

Evolving Measures of Provider Market Power

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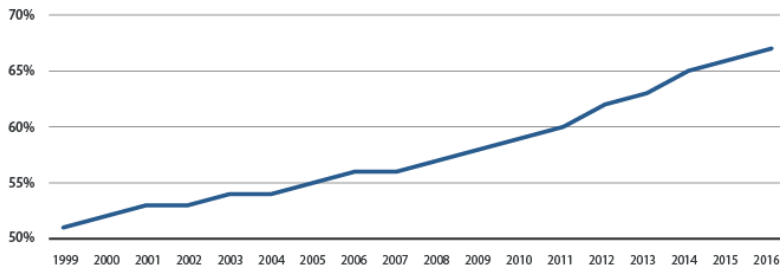
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FIGURE 2

Fewer hospitals are independent of health systems

Percent of community hospitals belonging to health systems, 1999–2016



Source: American Hospital Association, "Trendwatch Chartbook 2018" (2018), Table 2.1: Number of Community Hospitals, 1995–2016, available at <https://www.aha.org/system/files/2018-05/2018-chartbook-table-2-1.pdf>.



What is this effect on provider market power?

Motivation: Problems with Current Ad-hoc Approaches

Fixed Radii

- Hospitals can have very low or high market power depending on distance metric used to define the market.
- Gaynor, Kleiner, and Vogt (2013): The median US “market” using MSAs and HRRs contains 18 and 16 hospitals.
- Antitrust cases:
 - FTC vs. Evanston Northwestern
 - FTC vs. St. Luke’s Health System, Ltd.

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Variable Radii: Catchment Areas

- Elzinga-Hogarty method: Market definition of where hospitals draw patients from (inflow) and where patients travel for care (outflow) in the catchment area.
- Low patient flows are consistent with a range of market outcomes. High flows are supposed to indicate lack of market power.
- Zwanziger, Melnick, and Mann (1990) and Kessler and McClellan (2000) compute a distinct Herfindahl index for each hospital.

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- Zwanziger, Melnick, and Mann (1990) and Kessler and McClellan (2000) (KM) compute a distinct Herfindahl index for each hospital.

Better, but KM's method is still Ad-hoc because there is no formal theoretical model that directly links the structure measure to a market outcome.

Research Question

Is there a better approach to assess provider market power?

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Structural Approach

- Town and Vistnes (2001), Gaynor and Vogt (2003), and Capps, Dranove, and Satterthwaite (2003)
- Market shares are based on "micromarkets"
 - Small geographies
 - Demographics
 - Medical conditions

- Willingness to pay (WTP) represents the amount that a managed care payer is willing to pay to include a provider in its network.
- A simple bargaining model predicts that providers with higher WTP will receive higher revenues that WTP is highly correlated with hospital prices.

Preview of Findings

A measure of market power derived from an economic theory of hospital/physician bargaining WTP, outperforms other more traditional measures such as market share and the Herfindahl index.

Inpatient Hospital Utilization Data

California Office of Statewide Health Planning and Development (OSHPD):

- Compute inpatient revenues for privately insured patients
- 1990-1991
- Metropolitan areas only
- After restrictions:
 - 347 hospitals
 - 2.75 million patients

Ad-Hoc Methodology: Zwanziger & Kessler and McClellan (KM)

- Identify the micromarkets (i.e., location/disease category pairs) served by a given hospital.
- Measure each hospital's share in each micromarket m .
- Compute a Herfindahl index for each micromarket, which we call $Herf_m^{pat}$.
- Compute a weighted average of the Herfindahls across all micromarkets served by the hospital in question:

$$Herf_h^{hosp} = \sum_h \sigma_m^h Herf_m^{pat}$$

Weighted Average Share:

$$Share_h^{hosp} = \sum_m \sigma_m^h S_{mh} \quad (1)$$

Willingness to Pay (WTP) Methodology

- Identify the micromarkets (i.e., location/disease category pairs) served by a given hospital.
- WTP is derived from a theoretical model of demand:

$$W_{TP_h} = - \sum N_m \ln [1 - \hat{s}_{mh}] \quad (2)$$

- The WTP formula states that a hospital's bargaining power is related to its weighted predicted market shares in each and every micromarket that it serves.

Results (Horse Races)

TABLE 3. Dep var = private revenues (\$ 000s)

Panel A: Measure of market power = HHI (computation method differs across columns)						
	N/A (1)	N/A (2)	HHI (HRR) (3)	HHI (KM) (4)	HHI (HRR) (5)	HHI (KM) (6)
Costs (\$ 000s)	1.043 (0.0153) ^a	0.933 (0.0210) ^a	1.042 (0.0151) ^a	1.043 (0.0151) ^a	0.935 (0.0213) ^a	0.932 (0.0221) ^a
WTP		0.473 (0.0686) ^a			0.461 (0.0710) ^a	0.479 (0.0750) ^a
HHI			6513.4 (3014.4) ^b	6015.0 (2619.7) ^b	1981.9 (2787.8)	-458.0 (2562.1)
R ²	0.979	0.984	0.980	0.980	0.984	0.984
Panel B: Measure of market power = share (computation method differs across columns)						
	N/A (1)	N/A (2)	Share (HRR) (3)	Share (KM) (4)	Share (HRR) (5)	Share (KM) (6)
Costs (\$ 000s)	1.043 (0.0153) ^a	0.933 (0.0210) ^a	1.035 (0.0157) ^a	1.037 (0.0152) ^a	0.933 (0.0211) ^a	0.930 (0.0222) ^a
WTP		0.473 (0.0686) ^a			0.478 (0.0735) ^a	0.490 (0.0797) ^a
Share			4019.8 (2002.6) ^b	5138.1 (1826.4) ^a	-312.4 (1912.1)	-806.7 (1914.3)
R ²	0.979	0.984	0.980	0.980	0.984	0.984

Notes: Regressions contain full set of controls. Regressions weighted by number of hospitals in market/chain. Number of observations = 182 in all specifications. Standard errors in parentheses.

^a $p < 0.01$, ^b $p < 0.05$, ^c $p < 0.10$.