

# The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured

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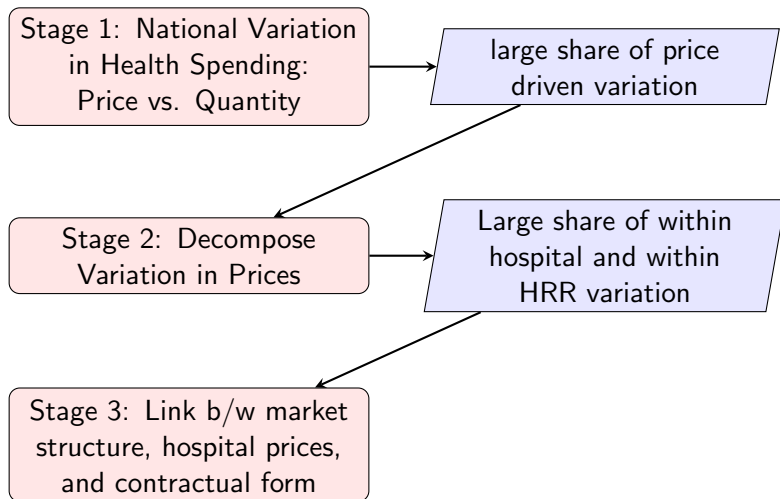
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- ▶ This population is arguably different than Medicare- the main source of many studies
- ▶ Insurance premiums are high and still rising
- ▶ **Contribution:** Using new data to obtain valuable information about the private market

# Paper Outline



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- ▶ Includes charges, negotiated prices and payments made by patients
- ▶ Can be linked to AHA for hospital characteristics and medicare info

## Stage 1: National Spending Variation

$$\text{var}(\ln(p_r q_r)) = \text{var}(\ln(p_r)) + \text{var}(\ln(q_r)) + 2\text{cov}(\ln p_r, \ln q_r)$$

$p_r$ : average price in HRR  $r$

$q_r$ : # inpatient visits/ # beneficiaries

# Stage 1: National Spending Variation

TABLE II  
PRICE/QUANTITY DECOMPOSITION OF MEDICARE AND PRIVATE HEALTH SPENDING, 2011

	Private			Medicare		
	Share price (1)	Share quantity (2)	Share co-variance (3)	Share price (4)	Share quantity (5)	Share co-variance (6)
Respiratory system diagnosis w/ ventilator support 96+ hours	0.650	0.415	-0.064	0.102	0.771	0.127
Percutaneous cardiovasc proc w/ drug-eluting stent w/o MCC	0.465	0.681	-0.146	0.153	1.113	-0.265
Major small & large bowel proc w/ MCC	0.676	0.299	0.025	0.213	0.888	-0.101
Major small & large bowel proc w/ CC	0.474	0.453	0.073	0.193	0.811	-0.005
Esophagitis, gastroent, & misc digest disorders w/o MCC	0.387	0.637	-0.024	0.164	1.028	-0.192
Spinal fusion except cervical w/o MCC	0.334	0.512	0.154	0.085	1.067	-0.152
Major joint replacement or reattachment of lower extremity w/o MCC	0.381	0.645	-0.026	0.213	0.973	-0.186
Infectious & parasitic diseases w/ OR proc w/ MCC	0.701	0.360	-0.061	0.112	0.769	0.119
Septicemia w/o MV 96+ hours w/ MCC	0.536	0.365	0.099	0.120	0.815	0.064
Rehabilitation w/ CC/MCC	0.460	0.430	0.109	0.056	1.164	-0.219
Average shares (weighted by spending)	0.496	0.495	0.009	0.127	0.953	-0.081

## Stage 2: Decomposing Variation in Price

- Across HRRs, Within HRRs and Within hospitals

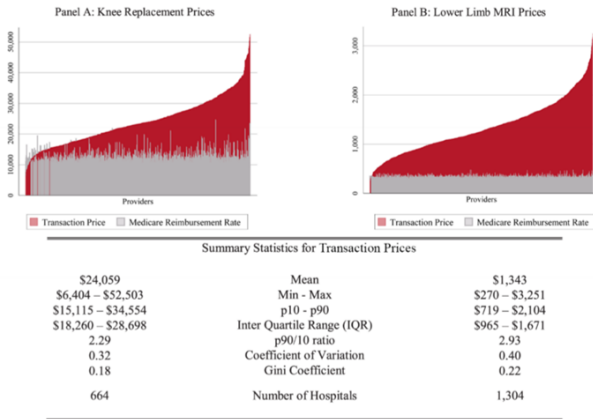


FIGURE III

National Variation in Hospital Prices for Knee Replacement and Lower-Limb MRIs, 2011

## Stage 2: Decomposing Variation in Price

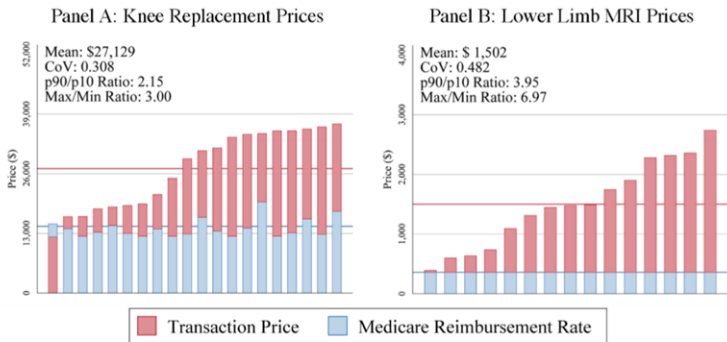


FIGURE IV

Within-Market Hospital Price Variation for Philadelphia, PA, 2011

## Stage 2: Decomposing Price Variation

TABLE III  
DECOMPOSITION OF HOSPITALS' TRANSACTION PRICE VARIATION

	$R^2$					Unexplained within hospital-month variance (%)	Observations
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Hip replacement	0.006	0.017	0.502	0.763	0.776	22.4	15,122
Knee replacement	0.006	0.016	0.416	0.728	0.756	24.4	37,157
Cesarean section	0.011	0.029	0.432	0.726	0.755	24.5	81,482
Vaginal delivery	0.012	0.030	0.381	0.647	0.701	29.9	108,794
PTCA	0.005	0.019	0.478	0.724	0.760	24.0	16,636
Colonoscopy	0.010	0.024	0.412	0.759	0.820	18.0	66,017
Lower-limb MRI	0.001	0.008	0.331	0.774	0.784	21.6	113,914
Mean						23.5	
Patient characteristics	Yes	Yes	Yes	Yes	Yes		
Plan characteristics	No	Yes	Yes	Yes	Yes		
HRR fixed effects	No	No	Yes	—	—		
Hospital fixed effects	No	No	No	Yes	Yes		
Control for charges	No	No	No	No	Yes		

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- Takeaway: Large amount of variation coming from all three categories



## Stage 2: Analyzing Insurer-Hospital Contracts

Types of contracts:

- ▶ Prospective Payment: fixed prices set ahead of time
  - ▶ risk is put onto the hospital
  - ▶ subset of prospective is price as percentage of Medicare rates: this is the baseline insurers start with
- ▶ Percentage of Hospital Charge
  - ▶ risk is put onto the insurer
  - ▶ the hospital has less pressure to lower costs
- ▶ Hybrid
  - ▶ prospective payment with outlier adjustments

## Stage 2: Analyzing Insurer-Hospital Contracts

Algorithm to identify contracts:

- ▶ Fix DRG/procedure
- ▶ Group identical prices or percentage of charges
- ▶ If 2 or more claims share a grouping, categorize that contract type

## Stage 2: Analyzing Insurer-Hospital Contracts

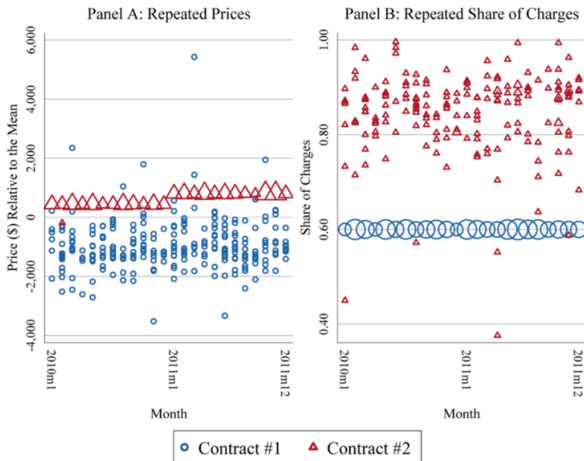


FIGURE VI  
Repeated Price and Share of Charge Agreements at a Hospital for Vaginal  
Delivery, 2010–2011

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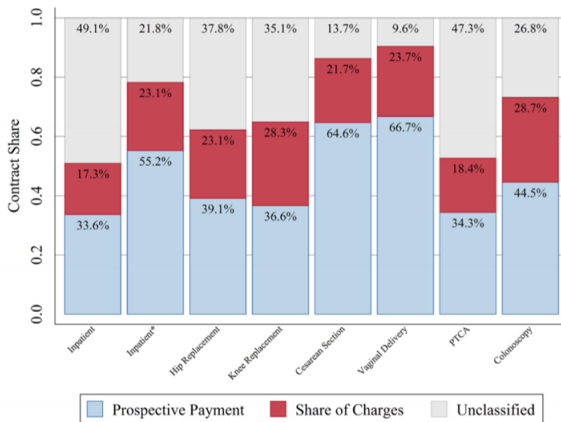


FIGURE VII  
Contract Classifications Overall and by Procedure, 2010–2011

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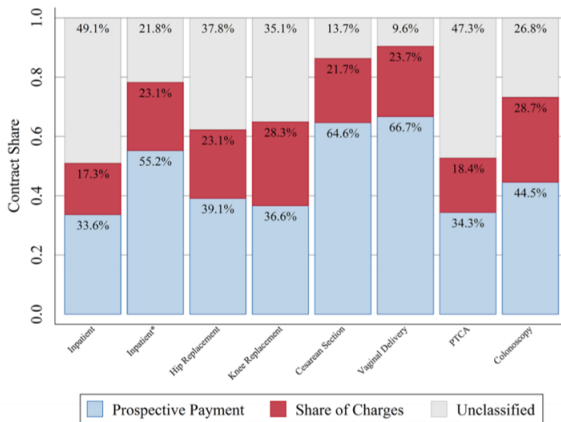


FIGURE VII

Contract Classifications Overall and by Procedure, 2010–2011

- Leads to the question: how many prospective payments are tied to Medicare?

## Stage 2: Analyzing Insurer-Hospital Contracts

- ▶ Out of the prospective group of claims, find the ones across DRGs that are the same percentage of Medicare payment rates
- ▶ Find that 57% are tied to Medicare, but there is a lot of heterogeneity

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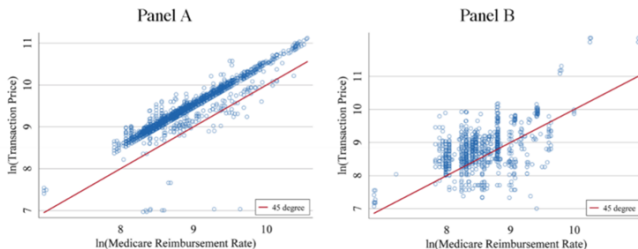


FIGURE VIII

Medicare Reimbursements and Transaction Prices at Two High-Volume Hospitals, 2011

## Stage 3 : Market Structure and Hospital Prices/Contracts

$$y_{h,t} = \alpha' M_{h,t} + \gamma' x_{h,t} + \tau_t + v_{h,t}$$

- ▶  $y_{h,t}$ : outcomes
  - ▶ inpatient hospital price index
  - ▶ procedure-level prices
  - ▶ percent of cases paid as share of charges
  - ▶ percent of prospective payments linked to Medicare fee schedule
- ▶  $M_{h,t}$ : measures of hospital and insurer market structure
- ▶  $x_{h,t}$ : control variables
- ▶  $\tau_t$ : year dummies



## Stage 3 : Market Structure and Hospital Prices/Contracts

### Measures of Market Structure:

- ▶ Hospital Main: 15 miles radius around hospital defines geographic market
  - ▶ Robust to alternative measures
- ▶ Insurer Main: market share of privately insured lives at the county level

# Stage 3 : Market Structure and Hospital Prices/Contracts

TABLE IV  
HOSPITAL CONCENTRATION, PRICES, AND CONTRACT FORM, 2008–2011

	(1)	(2)	(3)
Panel A: $\ln(\text{hospital price})$ ; mean = 9.42, obs = 8,772, number of hospitals = 2,358			
Monopoly	0.234*** (0.024)	0.190*** (0.024)	0.118*** (0.024)
Duopoly	0.161*** (0.021)	0.130*** (0.020)	0.073*** (0.024)
Triopoly	0.115*** (0.023)	0.083*** (0.023)	0.036 (0.023)
HCCI market share		-0.006*** (0.002)	-0.007*** (0.002)
Panel B: Percent of cases paid as share of charges; mean = 18.6%, obs = 4,344, number of hospitals = 2,253			
Monopoly	17.335*** (1.828)	15.241*** (1.823)	10.455*** (1.778)
Duopoly	9.979*** (1.760)	8.424*** (1.740)	5.702*** (1.596)
Triopoly	7.804*** (1.909)	6.235** (1.938)	4.909** (1.608)
HCCI market share		-0.288*** (0.077)	-0.403*** (0.120)
Panel C: Percent of cases of prospective payments tied to Medicare; mean = 48.3%, obs = 3,669, number of hospitals = 1,936			
Monopoly	-16.849*** (2.882)	-11.275*** (2.696)	-11.293*** (3.160)
Duopoly	-8.791*** (2.441)	-4.272* (2.443)	-5.595** (2.316)
Triopoly	-7.111** (2.866)	-2.422 (2.727)	-5.747** (2.790)
HCCI market share		0.890*** (0.091)	0.616*** (0.174)
HRR fixed effects	No	No	Yes

## Stage 3 : Market Structure and Hospital Prices/Contracts

### Takeaways:

- ▶ Market Structure is strongly associated with hospital prices
- ▶ A more concentrated insurance market is associated with price decrease and more Medicare-tied contracts

## Stage 3: Hospital Mergers

$$\ln(\hat{p}_{h,t}) = \beta \text{MERGE}_{h,t}^D + \eta_h + \delta_t + v_{h,t}$$

$\text{MERGE}_{h,t}^D$ : indicator for whether a hospital has merged, categorized based on physical distance (superscript D)

## Stage 3 : Hospital Mergers

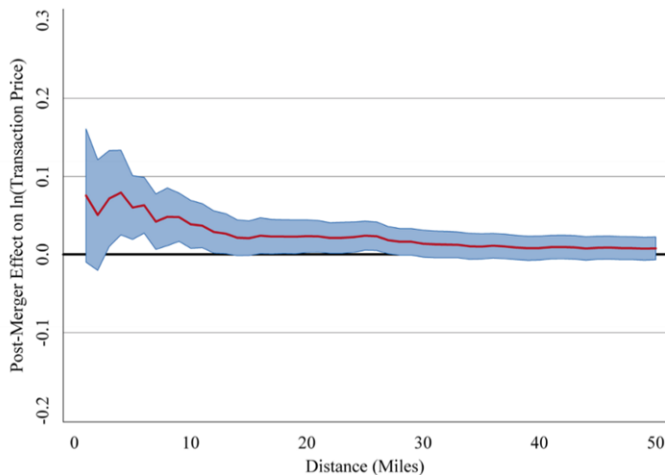


FIGURE X

How Merger Coefficient Changes for Mergers Between Hospitals of Different Geographical Proximity

# Conclusion

- ▶ Nothing too fancy, but provides a lot of valuable information on a correlation level
- ▶ Results follow very closely with what intuition suggests: Higher market power allows more control over hospital-insurer contract and thus higher prices
- ▶ Biggest threat is missing BCBS information (could affect market structure)