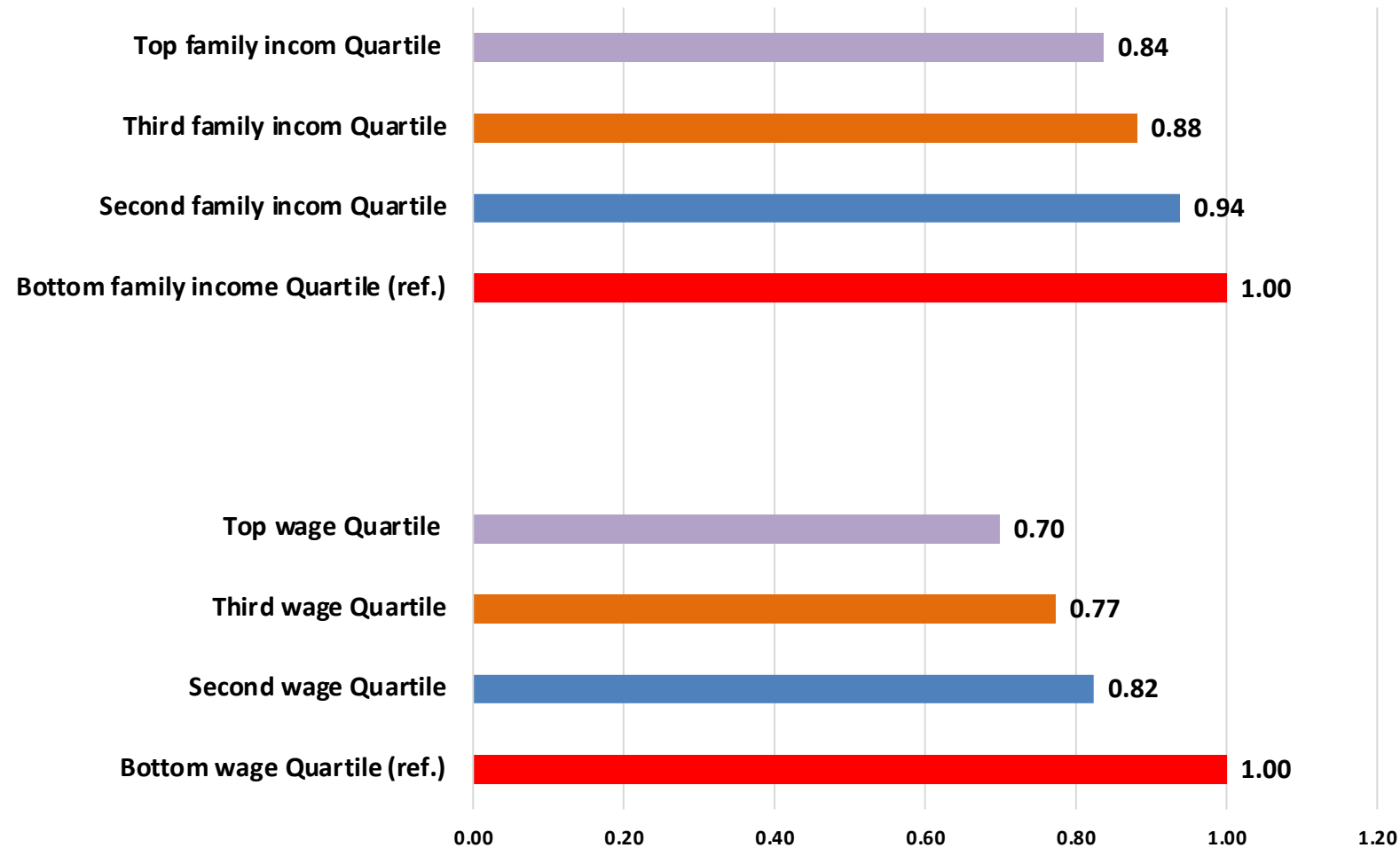
Individual Factors Associated With Healthcare Worker Migration

Odds Ratio of Being a Healthcare Migrant



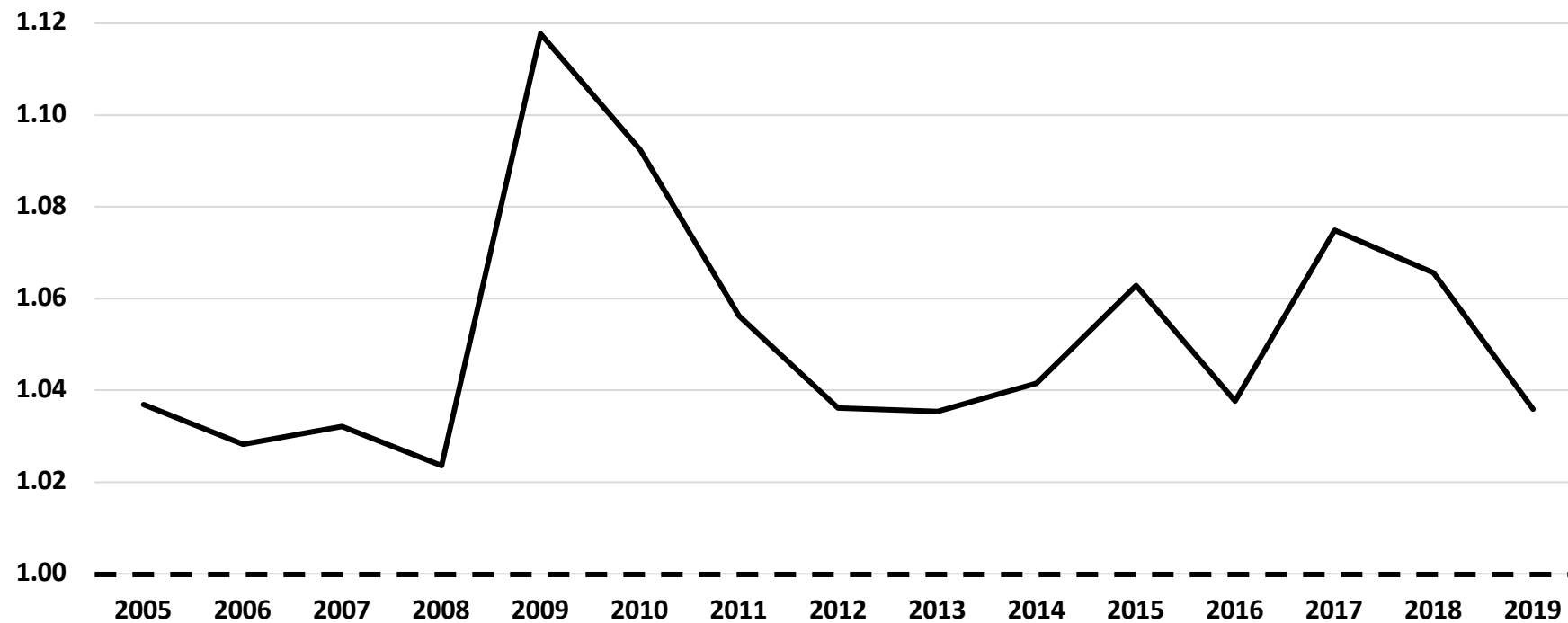
Individual Factors Associated With Healthcare Worker Migration

Odds Ratio of Being a Healthcare Migrant



Healthcare workers have higher migration probability than the general population over the entire study period

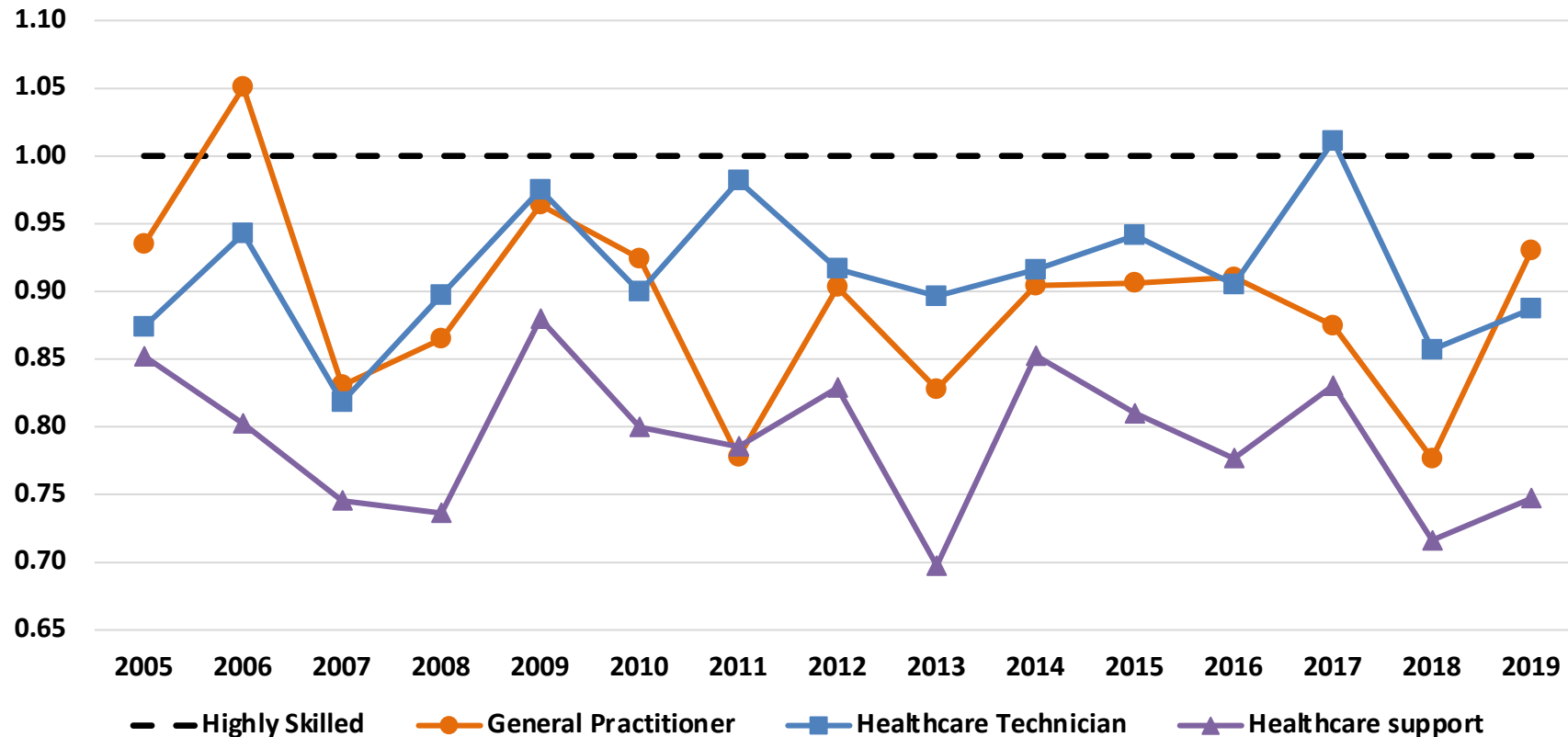
Odds of Migration As a Healthcare Worker



Reference: General Population

Highly skilled healthcare workers consistently exhibit higher probabilities of migration than other groups

Odds of Migration by Healthcare Occupation

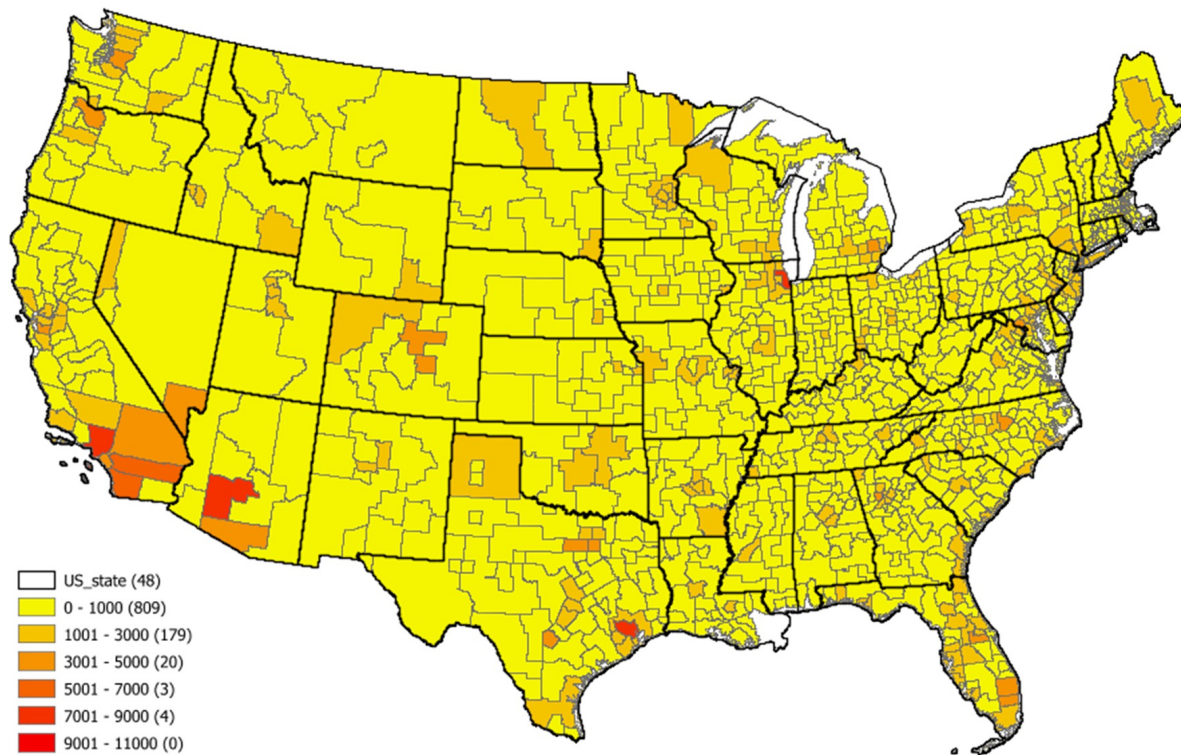


Summary of Regression Results

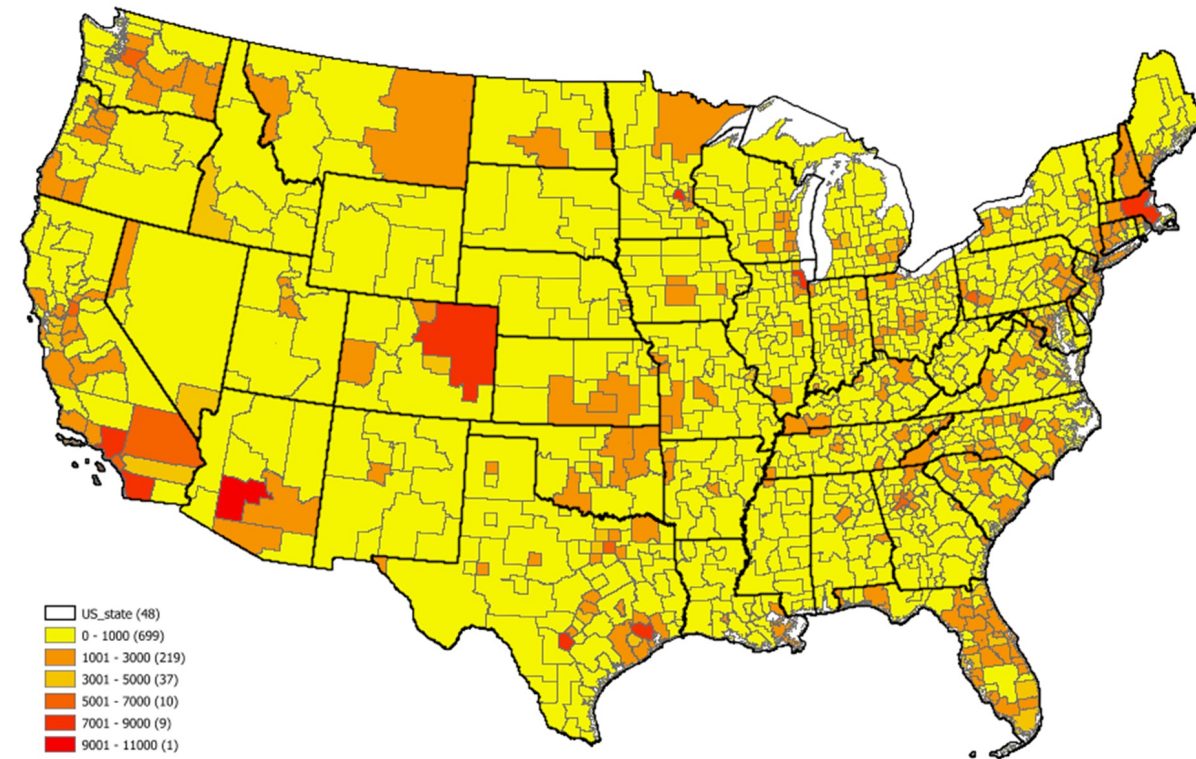
- Being a healthcare worker makes one more likely to migrate than those in other major occupational groups, except for the military
- Similar to overall trend, healthcare worker migration has been in decline over time, but their rate of decline is less than those in the general population
- The higher along the occupation ladder the healthcare workers are, the more likely they are to be internal migrants
- Individuals who are African American, female, or having children in the household have lower internal migration propensities.

Total Healthcare Workforce as Internal Migrants by MIGPUMAs

Healthcare Workforce As Internal Migrants 2005

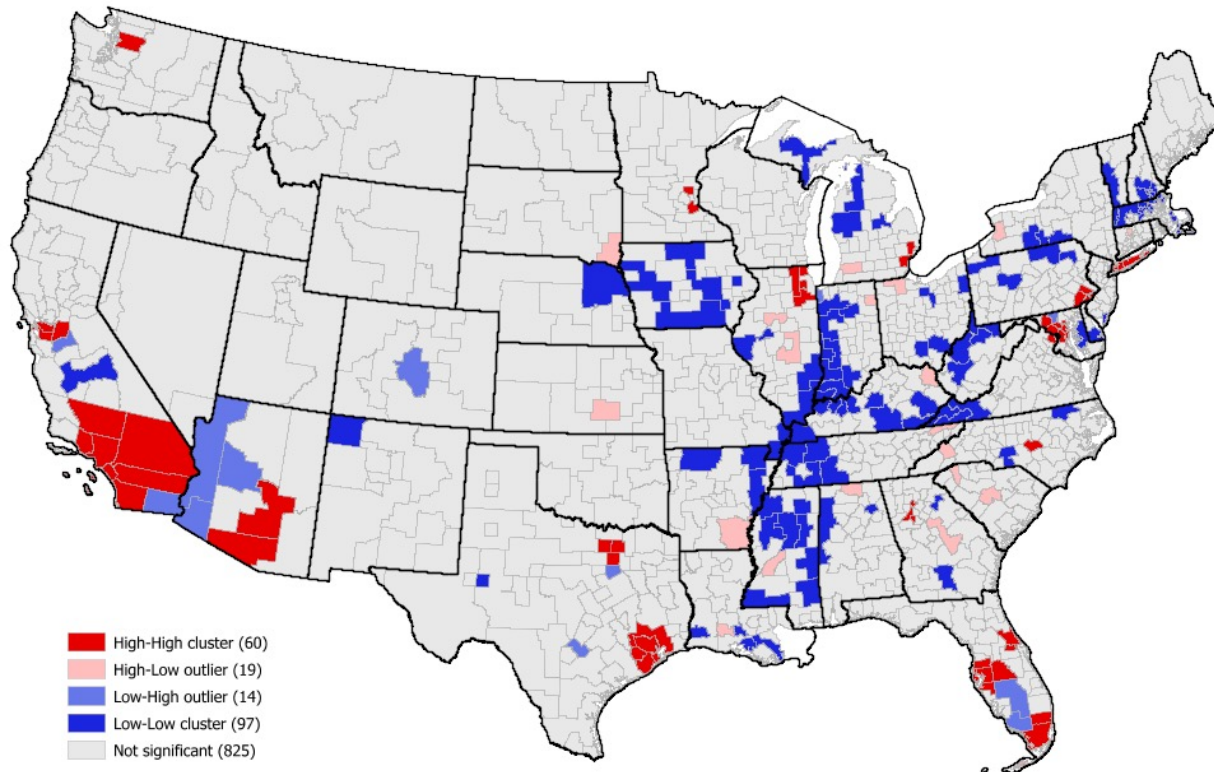


Healthcare Workforce As Internal Migrants 2019

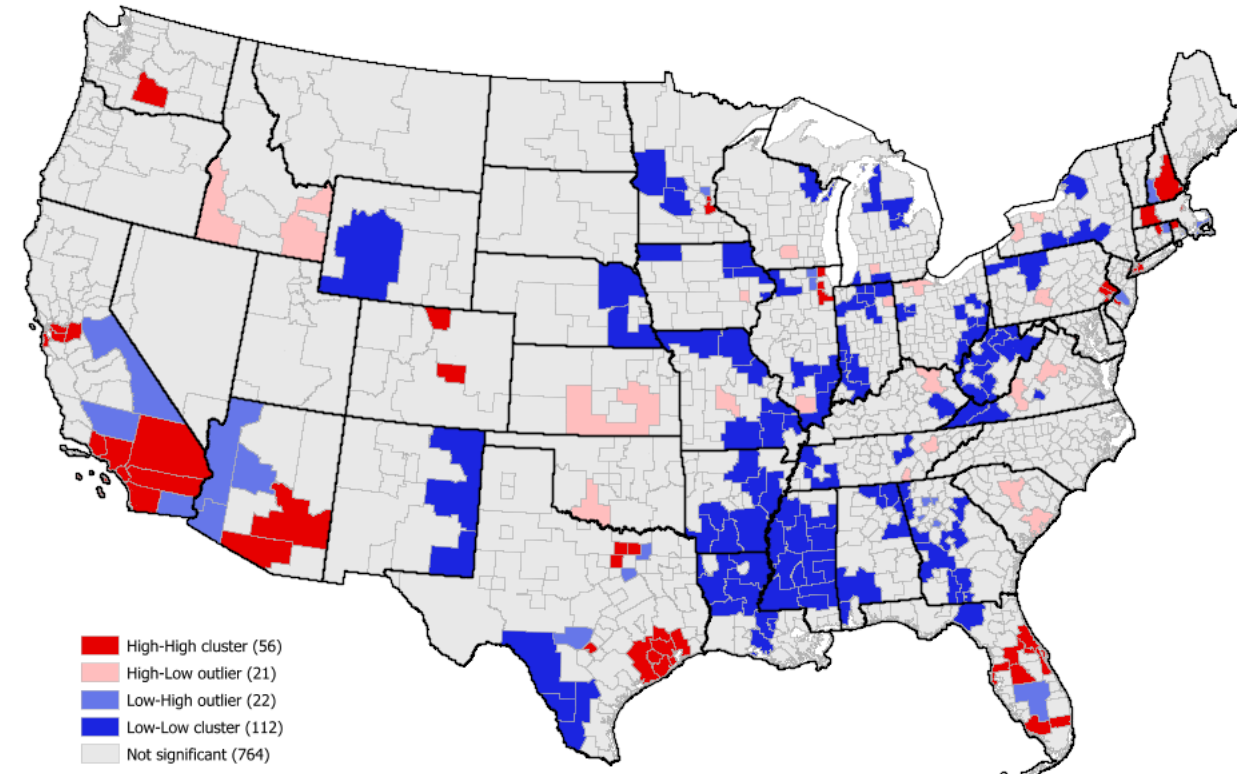


Spatial Distribution (LISA) of Healthcare Workers as Internal Migrants

LISA - Healthcare Workforce Internal Migrants 2005

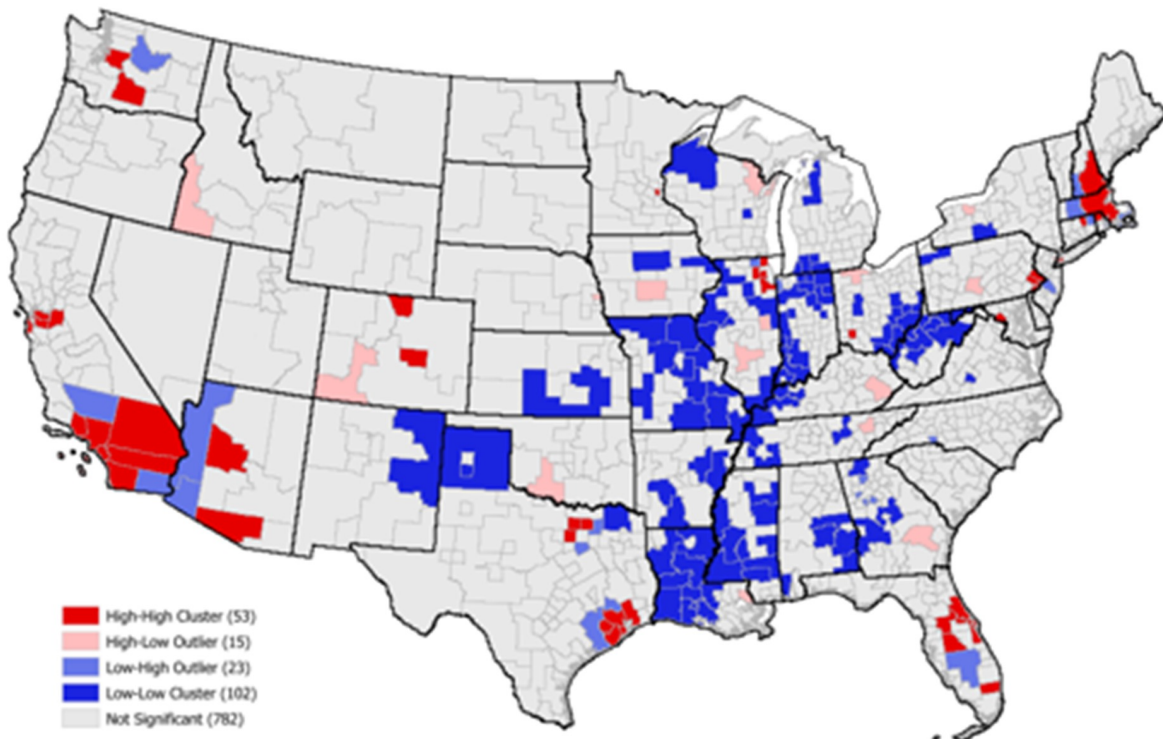


LISA - Healthcare Workforce Internal Migrants 2019

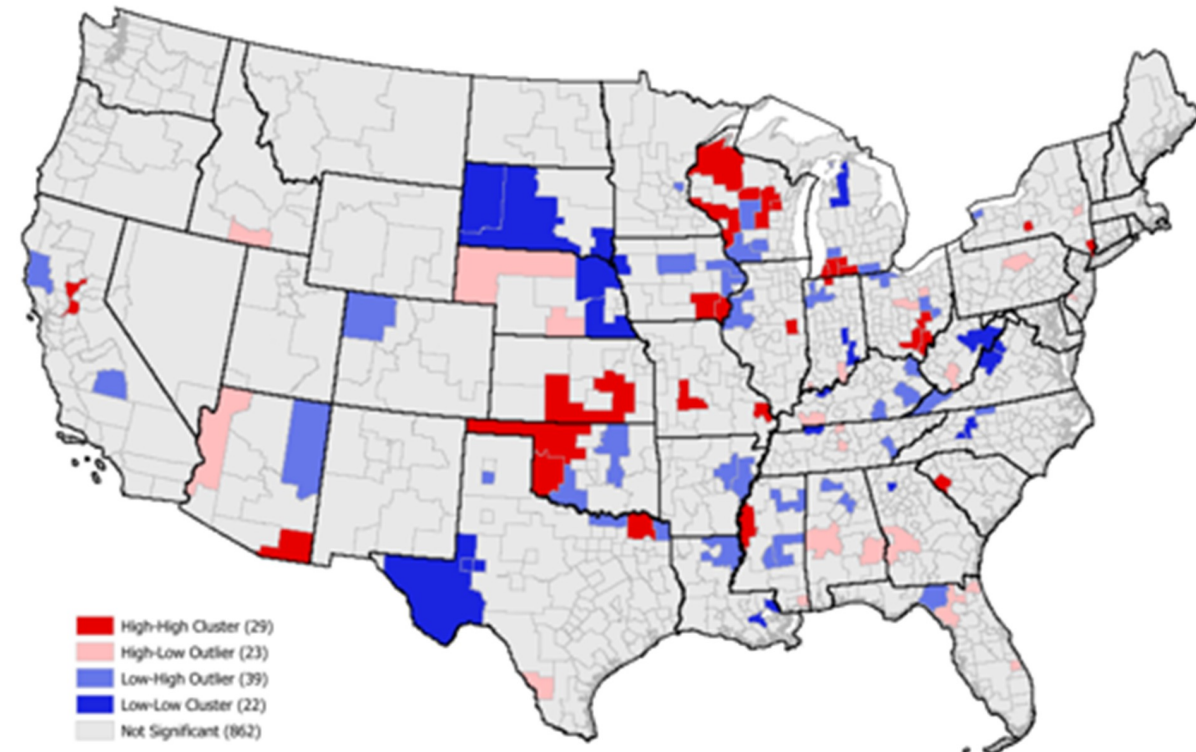


Spatial Distribution (LISA) of Healthcare Occupational Groups as Internal Migrants

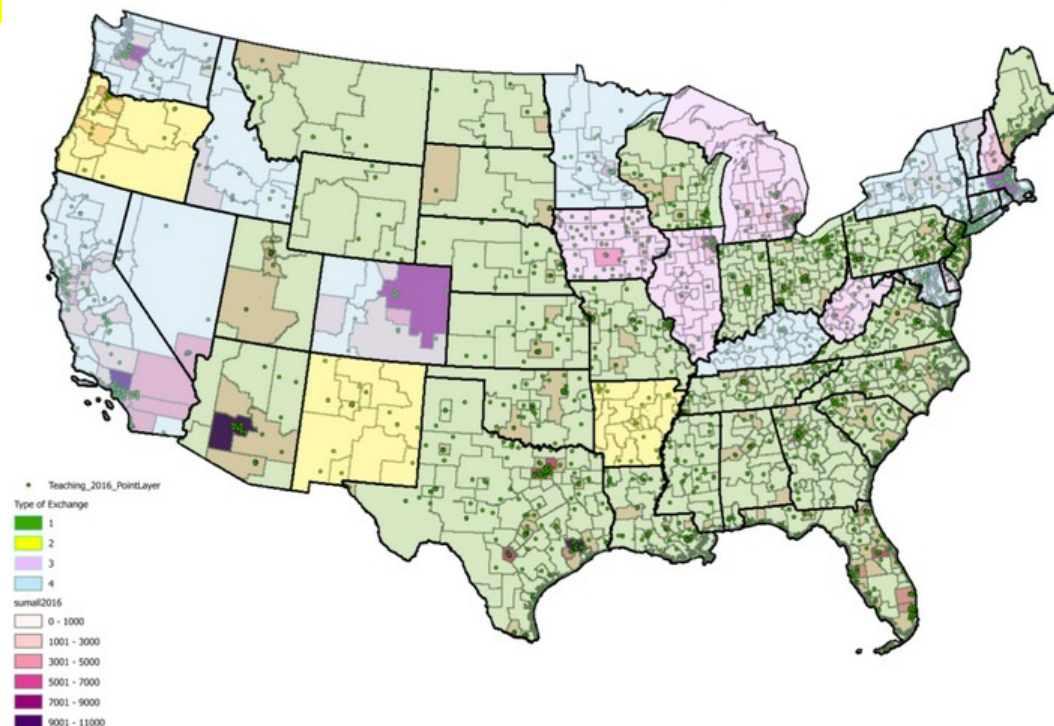
LISA - Healthcare Highly Trained Practitioner Internal Migrants 2019



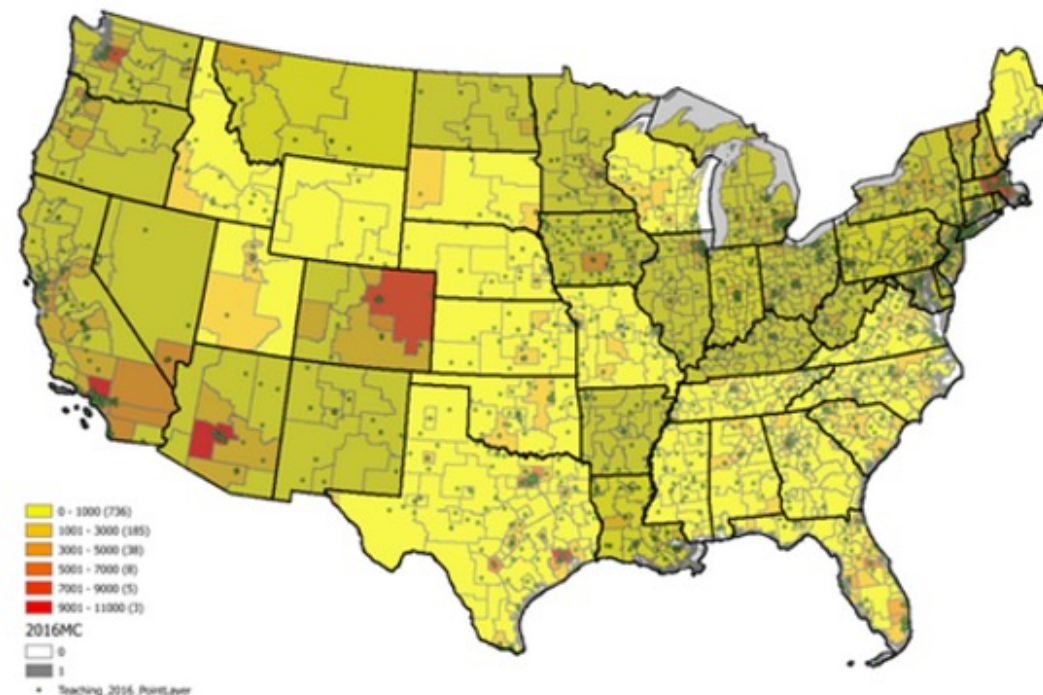
LISA - Healthcare Support Internal Migrants 2019



Healthcare Workforce As Internal Migrants 2016



Healthcare Workforce As Internal Migrants 2016

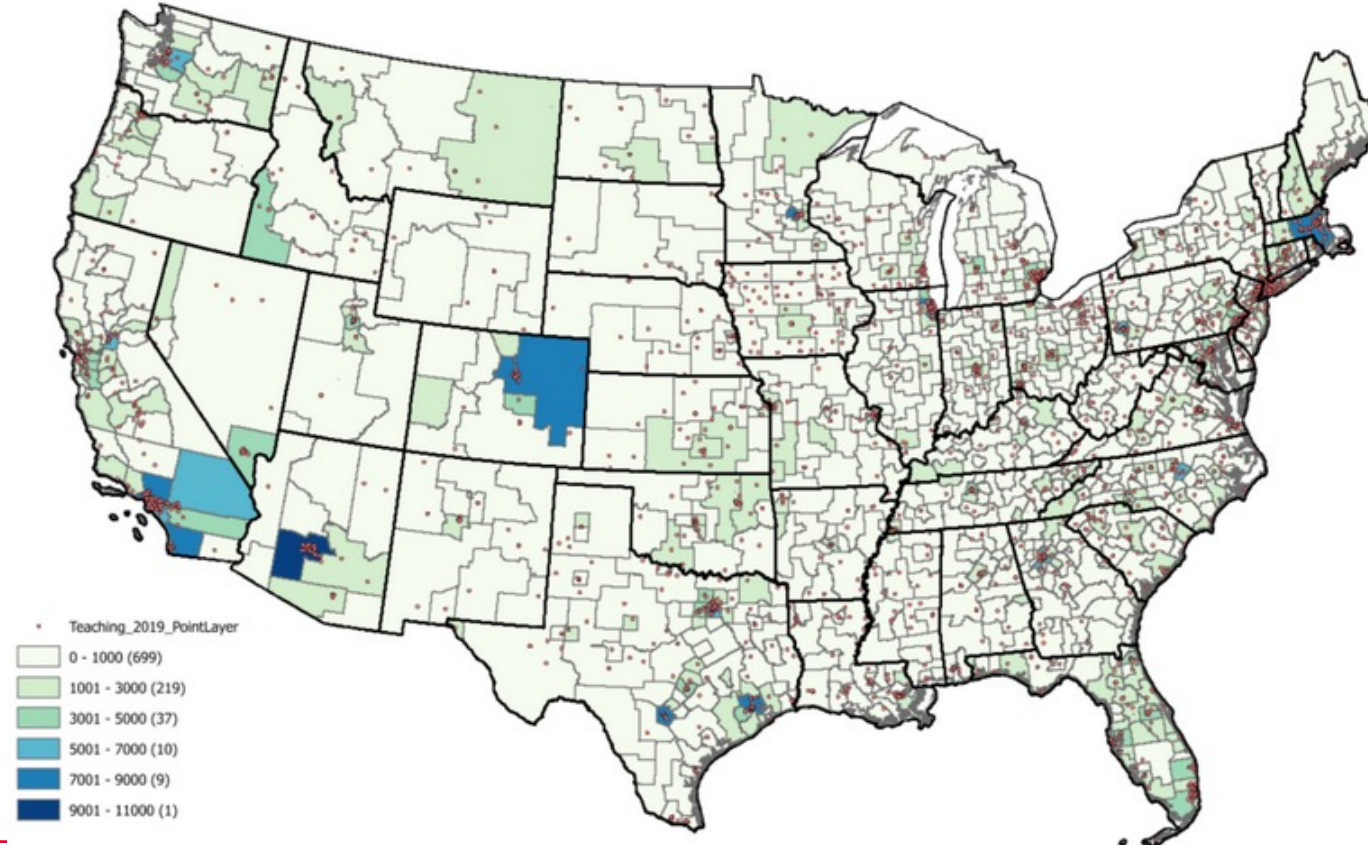


1. Federally run marketplace
2. Federally supported state-based marketplace
3. State-federal partnership
4. State based

0. Without Medicaid expansion
1. With Medicaid expansion

Healthcare Workers as Internal Migrants and Teaching Hospitals

Healthcare Workforce As Internal Migrants 2019



Final Considerations

- Healthcare workers are more likely to be internal migrants than those in other occupations. There is notable heterogeneity in their migration patterns based on healthcare occupational stratification.
- The findings provides support for segmented labor market migration theory and network theory
- More granular data is needed to understand migration trends in smaller local areas
- Spatial modeling is need to account for spatial dependency by measuring the influence of neighboring areas at origin and destination