Replacing Clouseau with Poirot: Comments on Greenstone and Gayer

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Two issues to get discussion started

- Are quasi experiments “transparent” and “virtually assumption free” ? --my answer echoes Michael Keane’s – no; Moreover when they are applied to env econ –it is about alternative strategies for estimating reduced form models
- Two examples –Chay and Greenstone and Greenstone (cited in Greenstone and Gayer) + Greenstone and Gallagher

Assumptions in Two Applications

- "Hedonic" using non-attainment
  - County level for US as a whole
  - Attainment status as an instrument –but don't know it must "simulate the rules" –don't at the county level not at monitor –checked it with later data –but implementation and standard changed
  - Constant marginal effect and semi-log
  - Meta analysis of past hedonics found that MWTP increased as much as their elasticity estimates when compared to past literature

Respondent's Estimate of Market Value – Kiel and Zabel Analysis

I. KZ Summary of Literature

II. Their Evaluation Overall

- Data – American Housing Survey
- Three Cities – Chicago(C), Denver(D), Philadelphia(P)
  - C – 1979, 1983, 1987, 1991
  - D – 1979, 1983, 1986, 1990
  - P – 1978, 1982, 1985, 1989
- Dropped potential mis-codings (200%, 50% of price)
- Comparison owners' assessment vs sale prices for homes that sold in the past 12 months

Respondent's Estimate of Market Value – Kiel and Zabel Analysis

III. Summary of their Hypothesis Tests

IV. Other new Results

- Judgment about Owner Accuracy not affected by top-coding or bracketing in AHS
- Owner accuracy not related to housing cycle
- Information on sales price less useful with greater time between sale and interview
- Home modifications reduces difference between sales price and owner assessment of value by 1%.

Assumption in Two Applications

- Census Tract
- NPL status and cleanup –instrument
- Constant marginal effect and local proximity –averaging will eliminate
- Diversity of conditions across sites –Kiel and Williams

Kiel and Williams JUE 2007

Table 4
Marginal benefit of increased distance from NPL site (applied to the 18 sites possessing positive/significant coefficients on LNDISTANCE for the period LISTING)

Site	Mean of LNPRICE	Mean of actual price	Coefficient on LNDISTANCE	Mean distance from NPL site	Marginal benefit per added mile from site ($)	% Marginal benefit per added mile from site
Hollingsworth*	11.2188	74518.29037	0.063825	1.477	3220.12856	4.321259309
Wingate Road Municipal	10.9672	57942.12145	0.077045	1.935	2307.054649	3.981653747
Petroleum Products	11.27213	78600.22822	0.048643	2.123	1800.918936	2.291238813
Chemform	10.81764	49893.19435	1.762094	1.914	45933.38475	92.06342738
Wilson Concepts	11.71793	122753.0481	0.238956	1.939	15127.68302	12.323672
B&B Chemicals	11.47245	96033.26107	0.042167	1.838	2203.174385	2.294178455
Pepper Steel & Alloys	11.36375	86141.78505	0.355623	2.347	13052.40734	15.1522369
Gold Coast Oil Corp*	11.23835	75989.45672	0.015581	1.645	719.7518087	0.947173252
Pristine Inc	11.15282	69760.26681	0.034725	2.064	1173.655652	1.682412791
62nd Street Dump	10.4148	33349.5611	0.67551	1.259	17893.53616	53.65448769
Midway Landfill	11.59545	108602.5187	0.037355	1.038	3908.330526	3.598747592
Harbor Island	11.42214	91321.3497	0.127036	2.402	4829.766436	5.288759367
Mather A.F.B.*	11.60094	109200.3862	0.191899	2.209	9486.394252	8.687143504
McClellan A.F.B.	11.51262	99969.44612	0.186841	2.484	7519.481193	7.521779388
CTS Printex	12.92274	409519.5264	0.577762	1.374	172201.4706	42.0496361
Westinghouse Electric*	12.5094	270871.5139	0.099505	1.568	17189.4579	6.345982143
Westlake Landfill	11.48799	97537.27384	0.346747	2.149	15737.90465	16.13527222
Times Beach	11.35264	85190.04652	0.260202	1.824	12152.75246	14.26546053
					Mean	16.25580673

Note. All numbers are for the LISTING period.
* Lacks Census vars.

Bottom line

- Test effect or measuring something for policy
- Assumptions of Hedonic model –extent of market and spatial resolution of effect
- Are conventional and quasi-experimental competing alternatives ?

Kiel and Zabel Summary of Literature Evaluating Homeowners' Estimate of House Values

Table 1 ■ Comparison of previous literature.

Authors (Date)	Data Source	Model	Findings	Inadequacies
Kish and Lansing (1954)	1950 Survey of Consumer Finance	Owners' estimates vs. appraised values	Owners overstate by 4%	■ Assumes appraisal is true value ■ One time period
Kain and Quigley (1972)	1967 St. Louis	Owners' estimates vs. appraised values	Owners understate by 2%	■ Assumes appraisal is true value ■ One time period ■ One city ■ Small sample (113 observations)
Robins and West (1977)	1971 Seattle Income Maintenance Experiment	Owners' estimates vs. appraised values, owners' estimates vs. assessed values	Owners overstate by 5%	■ Assumes assessed and appraised values are true values ■ One city ■ One time period ■ Small sample (138 observations)
Ihlanfeldt and Martinez-Vazquez (1986)	1978 AHS—Atlanta	Owners' estimates vs. assessed values, owners' estimates vs. sales price predicted from hedonic regression	Owners overstate by 16%; errors are related to owner, house and neighborhood characteristics	■ Assumes assessed value is true value ■ One city ■ One time period ■ No neighborhood characteristics ■ Not corrected for renovations
Goodman and Ittner (1992)	1985, 1987 National AHS	Owners' estimates in 1985 vs. sales prices in 1987	Owners overstate by 6%, future sellers 2–3% over non-sellers error in measurement is not correlated with house, owner or market characteristics	■ One regression for entire national housing market ■ One time period ■ No neighborhood characteristics ■ Small sample size due to design of experiment ■ No control for renovations ■ Truncated higher prices

Kiel and Zabel Summary (con't)

Table 1 ■ continued

Authors (Date)	Data Source	Model	Findings	Inadequacies
DiPasquale and Somerville (1995)	1978–1991 National and Metropolitan AHS	Full sample of owners' estimates vs. sales prices	Owners biased or houses that sell are different from those that do not sell	■ No control for renovations ■ Don't test if parameter differences are explainable by owner or sample selection bias ■ No neighborhood characteristics ■ Truncated higher prices

This table presents a summary of the results from the previous literature on the accuracy of owner's valuation. Included is information on the data source used, the models that are estimated, the findings of the studies and the drawbacks of each study. The last involve mostly the inadequacies of the data that are used.

Kiel Zabel Results Comparing Owners Assessments and Sale Prices

Table 4 ■ Means and standard deviations of owners' valuations and sales prices by MSA

	1978–79	1982–83	1985–87	1989–91	All
Chicago					
Value: no sale	71,755	78,938	105,335	136,583	
(std. dev.)	(37,810)	(40,469)	(72,527)	(102,812)	
No. obs.	5,331	2,366	904	1,211	
Value: sale	75,805	87,755	127,887	161,454	
(std. dev.)	(34,447)	(49,195)	(92,480)	(124,999)	
No. obs.	256	83	54	46	
Sales price	69,889	80,459	114,795	150,596	
(std. dev.)	(32,127)	(43,018)	(79,912)	(118,431)	
% Difference	8.56	9.74	10.34	8.03	9.06
(std. dev.)	[15.80]	(18.86)	(19.54)	(10.98)	(16.54)
No. obs.	—	—	—	—	449
Denver					
Value: no sale	73,817	92,234	98,814	94,962	
(std. dev.)	(35,250)	(44,338)	(71,656)	(58,583)	
No. obs.	1,840	1,057	742	1,225	
Value: sale	74,912	97,449	104,966	99,604	
(std. dev.)	(30,982)	(40,010)	(76,913)	(51,589)	
No. obs.	184	74	64	85	
Sales Price	68,400	90,544	99,938	95,634	
(std. dev.)	(25,753)	(35,696)	(69,354)	(52,366)	
% Difference	9.78	7.62	5.61	6.54	8.06
(std. dev.)	[18.45]	(9.71)	(13.35)	(20.81)	(17.04)
No. obs.	—	—	—	—	407

Kiel – Zabel Results (con't)

Table 4 ■ continued

	1978–79	1982–83	1985–87	1989–91	All
Philadelphia					
Value: no sale	38,655	55,111	64,579	115,623	
(std. dev.)	(22,266)	(34,599)	(54,553)	(107,309)	
No. obs.	7,283	1,920	2,343	1,238	
Value: sale	45,526	54,630	69,052	132,916	
(std. dev.)	(23,641)	(30,881)	(46,239)	(83,979)	
No. obs.	290	61	103	56	
Sales Price	42,031	50,714	63,500	122,855	
(std. dev.)	(22,269)	(25,380)	(43,872)	(80,845)	
% Difference	11.23	7.37	10.49	13.60	10.88
(std. dev.)	(21.96)	(16.49)	(20.54)	(32.52)	(22.52)
No. obs.	—	—	—	—	510
Total					
% Difference					9.4
(std. dev.)					(19.1)
No. obs.					1,366

This table presents summary statistics of owners' valuations and sales prices by MSA. The owners' valuations are divided into groups for which a sale occurred and did not occur within twelve months of the survey. The mean percentage difference between the first group of owners' valuations and the actual sales price is given. Sales prices are updated to the survey date using the MSA-specific CPI (all items less shelter), so that they are comparable with the owners' valuations.