

Attribute MisReporting and Appraisal Bias

Eriksen, Kuang, and Zhu

Syracuse-Chicago Property Tax Webinar

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University of Georgia

February 24, 2023

Appraiser methods for value manipulation

- 1 “Cherry-pick” comps

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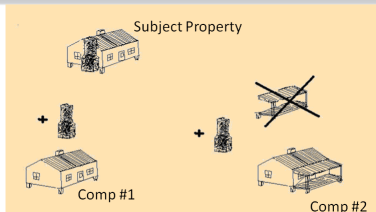
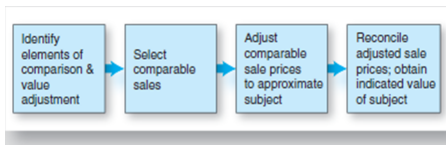
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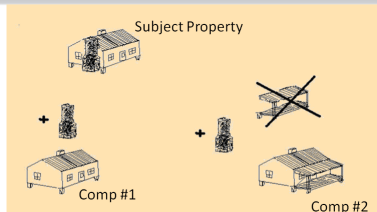
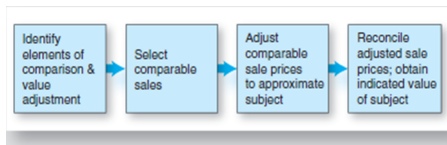
- 1 “Cherry-pick” comps
- 2 Subjective “implicit prices” for attributes
- 3 Subjective weighting of comp adjusted sales prices (Eriksen et al., 2019)
- 4 Attribute misreporting [**this paper**]

Sales comparison approach



- Comp 1 doesn't have a fireplace → adjust comp sales price up

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- Comp 1 doesn't have a fireplace → adjust comp sales price up
- Intuition of paper:
 - Comp 1 has fireplace (reflected in comp's sale price) → appraiser misreports to inflate adjusted sales price (appraisal)

Main findings

- 1 Attribute misreporting not uncommon
- 2 Not confined to a few appraisers
- 3 Appears to be intentional (at least in part)
- 4 Real impact → misreporting related to mortgage default

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- Convincing evidence that appraisers misreport (at times intentionally)
 - Comps used multiple times *by the same appraiser*
- Impacts of misreporting on subject property value and performance???

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Table 1: Summary Statistics of Comparable Trans

	Median Price Adjustments per Unit Difference (\$)	Panel A: Subject Property as a Comparable Transaction	
		Median Reported Attributes	% Consistently Reported
	(1)	(2)	(3)
Gross Living Area (square feet)	232	1,559	19.78
Property Condition (scale: 1-6)	12,500	4	64.87
Quality of Design (scale: 1-6)	11,500	3	58.10
View (scale: 1-3)	7,500	1	88.67
Bedrooms (counts)	5,000	3	91.44
Full Bathrooms (counts)	4,000	2	95.48
Lot Size (square feet)	40	9,309	60.48
All Attributes Reported Consistently (%)			5.45
Average Contract Price (\$)	-		332,805.16
Average Appraised Value (\$)	-		335,782.24

Is the \$232 really the appraiser's price adjustment per unit?

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I suspect this is Price/GLA (unconditional)



But appraisers don't adjust based on this.

They use a conditional adjustment.

Appraisal on my house in 2017

FEATURE	SUBJECT	COMPARABLE SALE NO. 1	COMPARABLE SALE NO. 2	COMPARABLE SALE NO. 3	
510 Hillcrest Ave Address Athens, GA 30606		7 Royal Oak Dr Athens, GA 30607	135 Hendricks Ave Athens, GA 30601	230 Best Dr Athens, GA 30606	
Proximity to Subject		3.81 miles NW	1.06 miles NE	0.47 miles SW	
Sale Price	\$ 289,900	\$ 257,500	\$ 322,500	\$ 375,000	
Sale Price/Gross Liv. Area	\$ 187.93 sq. ft.	\$ 164.22 sq. ft.	\$ 179.17 sq. ft.	\$ 189.01 sq. ft.	
Sale Contract		AAARMLS #950644;DOM 69	AAARMLS #617664;DOM 112	AAARMLS #613305;DOM 211	
Verification Source(s)		AAARMLS/TaxRec/Gagscca	AAARMLS/TaxRec/Gagscca	AAARMLS/TaxRec/Gagscca	
VALUE ADJUSTMENTS	DESCRIPTION	DESCRIPTION	+(-) \$ Adjustment	DESCRIPTION	+(-) \$ Adjustment
Sale or Financing		ArmLth		ArmLth	
Concessions		Conv:0		Conv:0	
Date of Sale/Time		s08/16;Unk		s05/16;Unk	
Location	N;Res;	N;Res;		N;Res;	
Leasehold/Fee Simple	Fee Simple	Fee Simple		Fee Simple	
Site	10890 sf	10890 sf		8276 sf	0
View	N;Res;	N;Res;		N;Res;	
Design (Style)	DT1.5:Cottage	DT1.5:Cottage		DT1.5:Cottage	
Quality of Construction	Q4	Q4		Q4	
Actual Age	12	12		10	0
Condition	C4	C4		C4	
Above Grade	Total Bdrms Baths	Total Bdrms Baths		Total Bdrms Baths	
Room Count	7 3 2.0	7 3 2.0		7 4 3.0	-1,000
Gross Living Area 25	1,591 sq. ft.	1,568 sq. ft.	0	1,800 sq. ft.	-5,200
				1,984 sq. ft.	-9,800

↑
Subject GLA

↑
GLA Diff = -209

↑
Total GLA Adj.

Adj. per unit GLA
-5,200/-209 = \$25

↑
GLA Diff = -390

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Appraisal database (similar to data used in this paper)

- For each comp I compute:
- Adj. per unit difference = $\left| \frac{\text{Total GLA Adj. (\$)}}{(\text{Subj. GLA} - \text{Comp GLA})} \right|$
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$$85 \times \mathbf{\$30} = \mathbf{\$2,550}$$

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- What is the effect on the appraised value?
 - 4 comps per appraisal (on average)
 - $\frac{\$2,550}{4} = \$637.50 \rightarrow$ pretty small effect on subj. value
 - ***Effect would be larger if GLA underreported for all comps within the same appraisal
- But there's another potential issue with GLA...

For small differences in GLA, appraisers often make no adjustment

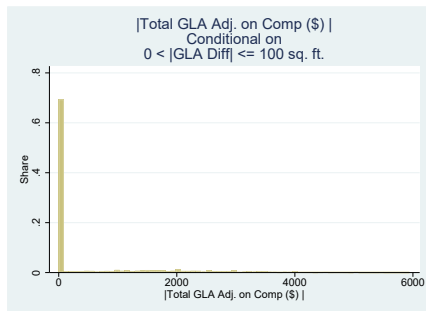
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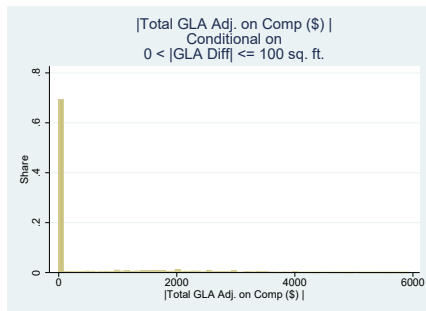
GLA Diff = 23

No total GLA Adj.

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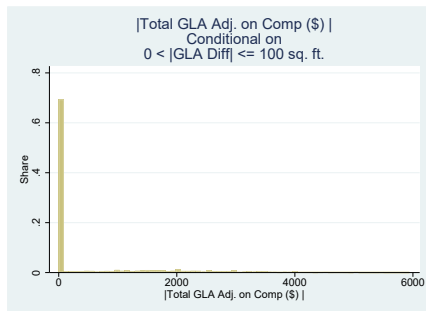


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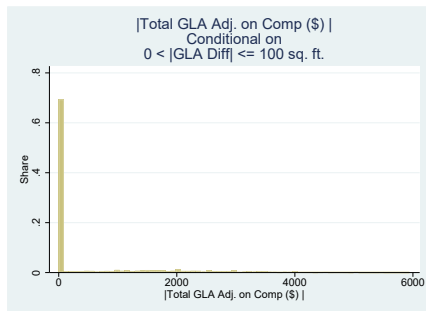
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- Does this underreporting actually impact value?
- Conditional on underreporting, what is average adjustment?
$$\frac{|\text{Total GLA Adj. on Comp}|}{|\text{GLA Diff}|}$$

Suggestions: GLA underreporting impact

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- ③ Puzzle → Why is GLA misreporting so strongly related to mortgage performance?

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 - Can vary assumptions; get more sophisticated with \overline{X}_w or p_w

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Sales price	-	\$300,000		\$310,000	
Sq. ft.	1,000	\overline{X}_{ks}	$(1,000 - \overline{X}_{ks}) * p_s$	\overline{X}_{js}	$(1,000 - \overline{X}_{js}) * p_s$
Condition	4	\overline{X}_{kc}	$(4 - \overline{X}_{kc}) * p_c$	\overline{X}_{jc}	$(4 - \overline{X}_{jc}) * p_c$
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Adj. Price			Z		Y
\overline{Value}	$.5*Z + .5*Y$				

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- Compare actual appraised value to \overline{Value}
- Can aggregate to market-level measure of misreporting!

Comment 3: How much of a problem is this for mortgage performance?

Table 7: Under-Reporting GLA of a Comparable Transaction and Subsequent Loan Delinquency

	60-Day Delinquency			
	Full Sample		Purchase Money Loans	
	(1)	(2)	(3)	(4)
I(Underreported)	-0.0006** (0.0003)	-0.0005* (0.0003)	-0.0008* (0.0004)	-0.0007* (0.0004)
I(LTV >90)	0.0043*** (0.0006)	0.0028*** (0.0005)	0.0049*** (0.0007)	0.0029*** (0.0005)
I(Underreported) × I(LTV >90)	0.0017** (0.0006)	0.0017** (0.0006)	0.0019** (0.0008)	0.0019** (0.0008)

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- What share of loans are underreported AND high LTV?
- $\approx 25\% \times 1.72\% = 0.43\%$

Misc (offline):

- What is the relationship between subjective weighting (Eriksen et al., 2019) and attribute misreporting?
- Policy implications feasible?
- Related to collateral value uncertainty and credit supply (Jiang and Zhang, 2022)?

Conclusion

- Convincing evidence that attributing misreporting is real (and intentional)
- What is the impact on subject appraised value and mtg. performance?

THANKS!

References

- Eriksen, M. D., H. B. Fout, M. Palim, and E. Rosenblatt. 2019. The influence of contract prices and relationships on appraisal bias. *Journal of Urban Economics* 111:132–43.
- Jiang, E. X., and A. L. Zhang. 2022. Collateral value uncertainty and mortgage credit provision. *Available at SSRN* .