

Driving a Bargain: Negotiation Skill and Price Dispersion

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Motivation

- **Negotiation** is central to most economic transactions
 - Trade agreements
 - M&A
 - Supply contracts
 - Employment agreements & collective bargaining

Research question:

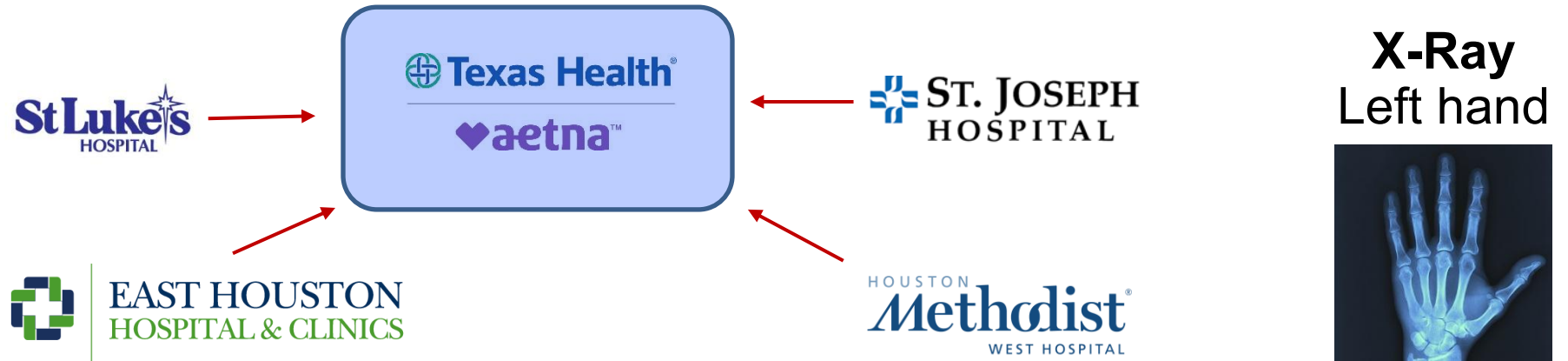
- How do **agents' bargaining skills** affect negotiation outcomes?

This paper

1. **Develop a measure** of managers' negotiation skill from their **private transactions**
2. Investigate the **origins & determinants** of negotiation skill
3. Study the association b/w **negotiation skill** & business **contract outcomes**

Empirical Setting

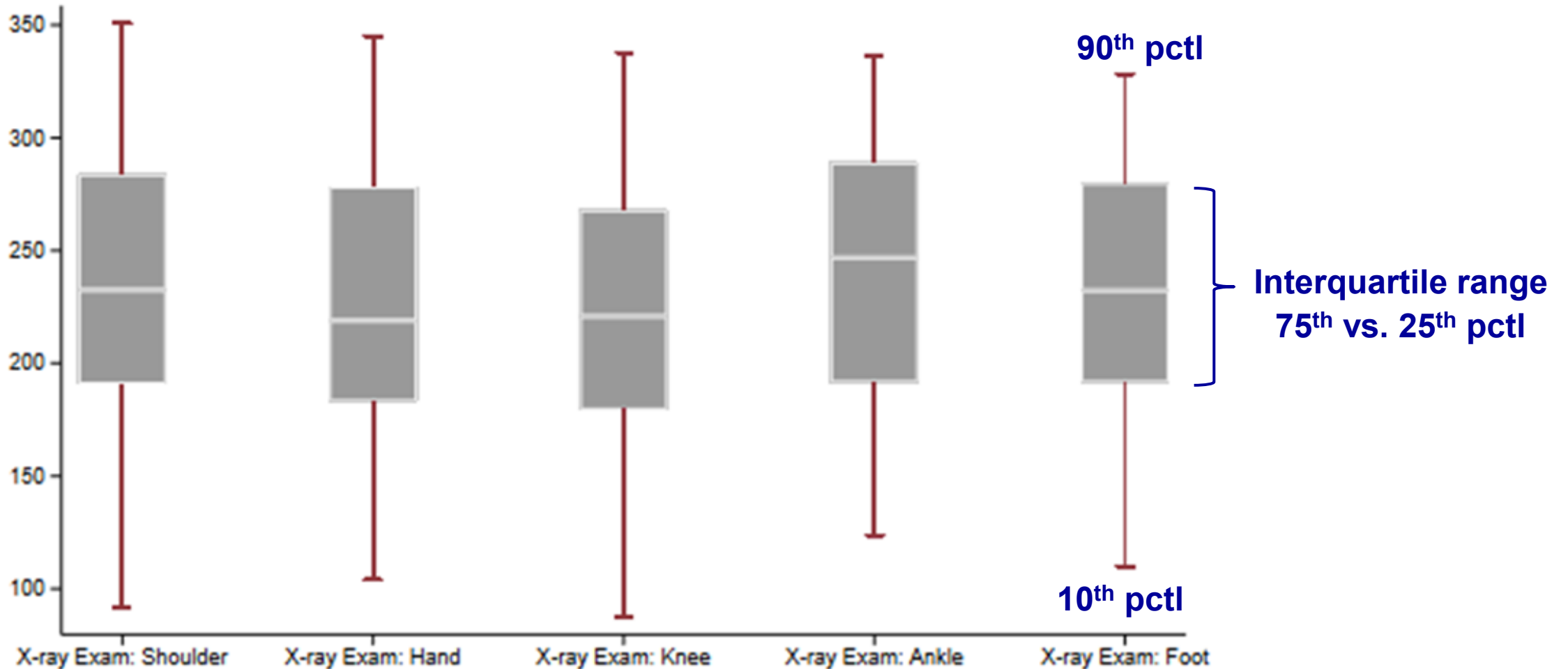
- Contracts b/w **hospitals & insurance firms** for medical services in Texas



- Negotiated outcomes with the **same counterparty** for the **same service**
- Societal implications**: access to care, treatment outcomes, and survival rates

Prices Paid to Different TX Hospitals by the **Same Insurer**

Price, \$



Prices paid by **same insurer** to **diff. hospitals** vary by **30-45%** for standard services

Negotiations of Hospital Managers with Insurers

- **Hospital executives** usually negotiate paid rates (Dorn, 2024)
 - **Price paid by insurer** per procedure and diagnosis group
- **Illustration: Role of Hospital Managers**
- Blue Cross Blue Shield of Texas... sent [**interim CEO** Keith Butler] a letter asking to **renegotiate its contract** with the hospital. All Butler had to do was sign.
- “I pulled it up and started looking at the contract. It was terrible. It would have hurt this hospital a lot.” Butler sent **a counteroffer**.

- *The Texas Observer*, Dec. 8, 2018



- **CEO of Duke Health, Craig Albanese:**

“We continue to have concerns regarding our contract with United Healthcare... We were willing to make changes in **our last offer** to **expedite negotiations**.”

- *Becker Hospital Review*, Oct. 8, 2024



Measuring Managers' Negotiation Skill (NS)

Motivation: Theory of Behavioral Consistency (Allport 1937; Epstein 1979)

- Agents reveal **similar skills** between **personal & professional** tasks

Empirical Approach

- Study managers' bargaining outcomes in large personal transactions → **car purchases**
- **Bargaining** explains variation in prices paid for the same car (Busse and Silva-Risso 2010)

Measurement

- Compare a **manager's negotiated price** to the prices **paid by others** for the **same vehicle** (make/model/year/mileage), at the **same dealership**, and in the **same month**



Summary of Findings

Negotiation skill (NS)

- **Persistent**, manager-specific attribute
- Explained by **family-level factors** (such as culture, immigrant status, wealth at birth, etc.)
- Correlates with bargaining outcomes in **other settings** → **real estate** transactions

Business Contract Outcomes

- Managers with a higher NS achieve better reimbursement rates for **identical procedures** at the **same hospital** and the **same counterparty**
- One σ increase in **NS** ~ **10.1%** higher reimbursement rates
- Hospitals **losing a skilled negotiator** for natural causes (illness, death, age-based retirement) experience a **deterioration in contract prices** over the re-negotiation horizon (2-4 years)

Structural Estimation → Counterfactuals

- Homogenous **NS** would **reduce price dispersion** across hospitals by **5%**

1. Managers' Personal Transactions



Data

Vehicle Transactions → all sales of new & used cars in TX (2014–2023)

- Buyer/seller names & addresses
- Vehicle details: VIN, make-model-trim, mileage, year & place of manufacturing
- Dealer's license number (e.g., Lexus Richardson):
 - Focus on dealer-to-retail transactions → **same counterparty**
 - Exclude non-bargain transactions (wholesale dealers, Carvana, Tesla)



Customer and Manager Attributes

- Data Axle → consumer research database of 180+ mil. individuals
 - Names of each member in a household and **address history** from USPS
 - **Demographics**: age, gender, ethnicity, marital status, kids, occupation
- Lexis Public Records → personal & **professional records** linked to SSNs (last digits masked)
 - **Employment, real estate**, relatives & their addresses, state of origin, immigrant (SSN)



LexisNexis®

9 mil. transactions, **7 mil.** buyers, **1,303** managers of **700+** hospitals

What Cars Do Managers Buy?

	Hospital Manager	General Public	Diff	t-value
Transaction Characteristics				
<i>Vehicle Sale Price (in \$1,000)</i>	57.662	37.337	20.325	(21.47)
<i>Total Transactions</i>	4.288	2.370	1.918	(24.18)
<i>Travel Distance (km)</i>	64.661	44.123	20.538	(10.66)
<i>End of Month</i>	0.205	0.202	0.003	(0.44)
<i>End of Year</i>	0.054	0.040	0.013	(3.34)
Vehicle Attributes (at Purchase)				
<i>Odometer Reading (1,000 miles)</i>	14.377	25.031	10.654	(21.72)
<i>Vehicle Age (years)</i>	1.399	2.450	-1.051	(-20.11)
<i>New Vehicle</i>	0.518	0.429	0.089	(9.98)
<i>Engine Displacement</i>	3.637	3.437	0.200	(7.68)
<i>Foreign Brand</i>	0.554	0.479	0.076	(8.55)
<i>US Manufacture</i>	0.580	0.587	-0.007	(-0.84)

Economically significant, infrequent transactions

Managers prefer newer vehicles and foreign brands

Ranking	Hospital Manager		General Public	
	Brand	Percent (%)	Brand	Percent (%)
1.	FORD	15.26	FORD	17.30
2.	TOYOTA	9.55	CHEVROLET	14.07
3.	CHEVROLET	8.66	TOYOTA	12.24
4.	BMW	6.95	NISSAN	6.98
5.	JEEP	5.30	HONDA	5.66

2. Negotiation Skill Measure: Estimation & Validation

Negotiation Skill (NS) Measure

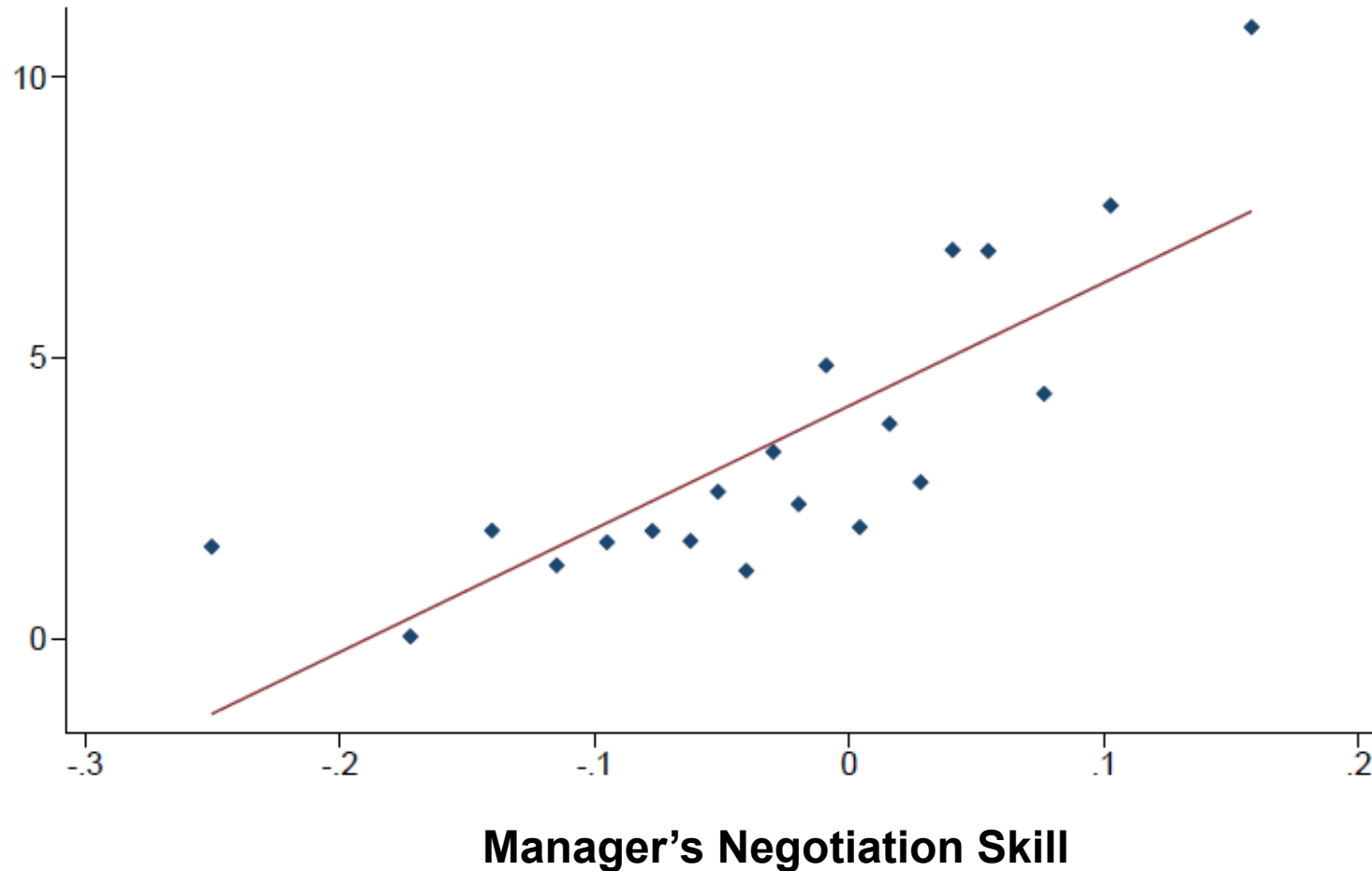
- Intuition: price paid relative to other clients buying the **same vehicle** (new 2017 Honda Accord LX, 2.4L) at the **same dealership** (Toyota of Grapevine) in the **same month**
 - Control for **vehicle characteristics** & **market competition** (# same-brand dealerships)

$$\ln(\text{Sale Price}_{ijdt}) = \alpha_1 \text{Veh Char}_{jt} + \alpha_2 \text{Demographics}_{it} + \alpha_3 \text{Mkt Comp}_{dt} + \alpha_4 \text{Travel Distance}_{id} + \text{VIN Num FE} + \text{YearMonth FE} + \text{Dealer FE} + \text{FIPS FE} + \varepsilon_{ijdt}$$

Negotiation Skill = negative ε_{ijdt}

Validation: NS and **Discount from the Asking Price**

% discount from asking price

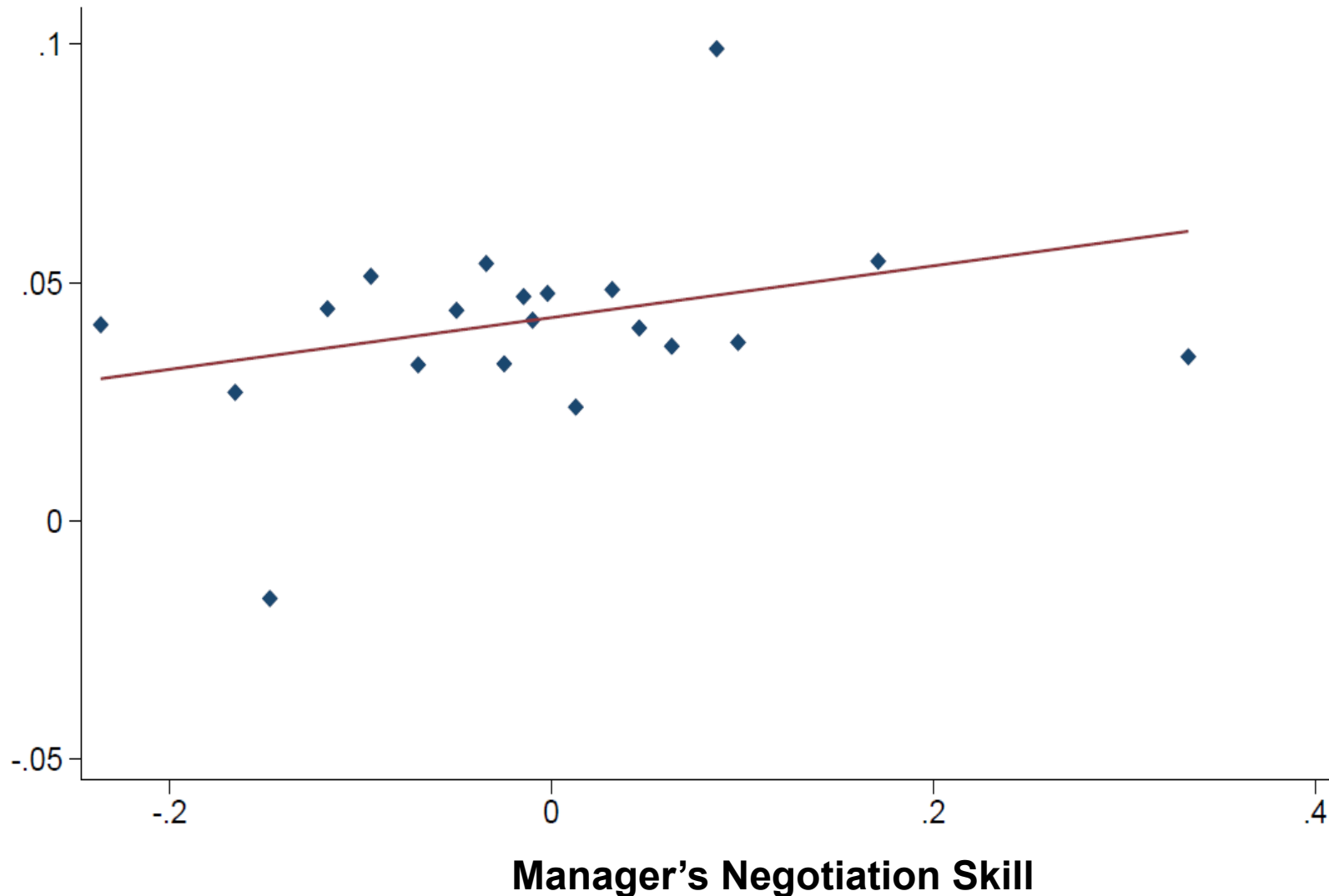


1. Using the vehicle-specific VIN, obtain its **asking price** (listed price)
2. Compute the discount between **price paid** vs. **asking price**

Since the asking price is car-specific, it accounts for **unobservable attributes**

Out-of-Sample Validation: NS and Real Estate Transactions

Annualized return
on real estate trans.



1. Obtain managers' **real estate deeds**
2. Collect **transaction prices** from Zillow
3. Compute **housing returns (y-axis)**

Validation: Demographics & Professional Skillsets

Dep. Variable: Manager's Negotiation Skill (NS)

	Personal	Self-reported skills LinkedIn	Intelligence
Female	-0.015** [-2.00]		
Minority	-0.003 [-0.26]		
Negotiation skill		0.025** [2.02]	
MGMT skill		-0.006 [-0.75]	
Leadership skill			-0.003 [-0.39]
Ave. SAT score			-0.000 [-1.54]

Women less likely to negotiate, consistent with prior research

Positive correlation with self-reported negotiation skill

Weakly **negative** correlations with leadership and IQ, consistent with distinction from cognitive skills

3. Characteristics and Origins of Negotiation Skill



Time-Series Properties of Negotiation Skill

- Persistent across multiple transactions of the same agent
- Both for the general population and hospital managers

Persistence in NS				
DV: Negotiation Skill (t)				
	Full Sample		Manager Sample	
	(1)	(2)	(3)	(4)
<i>Negotiation Skill</i> ₀	0.144*** (50.04)	0.143*** (49.82)	0.059** (1.98)	0.056* (1.80)
<i>Month Gap</i> ₀		-0.000 (-1.07)		-0.000 (-1.17)
<i>Yr-Month FE</i>	N	Y	N	Y
<i>County FE</i>	N	Y	N	Y
<i>Controls</i>	N	Y	N	Y
<i>N</i>	3,135,753	3,135,753	1,848	1,809

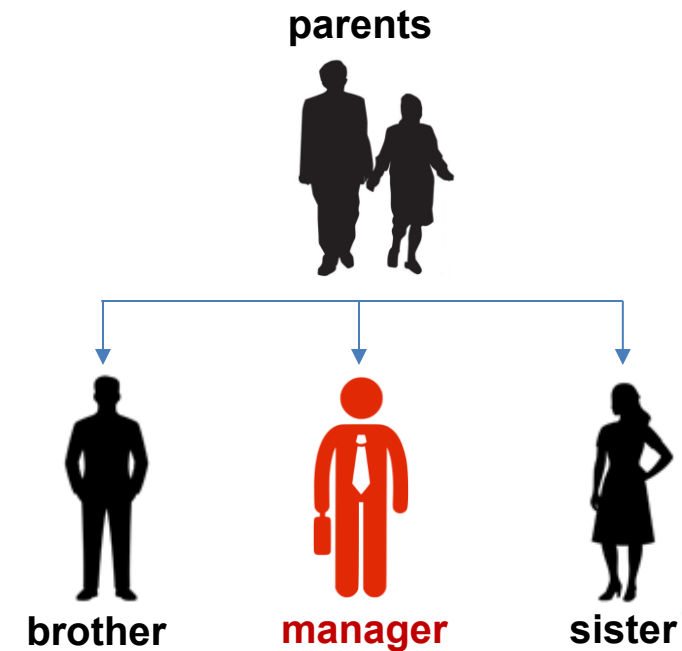
Cross-Sectional Determinants of Negotiation Skill

Sociology points to endowed factors:

- Cultural norms
 - Adair and Brett, 2004
- Family upbringing
 - Gunia et al. (2016)
- Endowed social status
 - Gunia et al. (2016)
- Formative experiences
 - Krüger et al. (1994)

Our Approach:

1. Map **managers** → **families** (birth records)



2. Study **car negotiation outcomes** of siblings & parents

What Explains Variation in Negotiation Skill?

DV: Negotiation Skill

Family FE

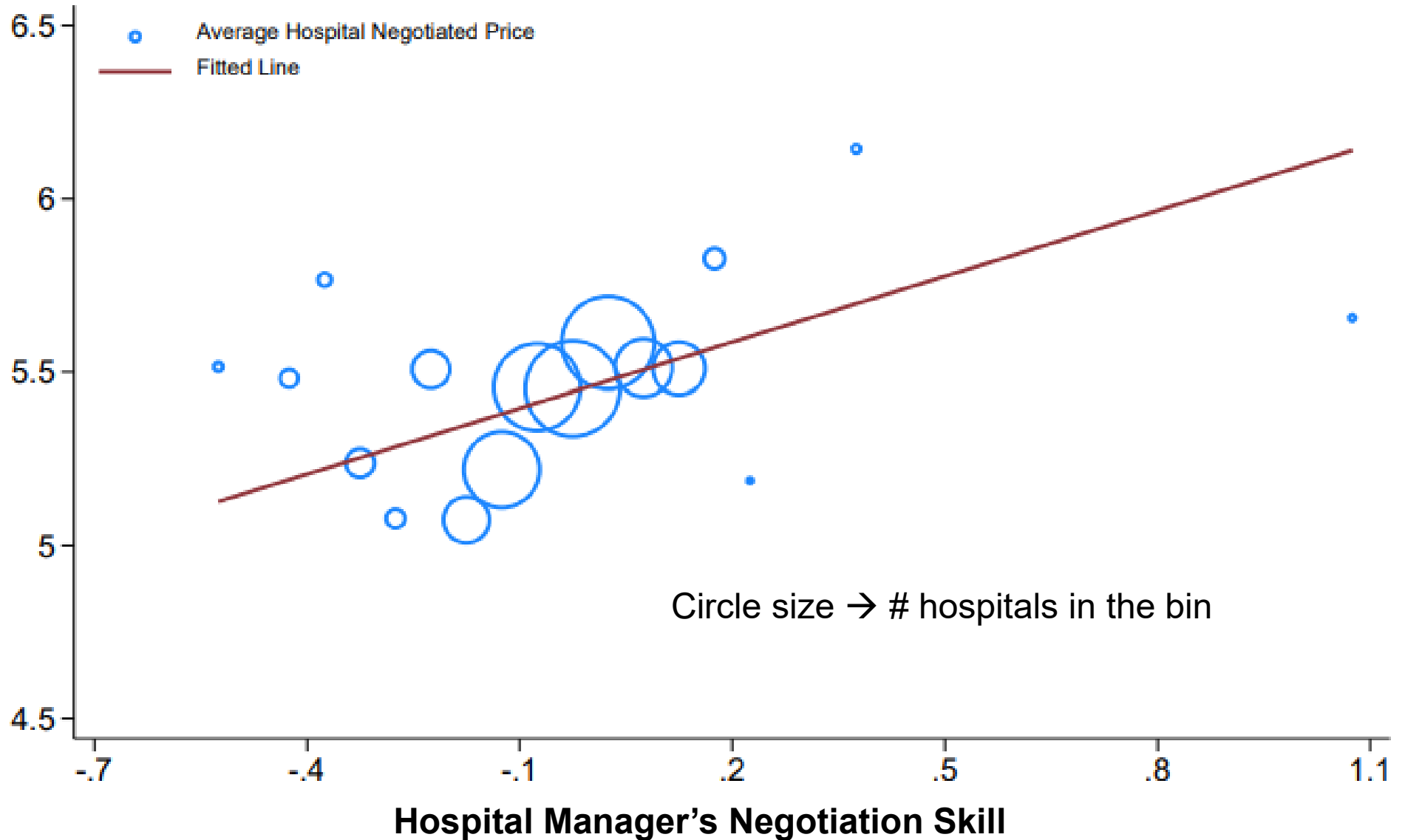
R^2	0.26	0.39
<i>Family FE</i>	Y	Y
<i>County FE</i>	N	Y
<i>Controls</i>	N	Y
<i>N</i>	1,286	1,266

1. Familial & endowed factors explain **26%** of NS
2. Gender, demographics, & location raise R^2 to **39%**
 - consistent with evidence on bargaining propensity (Goldsmith-Pinkham and Shue JF 2023)

4. Main Results: Negotiation Skill & Contract Prices

Negotiation Skill and Contracted Prices with Insurers

Price per service
the insurer pays
to the hospital



Hospital Manager's NS and Negotiated Prices

DV: Procedure Price

	Top 3 X-ray	Top 5 X-ray	Top 10 X-ray
	(1)	(2)	(3)
Negotiation Skill	0.534*** (3.28)	0.471*** (2.86)	0.359** (2.38)
<i>Procedure FE</i>	Y	Y	Y
<i>Insurer FE</i>	Y	Y	Y
<i>Hospital Facility FE</i>	Y	Y	Y
<i>Year FE</i>	Y	Y	Y
<i>Controls</i>	Y	Y	Y
<i>N</i>	72,595	108,578	177,898
<i>adj-R²</i>	0.555	0.535	0.506

Controls:

- patient diagnosis
- patient age & gender
- 3-digit zip

For the same hospital and procedure, a **10% ↑ in NS** ~ **3.6-5.3% ↑** in payment from insurer

5. Matching between Managers and Hospitals

Selection of Managers into Hospitals

1. Do better hospitals attract stronger negotiators?
 - NS **uncorrelated** with the **trailing hospital financials** (margins, leverage, profitability)
2. **MGT departures for natural causes**: illness, death, age-based retirement
 - Hospitals losing strong negotiators get **worse prices** in the coming years (renewal)
 - Star negotiators **hard to replace** (segmented labor market; poaching is rare)
3. **Insurer consolidation as a shock to bargaining power**: fix hospital-manager matches
 - Higher insurer power ~ **lower reimbursement**
 - **Strong hospital negotiators hold up** prior contract terms

Conclusion

- One of the **first measures of negotiation skill** → objective, continuous, and scalable
- Negotiation skill → a **persistent personal attribute** repeated across transactions
- Higher NS ~ **better outcomes** in business-to-business contracting

Negotiation skill is a **portable asset** of human capital transferable across settings