Sources of Geographic Variation in Health Care
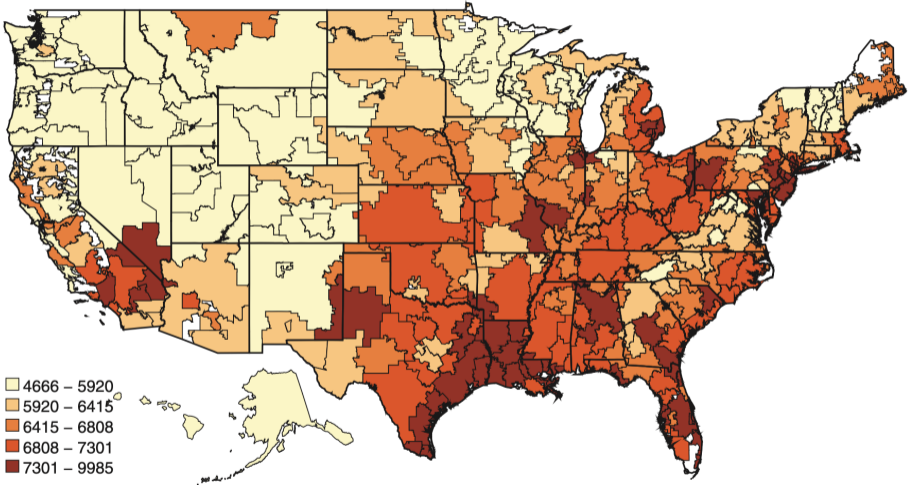
Finkelstein, Gentzkow & Williams (2016)

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Topics to cover

- Health Care Utilization in the US

- Sources of Geographic Variation

- Data

- Empirical Strategy

- Results

- Conclusion

Health Care Utilization in the US

Legend:
- 4666 – 5920
- 5920 – 6415
- 6415 – 6808
- 6808 – 7301
- 7301 – 9985

Sources of Geographic Variation

- **What drives geographic variation in healthcare utilization?**

Sources of Geographic Variation

- **What drives geographic variation in healthcare utilization?**

- Exploit patient migration to separate variation due to patient characteristics from variation due to place-specific variables.

- The log of a patient's annual health care utilization can be written as a combination of a patient fixed effect, a location fixed effect, and a vector of time-varying controls, including indicators for year relative to move for migrants.

Prior Literature

1. Supply-side factors are a key driver of geographic variation.

2. Patient preferences and characteristics other than health status explain little variation.

3. Differences in health status may be important, but the evidence is inconclusive.

Preview of Findings

- 47% of the difference in log utilization between above- and below-median areas is due to patient characteristics, with the remainder due to place-specific factors.

- Large patient shares for outcomes where patients have significant discretion and smaller patient shares for outcomes where they have less.

Data

- 20% of Medicare beneficiaries from 1998 through 2008 (13M patients).

- Each patient: all Medicare claims for inpatient care, outpatient care, and physician services.

- Each claim: diagnosis, type and quantity of care provided, and the dollar value reimbursed by Medicare.

- Patient demographics

- Health care utilization: total annual expenditure adjusted for regional variation in prices.

Data

- Geographic unit of analysis is a Hospital Referral Region (HRR).

- Nonmovers: if their HRR of residence is the same throughout the sample period.

- Movers: if their HRR of residence changes exactly once.

- Compare movers to a matched subsample of nonmover patient-years chosen to match as closely as possible the characteristics of our mover sample.

Empirical Strategy

$$y_{ijt} = \alpha_i + \gamma_j + \tau_t + x_{it}\beta + \epsilon_{ijt} \tag{1}$$

- y_{ijt} log of total health care utilization of patient i in geographic area j at time t.
- α_i patient fixed effects.
- γ_j area fixed effects.
- τ_t year fixed effects.
- x_{it} dummies for five-year age bins, and fixed effects $\rho_{r(i,t)}$ for movers, where for a mover who moves during year t_i^* the relative year is $r(i, t) = t - t_i^*$.

Empirical Strategy

Equation (1) for movers:

$$y_{it} = \tilde{\alpha}_i + \theta_{r(i,t)}\hat{\delta}_i + \tau_t + x_{it}\beta + \epsilon_{it} \tag{2}$$

- $\theta_{r(i,t)}$ measure changes in y_{it} in years around the move scaled relative to δ_i.
- $\delta_i = \bar{y}_{d(i)} - \bar{y}_{o(i)}$ difference in average log utilization between the mover's destination and origin.
- $\hat{\delta}_i = I_{r(i,t)>0} \, S^i_{place} \, \delta_i$
- $I_{r(i,t)>0}$ indicator variable for relative year greater than zero.
- $S^i_{place} = S_{place}(d(i), o(i))$ share of the difference between areas destination and origin attributable to place.
- $\alpha_i = \alpha_i + \gamma_{o(i)}$ patient fixed effects.
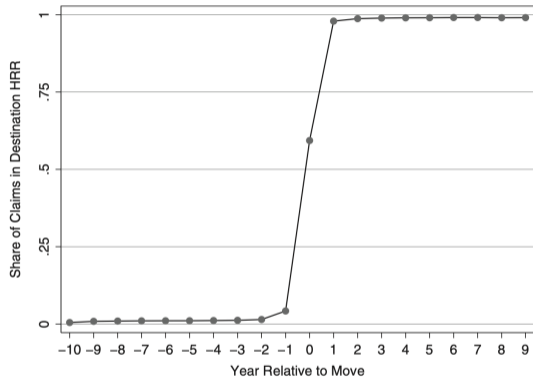
Claims and Utilization

FIGURE II

Share of Claims in Destination by Relative Year
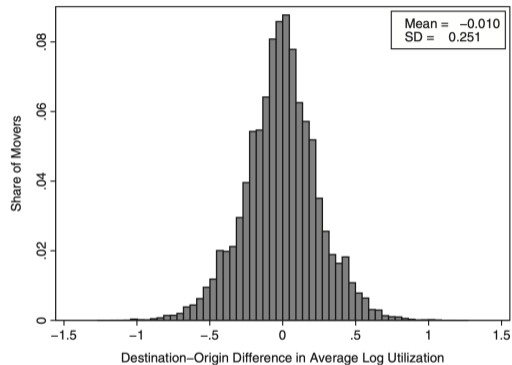

FIGURE III

Distribution of Destination-Origin Difference in Log Utilization
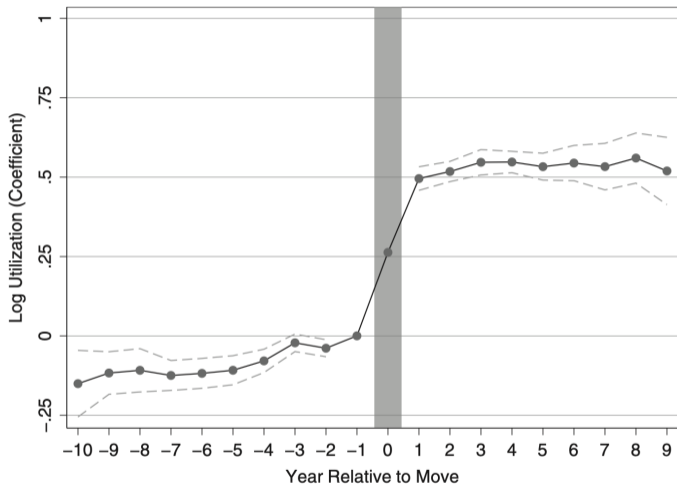
Event Study

FIGURE VI

Event Study

Decomposition of Utilization

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TABLE II

ADDITIVE DECOMPOSITION OF LOG UTILIZATION

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	(1) Above/ below median	(2) Top & bottom 25%	(3) Top & bottom 10%	(4) Top & bottom 5%	(5) McAllen & El Paso	(6) Miami & Minneapolis
Difference in average log utilization						
Overall	0.283	0.456	0.664	0.817	0.587	0.667
Due to place	0.151	0.271	0.406	0.461	0.374	0.466
Due to patients	0.132	0.185	0.258	0.356	0.213	0.200
Share of difference due to						
Patients	0.465	0.405	0.388	0.435	0.363	0.300
	(0.027)	(0.029)	(0.026)	(0.025)	(0.161)	(0.088)
Place	0.535	0.595	0.612	0.565	0.638	0.700

Conclusion

- 40–50% of geographic variation in the log of health care utilization is due to fixed characteristics of patients that they carry with them when they move.

- Patients matter more for outcomes such as emergency room visits, where they have substantial discretion, and they matter less for outcomes such as diagnostic and imaging tests, where the physician is the main decision maker.

- Continuing to drill down on the efficiency implications of geographic variation remains an important goal for future work.