

PRICING CONTEMPORARY ART

LB Finer

A vertical abstract artwork featuring bold, geometric shapes. It consists of several horizontal bands of different colors: dark blue at the top, followed by bright green, medium blue, light green, dark blue, light green, dark blue, and finally black at the bottom. The edges of these bands are slightly irregular, creating a dynamic, layered effect.

MOTIVATING QUESTION

Is it possible to systematically predict the price of an artwork based on characteristics of the work and its artist?

- Useful for sellers and buyers



DATA

- Scrapped from Artspace.com
- 6,400 artists
- 22,100 artworks
- 70% created since 2010, 84% since 2000
- 15,800 had price data
- Lots of other missing data, so final n = 11,227 artworks

ARTIST-LEVEL FEATURES

- Year of birth
- Living/dead (thanks, Nora!)
- Academic degrees
- Museum collections
- Galleries
- “Fame”



Jamie Lau | Betting Shop (Red) | 2009



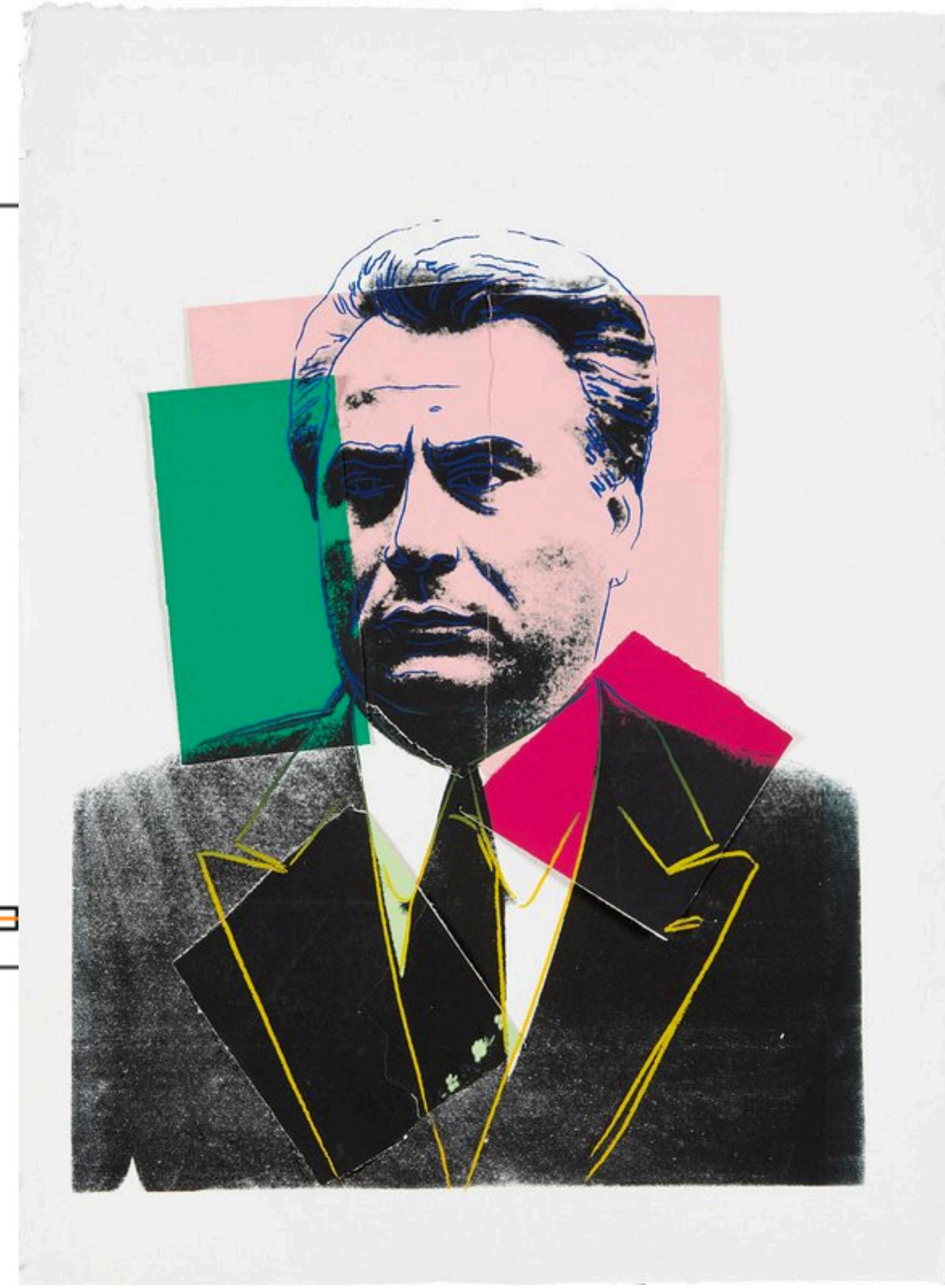
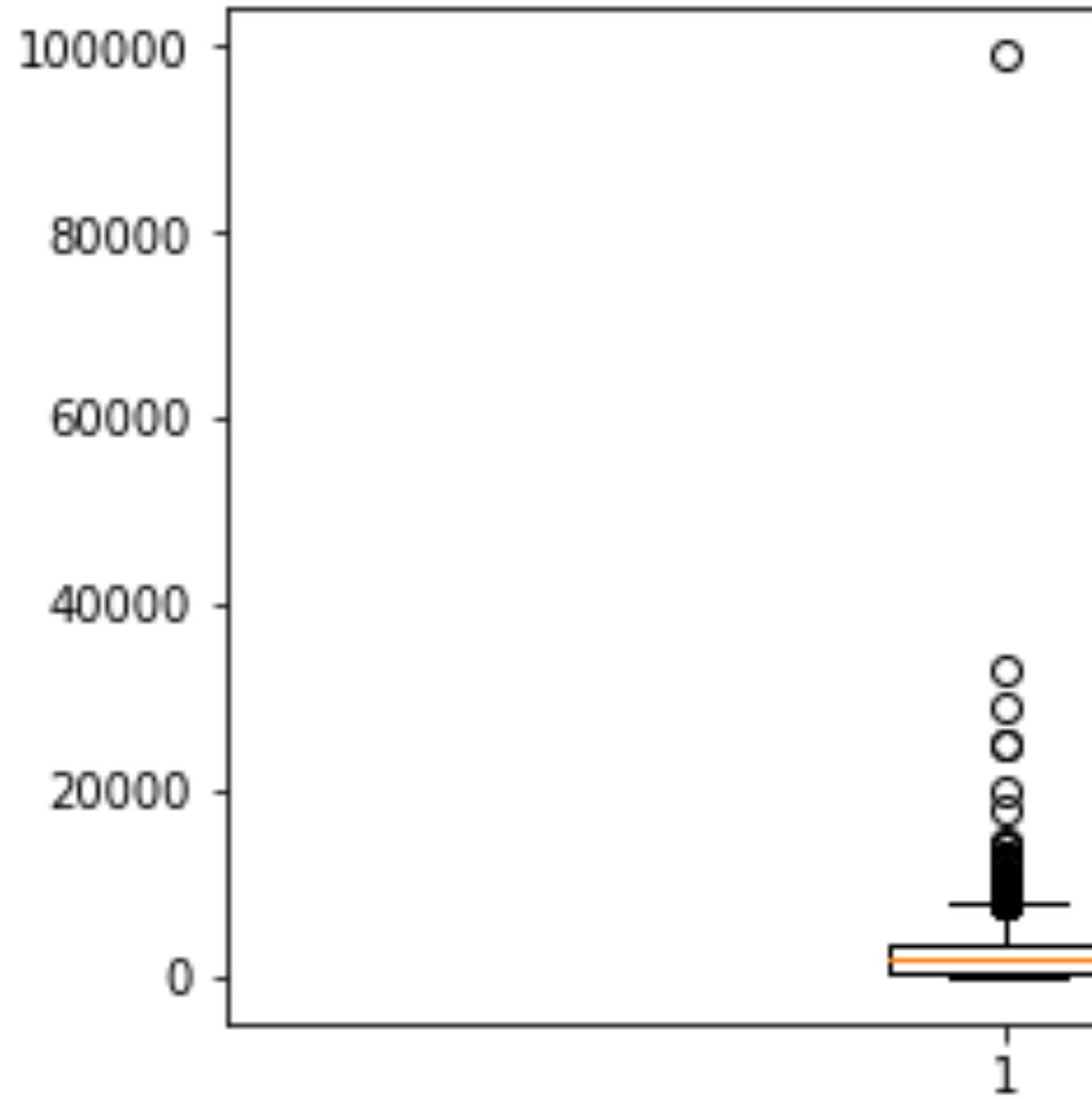
ARTWORK-LEVEL FEATURES

- Decade created
- Medium (painting, print, photograph, sculpture...)
- Physical size (area)
- Edition size (e.g., unique work, or number of copies of a print)
- Signed?

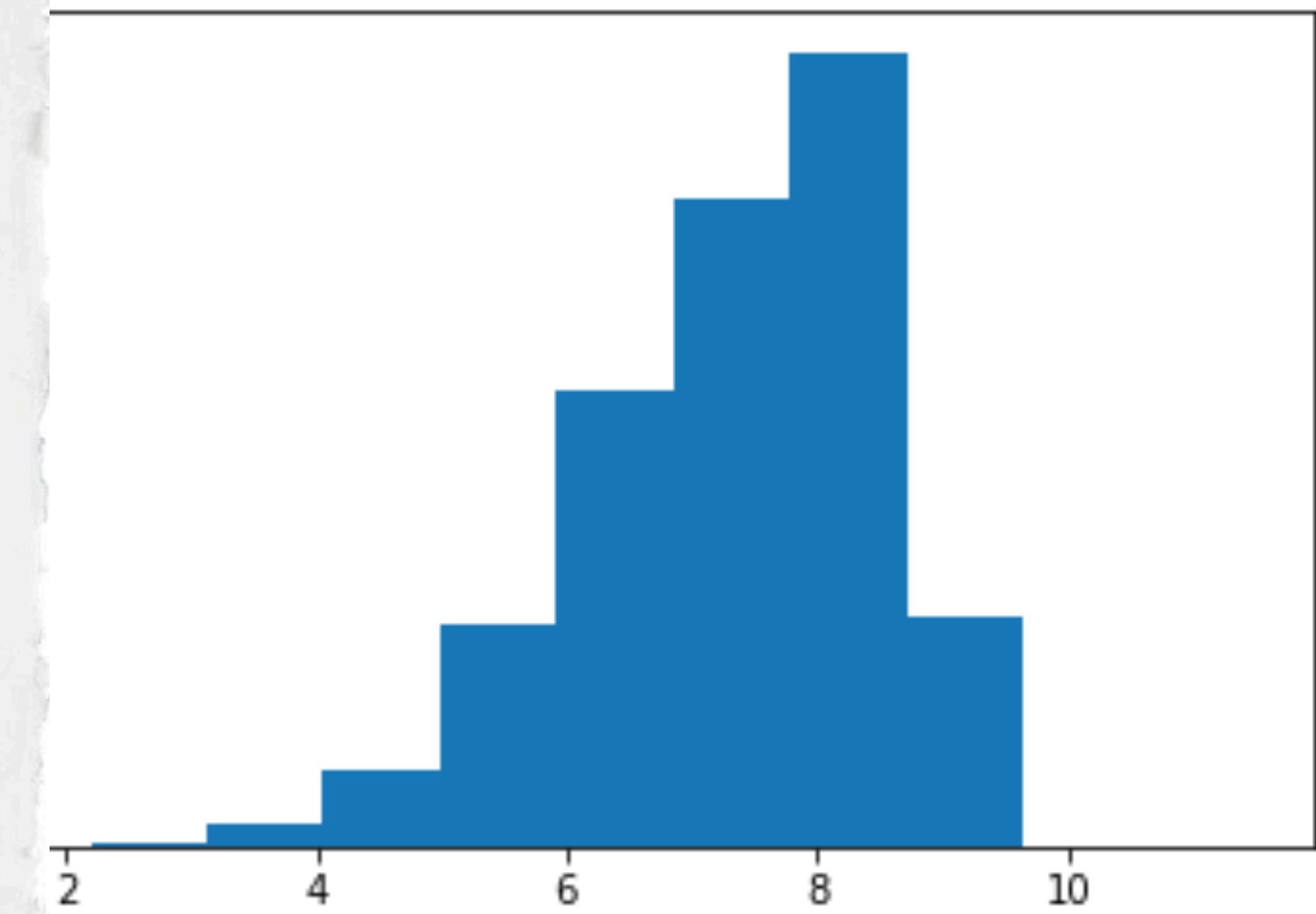
Easton Pribble | Blue Tree, Green Tree | 1996

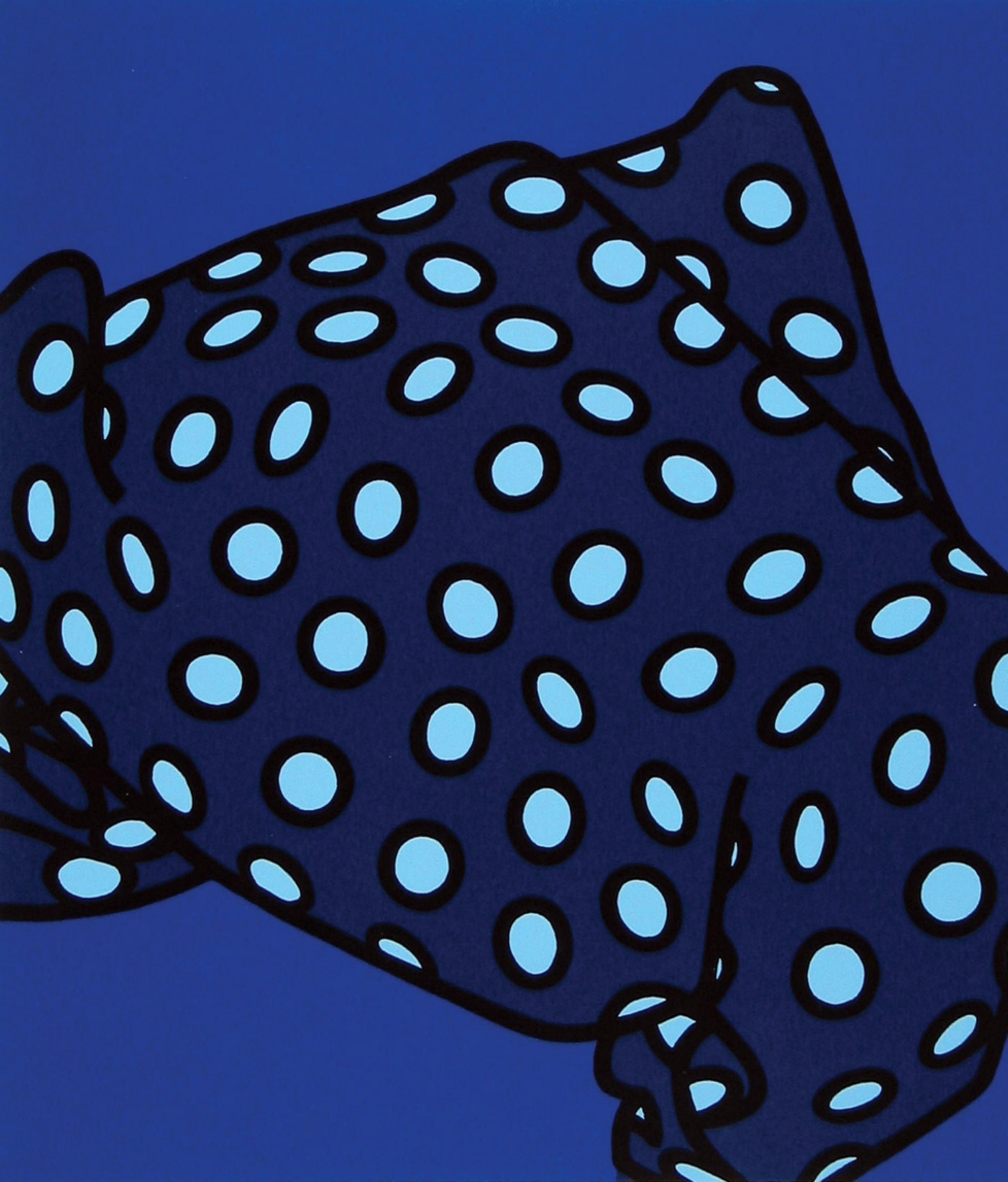
TRANSFORMING PRICE

Price



$\log(\text{Price})$





ANALYSIS AND FEATURE ENGINEERING

- Cross-validation: test/train, 80/20 split
- Linear regression
- Add polynomial features
- Add/modify features
- Regularization with LASSO and Ridge



RESULTS

Model	Train score	Test score
Start with OLS regression	.47	.45
Add polynomial features (best degree = 2)	.63	.57
Recast “fame” as categorical	.62	.55
Add “living” feature	.63	.57
Regularize with LASSO	.62	.56
Regularize with Ridge	.63	.56

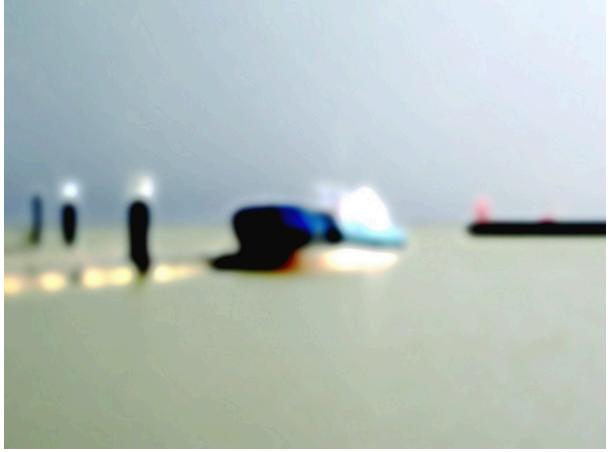


SO, WHAT MAKES AN ARTWORK VALUABLE?

(in descending order of scaled coeffs)

- Artwork is larger (.47)
- Not a print (.45) or “decorative arts” (.40)
- Unique work (.43) or smaller edition (.29)
- Artist is “blue-chip” (.25) or “established” (.21)

HOW DID THE MODEL PERFORM IN THE REAL WORLD?

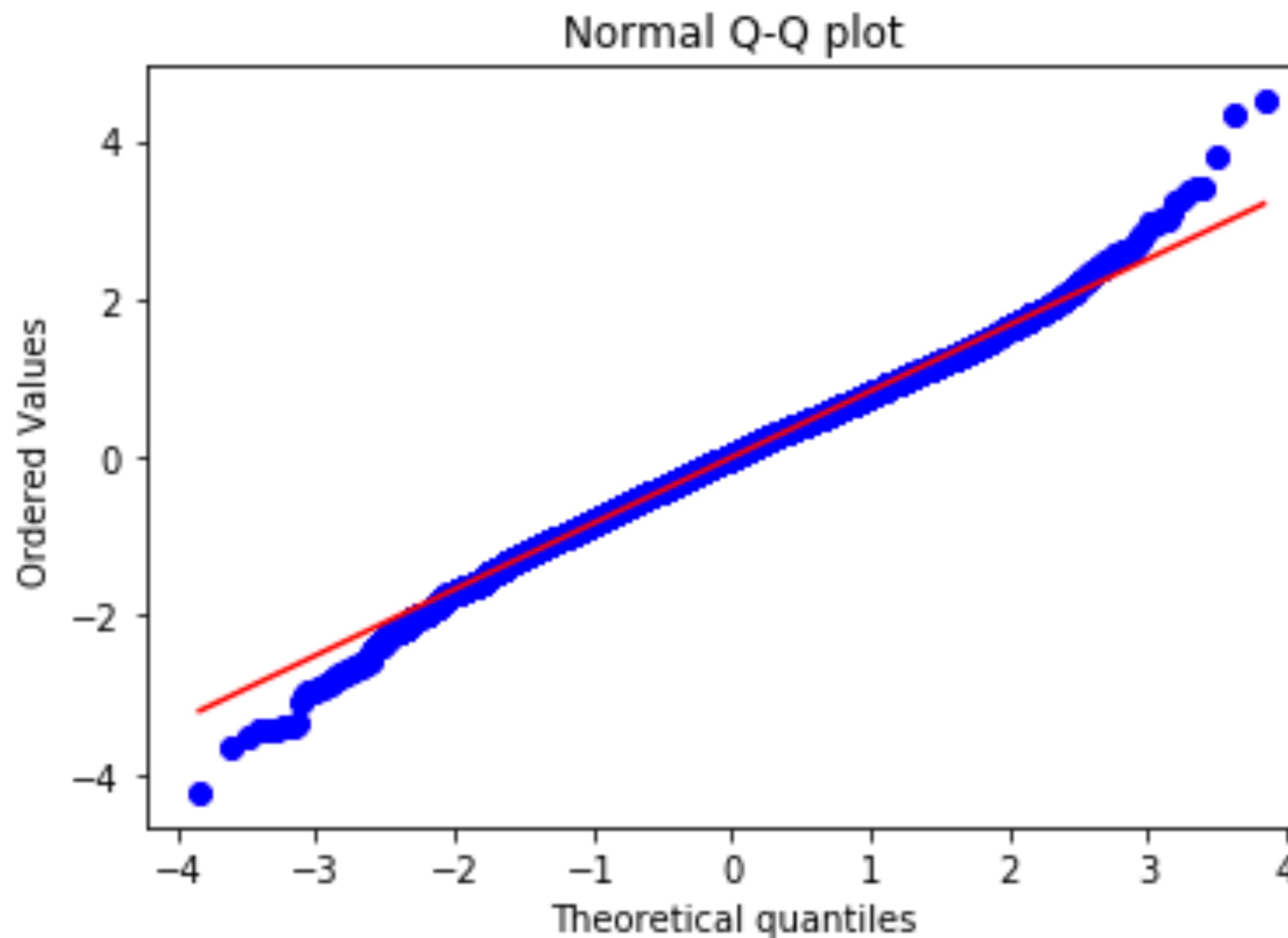
Artwork	Predicted	Actual	Ratio
	\$225	\$703	3.13
	\$1536	\$875	0.57
	\$1237	\$417	0.34
	\$128	\$1377	10.76
	\$1432	\$2500	1.75
	\$1448	\$524	0.36
	\$1339	\$1400	1.05
	\$833	\$500	0.60

THANK YOU



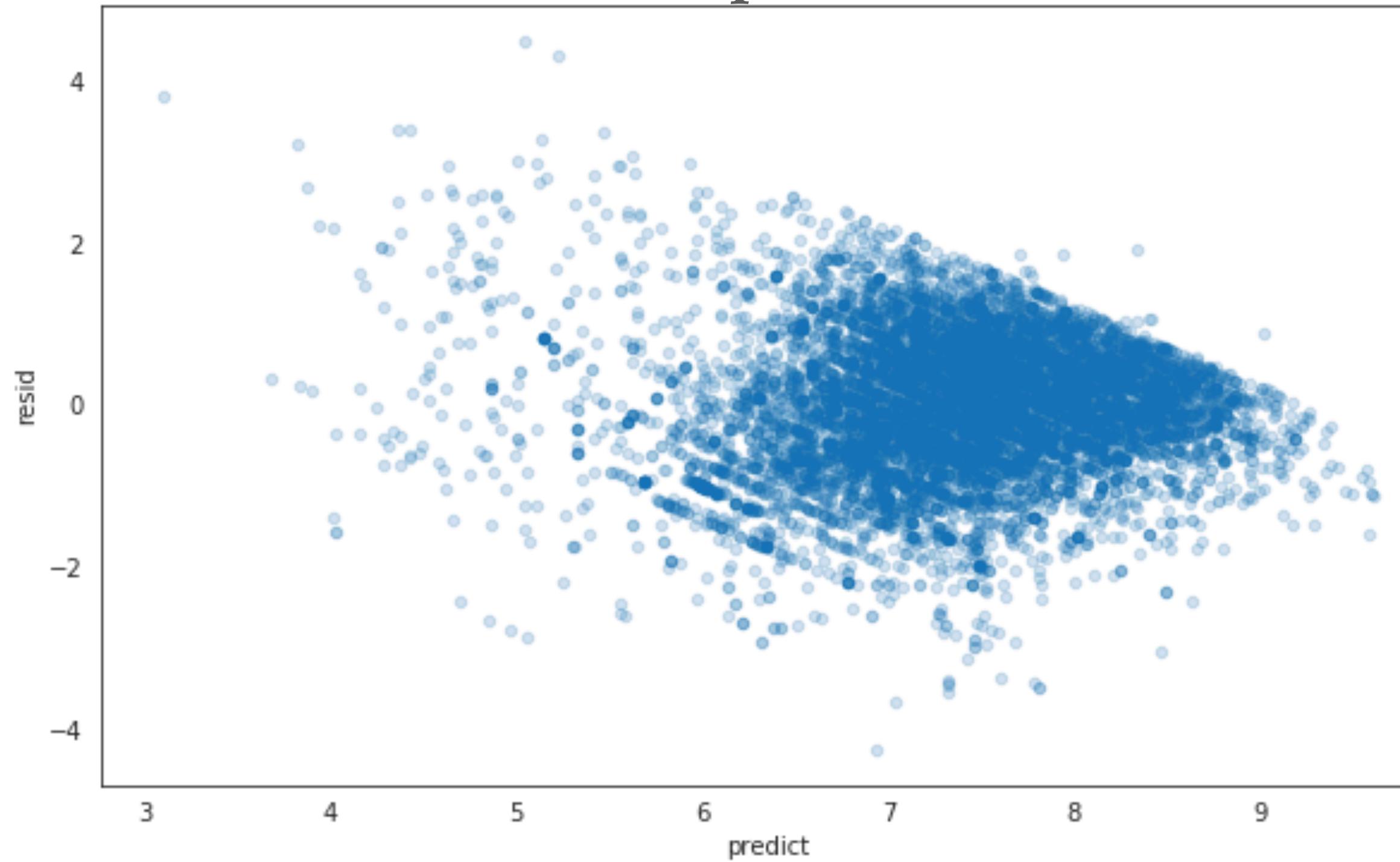
Anne Winston | *A Break in the Clouds* | 2015

TESTING ASSUMPTION 2: RESIDUALS ARE NORMALLY DISTRIBUTED

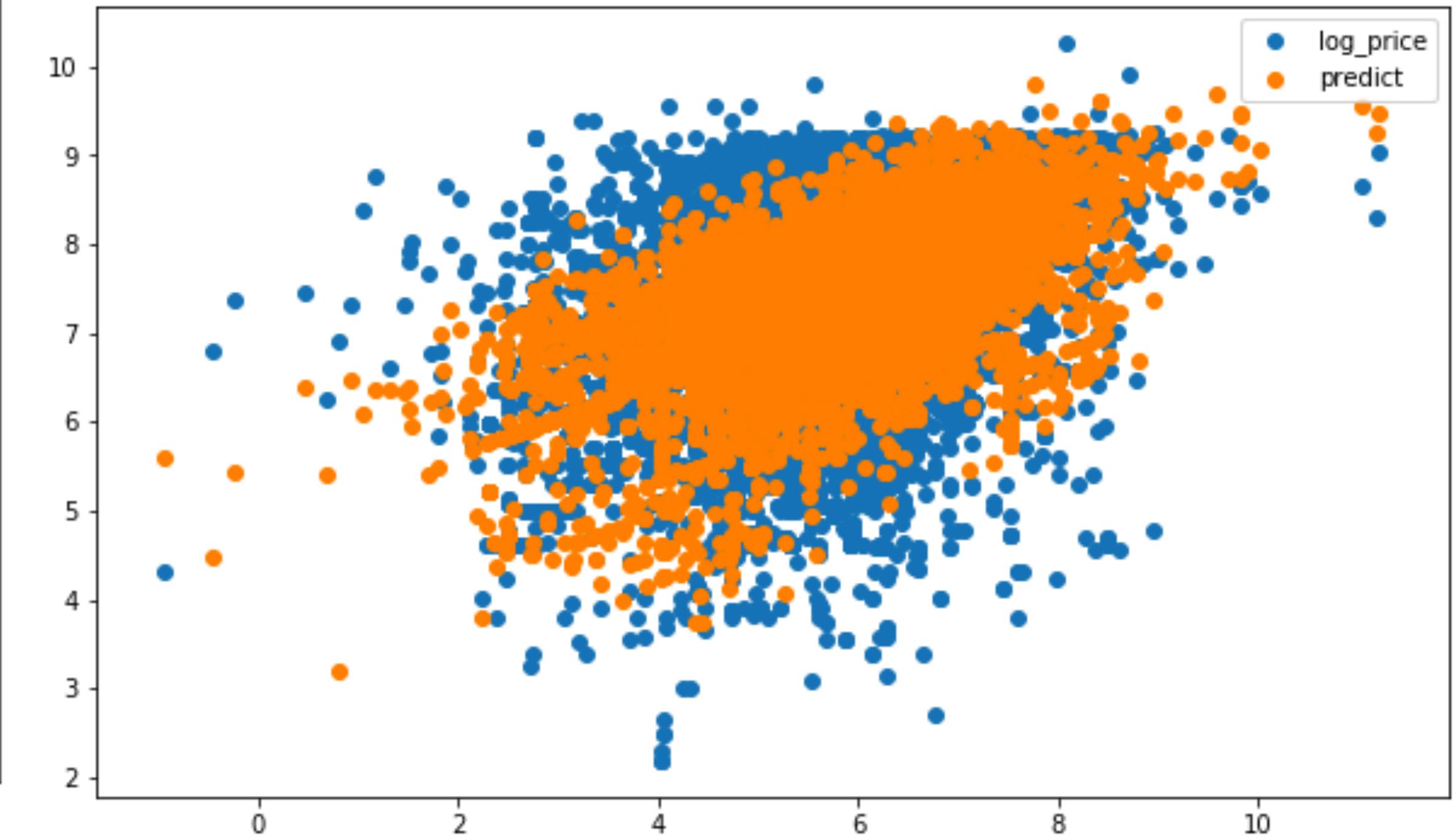


TESTING ASSUMPTION 3: ERROR TERMS HAVE CONSTANT VARIANCE

Residuals vs predicted values

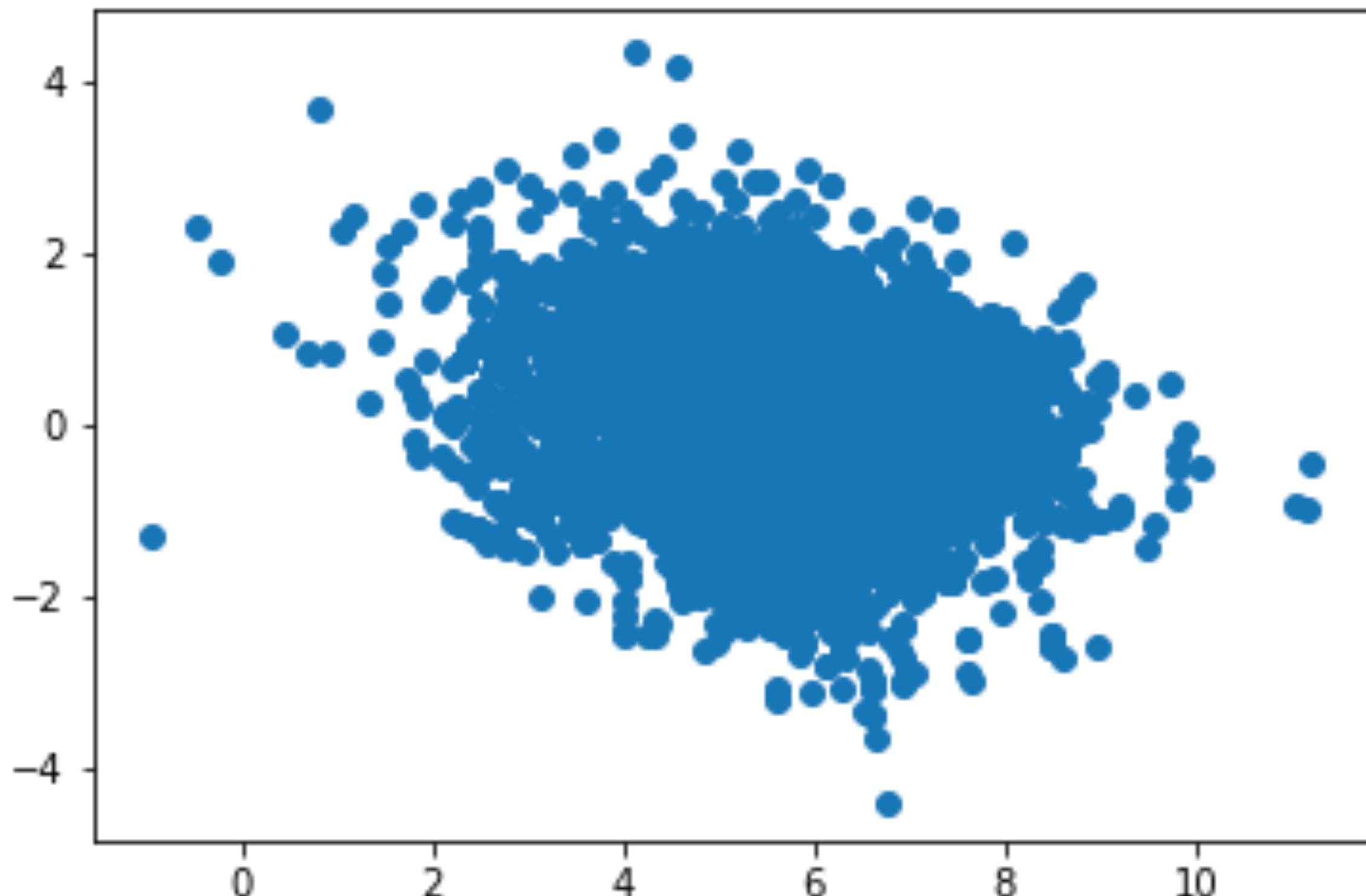


Price vs. area



TESTING ASSUMPTION 4: ERRORS ARE UNCORRELATED ACROSS OBSERVATIONS

Residuals vs. log(area)



Residuals by fame category

