Anchoring Effect on the Sale Price of Contemporary Art

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Abstract: Using survey data collected by Alan Beggs and Kathryn Graddy, the researchers test the anchoring effect on the sale price of contemporary art auctioned at Christie's King Street in London between 1982 and 1994. Using ordinary least-squares regression, the anchoring effect and other factors are estimated. The results suggest that the price of a contemporary art painting sold at an art auction and Beggs and Graddy's presale valuations are anchored on the price that the painting was previously sold at auction. Our findings were similar to those of Beggs and Graddy with differences in standard error that are explainable by our differentiation of regression methods.

Introduction

The overarching aim of this study is to analyze the dynamics of the contemporary art market and evaluate whether or not a causal relationship is present between the previous sale price and current sale price of a piece of artwork, that can be explained by the anchoring effect. The anchoring effect is a phenomenon that occurs when people base current decisions on limited information they have about a particular subject. In this case, the anchoring effect would consist of past prices of a piece of artwork and how the previous prices affect how they value the same artwork in a current market. It is notable that overall, the domain of art sales is quite complex and there are a myriad of factors that could potentially be influencing the selling prices of art, including but not limited to artist popularity, authenticity, condition, scarcity, quality and medium of the piece of artwork, as well as whether or not the artist is retired and/or living. However, in this study specifically, Beggs and Graddy noticed firsthand that the price of art being sold at auction frequently centered around sales prices from the past. Furthermore, they went on to examine the impact of these sales prices at previous auctions held at the next sale. Therefore, for the purpose of this study, the treatment variable being measured is the anchoring effect between sales. For further context, the anchoring effect between sales can be defined by the difference in actual sales prices and forecasted prices noted at a previous sale. In the paper, it was concluded that, within the contemporary art pieces studied, anchoring effects have less of an impact on sale price than witnessed in the market for impressionist art. Despite this seemingly lower impact of anchoring effects, the effects witnessed in the market for contemporary art are still statistically significant and worth taking note of. Moreover, the anchoring effect proved to be more indicative of presale estimates rather than the total sale price. Lastly, it was noteworthy that the anchoring

effect was stronger on pieces of art that had returned to auction within a three-and-a-half-year timeframe compared to art that had longer time spans in between auctions.

The data utilized in this study encompasses a collection of 3,447 total observations of Contemporary art prices from auctions held at Christie's King Street, located in London, spanning the significant period between 1982 and 1994. These price observations of the auctions held at Christie's King Street were then combined to form a dataset that was sufficiently tailored to focus on contemporary art. Significantly, to assure the relevance and reliability of the dataset, the data collection was narrowed down to include only artists who appeared at least twice during the contemporary period, as well as those whose artworks were sold repeatedly. Additionally, the average holding time between sales on these pieces of art was found to be approximately three years, which emphasizes the consistency of the dataset across the varying transactions.

As for the relevance of anchoring outside the art world, the anchoring effect researched in this study not only relates to the auctioning of art pieces but all items bought and sold in the world outside of art auctions. While anchoring can have both positive and negative effects, it is used in a variety of ways in pricing, with the most recognizable being the utilization of discounts and sales. When receiving new information people tend to anchor to the original piece of information received and it distorts our perception. The knowledge of anchoring is applicable to, essentially, purchases of all tiers, although it is primarily noticed in transactions of more costly items. Anchoring, in addition to benefit costs and inflation considerations, are all taken into account when making the decision to purchase an item, especially a costly item. This is clear when it comes to the thought process behind purchasing a piece of haute couture clothing. Essentially, a customer is purchasing the status of its exclusivity and quality, much like a painting, which is why many compare the world of fashion to art. Oftentimes, those who engage

in higher fashion purchases take the history, status, and success of the brand into account, making it easier to justify an extravagant purchase. These customers will often take the purchasing price as is, making this example a product of the anchoring effect. Even if the customer does not take the purchasing price as is and scours the internet and stores for a lower price, this continues to exemplify the anchoring effect as the lower price will appear as a deal in comparison to the original anchored price. However, the anchoring effect is not exclusively seen in more lavish purchases, it is also seen in daily and common transactions. For example, food purchases can be affected by the anchoring effect as a result of price perception. Say that a menu at a decently priced restaurant has a filet mignon steak priced at $60, if the steak is highlighted or listed first, then by comparison, a $20 burger does not seem as much of a splurge, despite a similar burger at McDonald's costing less than $10. While there are clear differences between the quality of the foods aforementioned, it is likely that a customer will pay the $20 for the burger rather than leaving the restaurant for a McDonald's burger at half price, purely based on anchoring strategies. For the reasons listed above, it is important that individuals are educated about the anchoring bias in all of the decision-making aspects used when buying or selling new products. Anchoring is a part of daily life and as long as individuals continue to participate in economic transactions and make purchases, there is evidence of the effect, therefore the evaluations in this study are applicable beyond the study's original intentions.

Regression Model

The regression model chosen for the observation of this study is regarded as $SalesPriceAll\_i = \alpha + \beta_1 AnchEff_i + \beta_2 PredPriceCurrent_i + \beta_3 ResidLastSale_i + \beta_4 MonthsSinceSale_i + \gamma_1 MonthsSincePrevSale_i + \gamma_2 ConstantQual_i + \gamma_3 UnobservCharact_i + U_i$. The treatment variable for this regression is the anchoring effect, which is the difference between

the actual price at auction and the forecasted price from the previous sale. Additionally, the outcome variable for this regression is the price of a contemporary art piece sold at auction. Lastly, the most notable control variables for this regression are the months since the previous sale, unobservable characteristics of a painting, and the constant quality of art pieces.

The regression model relates to the broader purpose of the study in the sense that the model demonstrates the complex industry of art auctioning, with multiple factors such as the anchoring effect, the current predicted price, and unobservable qualities, influencing the pricing of the art. As stated by Beggs and Graddy themselves, anchoring has proved to be one of the most "powerful" and "well-established" biases in experiments, demonstrating the significance of the functionality of the above regression model in determining contemporary art prices.

The potential outcome version of the regression model is $SalesPriceAll_i(d) = \alpha + \beta_1 d + \beta_2 PredPriceCurrent_i + \beta_3 ResidLastSale_i + \beta_4 MonthsSinceSale_i + \gamma_1 MonthsSincePrevSale_i + \gamma_2 ConstantQual_i + \gamma_3 UnobservCharact_i + U_i$. Under the linear assumption model, treatment effects are considered both constant and linear. The linear assumption model explains that for any unit *i*, the effect of increasing *d* by 1 for any value of *d* on the outcome sales price is β. The β, otherwise known as the slope of the least squares regression line, can be interpreted as the causal effect between the treatment variables and the outcome.

For the regression analysis to have a causal interpretation the unconfoundedness assumption is required, $corr(SalesPriceAll_i(0), AnchEff_i, PredPriceCurrent_i, ResidLastSale_i, MonthsSinceSale_i \mid MonthsSincePrevSale_i, ConstantQual_i, UnobservCharact_i) = 0$. This means that amongst sold contemporary art pieces at auction within the same amount of months since the previous sale, constant quality, and unobservable characteristics, there is no correlation between the anchoring effect and the hypothetical world there was no anchoring effect. If we assume

unconfoundedness then there is no selection bias, so the change in the conditional mean function is a causal effect. Beggs and Graddy's choice of control variables does an effective job of making sure the contemporary painting being sold has the same value as when previously sold and accounts for changes in demand. These control variables help them create the most accurate forecasted price from the previous sales, this is a major part of accounting for the anchoring effect. Some other factors that may threaten the unconfoundedness effect are the characteristics of the buyers and the artistic preferences of the buyers as well.

Estimation

	Coefficients	*Standard Error*
Intercept	0.02821	0.61078
Anchoring Effect	0.12065	0.10569
Predicted Price At Current Auction	0.99300	0.06539
Residual from Last Sale Price	0.33259	0.15723
Months Since Last Sale	0.00073	0.00386
Observations	34	
R Square	0.90476	

Both our empirical results and the results from the original study's table appear to be relatively similar in values. To elaborate, all of the coefficients came out to be the same as the Beggs and Graddy's regression, however, there is only a slight difference in the outcome of standard error, which can be explained by the fact that Beggs and Graddy have used Stata's robust estimation method to calculate the standard error. This was a different method of calculating standard error than we utilized in our regression, which explains the difference in values. Ultimately, our results continue to support Beggs and Graddy's original assumption.

Conclusion

In the evaluation of discerning whether or not there is a presence of a causal relationship between the previous sale price and the current sale price of contemporary artworks, the anchoring effect is proven to be notable as a driving factor attributing to increases in prices. As we established previously in the paper, the anchoring effect can be utilized in several ways, extending beyond the traditional assumptions tied with the bias, in addition to being applicable beyond contemporary art and even more so, the world of art as a whole. Elaborating upon the evidence gathered from our empirical findings, due to similarities with the original table's results, it is quite apparent that the price of art appears to be dependent upon the prices determined by past sales. Therefore, Beggs and Graddy's original hypothesis is quite conceivable; although, from the data, it is proven that there was a distinct difference in how much the anchoring effect came into play affecting the prices of contemporary pieces compared to impressionist pieces. Moreover, it is important to note that even though the anchoring effect had a noticeable impact on sales prices of contemporary artwork, it was less than the effect on impressionist art. Furthermore, Beggs and Graddy did well at ensuring that the unobservable characteristics of the pieces of artwork were held at a constant quality and kept consistent in their observations based on the data. During the process of our empirical analysis, we took the observations from these authors into consideration. To conclude, Beggs and Graddy were quite accurate with their initial thoughts that the anchoring effect can truly affect whether or not an art piece is sold for a certain price on the market and this established accuracy of the significance of the anchoring effect can be applied to essentially all retail markets where individuals can make purchases. The anchoring effect can be seen all around us and once we can acknowledge its impact, we will be better off as consumers.

References

Beggs, Alan, and Kathryn Graddy. “Anchoring effects: Evidence from art auctions.” *American Economic Review*, vol. 99, no. 3, 1 May 2009, pp. 1027–1039, https://doi.org/10.1257/aer.99.3.1027.