The Good, the Bad and the Ordinary: Estimating Agent Value-Added Using Real Estate Transactions

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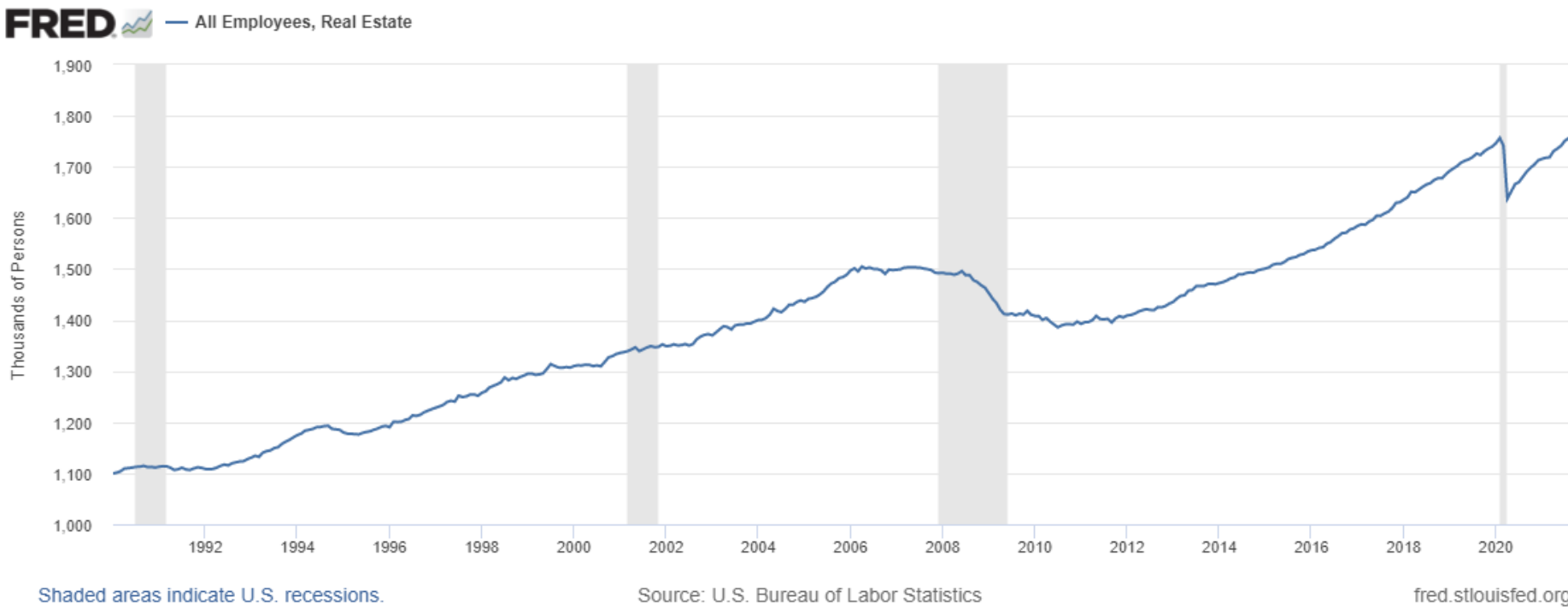
Real Estate Agents in US

"Real estate agents assist $\sim$ 90% of residential transactions in the U.S, earning $81 billion in commissions annually" – the NAR Report, 2017

"More than 3 million people holding active real estate licenses. RE agents represent the largest trade organization." – ARELLO, 2022



NAR Settlement will allow buyer's agent's commission to be

Real Estate Agents in US

- Real estate agents are costly (6% commission)
- "Compensation that is objective (e.g., $0, X flat fee, X percent, X hourly rate)—and not open-ended (e.g., cannot be "buyer broker compensation shall be whatever the amount the seller is offering to the buyer")." NAR Settlement language.
- Commission split 50/50 between listing and buying agent
- But with easy entry
  - License requires $\sim$ 20 hours of classes/exam
  - No degree requirement
- Flat-fee broker, $200 just to list house on MLS
- Difficult for clients to estimate agent performance (value added)
- Distribution of agents' value-added is unknown
  - Gilbukh and Goldsmith-Pinkham (2021) heterogeneity across housing cycles

Principal-Agent Problem

A client and listing agent have a partnership with different input and payout structure.

- The client provides house and receives equity net of commission.
- The listing agent provides labor/effort and typically gets 3 percent of the total sales price.
- The listing agent is likely to maximize her income by selling many homes, quickly, at a lower price.
  - When a real estate agent sells their own home, they take longer and sell for more.
    (See Levitt and Syverson (2008), Rutherford et al. (2005), Lopez (2021), Shen and Ross (2021), and Agarwal et al. (2019))

Research Goals

Estimate individual agents' performances (fixed effects) across time and transactions to:

1. Document heterogeneity in agent value-added (to clients)
   - Listing Agent: Prices, Days-on-market
   - Buyer Agent: Prices

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   - Listing Agent: Prices, Days-on-market
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2. Explore factors that determine performances
   - Experiences – years worked as an agent
   - Market conditions – when good agent create value
   - Persistence –is high performance persistent or fleeting
   - Does the market reward high-performing agents?
   - Race, gender, firm size (in follow-up paper)

Preview of Findings

- Significant heterogeneity in agent outcomes
  - On average, listings by flat-fee agents sell at a 1% to 4.4% premium before commission
  - 15-21% price difference between 5th and 95th percentiles of agent distribution.
  - 44-77 days for days-on-the-market
  - Only 15% listing agents get higher prices than flat-fee sellers (net of typical 3% commission).
- Little evidence for agent bargaining/negotiating/haggling skills
  - Top Agents **sell** for more, but also **buy** for more.
- Top agents (for both buying and selling) create value in down (thin) markets.
- Agent performance is persistent.
- Top agents gain more listings.
- But... bad buying agents *more* likely to be subsequent listing agent.

Disclaimer: we are aware agents provide other services valuable to

Outline

1. Relevant Literature
2. Data
3. Baseline and Recovering Agent FEs
   - Price
   - Days-On-Market (DOM)
4. Distributions and correlations of agent FEs
5. Determinants of Agent Performance
   - Experience
   - Market Condition
6. Is skill observed by the market?
   - listing growth
   - re-hires

Relevant Literature

- Studies use fixed effects models to estimate productivity of various types of agents/workers:
  - Bertrand and Schoar (2003) – firm managers, Aaronson et al. (2007) – teachers, Bao and Edmans (2011) – investment banks (M&A).
- Real estate price and days-on-market:
  - Springer (1996), Inaltekin et al. (2011), Benefield et al. (2011), Turbull and Waller (2018), Shen and Springer (2022).
- Agents as Matchmakers and Principal–agent problem in the real estate market:
  - Rutherford et al. (2005), Levitt and Syverson (2008), Han and Hong (2016), Agarwal et al. (2019), Shen and Ross (2021).
- For sale by owner (FSBO) literature:
  - Johnson et al. (2005), Levitt et al. (2008), Hendel et al. (2009), Bernheim and Meer (2013).

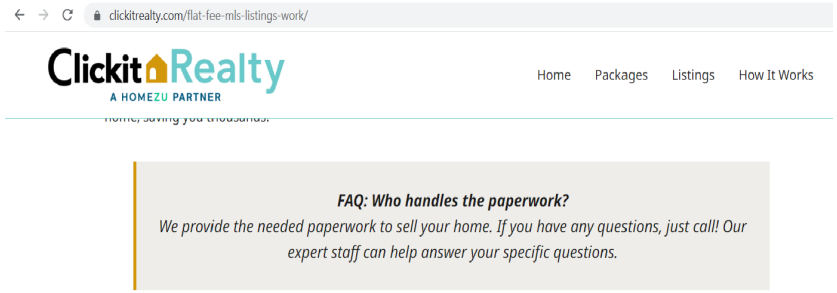
Data

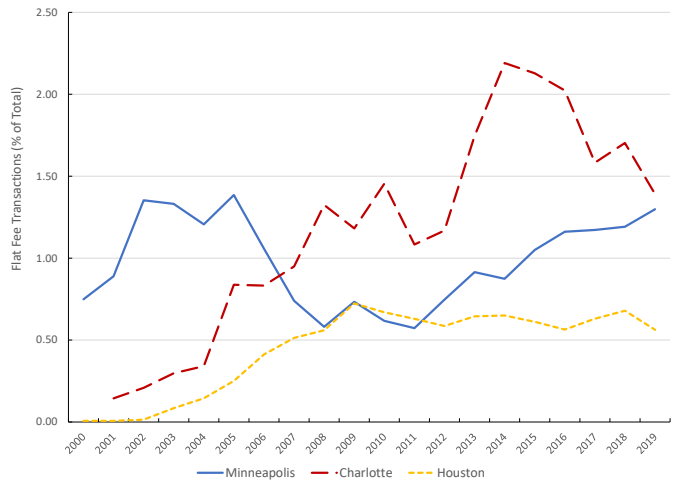
Multiple Listing Service (MLS) (Charlotte, Minneapolis, Houston)

- Largest cities with single, dominant MLS (more than 98% of sales.)
- 2.5 million sales and 3.7 million listings
- 20 years, house and lot characteristics
- Transaction characteristics (owner-agent, dual-agent)
- Track agents over time and across firms using:
  - Unique Realtor ID
  - Cell phone, Name, Email, Website
- Identify Flat Fee Brokers as benchmarks (MLS marketing effect) Identify

Data: Identify Flat Fee Brokers (FSBO)

1. Look for string in Realtor Name, Brokerage Name, or email address. Ex: "flatfeegroup.com"
2. Web search "Flat Brokers Charlotte/ Minneapolis/Houston"
3. Web search individual brokers in top 10% of sales





Descriptive Statistics by Metropolitan Area

	Charlotte		**Minneapolis**		**Houston**	
	Mean	Sd	Mean	Sd	Mean	Sd
Sale Price (Thousands $)	259	203	268	172	246	216
DOM (# of Days on Market)	113	86.1	86.3	59.1	103	75.6
Living Area (100s Square Feet)	22.7	9.9	20.4	8.8	23.9	9.5
# Bathrooms	2.81	0.97	2.35	0.94	2.33	0.72
# Bedrooms	3.55	0.82	3.26	0.91	3.53	0.73
Building Age (Years)	20.2	21.9	35.4	30.7	20.2	19.5
Lot Size (Acres)	0.47	0.71	0.58	1.15	0.49	0.95
Renovated (d)	0.017	.	0.030	.	0.028	.
Owner Agent Transaction (d)	0.000	.	0.001	.	0.001	.
Dual Agent Transaction (d)	0.107	.	0.075	.	0.067	.
Flat Fee Broker (d)	0.012	.	0.010	.	0.004	.
Listing Agent Experience (Years)	5.29	4.76	5.96	5.30	5.83	5.07
Buying Agent Experience (Years)	5.68	4.80	6.64	5.45	6.15	5.12
Firm Size (1000s Listing Agents)	3.04	3.58	4.07	3.76	6.86	13.43
Firm Size (1000s Buying Agents)	2.56	2.70	4.05	3.73	4.60	4.75
# Transactions	376,042		796,646		1,096,800	

Hedonic Average Effect Model

Conventional Hedonic Regression for ln(price) and Days-on-Market (DOM) as seen in Levitt and Syverson (2008) and Rosen (1974)

$$\begin{aligned} y_{ijrt}^{P,DOM} =& X_i'\phi + \theta_t + \gamma_j \\ &+ \beta_2 Dual_{it} + \beta_3 FlatFee_{it} \\ &+ \lambda_i + \epsilon_{ijrt} \end{aligned}$$

- House characteristics
- Control for location and time (year/month) unobservable
- House FEs for repeated sales
- Indicators for Dual (no buyer agent) and Flat-Fee (no seller agent)

Average Effect

Data: Descriptive Statistics by Fee Group

Panel A: Charlotte

	Flat-Fee		**Non Flat-Fee**	
	Mean	Sd	Mean	Sd
Sale Price (Thousands $)	286	167	258	204
DOM (# of Days on Market)	98.0	72.2	113	86.2
Living Area (100s Square Feet)	24.0	9.48	22.7	9.92
# of Bathrooms	2.90	0.887	2.81	0.972
# of Bedrooms	3.65	0.81	3.55	0.82
Building Age (Years)	21.5	19.9	20.2	22.0
Lot Size (Acres)	0.45	0.62	0.47	0.71
New Construction (d)	0.000	.	0.187	.
Renovated (d)	0.033	.	0.017	.
Owner Agent Transaction (d)	0.000	.	0.000	.
Dual Agent Transaction (d)	0.037	.	0.107	.
# Transactions	4,568		371,474	

Baseline Hedonic: Ln(Price)

Dependent Var: Ln(Price)	Charlotte			Minneapolis			Houston		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln(Living Area)	0.912***	0.912***	0.536***	0.539***	0.539***	0.185***	0.838***	0.838***	0.353***
	(0.026)	(0.026)	(0.052)	(0.023)	(0.023)	(0.017)	(0.022)	(0.022)	(0.037)
Owner Agent (d)		0.028	0.119		0.009	0.074**		0.056***	0.052***
		(0.046)	(0.066)		(0.013)	(0.025)		(0.011)	(0.015)
Dual Agent (d)		-0.004	0.012*		0.020***	0.006		-0.018***	-0.007*
		(0.005)	(0.005)		(0.003)	(0.004)		(0.004)	(0.003)
Flat-Fee Broker (d)		0.044***	0.031***		0.011*	0.014**		0.021**	0.013*
		(0.007)	(0.006)		(0.005)	(0.004)		(0.007)	(0.006)
Property Fixed Effects	N	N	Y	N	N	Y	N	Y	Y
# Observations	358,905	358,905	190,989	735,728	735,728	426,590	1,010,844	1,010,844	518,884
Adjusted R2	0.842	0.843	0.939	0.792	0.792	0.907	0.861	0.862	0.949
Mean Ln(Price)	12.25	12.25	12.27	12.36	12.36	12.32	12.18	12.18	12.24

Also includes full vector of property characteristics, year, month, and zip code fixed effects.

Baseline Days-On-Market

Dependent Var: Ln(Price)	Charlotte			Minneapolis			Houston		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln(Living Area)	22.774***	22.779***	23.421**	22.809***	22.759***	5.018*	40.002***	39.927***	15.008
	(2.751)	(2.800)	(8.797)	(1.420)	(1.411)	(1.938)	(1.899)	(1.899)	(8.155)
Owner Agent (d)		13.354	27.459		4.947	4.596		-5.683*	-3.117
		(13.103)	(32.930)		(4.473)	(7.921)		(2.731)	(7.122)
Dual Agent (d)		1.771	0.321		2.873***	0.692		4.161***	2.537*
		(1.001)	(1.368)		(0.594)	(0.856)		(0.790)	(1.037)
Flat-Fee Broker (d)		-0.818	2.117		3.535**	5.988***		1.731	3.678
		(1.524)	(3.097)		(1.323)	(1.677)		(1.406)	(2.393)
Property Fixed Effects	N	N	Y	N	N	Y	N	Y	Y
# Observations	358,905	358,905	190,989	735,728	735,728	426,590	1,010,844	1,010,844	518,884
Adjusted R2	0.125	0.126	0.165	0.135	0.135	0.166	0.125	0.127	0.162
Mean DOM	122.34	122.34	115.66	96.59	96.59	92.97	110.78	110.78	105.87

Also includes full vector of property characteristics, year, month, and zip code fixed effects.

Heterogeneity: Agent Fixed Effects

Hedonic regression for ln(price) and for Days-On-the-Market (DOM) including listing agent fixed effects (omit flat fee)

$$y_{ijrt}^{P,DOM} = X_i'\phi + \theta_t + \gamma_j + \beta_2 Dual_{it} + \lambda_i + \alpha_r^l + \epsilon_{ijrt}$$

Heterogeneity: Agent Fixed Effects

Hedonic regression for ln(price) and for Days-On-the-Market (DOM) including listing agent fixed effects (omit flat fee)

$$y_{ijrt}^{P,DOM} = X_i'\phi + \theta_t + \gamma_j + \beta_2 Dual_{it} + \lambda_i + \alpha_r^l + \epsilon_{ijrt}$$

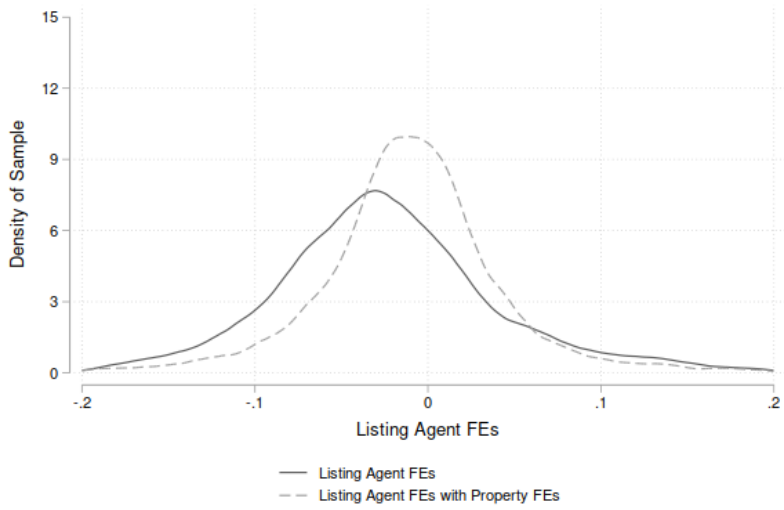
Hedonic regression for ln(price) including buying agent fixed effects (omit dual agents)

$$y_{ijrt}^{P} = X_i'\phi + \theta_t + \gamma_j + \beta_3 FlatFee_{it} + \lambda_i + \alpha_r^b + \epsilon_{ijrt}$$

We follow agent FE method in Bertrand and Schoar, 2003 (QJE) and Bao and Edmans, 2011 (RFS)

Distribution of Realtor Fixed Effects: Sales Price (Houston)

Repeated sales model: – – – Hedonic model: ——



Listing Agent

Good if $> 3\%$

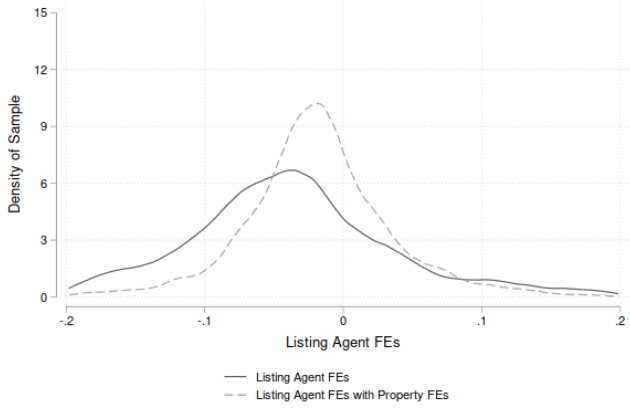
Buying Agent

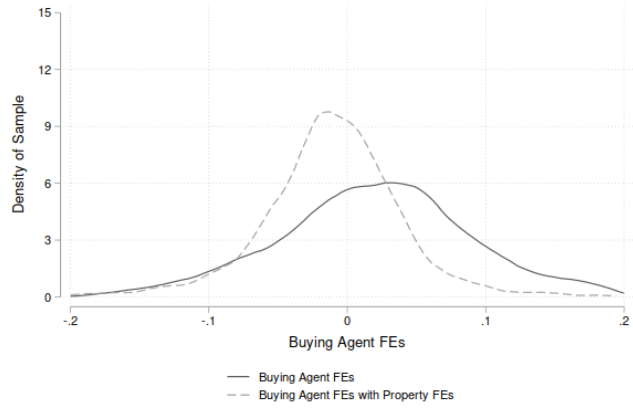
Good if $< 0\%$

Small fraction of agents add value to clients after 3% fee

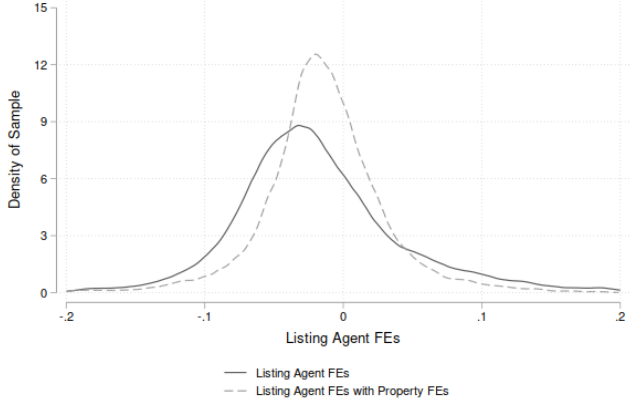
Sales Price: Similar Pattern Across Cities

Panel A: Charlotte





Panel B: Minneapolis



Listing Agent

Buying Agent

Distribution of Agent Fixed Effects: Ln(Price)

	Property FE	N	Percentile of Distribution						Adj R^2
			5th	25th	50th	75th	90th	95th	
Charlotte									
Listing Agent	No	2,751	-0.25	-0.09	-0.04	0.00	0.06	0.12	0.87
	Yes	2,746	-0.12	-0.05	-0.02	0.01	0.05	0.08	0.93
Buying Agent	No	3,011	-0.11	-0.03	0.02	0.07	0.11	0.16	0.85
	Yes	3,011	-0.10	-0.04	-0.01	0.02	0.04	0.07	0.92
Minneapolis									
Listing Agent	No	6,197	-0.11	-0.06	-0.03	0.01	0.06	0.10	0.82
	Yes	6,192	-0.09	-0.04	-0.02	0.01	0.04	0.06	0.90
Buying Agent	No	6,789	-0.10	-0.05	-0.02	0.01	0.04	0.07	0.81
	Yes	6,789	-0.07	-0.02	0.00	0.02	0.05	0.07	0.89
Houston									
Listing Agent	No	7,161	-0.14	-0.07	-0.03	0.01	0.07	0.11	0.88
	Yes	7,153	-0.11	-0.04	-0.01	0.02	0.05	0.08	0.93
Buying Agent	No	8,604	-0.07	-0.01	0.02	0.06	0.10	0.14	0.87
	Yes	8,603	-0.06	-0.01	0.02	0.04	0.07	0.09	0.93

Only 10% of listing agents (net of 3% commission) earn a sales premium for their client. Big variation, 20% difference between 5th and 95th agents.

Distribution of Realtor Fixed Effects: Days-on-market (Houston)

Repeated sales model: – – – Hedonic model:——

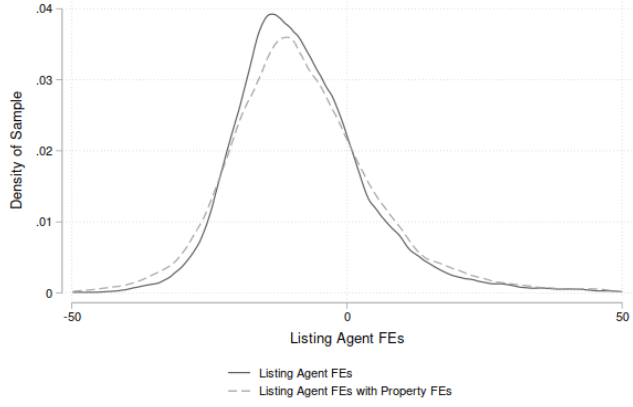
Good if <0

More than half agents can reduce days-on-market

Days-on-market: Other Cities

Panel A: Charlotte

Panel B: Minneapolis



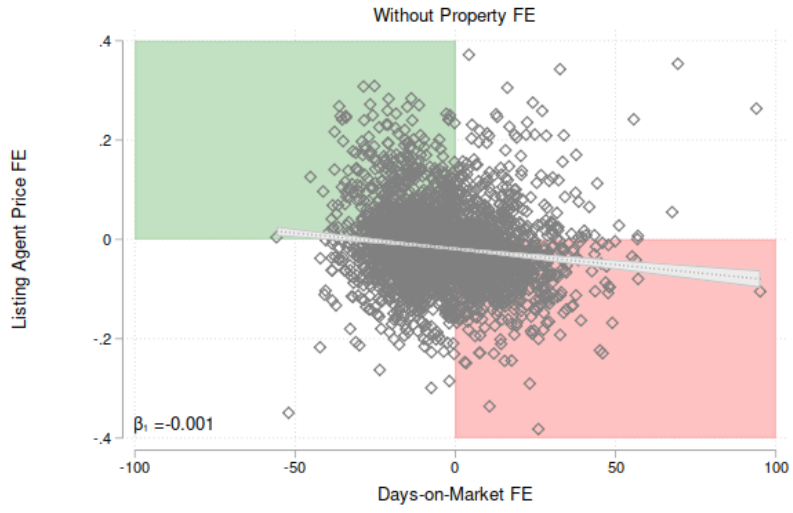
Similar pattern across all cities in sample.

Distribution of Agent Fixed Effects: Days-on-market

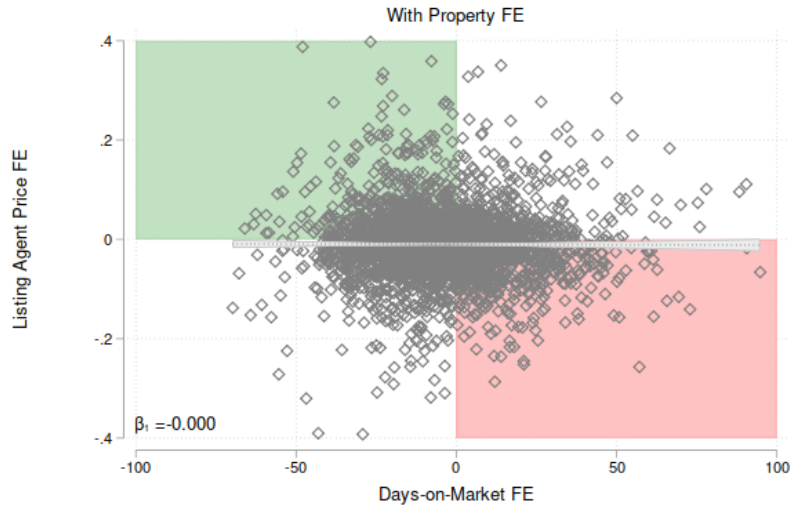
	Property FE	N	Percentile of Distribution						Adj R^2
			5th	25th	50th	75th	90th	95th	
Charlotte									
Listing Agent	No	2,751	-29.57	-16.23	-6.39	5.15	19.53	29.33	0.18
	Yes	2,746	-34.15	-16.79	-6.05	8.72	28.26	43.03	0.21
Minneapolis									
Listing Agent	No	6,197	-24.85	-16.20	-9.79	-1.98	7.00	13.64	0.17
	Yes	6,192	-27.51	-16.75	-9.44	-0.78	8.77	17.23	0.19
Houston									
Listing Agent	No	7,161	-29.05	-17.03	-8.62	2.44	14.37	22.39	0.17
	Yes	7,153	-33.06	-17.67	-7.27	4.53	18.46	28.96	0.18

50% listing agents reduce days-on-market. Big variations, 78 days.

Listing Agent: Price Effect vs. DOM Effect (Houston)



Without Property FEs

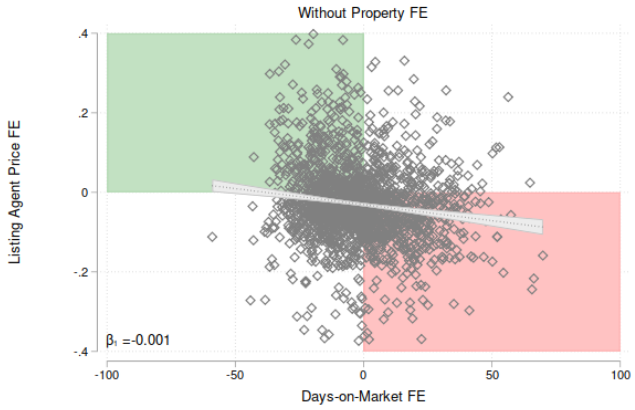


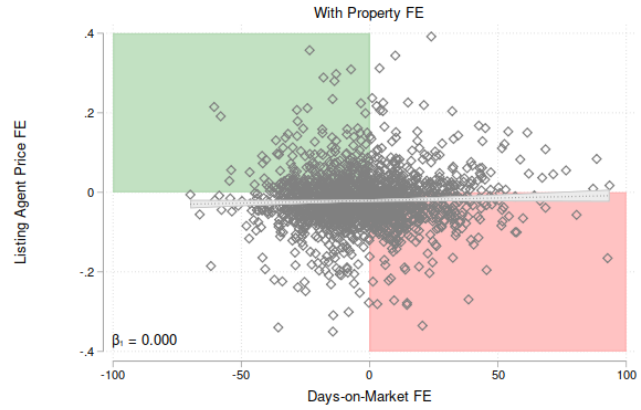
With Property FEs

Downward sloping between price and DOM due to unobservable
Small percent sell faster and higher (Green Quadrant)

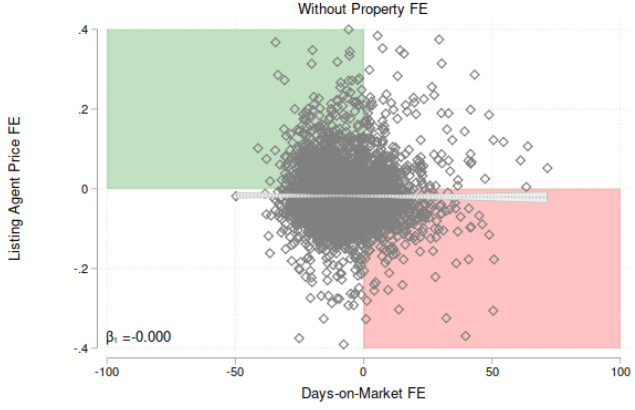
Listing Agent Price vs. DOM: Consistent Pattern

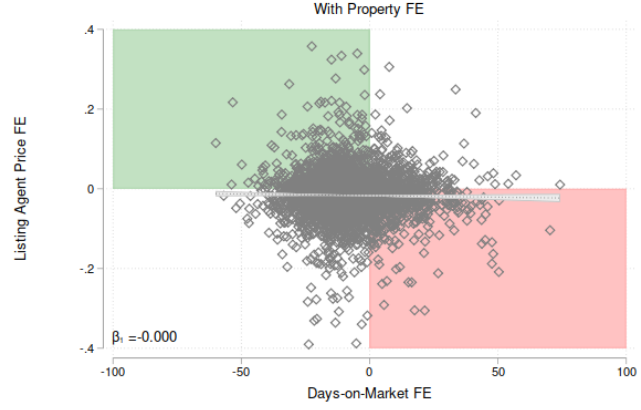
Panel A: Charlotte, NC





Panel B: Minneapolis, MN

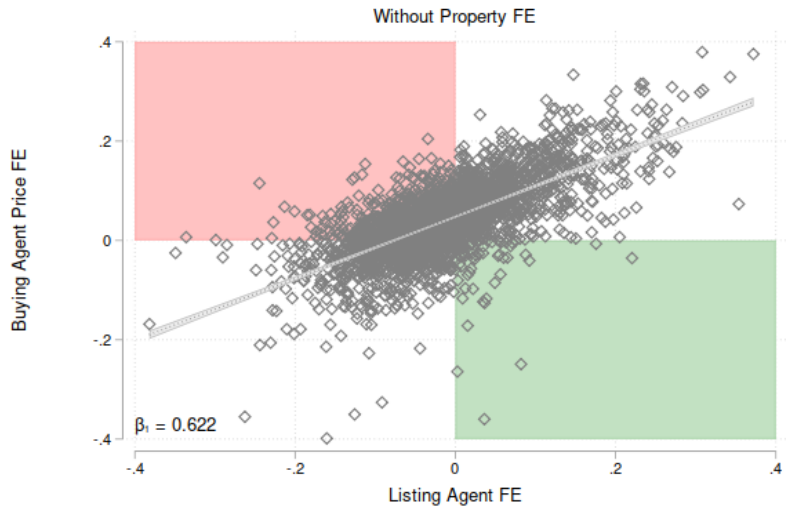




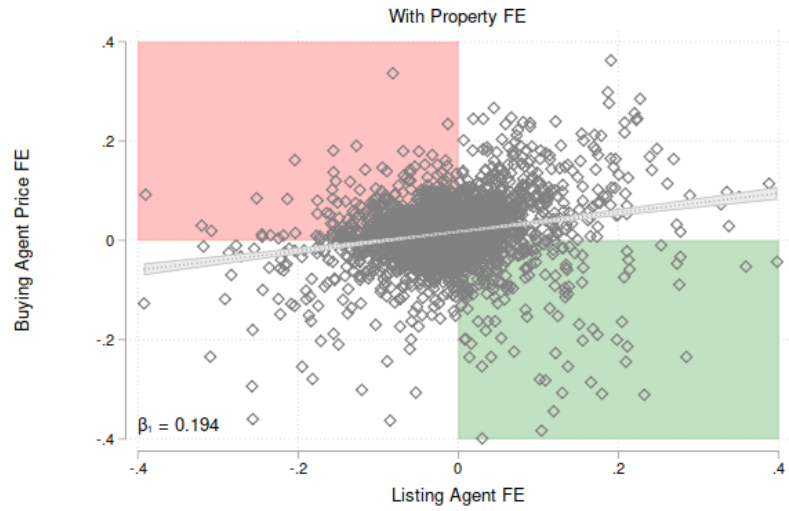
Without Property FEs

With Property FEs

Agents Listing vs. Buying Price Effect (Houston)



Without Property FEs

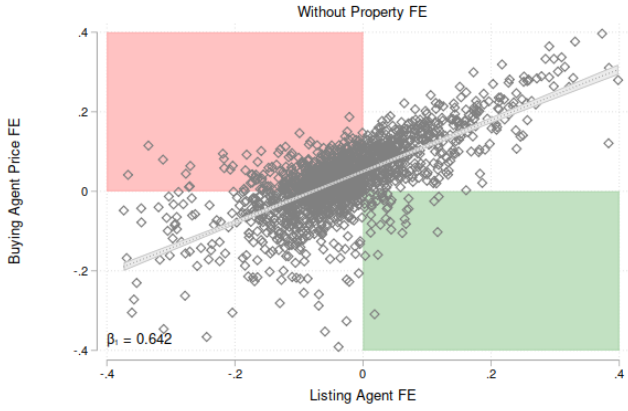


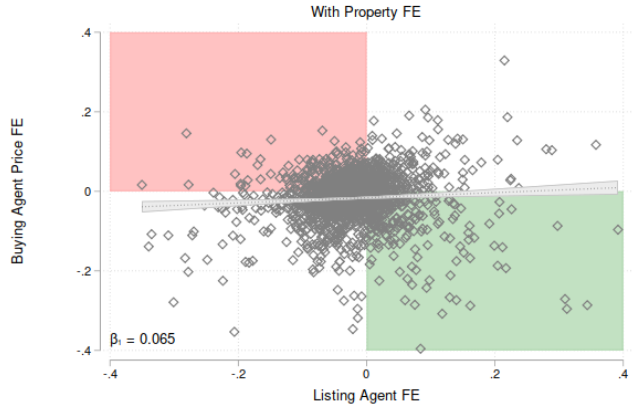
With Property FEs

Agents that sell at a premium, buy at a premium
No evidence of bargaining skill
Only small percent of agents can buy low, sell high (Green Quadrant)

Agent Listing vs. Buying Price Effect: Consistent Pattern

Figure: Agent's Listing vs. Buying Price Effect





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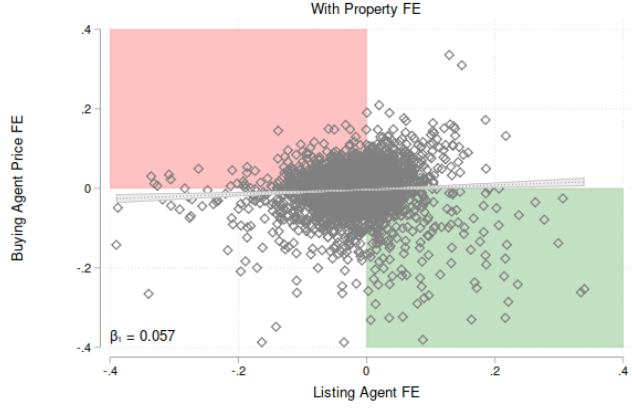
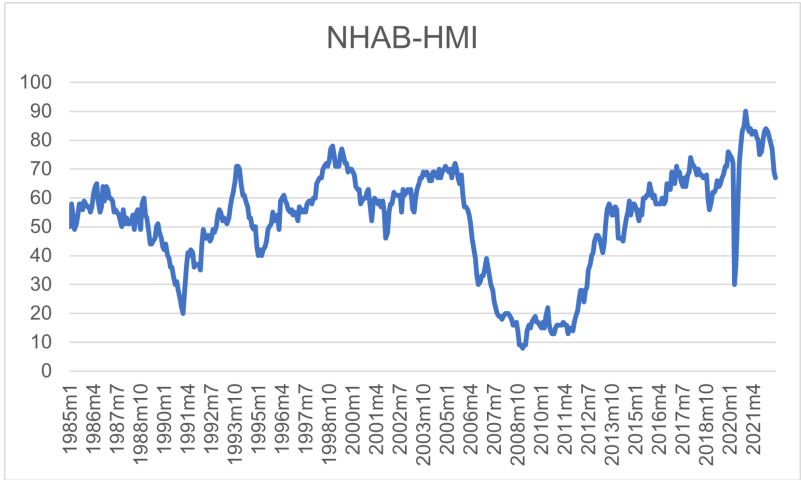
Panel B: Minneapolis, MN



Without Property FEs

With Property FEs

When Do Top Agents Generate Value?



$$
\begin{aligned}
y_{ijrt}^{P,DOM} = & X_i'\phi + \theta_t + \gamma_j \\
& + \beta_1 OwnerAgent_{it} + \beta_2 Dual_{it} + \beta_3 FlatFee_{it} \\
& + \phi_1 HMI_t + \phi_2 D_{b/l}^{TopAgent} + \phi_3 D_{b/l}^{TopAgent} \times HMI_t + \epsilon_{ijrt}
\end{aligned}
$$

- House market strength index from NAHB
- Interact with top 25% dummy for listing price, listing DOM, and buying price.

Agent Skill vs. Market Conditions

	Charlotte			Minneapolis			Houston		
	Seller Price (1)	Buyer Price (2)	Seller DOM (3)	Seller Price (4)	Buyer Price (5)	Seller DOM (6)	Seller Price (7)	Buyer Price (8)	Seller DOM (9)
Top Performer×HMI	0.000	0.002***	0.133***	-0.002***	0.002***	0.169***	-0.000**	0.001***	-0.153***
	(0.000)	(0.000)	(0.037)	(0.000)	(0.000)	(0.026)	(0.000)	(0.000)	(0.034)
Housing Market Index (HMI)	0.000	-0.000	0.377	0.001***	0.001*	-0.094	0.001***	0.000	0.321
	(0.000)	(0.000)	(0.852)	(0.000)	(0.000)	(0.520)	(0.000)	(0.000)	(0.746)
Top Performer(d)	0.074***	-0.193***	-24.888***	0.153***	-0.141***	-22.139***	0.079***	-0.079***	-8.454***
	(0.021)	(0.017)	(2.140)	(0.015)	(0.016)	(1.424)	(0.009)	(0.008)	(1.794)
Year/Month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
ZIP Code FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
House Char.	N	N	N	N	N	N	N	N	N
Realtor Char.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Property FE	Y	Y	Y	Y	Y	Y	Y	N	N
# Observations	183,213	139,145	183,213	382,501	350,124	382,507	380,129	347,392	380,146
Adjusted R^2	0.856	0.856	0.142	0.780	0.781	0.136	0.877	0.881	0.133

More alternatives for either buyer or seller, less surplus for the skilled agents to capture

Performance Persistence (Minneapolis)

VARIABLES	Top Listing Agent 10–19 Price		Top Buying Agent 10–19 Price		Top Listing Agent 10–19 DOM	
	(1)	(2)	(3)	(4)	(5)	(6)
Top Listing Agent 01–09	0.405***					
	(0.015)					
Top Listing Agent 01–09 w FE		0.073***				
		(0.016)				
Top Buying Agent 01–09			0.220***			
			(0.016)			
Top Buying Agent 01–09 w FE				0.140***		
				(0.016)		
Top Listing DOM 01–09					0.108***	
					(0.016)	
Top Listing DOM 01–09 w FE						0.018
						(0.016)
# Observations	3,786	3,786	3,786	3,786	3,786	3,786
Adjusted R^2	0.163	0.005	0.048	0.019	0.011	0.000
Property FE	No	Yes	No	Yes	No	Yes

Top Agents in the first half of the sample is more likely to be top agents in the second half.

Similar results for other cities.

Do Top Agents Gain More Listings Over Time?

Panel A: Charlotte

Dependent Var: $ln(\frac{listings_{10-19}}{listings_{00-09}})$	Listing Agent Price		Listing Agent DOM	
	(1)	(2)	(3)	(4)
Top Agent 2000-2009	0.492***	0.507***	1.770***	1.194***
	(0.113)	(0.107)	(0.113)	(0.108)
Property FEs	N	Y	N	Y
Observations	1,881	1,796	1,881	1,796
Adjusted R^2	0.009	0.012	0.116	0.063

Panel B: Minneapolis

Dependent Var: $ln(\frac{listings_{10-19}}{listings_{00-09}})$	Listing Agent Price		Listing Agent DOM	
	(1)	(2)	(3)	(4)
Top Agent 2000-2009	0.605***	0.944***	1.660***	1.407***
	(0.077)	(0.069)	(0.070)	(0.069)
Property FEs	N	Y	N	Y
Observations	3,818	3,677	3,818	3,677
Adjusted R^2	0.016	0.049	0.127	0.103

Panel C: Houston

Dependent Var: $ln(\frac{listings_{10-19}}{listings_{00-09}})$	Listing Agent Price		Listing Agent DOM	
	(1)	(2)	(3)	(4)
Top Agent 2000-2009	0.677***	0.480***	1.573***	1.055***
	(0.092)	(0.084)	(0.086)	(0.085)
Property FEs	N	Y	N	Y
Observations	3,016	2,855	3,016	2,855
Adjusted R^2	0.017	0.011	0.101	0.051

Do Buyer's Agents Get Re-hired to List the Property?

Dependent Var: p(selling agent is former buying agent)	Charlotte		Minneapolis		Houston	
	(1)	(2)	(3)	(4)	(5)	(6)
Residual from original purchase price hedonic $\hat{e}_{it-1}$	0.056***	0.059***	0.030***	0.035***	0.028***	0.035***
	(0.007)	(0.007)	(0.005)	(0.005)	(0.005)	(0.005)
Zip Code FE	Y	Y	Y	Y	Y	Y
Zip Code x County FE	N	Y	N	Y	N	Y
Price Residual SD	0.25	0.25	0.22	0.22	0.22	0.22
Share Former Buyer Agent	0.22	0.22	0.23	0.23	0.18	0.18
Observations	69,770	69,693	198,187	197,948	205,160	204,892
Adjusted R^2	0.091	0.093	0.099	0.103	0.101	0.105

Buyer's agents that "over-pay" are *more* likely to be re-hired when the home is ultimately sold.

Conclusion

- Wide range of heterogeneity among real estate agents
  - Top 10% skilled agents sell for premium after 3% fee
  - On average, agent listings sell at a 1 to 4.4% discount before commission
- No evidence of bargaining skills
- Top agents (for both buying and selling) most valuable in down (thin) markets.
- Persistence in top agent performance.
- New exciting results to look forward to

Robustness and Discussion

- Do flat-fee sellers represent average sellers?
  - Maybe, maybe not. We do not have detailed seller profiles in the data.
  - Flat-fee transactions do look fairly similar to transactions with traditional agents. flat-fee summary stats
  - On average, they do better on prices and worse on DOM Average Effect
  - For sales price, half agents do better, and half do worse.
  - We show flat-fee sellers do not pay less when buying Bargaining
  - We also show flat-fee listings less likely to sale Probability of sale
  - Heckman selection model show similar results
- Why we follow the (urban) econ approach to model price and DOM?
  - Both ours and alternative approaches are correct, just different interpretation of coefficient. Econ Method
- What if we consider the statistical significant of agent FE?
  - Less good, less bad, majority ordinary ($p<0.05$) significance
- Some agents focus on special markets?
  - We show results robust to ZipcodexYear FE. Alternative FE
  - Working on a map to show geographic diversity across smaller

Why we follow the econ approach to model price and DOM?

Alternative models in the literature, both well documented with different interpretation.

- Separate hedonic model for price and DOM (Our approach)
  - Rosen (1974) JPE
  - Levitt and Syverson (2008) ReStat (Our approach)
  - Shen and Ross (2021) JUE
- Research use 2SLS to control for simultaneous impact of price and DOM (IV for price and DOM)
  - Duong et. al (2022) JREFE
  - Hayunga and Pace (2019) JREFE
- Research use both Hedonic and 2SLS
  - Shen and Springer (2022)

More robustness tests via alternative models are coming (searching for IVs).

Are Flat-fee Sellers Sophisticated Investors? (Bargaining)

Sophisticated investors buy low and sell high.
Do flat-fee sellers at t purchase the house i for less at $t-1$?

$$
\begin{aligned}
y^{P}_{ijrt} =& X_i'\phi + \theta_t + \gamma_j \\
&+ \beta_2 Dual_{i,t} + \beta_3 FlatFeePurchase_{i,t} \\
&+ \lambda_i + \epsilon_{ijrt}
\end{aligned}
$$

For repeated sales in sample, $FlatFeePurchase_{i,t}$=1 if $FlatFee_{i,t+1}$=1
*Drop Flat-fee seller sales from the sample.

Summary Statistics: Flat-fee vs. Non Flat-fee

Panel A: Charlotte

	Flat-Fee		**Non Flat-Fee**	
	Mean	Sd	Mean	Sd
Sale Price (Thousands $)	286	167	258	204
DOM (# of Days on Market)	98.0	72.2	113	86.2
Living Area (100s Square Feet)	24.0	9.48	22.7	9.92
# of Bathrooms	2.90	0.887	2.81	0.972
# of Bedrooms	3.65	0.81	3.55	0.82
Building Age (Years)	21.5	19.9	20.2	22.0
Lot Size (Acres)	0.45	0.62	0.47	0.71
New Construction (d)	0.000	.	0.187	.
Renovated (d)	0.033	.	0.017	.
View (d)	0.033	.	0.027	.
Gated (d)	0.015	.	0.014	.
Waterfront (d)	0.028	.	0.022	.
Owner Agent Transaction (d)	0.000	.	0.000	.
Dual Agent Transaction (d)	0.037	.	0.107	.
# Transactions	4,568		371,474	

Are Flat-fee Sellers Sophisticated Investors? (Bargaining)

Dependent Variable: Ln(Price)	**Charlotte**		**Minneapolis**		**Houston**	
	(1)	(2)	(3)	(4)	(5)	(6)
Flat-Fee Purchaser (d)	0.008	-0.010	-0.020***	-0.031**	-0.006	-0.015
	(0.007)	(0.008)	(0.005)	(0.009)	(0.006)	(0.008)
Year/Month FE	Y	Y	Y	Y	Y	Y
Zip FE	Y	Y	Y	Y	Y	Y
House Char.	Y	Y	Y	Y	Y	Y
Property FE	N	Y	N	Y	N	Y
# Observations	371,474	202,068	788,236	475,837	1,091,920	559,028
Adjusted R^2	0.843	0.940	0.795	0.909	0.862	0.949
Mean Ln(Price)	12.25	12.28	12.37	12.33	12.19	12.24

No evidence Flat-fee sellers are more sophisticated than agents when purchasing

Are Flat-fee Sellers Sophisticated Investors? (Probability of Sale)

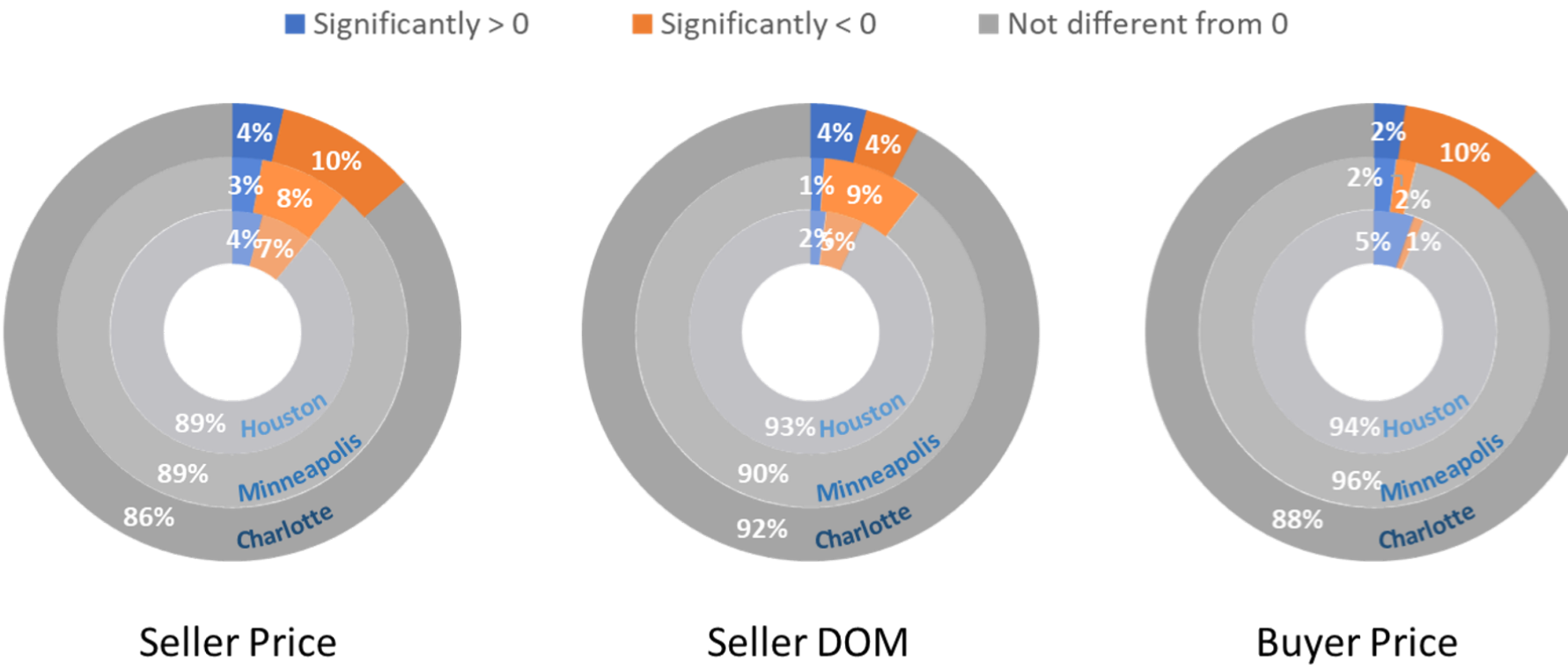
Based on 3.5 million listings (sold+delisted).
New tests utilizing large data set.

Dependent Var: Prob(Sale occurs $\leq$ 1 year)	**Charlotte**		**Minneapolis**		**Houston**	
	(1)	(2)	(3)	(4)	(5)	(6)
Flat-Fee Realtor	-0.093***	-0.106***	-0.075***	-0.094***	-0.062***	-0.089***
	(0.008)	(0.011)	(0.008)	(0.010)	(0.008)	(0.010)
Year/Month FE	Y	Y	Y	Y	Y	Y
ZIP Code FE	Y	Y	Y	Y	Y	Y
House Char.	Y	N	Y	N	Y	N
Realtor Char.	Y	Y	Y	Y	Y	Y
Property FE	N	Y	N	Y	N	Y
# Observations	614,114	473,324	1,288,323	1,055,143	1,780,973	1,304,192
Adjusted R^2	0.128	0.151	0.360	0.319	0.089	0.115
Mean Dependent Var	0.60	0.55	0.44	0.40	0.61	0.54

Some Flat-fee sellers test the water or to get pricing.

Distribution of Fixed Effects: Statistical Significance Repeat Sale

Repeat Sale: Less good, less bad, majority ordinary before fee ($p<0.05$)



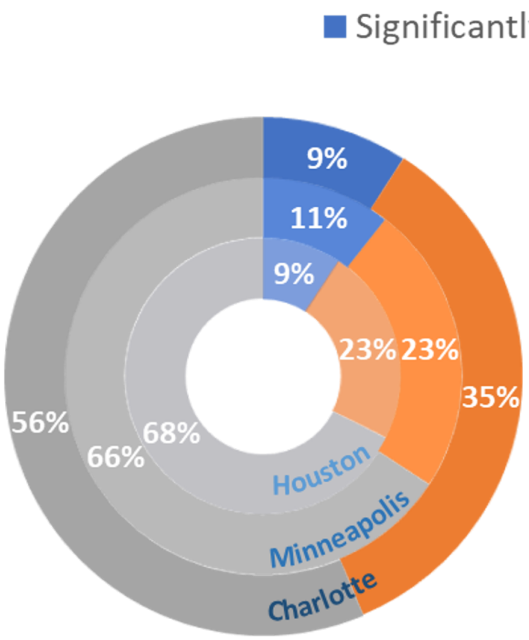
Seller Price

Seller DOM

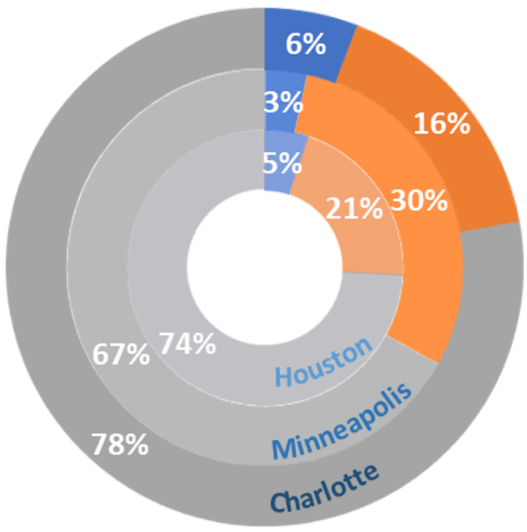
Buyer Price

Distribution of Fixed Effects: Statistical Significance Hedonic

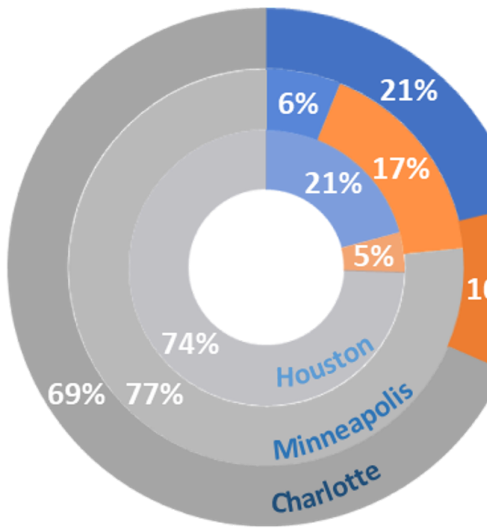
Hedonic: Less good, less bad, majority ordinary ($p<0.05$)



Seller Price



Seller DOM

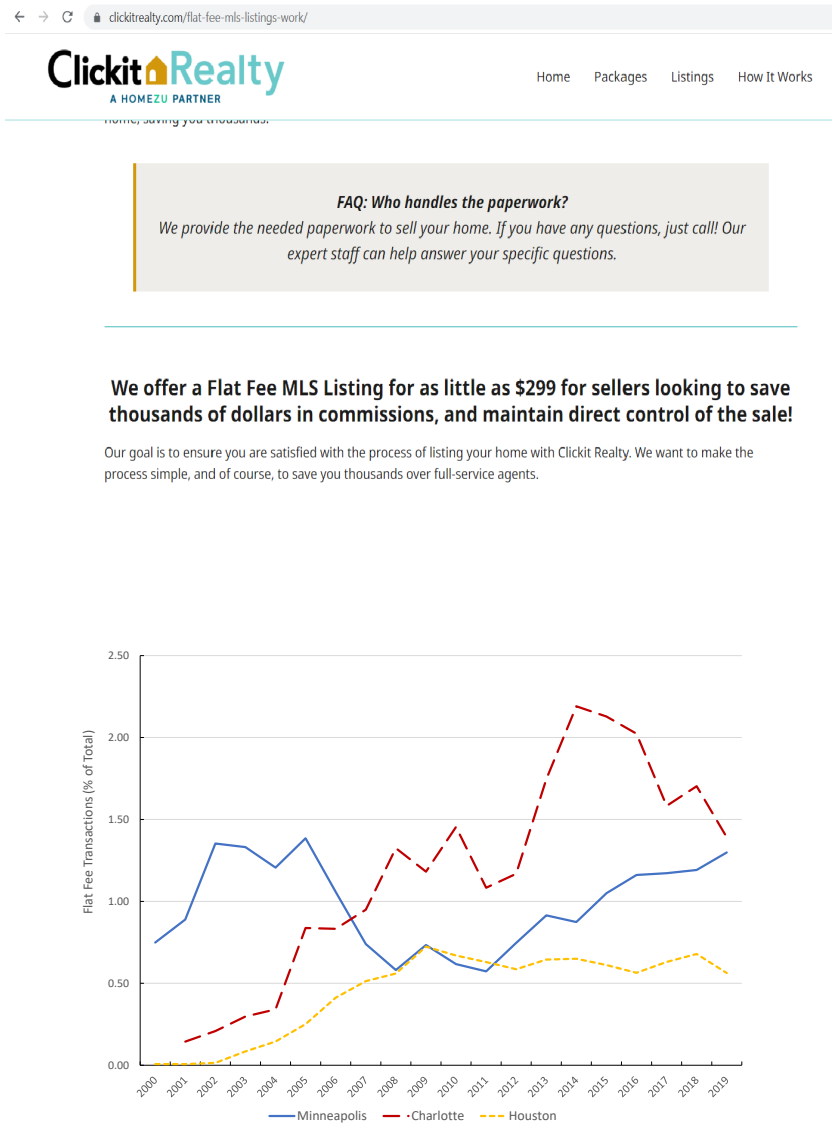


Buyer Price

Identify Flat Fee Brokers

We identify flat fee brokers in data

1. Look for string in Realtor Name, Brokerage Name, or email address. Ex: "flatfeegroup.com"
2. Web search "Flat Brokers Charlotte/ Minneapolis/Houston"
3. Web search individual brokers in top 10% of sales



Descriptive Statistics by Fee Group

Panel A: Charlotte

	Flat-Fee		Non Flat-Fee	
	Mean	Sd	Mean	Sd
Sale Price (Thousands $)	286	167	258	204
DOM (# of Days on Market)	98.0	72.2	113	86.2
Living Area (100s Square Feet)	24.0	9.48	22.7	9.92
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# of Bedrooms	3.65	0.81	3.55	0.82
Building Age (Years)	21.5	19.9	20.2	22.0
Lot Size (Acres)	0.45	0.62	0.47	0.71
New Construction (d)	0.000	.	0.187	.
Renovated (d)	0.033	.	0.017	.
Owner Agent Transaction (d)	0.000	.	0.000	.
Dual Agent Transaction (d)	0.037	.	0.107	.
# Transactions	4,568		371,474	

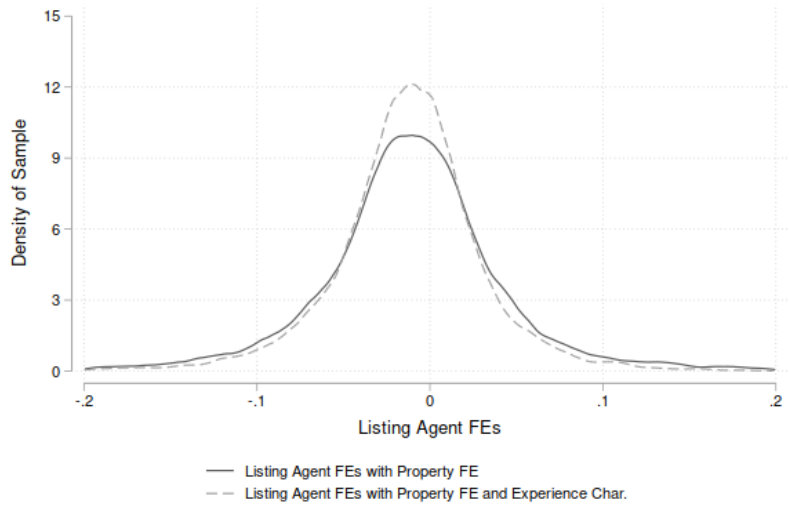
Some agents focus on special markets? (zipcode by year FEs)

Working on a map to show geographic diversity across smaller regions.

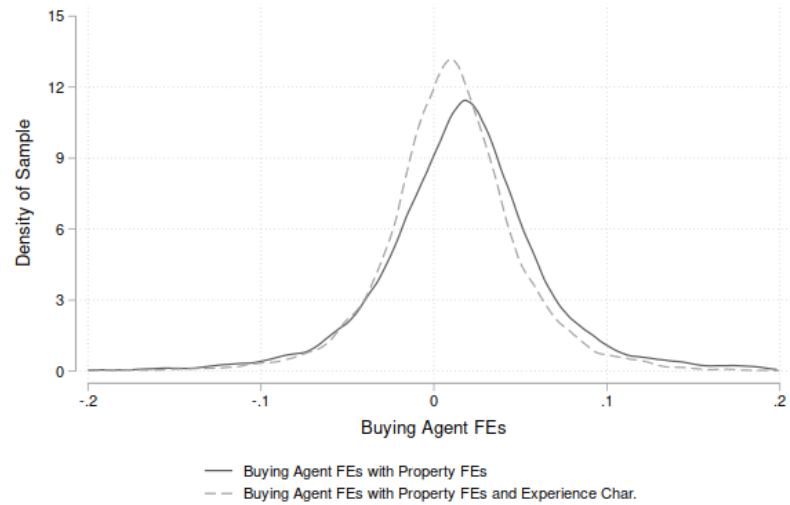
	Charlotte		**Minneapolis**		**Houston**	
	(1) Ln(Price)	(2) DOM	(3) Ln(Price)	(4) DOM	(5) Ln(Price)	(6) DOM
Dual Agent (d)	-0.008	0.323	0.018***	2.127***	-0.021***	1.879**
	(0.005)	(0.946)	(0.003)	(0.465)	(0.004)	(0.698)
Flat-Fee Realtor (d)	0.038***	0.787	0.016**	6.804***	0.018*	5.299***
	(0.007)	(1.216)	(0.005)	(1.045)	(0.007)	(1.139)
ZIP Code-by-Year FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
House Char.	Y	Y	Y	Y	Y	Y
Realtor Char.	Y	Y	Y	Y	Y	Y
Property FE	N	N	N	N	N	N
# Observations	376,038	376,038	796,463	796,463	1,096,786	1,096,786
Adjusted R^2	0.852	0.155	0.806	0.137	0.871	0.144
Mean Dependant Var.	12.3	110.7	12.4	85.2	12.2	101.2

Distribution of Realtor Fixed Effects Controlling for Experience, Firm Size: Sales Price

Panel C: Houston



Listing Agent



Buying Agent

Average Effect: Ln(Price)

Agent-listings sell for a 1% – 4% discount compared to flat-fee listings. Up to $10,000 price difference.

	Charlotte			Minneapolis			Houston		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln(Living Area)	0.915***	0.914***	0.531***	0.545***	0.544***	0.186***	0.840***	0.840***	0.354***
	(0.026)	(0.026)	(0.054)	(0.023)	(0.023)	(0.017)	(0.022)	(0.022)	(0.037)
Dual Agent (d)		-0.005	0.010		0.020***	0.006		-0.018***	-0.007*
		(0.005)	(0.005)		(0.003)	(0.003)		(0.004)	(0.003)
Flat-Fee (d)		0.043***	0.030***		0.010*	0.014**		0.022**	0.014**
		(0.007)	(0.006)		(0.005)	(0.004)		(0.007)	(0.005)
Year/Month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
ZIP Code FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
House Vars	Y	Y	Y	Y	Y	Y	Y	Y	Y
Realtor Char.	N	Y	Y	N	Y	Y	N	Y	Y
Property FE	N	N	Y	N	N	Y	N	N	Y
# Observations	376,042	376,042	206,603	796,476	796,476	484,361	1,096,800	1,096,800	563,761
Adjusted R^2	0.843	0.843	0.940	0.794	0.794	0.909	0.862	0.862	0.949
Mean Ln(Price)	12.25	12.25	12.28	12.37	12.37	12.33	12.19	12.19	12.24

Average Effect: Days-on-market

	Charlotte			Minneapolis			Houston		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln(Living Area)	19.024***	18.984***	19.761**	16.744***	16.688***	1.398	31.239***	31.291***	11.21(
	(2.357)	(2.411)	(6.573)	(1.069)	(1.062)	(1.490)	(1.433)	(1.418)	(6.230
Dual Agent (d)		0.691	-0.503		2.457***	0.116		2.136**	0.891
		(0.960)	(1.215)		(0.485)	(0.564)		(0.701)	(0.918
Flat-Fee (d)		0.389	3.747		6.373***	7.969***		4.959***	6.752**
		(1.218)	(2.265)		(1.060)	(1.237)		(1.109)	(1.907
Year/Month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
ZIP Code FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
House Char.	Y	Y	N	Y	Y	N	Y	Y	N
Realtor Char.	N	Y	Y	N	Y	Y	N	Y	Y
Property FE	N	N	Y	N	N	Y	N	N	Y
# Observations	376,042	376,042	206,603	796,476	796,476	484,361	1,096,800	1,096,800	563,76
Adjusted R^2	0.145	0.146	0.195	0.128	0.128	0.163	0.130	0.131	0.166
Mean DOM	113.11	113.11	106.92	86.33	86.33	83.51	102.53	102.53	97.37

Small difference in some markets, no difference if we consider delistings and relistings Back

Agent Services

Listing agent:

- Place home on Multiple Listing Service (MLS)
- Provide network of related service providers: photographers, stagers, tradesmen, attorneys, lenders/mortgage brokers
- Write property description text for MLS and/or flyer
- Select photos brokers
- Advise on listing price(s)
- Advise on counter offers (price/terms)
- Make final offer(?)

} negotiation

Buyer's agents:

- find desired property
- pick opening bid offer
- respond to any counter offer (price/terms)
- make final offer(?)

} negotiation

Motivation-the Role of Agents

- Agents (including real estate agents) assist large, infrequent transactions where client has less experience
  - Investment banking
  - Asset management
  - Consulting
  - Real estate transactions
- The information asymmetries that lead one to hire an agent, make it hard to evaluate their performance

Principal-Agent Problem

A client and listing agent have a partnership with different input and payout structure.

- The client provides house and receives equity net of commission.
- The listing agent provides labor/effort and typically gets 3 percent of the total sales price.
- The listing agent is likely to maximize her income by selling many homes, quickly, at a lower price.
  - When a real estate agent sells their own home, they take longer and sell for more.
    (See Levitt and Syverson (2008), Rutherford et al. (2005), Lopez (2021), Shen and Ross (2021), and Agarwal et al. (2019))