Problem Set 5

Clinton Tepper

source("Rep Scripts.R");

Summary: Paintings Sold

Statistic

N

Mean

St. Dev.

low\_est

2,666

19,336

38,938

high\_est

2,666

25,948

52,747

price

2,666

24,770

48,965

Summary: All Paintings

Statistic

N

Mean

St. Dev.

low\_est

3,447

21,836

60,052

high\_est

3,447

29,173

82,669

price

3,447

24,662

58,293

Summary: Repeated Sales

Statistic

N

Mean

St. Dev.

low\_est

34

20,674

19,883

high\_est

34

28,050

28,081

price

34

23,141

20,724

difdate

34

35

21

Summary: Repeated Listings

Statistic

N

Mean

St. Dev.

low\_est

47

20,724

20,928

high\_est

47

27,886

28,843

price

47

21,356

20,382

difdate

47

37

22

## Wald test:

Chi-squared test: X2 = 11.0, df = 5, P(> X2) = 0.052

Dependent variable:

Log(Price)

Sold

All

(1)

(2)

Log(Age)

-0.557

-0.541

(0.063)

(0.057)

Log(Length)

0.509

0.523

(0.040)

(0.035)

Log(Width)

0.535

0.528

(0.040)

(0.034)

Constant

4.791

3.594

(0.345)

(0.476)

Half-Year Fixed Effects

25

25

Artist Fixed Effects

283

303

Medium Fixed Effects

20

20

Observations

2,666

3,447

Adjusted R2

0.804

0.808

Residual Std. Error

0.667

0.682

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Anchoring Effects: Contemporary Art- Sold

Dependent variable:

Log(Price)

Log(Low Est.)

Sold

Sold <42M

Sold

Sold <42M

(1)

(2)

(3)

(4)

Anchoring Eff

0.121

0.498

0.294

0.729

(0.143)

(0.258)

(0.180)

(0.271)

Predicted Price

0.993

1.037

0.991

1.067

(0.066)

(0.064)

(0.065)

(0.076)

Sale Residual

0.333

-0.135

0.215

-0.214

(0.248)

(0.392)

(0.263)

(0.516)

Months Since Sale

0.001

-0.020

0.005

-0.023

(0.005)

(0.009)

(0.007)

(0.011)

Constant

0.028

-0.012

-0.246

-0.395

(0.599)

(0.614)

(0.619)

(0.669)

Observations

34

22

34

22

Adjusted R2

0.892

0.933

0.881

0.942

Residual Std. Error

0.431

0.339

0.459

0.331

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Robust errors

Anchoring Effects: Contemporary Art- All Listed

Dependent variable:

Log(Price)

Log(Low Est.)

Listed

Listed <42M

Listed

Listed <42M

(1)

(2)

(3)

(4)

Anchoring Eff

0.183

0.381

0.300

0.524

(0.102)

(0.238)

(0.119)

(0.244)

Predicted Price

1.015

1.031

0.977

1.011

(0.051)

(0.051)

(0.044)

(0.036)

Sale Residual

0.379

0.084

0.324

0.109

(0.160)

(0.400)

(0.173)

(0.476)

Months Since Sale

0.002

-0.019

0.006

-0.017

(0.004)

(0.010)

(0.005)

(0.011)

Constant

-0.292

-0.005

-0.148

0.044

(0.441)

(0.516)

(0.396)

(0.398)

Observations

47

28

47

28

Adjusted R2

0.905

0.944

0.907

0.953

Residual Std. Error

0.452

0.363

0.443

0.332

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Prices of unsold calculated at 80% of low estimate, robust errors

## Wald test:

Coefficients: (Intercept) lossGainAll ppriceAll lresidAll difdate 2.273 -0.928 -0.118 0.846 -0.017

Var-cov matrix of the coefficients: [,1] [,2] [,3] [,4] [,5] [1,] 2.3e+00 -1.5e-01 -2.1e-01 1.3e-01 1.2e-04 [2,] -1.5e-01 9.8e-02 1.6e-02 -7.9e-02 1.1e-03 [3,] -2.1e-01 1.6e-02 1.9e-02 -1.3e-02 -9.9e-05 [4,] 1.3e-01 -7.9e-02 -1.3e-02 8.3e-02 -9.8e-04 [5,] 1.2e-04 1.1e-03 -9.9e-05 -9.8e-04 5.2e-05

Test-design matrix: (Intercept) lossGainAll ppriceAll lresidAll difdate L1 1 0 0 0 0 L2 0 1 0 0 0 L3 0 0 1 0 0 L4 0 0 0 1 0 L5 0 0 0 0 1

Positions of tested coefficients in the vector of coefficients: 1, 2, 3, 4, 5

H0: (Intercept) = 0; lossGainAll = 0; ppriceAll = 0; lresidAll = 0; difdate = 0

Chi-squared test: X2 = 58.7, df = 5, P(> X2) = 2.3e-11 Wald test: ----------

Coefficients: (Intercept) lossGainAll ppriceAll lresidAll difdate 2.273 -0.928 -0.118 0.846 -0.017

Var-cov matrix of the coefficients: (Intercept) lossGainAll ppriceAll lresidAll difdate (Intercept) 1.9e+00 -1.6e-01 -1.7e-01 1.3e-01 -1.8e-03 lossGainAll -1.6e-01 1.9e-01 1.5e-02 -1.7e-01 2.5e-03 ppriceAll -1.7e-01 1.5e-02 1.5e-02 -1.2e-02 4.9e-06 lresidAll 1.3e-01 -1.7e-01 -1.2e-02 2.0e-01 -2.3e-03 difdate -1.8e-03 2.5e-03 4.9e-06 -2.3e-03 8.3e-05

Test-design matrix: (Intercept) lossGainAll ppriceAll lresidAll difdate L1 1 0 0 0 0 L2 0 1 0 0 0 L3 0 0 1 0 0 L4 0 0 0 1 0 L5 0 0 0 0 1

Positions of tested coefficients in the vector of coefficients: 1, 2, 3, 4, 5

H0: (Intercept) = 0; lossGainAll = 0; ppriceAll = 0; lresidAll = 0; difdate = 0

Chi-squared test: X2 = 35.3, df = 5, P(> X2) = 1.3e-06

Summary: London, Sold

Statistic

N

Mean

St. Dev.

LOW\_EST

3,864

169,446

437,855

HIGH\_EST

3,864

219,602

583,071

S\_PRICE

3,864

221,801

712,396

Summary: NY, Sold

Statistic

N

Mean

St. Dev.

LOW\_EST

4,784

293,928

1,178,150

HIGH\_EST

4,784

390,877

1,550,763

S\_PRICE

4,784

383,649

1,713,584

Summary: London, All

Statistic

N

Mean

St. Dev.

LOW\_EST

5,903

182,785

540,721

HIGH\_EST

5,903

237,624

721,711

S\_PRICE

5,903

202,682

662,923

Summary: NY, All

Statistic

N

Mean

St. Dev.

LOW\_EST

6,154

289,021

1,115,471

HIGH\_EST

6,154

384,270

1,480,446

S\_PRICE

6,154

346,662

1,546,959

Summary: London, Rep. Sales

Statistic

N

Mean

St. Dev.

LOW\_EST

27

264,694

418,978

HIGH\_EST

27

333,081

534,420

S\_PRICE

27

352,129

677,911

difdate

27

46

28

Summary: NY, Rep. Sales

Statistic

N

Mean

St. Dev.

LOW\_EST

49

301,449

1,276,742

HIGH\_EST

49

400,653

1,702,771

S\_PRICE

49

351,341

1,284,566

difdate

49

34

19

Summary: London, Rep. Listings

Statistic

N

Mean

St. Dev.

LOW\_EST

39

422,423

951,340

HIGH\_EST

39

525,333

1,165,601

S\_PRICE

39

435,120

892,153

difdate

39

45

24

Summary: NY, Rep. Listings

Statistic

N

Mean

St. Dev.

LOW\_EST

55

353,436

1,259,791

HIGH\_EST

55

459,400

1,667,088

S\_PRICE

55

380,911

1,244,206

difdate

55

35

20

Dependent variable:

Log(Price)

Sold, London

Sold, NY

All, London

All, NY

(1)

(2)

(3)

(4)

Log(Age)

-0.588

-0.864

-0.477

-0.906

(0.081)

(0.075)

(0.061)

(0.067)

Log(Length)

0.691

0.865

0.623

0.808

(0.046)

(0.042)

(0.036)

(0.036)

Log(Width)

0.527

0.403

0.551

0.419

(0.045)

(0.041)

(0.036)

(0.035)

Signed

0.388

0.502

0.377

0.463

(0.055)

(0.050)

(0.042)

(0.042)

Monagrammed

0.231

0.203

0.207

0.173

(0.081)

(0.070)

(0.064)

(0.061)

Stamped

0.168

0.023

0.140

0.017

(0.072)

(0.064)

(0.057)

(0.055)

wcDum

-0.989

-1.000

-1.003

-1.019

(0.054)

(0.045)

(0.043)

(0.041)

Constant

7.527

9.256

7.086

9.444

(0.419)

(0.382)

(0.326)

(0.336)

Half-Year Fixed Effects

22

21

22

21

Artist Fixed Effects

56

55

57

56

Medium Fixed Effects

12

12

12

12

Observations

3,864

4,784

5,903

6,154

R2

0.746

0.791

0.744

0.783

Adjusted R2

0.740

0.787

0.740

0.780

Residual Std. Error

0.821

0.783

0.815

0.790

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Anchoring Effects: Impressionist Art- Sold

Dependent variable:

Log(Price)

Log(Low Est.)

Sold

Sold <42M

Sold

Sold <42M

(1)

(2)

(3)

(4)

Anchoring Eff

0.708

0.852

0.679

0.805

(0.144)

(0.152)

(0.108)

(0.106)

Predicted Price

0.949

0.946

0.923

0.959

(0.043)

(0.048)

(0.040)

(0.043)

Sale Residual

0.256

0.087

0.279

0.141

(0.153)

(0.165)

(0.105)

(0.095)

Months Since Sale

0.012

0.016

0.010

0.017

(0.004)

(0.007)

(0.004)

(0.006)

Constant

0.683

0.674

0.822

0.280

(0.497)

(0.563)

(0.454)

(0.457)

Observations

76

54

76

54

Adjusted R2

0.884

0.897

0.901

0.937

Residual Std. Error

0.477

0.445

0.424

0.347

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Robust errors

Anchoring Effects: Impressionist Art- All Listed

Dependent variable:

Log(Price)

Log(Low Est.)

Listed

Listed <42M

Listed

Listed <42M

(1)

(2)

(3)

(4)

Anchoring Eff

0.625

0.802

0.698

0.839

(0.143)

(0.158)

(0.109)

(0.107)

Predicted Price

0.982

0.971

0.976

0.986

(0.038)

(0.044)

(0.039)

(0.040)

Sale Residual

0.323

0.108

0.259

0.114

(0.152)

(0.169)

(0.109)

(0.103)

Months Since Sale

0.011

0.014

0.011

0.018

(0.003)

(0.007)

(0.004)

(0.006)

Constant

0.246

0.370

0.238

-0.022

(0.454)

(0.516)

(0.446)

(0.436)

Observations

94

62

94

62

Adjusted R2

0.894

0.902

0.901

0.936

Residual Std. Error

0.477

0.463

0.454

0.375

Note:

*p<0.1;* ***p<0.05;*** p<0.01

Prices of unsold calculated at 80% of low estimate, robust errors