

# **The Pricing of Post-War and Contemporary Art: Criteria and Considerations**

by

Susan Wang

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Bachelor of Science  
Undergraduate College  
Leonard N. Stern School of Business  
New York University  
May 2016

Professor Marti G. Subrahmanyam  
Faculty Adviser

Professor Michael Moses  
Thesis Adviser

**The Pricing of Post-War and Contemporary Art: Criteria and Considerations**

Susan Wang

Leonard N. Stern School of Business

New York University

## **Abstract**

Contemporary art prices are affected by many quantifiable and unquantifiable factors. This thesis examines the degree to which there exists a relationship between these factors and price (if at all), and attempts to illuminate a set of criteria and conditions that may be used to determine an artwork's price. We find that objective factors like size and medium affect the prices of works at the low to mid-tiers of the contemporary art market to a higher degree than of works at the high end. Works over \$10 million are influenced primarily by subjective factors like provenance and taste, and behave much more unpredictably. We also include insight gathered from interviews with art market professionals and collectors alongside our findings.

## TABLE OF CONTENTS

<b>Introduction.....</b>	<b>5</b>
<b>I. Structure of the Art Market.....</b>	<b>5</b>
<b>II. Art as Explained by Economic Concepts.....</b>	<b>6</b>
<b>a. Veblen Goods and Giffen Goods .....</b>	<b>6</b>
<b>b. Utility and Opportunity Cost.....</b>	<b>9</b>
<b>III. Hypothesis.....</b>	<b>10</b>
<b>IV. Data and Methodology .....</b>	<b>11</b>
<b>V. Results .....</b>	<b>13</b>
<b>VI. The Subjective Factors of Art Prices .....</b>	<b>19</b>
<b>a. Supply and Demand .....</b>	<b>19</b>
<b>b. Provenance and Backstory .....</b>	<b>20</b>
<b>c. Tastes .....</b>	<b>22</b>
<b>Conclusion .....</b>	<b>23</b>
<b>Figures and Tables.....</b>	<b>26</b>
<b>Appendix.....</b>	<b>35</b>
<b>Bibliography .....</b>	<b>42</b>

## **Introduction**

What makes art valuable, and how can we value it? This is the question we posed at the outset of our thesis. Our goal was to determine the criteria and conditions that affected an artwork's value, and derive a valuation model that could churn out a value for any artwork based on a number of inputs. We quickly realized this task was impossible for a variety of reasons. The first was the oxymoron of 'art valuation': art does not produce any cash flows or dividends, and so it cannot be valued on a financial basis. Second, art from different periods and movements appear and behave in vastly different ways from each other. And third, '*beauty is in the eye of the beholder*'—art has so many subjective characteristics that cannot be captured in a model. We thus shifted our topic to the pricing of post-war and contemporary art, with the missions of discovering why people buy contemporary art at the sky-high prices many works command today, and determining the objective and subjective factors that influence an artwork's price.<sup>1</sup> Through economic concepts, statistical analysis of auction data, and interviews conducted with members of the industry, this thesis examines various aspects of art, and attempts to shed some light on the opaque and convoluted pricing process of contemporary art.

### **I. Structure of the Art Market**

The contemporary art market has five primary participants: the artist, the dealer, the auction house, and the collector. The market is further separated into a primary and secondary market, as well as a private and public market. The primary market is made up of works that are offered for sale for the first time, usually through a dealer who represents that artist. The secondary market involves works that have prior ownership, and are bought and sold through dealers and auction houses. The private market includes transactions between buyers and

---

<sup>1</sup> We define post-war and contemporary as the time period from the end of World War II to today.

individuals, artists, dealers, and auction houses that are hidden from the public eye. The public market is comprised mainly of auction houses' seasonal sales, as well as some public gallery sales. Pricing varies greatly between each of these markets, and opacity makes it impossible to penetrate the private market for any information. Though an imperfect investigation of the contemporary art world, we will focus on the public market and analyze public auction sales data to draw conclusions on the pricing of contemporary art.

## **II. Art as Explained by Economic Concepts**

### *Veblen Goods and Giffen Goods*

Art is cited by many experts and authors as a Veblen good. In 1899, American economist Thorstein Veblen developed the economic theory of *conspicuous consumption*—consumption that is meant to signal a certain message about one's status, accomplishments, or tastes.<sup>2</sup> Veblen goods are notable for having an upward sloping demand curve (Figure 1), thus violating the universally accepted law of demand, which states that quantity demanded increases as price decreases (resulting in a downward sloping curve). Veblen asserted that certain goods meant for conspicuous consumption were demanded in higher quantities as their price rose; luxury goods usually fall into this category. Author and York University Professor of Economics Don Thompson describes the Veblen effect on art, “the satisfaction derived by the buyer comes from the art, but also from the list price or conspicuous price paid for it. [...] The higher the perceived price, the more valuable the object is seen to be and the greater the buyer satisfaction.”<sup>3</sup> Deborah Davis, a New York-based collector and art consultant also states that many buyers buy for

---

<sup>2</sup> Seed, John. "What Makes a Jackson Pollock Painting Worth Millions?" The Huffington Post. TheHuffingtonPost.com. Web. 12 May 2016.

<sup>3</sup> Thompson, Donald N. *The \$12 Million Stuffed Shark: The Curious Economics of Contemporary Art*. London: St. Martin's Griffin, 2010. Print, p.190-191

signaling their good taste and status. One example cited was hedge fund manager Steven A. Cohen, whose fund SAC Capital was being investigated for insider trading allegations in 2012. In early 2013, Cohen was fined \$616 million by regulators. He also bought a Picasso piece for \$155 million (more on this in Section VI). While Cohen had been known to be an avid art collector, it is possible that his purchase was to make a point: even though his assets were \$616 million lighter, and even though his company was about to be shuttered, he was still rich—rich enough to spend \$155 million on a single piece of art.

To put some substance behind these observations of art as a Veblen good, we took to constructing a demand curve for contemporary art, using price data for the works of 25 artists sold at auction from January 1986 to April 2016. From Figure 2, we find that the curve for art is actually downward sloping, defying the assumption that art is a Veblen good. Fewer works of art sold at higher prices than at lower prices, reflecting the law of demand that states quantity demanded increases as prices decrease. However, after applying a logarithmic scale to the graph in Figure 3 we notice that the lower portion of the demand curve—representing art priced in the thousands—bends backwards. Astonishingly, the demand curve for art priced under \$10,000 (Figure 4) resembles that of a Giffen good (Figure 5). One explanation is that our sample was too small, having included just 25 artists out of thousands of contemporary artists represented at auction. Or, perhaps we should classify art in different price ranges as different goods. If we break down the demand curve in Figure 3 into two sections—the first being from  $P=0$  to  $P=4,700$ , and the second being from  $P=4,700$  to  $P=10,000$ —we see that the curve is upward sloping in the first section, and downward sloping in the section. If we consider that art priced in the range of \$0 to \$4,700 and that priced from \$4,700 to \$10,000 are separate goods, we may postulate that the Veblen effect comes into play for art only until it reaches a threshold price (around \$4,700),

and after that the general law of demand takes over.<sup>4</sup> Another explanation provided by Alessia Zorloni, adjunct professor at Milan's Università di Lingue e Comunicazione, draws on economist Joseph Stiglitz' theory that the law of demand has no rational basis when consumers evaluate the quality of a product based on its price.<sup>5</sup> When price decreases, consumers may react by decreasing demand because they take the lower price to mean lower quality. Thus the consumer has in his mind an average quality-to-price ratio, which constructs his backward-bending demand curve for art (Figure 6). Remarkably, our finding very much resembles this theorized demand curve. In Figure 6, price level  $P_2$  represents the maximum quality-price ratio achievable in the market, and consumers increase their demand for art up until this point. From  $P_1$  to  $P_2$ , the demand curve is upward sloping quantity demanded increases as price increases, even though art is neither defined as a Giffen good nor a Veblen good in this scenario. After  $P_2$  however, the quality-price ratio decreases with further increases in price. The consumer will lower quantity demanded at these higher prices, causing the curve to become downward sloping.

While intuition and art economists tell us that art *is* a Veblen good meant to signal status and wealth, our data shows otherwise.

---

<sup>4</sup> For the sake of academic debate, we could advance a possible explanation for why the demand curve resembles that of a Giffen good—perhaps art priced at under \$4,700 is an inferior good. Inferior goods are those for which demand decreases as a consumer's income rises, and demand increases as a consumer's income falls (a positive "income effect"). An example of an inferior good might be instant noodles, a popular meal for college students when their budgets become tight. In addition to the "income effect" demand for goods is also governed by the "substitution effect", which dictates that demand for any good decreases as its price goes up, due to people substituting their purchases of that good with similar goods. Giffen goods are extreme inferior goods for which the income effect is extremely positive (meaning demand for the good increases significantly as income falls). Assuming that the consumer must purchase this good, when the price of a Giffen good increases, a consumer's effective income decreases. The income effect is larger than the substitution effect, so the net result is that the consumer demands more of this inferior good even as the price increases (leading to an upward sloping demand curve (Figure 5)). However, there is a point at which the Giffen good takes up the consumer's entire budget, and thenceforth the demand curve becomes downward sloping as any price increase causes the consumer to demand less, as he cannot afford it. Ultimately though, we know that art is not an inferior good, because in reality demand for art does not decrease as a consumer's income increases. So, the Giffen good explanation does not have merit in explaining the demand curve.

<sup>5</sup> Zorloni, Alessia. *The Economics of Contemporary Art: Markets, Strategies and Stardom*. Print, p.51



## *Utility and Opportunity Cost*

“As a general rule, when something becomes useful, it ceases to be beautiful.”

–Theophile Gautier (1811-1872)<sup>6</sup>

Art neither has practical utility nor serves any necessary function to sustain life. If we consider the entire realm of possible purchases in the world, art is one of the only goods to not be linked to any essential human activity. Art cannot be eaten, drunk, worn, lived in, or used for any tangible purpose. All other goods, no matter how luxurious, perform some function to fulfill human needs. Accordingly, art derives its value from the “collective intentionality,” as Director of New York’s Acquavella Galleries Michael Findlay puts it, that people assign to it—that is, art has commercial value because people declared it so. But again, when we consider the spectrum of purchases that one could make, why would one choose to buy a canvas splattered with paint and a signature over a 15-bedroom mansion and estate that costs the same amount and offers immensely more utility? These are the opportunity costs that many buyers consider when making an art purchase, discloses Davis. But perhaps art is beyond utility. Art represents everything and anything from documentation, to inspiration, to beauty, to spirituality, to the intelligent *homo sapien* identity. Ultimately, art expresses something, and that expression elicits an emotional response from a viewer. If art’s purpose is to stir emotions and admiration, why do buyers pay such high prices for it when they could just view the pieces in public museums and galleries? The utility derived from aesthetic appreciation should be roughly equal whether the venue be public or private. For collectors who buy art for their love of it, much of their motivation is explained by the “endowment effect” in psychology. Thompson explains the phenomenon as

---

<sup>6</sup> Findlay, Michael. *The Value of Art: Money, Power, Beauty*. Munich: Prestel, 2012. Print, p.12

“the fact that people value objects more when they think of them as their own.”<sup>7</sup> When asked about her own motivations for collecting art, Davis explained, “I have this gene that makes me need to acquire things. Especially with contemporary art, by owning the pieces, you becomes part of your own culture. And that’s exciting.”

Art can also be considered an investment or store of value, in which case it is treated as an alternative asset class to traditional stocks, bonds, and funds. Speculative buyers must weigh the risk and return profile of art compared with those of other asset classes to determine the opportunity cost of investing in art. In recent years, art has increasingly been utilized to diversify the portfolios of domestic as well as foreign individuals, according to Davis. While those with deep pockets may invest in art by buying and selling works directly, others may choose to investment in a fund. Art investment funds have grown significantly in number (though with high turnover), with 44 funds operating in 2011 versus 16 funds five years prior.<sup>8</sup> Such funds are managed by professionals with expertise in art and investing, who employ the fund’s capital to generate returns through acquisitions and disposals of works. Art in this context is treated as a commodity and instrument of profit—thus imbuing it with utility.

Art is treated differently for different purposes by different groups of people. With so many interests and parties at play, how are prices set? What are the dynamics between the objective and subjective variables surrounding art, and by what manner do they interact to influence prices? The following sections explore these questions in detail.

### **III. Hypothesis**

---

<sup>7</sup> Thompson, Donald N. *The Supermodel and the Brillo Box: Back Stories and Peculiar Economics from the World of Contemporary Art*. Print, p.134

<sup>8</sup> Zorloni, Alessia. *The Economics of Contemporary Art: Markets, Strategies and Stardom*. Print, p.152-153

We began this thesis with a hypothesis that art prices are on one hand influenced by a set of objective criteria that could be quantified, and on the other hand, by a set of unquantifiable, subjective criteria. Concerning the objective criteria, our initial intuition yielded that older pieces, paintings, and works by artists who were recently deceased would command above-average prices. These predictions stemmed from the assumptions that older pieces are more delicate and require more maintenance, that paintings are unique and involve technique and time, and that the publicity generated by an artist's death would boost the demand for his works, as buyers may perceive them as scarce since production is thereby halted. Along the same lines, we thought that the works of a deceased artist would be priced higher than those of a living artist. In addition, we expected that art prices would be lower during times of recession (for the period that we analyzed, this would be from July 1990 to March 1991, from March 2001 to November 2001, and from December 2007 to June 2009), as buyers may face tightening liquidity and budget constraints.

The task of determining which subjective criteria and conditions affected art prices, and by how much they added to or detracted from a work's value was much more of a challenge. Some initial hypotheses were that an impressive provenance greatly added to the credibility of a work, and thus pushed up prices; that marketing of the artist and work could affect price; and that trends and popularity of a certain movement or artist influenced price.

#### **IV: Data and Methodology**

In examining our hypotheses about the objective factors of an artwork's price, we selected a diversified set of 25 post-war and contemporary artists based on criteria such as nationality, sex, art movement, primary medium of work, and time of activity. In alphabetical order, the 25 artists are: Francis Bacon, Jean-Michel Basquiat, Alexander Calder, Willem de

Kooning, Tracey Emin, Lucian Freud, Alberto Giacometti, Felix Gonzales-Torres, Keith Haring, Damien Hirst, Jasper Johns, Yves Klein, Franz Kline, Jeff Koons, Lee Krasner, Yayoi Kusama, Roy Lichtenstein, Takashi Murakami, Jackson Pollock, Robert Rauschenberg, Mark Rothko, Frank Stella, Cy Twombly, Andy Warhol, and Christopher Wool. Through the ArtNet database, we obtained auction sales data for works by these artists for the period January 1986 to April 2016 from five auction houses: Christie's New York, Sotheby's New York, Phillips New York, Bonhams New York, and Heritage Auctions Texas. We chose these particular institutions and locations because the majority of secondary transactions in contemporary art take place within their walls. After excluding works that lacked sufficient descriptive information, and those that were bought-in, we were left with a data set of 21,083 transactions. We further assigned to each work categorical descriptives such as medium and size (criteria and characteristics that we hypothesized would affect the work's price—see Hypothesis section), and ran a series of multiple regressions on different iterations of the data set, with the price at which the work sold as our dependent variable. Our first iteration (Table 1) involved all artists and transactions in our general data set, and included the following 24 independent variables: living artist, deceased artist, recently deceased artist, not recently deceased artist, age of work at time of sale, size, presence of a recessionary environment, absence of a recessionary environment, American nationality, British nationality, Japanese nationality, Continental European nationality, sex (female and male), painting, print, sculpture/installation, other medium, sale of Christie's, sale of Sotheby's, sale of Phillips, sale of Bonhams, sale of Heritage Auctions Texas, and the estimate given at time of sale. Our second iteration (Table 3) only concerns works by Andy Warhol (6,340 transactions), and includes a variable capturing the percent premium the estimate represents over the average sale price of all Warhols up to that point in time. We chose Warhol

for his prolificacy, the diversity of media he worked with, and the highly recognizable nature of his works. Our third iteration (Table 5) involves all artists, but excludes transactions over \$10 million, as we hypothesized that prices at the very high end (usually defined as over \$10 million in the industry) behaved differently from those at the low to mid-end. Our fourth iteration (Table 7) includes all of Warhol's works priced at under \$10 million.

## **V. Results**

The regression output for our first iteration (Table 1) affirms some of our hypotheses, while disaffirming others. First, there was no evidence to prove that a deceased artist's work was more expensive; unexpectedly the regression actually showed a negative correlation (of 149,200) between whether or not an artist was living and the price of his work—his being alive detracts from the value of his work! Furthermore, we also discovered a negative relationship between the recent death of an artist and his art's price, different from what we hypothesized. A recessionary environment accorded with a \$15,320 lower value, as we expected. The effect of being a female artist was negative, relating to a \$297,600 decrease in value of her art. While uncertain about the existence and direction of causation, we may have inferred this result from the objective dearth of female contemporary artists currently and throughout the past century. According to a 2014 report from Gallery Tally, out of over 4,000 artists represented by galleries in L.A. and New York, only 32.3% were women.<sup>9</sup> In addition, less than 4% of the artists in the Metropolitan Museum of Art's Modern Art section are women.<sup>10</sup> It is possible that bias exists, as we only included three female artists in our sample. Whether the artist was Japanese apparently had the highest positive effect on price with a correlation coefficient of 550,700. However, we do not consider this a meaningful result, as there were only two Japanese artists in our sample set. The

---

<sup>9</sup>"National Museum of Women in the Arts." Get the Facts. Web. 11 May 2016.

<sup>10</sup> *ibid*

age and size of a work had mild positive correlations with price, with each year of age correlating with a \$141.90 increase in price, and with each additional inch in size correlating with an \$8.47 price boost. However, the most significant positive relationship existed between paintings and price. Whether or not a work was a painting made it worth \$230,300 more, compared with a decrease of \$262,900 and \$60,340 if it was a print or sculpture/installation, respectively. We also examined whether or not the auction house at which the work was sold played any role in determining the price—from the suspect results, any such relationship is unclear. Finally, we also discovered that the estimate an auction house placed on a work had a positive effect on the realized price: a \$1 increase in the estimate correlated with a \$1.38 increase in sale price. This finding suggests that estimates function as an anchor off of which the sales price is arrived at, but with an upwards bias—thus, the estimate is a signal meant to indicate desirability and quality, and thereby stimulate demand for the work. This finding also fits within the greater conceptualization of art as a Veblen good (see Section II), whereby a higher price (estimate) leads to a higher demand (realized sales price) for the artwork because of its status implications.

The regression results of our second iteration (Table 3)—Andy Warhol’s works—were much more in line with our original hypotheses. First, his works were much more valuable after his death than during his lifetime. Prices were on average \$333,700 less when he was living than after his death; prices for his work also spiked by \$95,680 for one year after his death. Second, the age of each also affected its price, with each year corresponding with a \$21,800 increase in price. Third, similar to the results from our analysis of all artists’ works in our first iteration, size played a small part in determining price for Warhol’s works. An increase of one inch in canvas, print, or sculpture size correlated with a \$173.60 increase in selling price. Fourth, the health of

the economy significantly influenced how much buyers paid for Warhol's art; during a recessionary year, prices were lower by \$187,100 on average. In the case of Warhol's art, the auction house's estimate did not play a large role in pushing up prices with a correlation of 1.07 between realized price and estimated price. The percent premium which the estimate was given over the average price of all his works sold until that point did impact price. A one percent premium correlated with a \$279.80 increase in price paid—this result could, like in the case of estimates in our first iteration, also suggest a signaling and Veblen effect for works by Warhol.

Why is there such discrepancy between the regression results of all artists and those of only Andy Warhol? Art is subjective in nature, and (successful) artists' works and styles are unique. There exists a vast spectrum of characteristics when evaluating a group of 25 artists together that are so idiosyncratic to each artist. For example, Alexander Calder's mobiles were the most valuable of his works, whereas Jasper Johns' sculptures were worth considerably less than his flag paintings. Thus, simply assigning both to the 'sculpture/installation' category with the aggregate lot of other sculptures in our sample, which correlate negatively with price compared with paintings, strips away a defining identity and value aspect of Calder's sculptures. Thus, perhaps it is more appropriate to evaluate the prices and characteristics of artists individually to attain a better picture of how such criteria affect art price.

To account for these differences between artists in the art industry, a standard by which price is generally set is size. Thompson remarks that due to the opacity and many conflicting interests present in the contemporary art market, judging the quality of an artwork is difficult. Thus, generally prices do not reflect quality or artistic merit, but rather a factual measure—

size—in order to offer buyers reassurance that they are receiving a high quality work.<sup>11</sup> This fact is especially true for the primary art market, in which works do not possess a storied history or distinguished provenance, and dealers are at the forefront of a deal. Findlay says in his book *The Value of Art*, “What makes one painting or sculpture more or less expensive than another in this primary market is usually size. [...] The larger the work, the higher the price, with the exception of paintings and sculptures that may be too large for domestic installation and require the kind of space usually found only in institutions, office buildings, shopping malls, and casinos. Such works may be proportionately less expensive because they are harder to sell.”<sup>12</sup> Davis agrees that size is usually the most important objective factor in pricing, additionally citing that dealers often look at criteria concerning the artist, such as the status of his career, and whether or not they are collected by museums or other important collectors. Davis also explains that galleries must find an ideal medium in which the price signals desirability of a work, but is not too high such that when there is a slowing of demand, the work will still sell. Dealers do not want a discrepancy in an artist’s work at retail and at auction, especially because auction records are public. Auctions are risky, and a good gallery will buy the work back to maintain the integrity of its artist’s reputation, as well as regain control over the information flow about an artist’s works.

Additionally, Davis explains that once an artist or work achieves iconic status—cemented through blockbuster exhibitions and media coverage—buyers are willing to pay huge premiums for the work, thus manifested in the sky-high price tags. An oft-cited example of this is Damien Hirst, whose superstar branding has catapulted his works into the ranks of ultra-high-end art (over \$10 million in value)—the most notable sale being that of a dead shark suspended in a tank

---

<sup>11</sup> Thompson, Donald N. *The \$12 Million Stuffed Shark: The Curious Economics of Contemporary Art*. London: St. Martin's Griffin, 2010. Print, p.190

<sup>12</sup> Findlay, p.16



of formaldehyde solution titled “The Physical Impossibility of Death in the Mind of Someone Living” for \$8 to \$12 million in 2004 to Steven Cohen.<sup>13</sup>

The development of artist branding stems from 19<sup>th</sup> century French art dealer Paul Durand-Ruel, who pioneered the concept of a solo exhibition.<sup>14</sup> Now recognized as the “Champion of Impressionists,” Durand-Ruel spurred the acceptance and embracement of Impressionism, then a novel style of painting, through marketing techniques. He was passionate about the art of each of his artists (including Claude Monet, Pierre-Auguste Renoir, and Camille Pissaro, among others), and in an effort to purvey the characteristic qualities of each of his artist’s works to the unfamiliar public, Durand-Ruel staged shows that focused on the talent and style of a single artist.<sup>15</sup> In this manner, each artist’s ‘brand’ was created. Iconic branding draws its power from Veblen’s concept of conspicuous consumption (see Section II for a more detailed discussion of this topic). Philip Hook, a director and senior paintings specialist at Sotheby’s explains, “An easily identifiable style – or indeed subject matter – reassures the buyer, makes him feel good about himself and his own knowledge or art. Thus there is a premium on very typical (‘iconic’) works.”<sup>16</sup>

Such iconic works depend far less on the objective factors like size and medium in justifying their prices than do lesser-known works, instead relying on subjective characteristics and conditions. In proving this observation, we performed regressions on our sample set of all artists’ works and of only Andy Warhol’s works, excluding transactions over \$10 million (our third and fourth iterations of regressions). In Table 5, we see generally the same direction of

---

<sup>13</sup>Vogel, Carol. "Swimming With Famous Dead Sharks." The New York Times. The New York Times, 2006. Web. 12 May 2016.

<sup>14</sup>Linda Whiteley, “Accounting for Tastes,” Oxford Art Journal 2 (April 1979), pp. 25-28.  
“The Purveyor of Modern Life.” Artinfo. 2009. Web. 12 May 2016.

<sup>15</sup>Hook, Philip. *Breakfast at Sotheby's: An A-Z of the Art World*. Print. p.8

<sup>16</sup>Ibid

correlations between our variables and price, with the exception of Japanese nationality, female artists, and sculptures/installations. The explanation for why the correlation between works by female artists and sculptures/installations and price reversed to be positive in this iteration is likely that few of these types of works sell for extremely high prices. Indeed, the most expensive work by a female artist ever sold was Georgia O’Keeffe’s *Jimson Weed/White Flower No. 1* in November 2014, which at \$44.4 million was three times the previous auction record of \$11.9 million for Joan Mitchell’s *Untitled (1960)* sold in May 2014, contrasted against the most expensive painting by a male artist ever sold at auction being Pablo Picasso’s *Les Femmes d’Alger* in 2015.<sup>17</sup> Comparatively, sculptures fetch higher prices than works by female artists, though still are less expensive than paintings. The three highest prices ever achieved for sculptures were Alberto Giacometti’s pieces *L’homme au doigt*, *L’Homme qui marche I*, and *Chariot*, sold in 2015 for \$141.3 million, in 2010 for \$104.3 million, and in 2014 for \$101 million, respectively. The fourth highest priced sculpture, however, was only about half that at \$59.5 million (Amedeo Modigliani’s *Tête* sold in 2010).<sup>18</sup> The top 10 most expensive paintings ever sold were all priced at over \$100 million each.<sup>19</sup>

The highlight of this regression, however, was the R-squared value, which doubled from 0.4388 in our first iteration (including the works over \$10 million) (Table 2) to 0.8829 in this test, which excluded expensive works (Table 6). This value means that our model explains almost 90% of the variability in prices of our contemporary art set. In our analogous regression of works by Andy Warhol (Table 7), the R-squared value similarly shot up from 0.3591 to 0.9023 (Table 4 and Table 8). These findings suggests that artworks priced at over \$10 million do not behave like

---

<sup>17</sup> Steinhauer, Jillian. "\$44M O’Keeffe Painting More Than Triples Auction Record for Woman Artist." Hyperallergic RSS. 2014. Web. 12 May 2016.

"No. 1." CBSNews. CBS Interactive. Web. 12 May 2016.

<sup>18</sup> Fernández, G. "10\_expensive\_sculptures." Web. 12 May 2016.

<sup>19</sup> Ibid

works priced in the low to mid-tiers, and the variability in their prices cannot be explained by our model involving objective variables. To prove this conjecture, we ran a regression on only works over \$10 million (Table 9), the results of which were vastly different from those involving the full data set. The R-squared value for this regression was only 0.1377 (Table 10), meaning that our model explains only 14% of the price variability existent in expensive works. Thus, we may conclude that artwork valued at over \$10 million are influenced by factors separate from those of lower-priced artwork, and should perhaps be treated as different goods (furthering our argument in Section II in regards to the demand curve).

## **VI. The Subjective Factors of Art Prices**

So this then begs the question: what are the other subjective factors, other than iconic status, that influence the pricing of art at the very high end? We explore a few main factors: supply and demand, provenance, backstory, and tastes.

### *Supply and Demand*

Davis attributes the law of supply and demand as having the greatest command over art prices, as is true for nearly all goods in the world. On the supply side, real or imaginary scarcity has tangible and psychological impacts on art prices and buyers. Such perceptions of scarcity “not only [...] justify the price, [they] also suggests an exclusive club of ownership,” remarks Findlay.<sup>20</sup> The supply of an artist’s works is determined by first referring to the artist’s catalogue raisonné (a register of all the artist’s output), ascertaining how many of the pieces are owned by public institutions, and then accounting for any works known to be lost or destroyed. By subtracting the latter two categories of works from the first, one may divine an estimate for how

---

<sup>20</sup> Findlay, p.22

many pieces are potentially available for sale in the market. When a work is accessioned by a public museum, that work is likely to be off the market forever. In Europe and Asia, many museums are publically funded institutions that are prohibited by their respective national governments from selling any of their holdings. Most museums in the United States are private, non-profit institutions that are governed by a code of ethics that only allow deaccessioning for the purpose of using those funds for future acquisitions or maintenance of collections.<sup>21</sup> Furthermore, museums that are known for their collections of a certain movement or artist (e.g. The Art Institute of Chicago's collection of Claude Monet's works, and the Tate Modern's collection of Surrealist works) are highly unlikely to deaccession any pieces in those collections. Thus, the true supply of any established artist's works is much lower than many would imagine. Traditionally, demand for art mainly came from developed economies like the United States and Europe. However with rising global prosperity, demand from Russia, China, and Middle Eastern countries in recent years have fueled prices in the contemporary art market. Whether buyers are looking to diversify their fortunes or hedge their currencies, or purchasing art for their national museums (in the case of the Qatari Royal Family and Abu Dhabi), foreign interest in contemporary art has increased considerably in the past decade, according to Christie's and Sotheby's.<sup>22</sup> With booming demand and a scarcity of high quality, established works, prices of contemporary art will likely continue to rise.

### *Provenance and Backstory*

Provenance is an artwork's history of ownership. When one purchases a work, he is provided with a list of past owners as well as shows and exhibitions at which the work has been displayed. A luminous provenance adds to the branding of a work and artist, and signals good

---

<sup>21</sup> Findlay, p.25

<sup>22</sup> Person, and Kelly Crow. "Sotheby's and Christie's Race to Find New Art Collectors." WSJ. Web. 12 May 2016.

taste. On the other hand, a provenance including notorious names, such as members of the Japanese Yakuza or Nazi war criminal Hermann Goering, may greatly detract from the work's value and salability. Findlay claims that a distinguished provenance accords a higher premium (though capped at 15 percent) to modest or intermediate quality work than a high quality work, which usually earns a high price on its own merits.<sup>23</sup> Related to a work's provenance is its backstory. The more interesting a backstory, the more attention and demand heaped onto a work. One particularly bemusing example involves casino owner Steve Wynn's ownership of Picasso's *Le Rêve*. The story goes that Wynn had agreed to sell the painting to Steven A. Cohen for \$135 million in 2006 for \$139 million. The weekend before the painting was to be delivered, Wynn had a dinner party with a bespattering of celebrity guests, who asked to view the painting. The New Yorker reports what happened next in the article "The \$40-Million Elbow,"

"As he talked, he had his back to the picture. He was wearing jeans and a golf shirt. Wynn suffers from an eye disease, retinitis pigmentosa, which affects his peripheral vision and therefore, occasionally, his interaction with proximate objects, and, without realizing it, he backed up a step or two as he talked. "So then I made a gesture with my right hand," Wynn said, "and my right elbow hit the picture. It punctured the picture." There was a distinct ripping sound. Wynn turned around and saw, on Marie-Thérèse Walter's left forearm, in the lower-right quadrant of the painting, "a slight puncture, a two-inch tear. We all just stopped. I said, 'I can't believe I just did that. Oh, shit. Oh, man.'""<sup>24</sup>

Wynn ended up calling the deal off and filed a \$40 million insurance claim. By this point, media all over the world wrote stories centered around Wynn's mishap with the already-famous Picasso work. Months later, Wynn had the work immaculately restored and exhibited at New York's

---

<sup>23</sup> Findlay p.40

<sup>24</sup> Paumgarten, Nick. "The \$40-Million Elbow." The New Yorker. 2006. Web. 12 May 2016.

Acquavella Galleries.<sup>25</sup> In 2013, Cohen bought the piece for \$155 million.<sup>26</sup> Even though the work had been damaged, this one-of-a-kind backstory only added to its value. Indeed, Thompson asserts that “the back story is most relevant for an artist who is already branded [and] can increase a value already accorded by popular consensus.”<sup>27</sup>

### *Tastes*

Mercurial and enigmatic, consumer taste is the most difficult and dominant force in moving and setting prices for contemporary art. Davis, who collects art herself, says that consumers’ tastes for the ‘hot’ and ‘fashionable’ trump all other price factors at the high end of art. Taste is affected by a myriad outlets—from galleries, to trade magazines, to collectors themselves—power and influence is ever-shifting in the art industry. In the mid-20<sup>th</sup> century, art critics had captive audiences that were largely influenced by their reviews, and based their buying decisions on them. Later, high-profile museum exhibits and one-man shows directed the appetite for certain artists. Recently in the bull art market, the high prices paid by prominent collectors or museums for works actually provide anchors for price and taste—that is, the buyers at the top of the pyramid influence tastes for the lower parts of the pyramid. Take Jackson Pollock’s drip paintings as an example. In 1987, Pollock’s *No. 31* was sold for \$3.52 million; nine years later, Pollock’s comparably sized *No. 5* sold for \$140 million. The Huffington Post comments on Pollock’s works throughout the years, “It is worth many millions of dollars only because an entire cultural system has been built on the assumption of its value.”<sup>28</sup> The publication argues that many ‘iconic’ contemporary works and artists have become fodder to a

---

<sup>25</sup>Seed, John. "What Makes a Jackson Pollock Painting Worth Millions?" The Huffington Post. TheHuffingtonPost.com. Web. 09 May 2016.

<sup>26</sup> "\$616 Million Poorer, Hedge Fund Owner Still Buys Art." DealBook. Web. 12 May 2016.

<sup>27</sup> Thompson Brillo p48

<sup>28</sup> Seed, John. "What Makes a Jackson Pollock Painting Worth Millions?" The Huffington Post. TheHuffingtonPost.com. Web. 12 May 2016.

‘cultural asset bubble’ fashioned by wealthy collectors. Thus, the price is no longer a function of predictable characteristics and patterns, but rather one of consumer tastes. This thesis being one on exploring the possibility of creating a pricing model for post-war and contemporary art, it is unfortunate that no known model exists that is able to quantify tastes for certain trends or fashions in art. However, digging into the philosophical roots of art, we must ask ourselves the question: can such a subjective and spiritual creation as art even be priced according to a quantitative model? Furthermore, should art even be assigned a monetary value? The phrase “art for art’s sake” rings faintly in our ears. “It has always been about art and money,” concludes Davis. “Some artists and galleries are more progressive [when it comes to pricing their art], but artists need patrons. Hopefully the great art ends up in museums.”

## **Conclusion**

The pricing of art is in itself an art and a science. Art is characterized by a myriad objective and subjective characteristics—from canvas dimensions and year produced to status signaling and aesthetic beauty—and the ultimate price of a work is determined by the ever-dynamic confluence of such factors. In this thesis, we examined the economic properties of art that make it unique to other goods, and found that art at certain price levels faces an upward sloping demand curve, and at others, a downward sloping demand curve. This phenomenon may be described by the way in which consumers perceive price—taking it to signal quality—thus influencing them to maximize a conceived quality-to-price ratio. Another explanation could be that lower-priced art (under \$4,700 from our analysis) is an altogether different good from higher-priced art (over \$10,000), and hence faces separate demand curves. Research has told us that art is a classic example of a Veblen good, experiencing higher demand the more expensive it

gets due to the association of status with high prices. This sentiment is echoed by art market professionals and collectors, though from our data the existence of such a relationship is unclear.

We hypothesized that contemporary art prices are influenced by objective factors including size, medium, age, artist nationality, artist sex, economic conditions, and auction house estimates. Through regression analyses, we found that whether or not the work was a painting had the greatest positive effect on price, while size and age had mild positive correlations with price. A recessionary environment, a female artist, and a living artist correlated with lower prices. In addition, each dollar increase in an auction house's estimate for the artwork corresponded with a proportionately larger increase in realized sale price. We also discovered that art over \$10 million behaved differently from art in the low and mid-tiers. Prices for art at the high end of the market were not nearly influenced as much by objective factors as they were by subjective factors. We explored the effects of supply and demand, provenance, backstory, and consumer tastes on highly priced art.

Successful branding of an artist can add value to his works in ways that far outstrip his skill and subject matter. Branding leads to iconism, and many collectors in recent decades have been drawn to such iconism created by blockbuster exhibitions and media coverage. Thus, they are willing to pay huge premiums on works that are eye-catching and recognizable. In exploring supply and demand, we discovered that scarcity—whether real or imagined—significantly boosted prices for an artist's work, as it acts as a symbol of status and exclusivity. Art prices at the top of the pyramid have also been prodded up by increasing demand from overseas buyers (Russia, China, Middle East), as newly-minted millionaires and billionaires seek investment or 'show-off' opportunities in contemporary art, and national governments seek to build up the collections of new art museums. A combination of low supply and high demand has likely led to

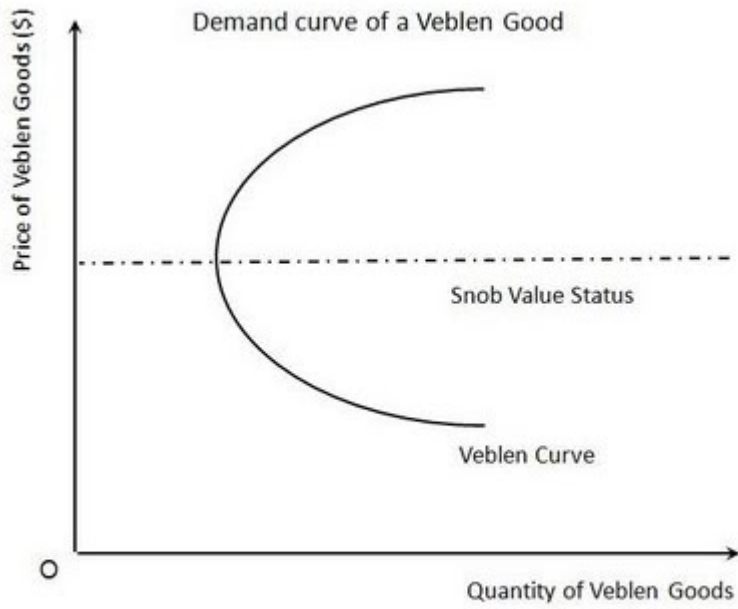


the sky-high prices we see today in the contemporary art market. We also found that a distinguished provenance has a premium effect on art of low to moderate quality, while an ownership history including notorious names greatly decreases the saleability and price of an artwork. A particularly interesting or mysterious backstory also has a large positive effect on a work's price, as it contributes additional personality and charm to the piece with which collectors may later entertain guests. By far the most subjective and unpredictable factor affecting expensive contemporary art is consumer taste. The manner by which tastes are formed and altered have changed dramatically over the years, as consumers become more and more savvy in performing their own research, rather than relying on critics' reviews and sellers' marketing.

In conclusion, the value of art is simultaneously quantifiable and unquantifiable. While we may attempt to make sense of the prices of contemporary art by analyzing data and market trends, the nature of art is one whose extreme emotionality and dynamism may at any point negate our findings. Thus, perhaps it is foolish to believe that price reflects anything about an artwork—after all, how can we quantify beauty?

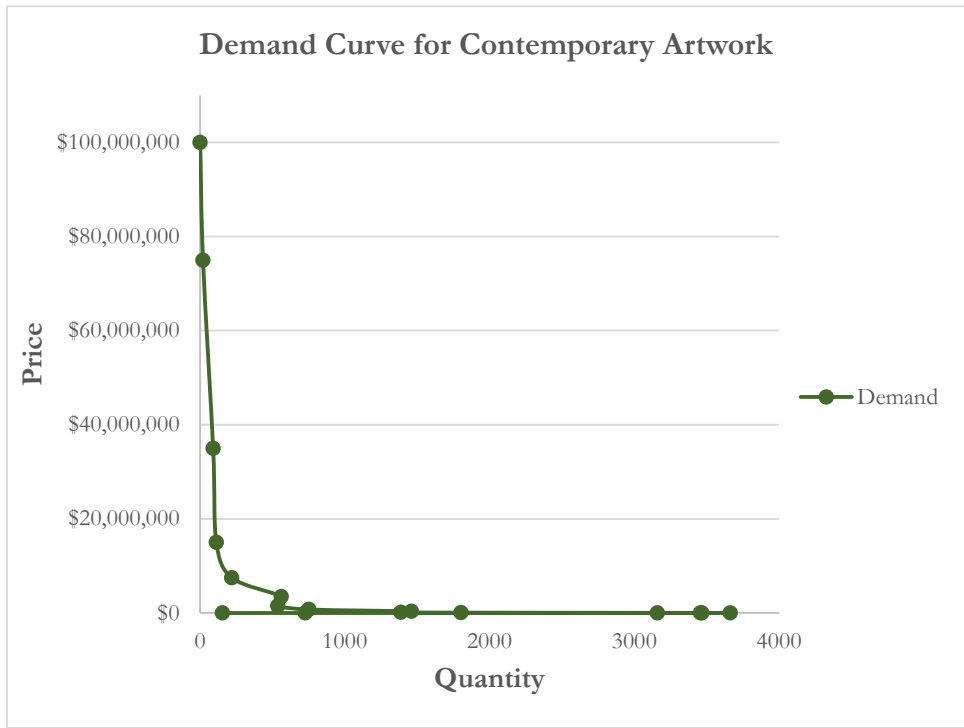
## Figures and Tables

**Figure 1: Typical Demand Curve of a Veblen Good**

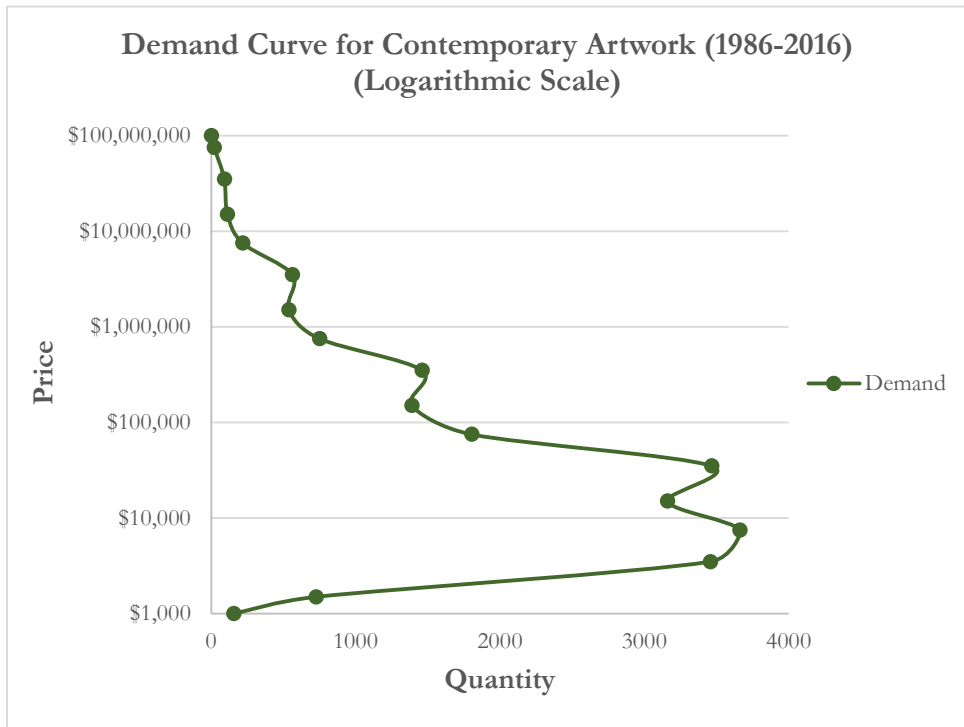


Source: EconLib

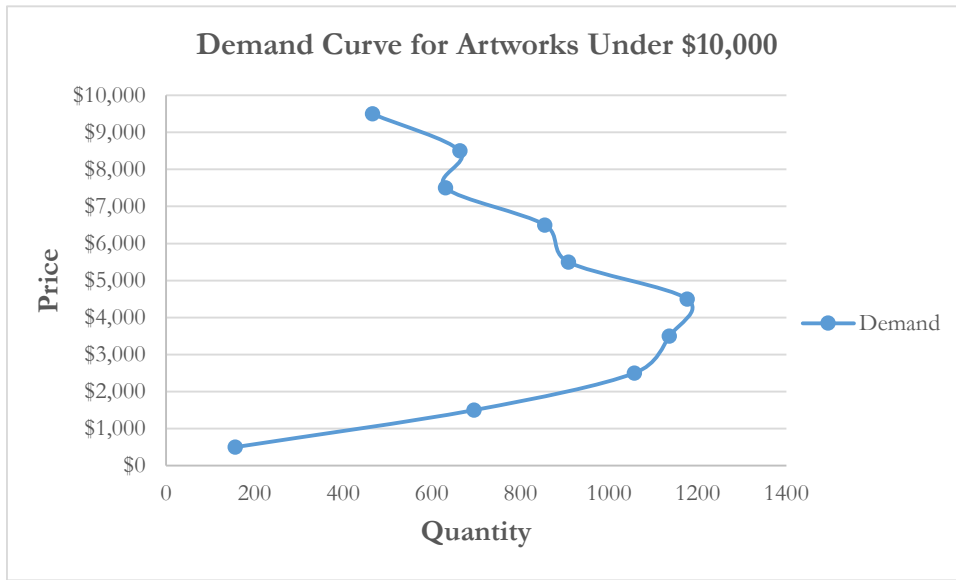
**Figure 2: Demand Curve for Contemporary Artwork from 1986 to 2016 (Unscaled)**



**Figure 3: Demand Curve for Contemporary Artwork from 1986 to 2016 (Logarithmic)**

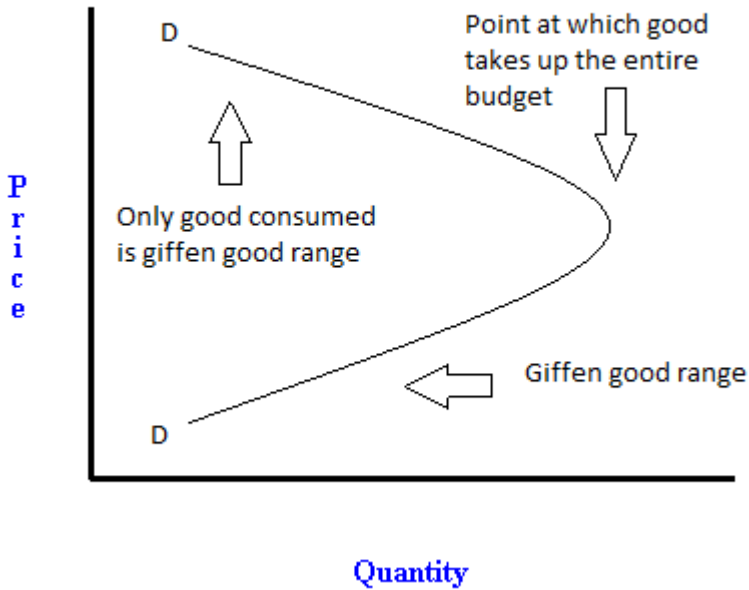


**Figure 4: Demand Curve for Contemporary Artwork Under \$10,000 from 1986 to 2016**



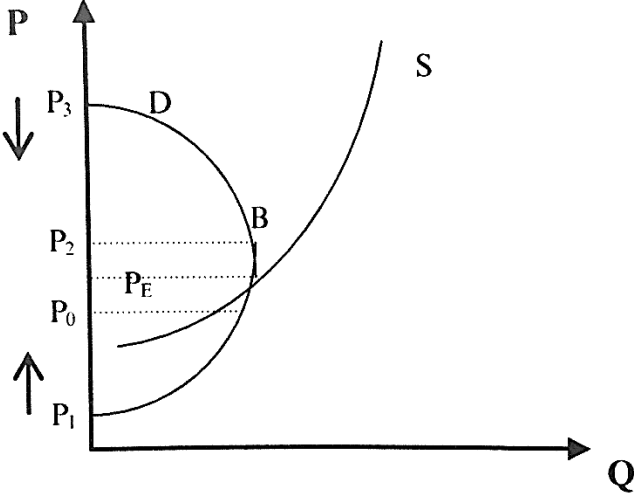
**Figure 5: Typical Demand Curve of a Giffen Good**

**Giffen Good**



Source: FreeEconHelp

Figure 6: Demand Curve When Price is Used as a Signal of Quality



Source: Alessia Zorloni

**Table 1: Regression Output – All Artists**

Variable	Coefficient
Living	-149,200
Dead	NA
Recently Died	-191,200
Didn't Recently Die	NA
Years Since Work	142
Size	8.47
During Recession	-15,320
Not During Recession	NA
American	-167,100
Japanese	550,700
British	-149,200
European	NA
Female	-297,600
Male	NA
Painting	230,300
Print	-262,900
Sculpture/Installation	-60,340
Other	NA
Christie's	-82,830
Sotheby's	-173,100
Phillips	-103,000
Bonhams	-304,800
Heritage Auctions Texas	NA
Estimate	1.38

**Table 2: Regression Statistics for Table 1**

<p><b>Residual standard error:</b> 2636000 on 21064 degrees of freedom</p> <p><b>Multiple R-squared:</b> 0.4388, <b>Adjusted R-squared:</b> 0.4383</p> <p><b>F-statistic:</b> 968.6 on 17 and 21064 DF, <b>p-value:</b> &lt; 2.2e-16</p>
--

**Table 3: Regression Output - Andy Warhol**

Variable	Coefficient
Living	-333,700
Dead	NA
Recently Died	95,680
Didn't Recently Die	NA
Years Since Work	21,800
Size	173.60
During Recession	-187,100
Not During Recession	NA
Painting	-1,387,000
Print	-1,668,000
Sculpture/Installation	-1,554,000
Other	NA
Christie's	211,200
Sotheby's	187,700
Phillips	39,320
Bonhams	-232,500
Heritage Auctions Texas	NA
Estimate	1.07
Premium	279.80

**Table 4: Regression Statistics for Andy Warhol (Table 3)**

<b>Residual standard error:</b> 2602000 on 6325 degrees of freedom
<b>Multiple R-squared:</b> 0.3591, <b>Adjusted R-squared:</b> 0.3577
<b>F-statistic:</b> 253.2 on 14 and 6325 DF, <b>p-value:</b> < 2.2e-16

**Table 5: Regression Output - All Artists Excluding Works Over 10 Million USD**

Variable	Coefficient
Living	-14,450
Dead	NA
Recently Died	-34,510
Didn't Recently Die	NA
Years Since Work	23
Size	0.05
During Recession	-28,050
Not During Recession	NA
American	-31,050
Japanese	-3,998
British	-38,380
European	NA
Female	15,740
Male	NA
Painting	32,250
Print	-60,520
Sculpture/Installation	67,390
Other	NA
Christie's	-9,372
Sotheby's	-21,240
Phillips	-35,260
Bonhams	-56,350
Heritage Auctions Texas	NA
Estimate	1.25

**Table 6: Regression Statistics for All Artists Under \$10 million (Table 5)**

<b>Residual standard error:</b> 313700 on 20837 degrees of freedom
<b>Multiple R-squared:</b> 0.8829, <b>Adjusted R-squared:</b> 0.8828
<b>F-statistic:</b> 9239 on 17 and 20837 DF, <b>p-value:</b> < 2.2e-16



**Table 7: Regression Output - Andy Warhol Excluding Works Over 10 Million USD**

Variable	Coefficient
Living	-51,590
Dead	NA
Recently Died	-14,260
Didn't Recently Die	NA
Years Since Work	1,431
Size	-0.76
During Recession	-26,360
Not During Recession	NA
Painting	6,146
Print	-78,650
Sculpture/Installation	-88,900
Other	NA
Christie's	16,250
Sotheby's	12,270
Phillips	-7,353
Bonhams	-27,260
Heritage Auctions Texas	NA
Estimate	1.21
Premium	62.97

**Table 83: Regression Statistics for Andy Warhol Works Under \$10 million (Table 7)**

<b>Residual standard error:</b> 266200 on 6270 degrees of freedom
<b>Multiple R-squared:</b> 0.9023, <b>Adjusted R-squared:</b> 0.9021
<b>F-statistic:</b> 4138 on 14 and 6270 DF, <b>p-value:</b> < 2.2e-16

**Table 9: Regression of All Artists - Only Works Over \$10 Million**

Variable	Coefficient
Living	95,130
Dead	NA
Recently Died	-11,680,000
Didn't Recently Die	NA
Years Since Work	389,500
Size	976.60
During Recession	1,719,000
Not During Recession	NA
American	8,007,000
Japanese	24,790,000
British	9,685,000
European	NA
Female	NA
Male	NA
Painting	-3,192,000
Print	-6,015,000
Sculpture/Installation	-1,758,000
Other	NA
Christie's	4,737,000
Sotheby's	1,890,000
Phillips	NA
Bonhams	NA
Heritage Auctions Texas	NA
Estimate	0.04

**Table 10: Regression Statistics for All Works Over \$10 million (Table 9)**

<b>Residual standard error:</b> 18710000 on 212 degrees of freedom
<b>Multiple R-squared:</b> 0.1377, <b>Adjusted R-squared:</b> 0.08077
<b>F-statistic:</b> 2.418 on 14 and 212 DF, <b>p-value:</b> 0.00365

## Appendix

### Demand Schedule for Contemporary Artwork from 1986 to 2016 used to construct Figure 2 and Figure 3

Price Range	Dummy Price	Quantity
under 1k	\$ 1,000	156
1k-2k	\$ 1,500	727
2k-5k	\$ 3,500	3457
5k-10k	\$ 7,500	3662
10k-20k	\$ 15,000	3160
20k-50k	\$ 35,000	3467
50k-100k	\$ 75,000	1804
100k-200k	\$ 150,000	1389
200k-500k	\$ 350,000	1460
500k-1m	\$ 750,000	751
1m-2m	\$ 1,500,000	538
2m-5m	\$ 3,500,000	563
5m-10m	\$ 7,500,000	219
10m-20m	\$ 15,000,000	113
20m-50m	\$ 35,000,000	91
50m-100m	\$ 75,000,000	21
100m+	\$ 100,000,000	2

**Demand Schedule for Contemporary Artwork under \$10,000 from 1986 to 2016 used to construct Figure 4**

Price Range	Dummy Price	Quantity
under 1000	\$ 500	156
1000s	\$ 1,500	695
2000s	\$ 2,500	1057
3000s	\$ 3,500	1136
4000s	\$ 4,500	1176
5000s	\$ 5,500	908
6000s	\$ 6,500	855
7000s	\$ 7,500	631
8000s	\$ 8,500	663
9000s	\$ 9,500	466

***The Physical Impossibility of Death in the Mind of Someone Living* by Damien Hirst (1991)**



***Jimson Weed/White Flower No. 1* by Georgia O'Keeffe**



*Source: Sotheby's*

***Untitled (1960)* by Joan Mitchell (1960)**



*Source: Hauser & Wirth*

***Les Femmes d'Alger* by Pablo Picasso**



*Source: Christie's*

***L'homme au doigt* by Alberto Giacometti**



*Source: The Art Wolf*

***L'Homme qui marche I* by Alberto Giacometti**



*Source: The Art Wolf*

***Chariot* by Alberto Giacometti**



*Source: Museum of Modern Art*

***Tête* by Amedeo Modigliani**



*Source: The Art Wolf*

***Le Rêve* by Pablo Picasso**





***No. 5* by Jackson Pollock**



***No. 31* by Jackson Pollock**



## Bibliography

1. Chalasani, Radhika. "Most Expensive Paintings Ever Sold at Auction." *CBSNews*. CBS Interactive. Web. 11 May 2016.
2. Dailey, Meghan. "The Purveyor of Modern Life." *Blouin Artinfo*. Blouin, 3 Nov. 2009. Web. 11 May 2016.
3. Fernandez, G. "Most Expensive Paintings Ever Sold." *The Art Wolf*. Web. 11 May 2016.
4. Fernandez, G. "Most Expensive Sculptures Ever Sold." *The Art Wolf*. May 2015. Web. 11 May 2016.
5. Findlay, Michael. *The Value of Art: Money, Power, Beauty*. Munich: Prestel, 2012. Print.
6. Hook, Philip. *Breakfast at Sotheby's: An A-Z of the Art World*. Print.
7. Horowitz, Noah. *Art of the Deal: Contemporary Art in a Global Financial Market*. Princeton, NJ: Princeton UP, 2011. Print.
8. "National Museum of Women in the Arts." *Get the Facts*. Web. 11 May 2016.
9. Steinhauer, Jillian. "\$44M O'Keeffe Painting More Than Triples Auction Record for Woman Artist." *Hyperallergic*. Hyperallergic Media, 20 Nov. 2014. Web. 11 May 2016.
10. Thompson, Donald N. *The \$12 Million Stuffed Shark: The Curious Economics of Contemporary Art*. London: St. Martin's Griffin, 2010. Print.
11. Thompson, Donald N. *The Supermodel and the Brillo Box: Back Stories and Peculiar Economics from the World of Contemporary Art*. Print.
12. Thornton, Sarah. *Seven Days in the Art World*. New York: W.W. Norton, 2008. Print.
13. Velthuis, Olav. *Talking Prices: Symbolic Meanings of Prices on the Market for Contemporary Art*. Princeton: Princeton UP, 2005. Print.
14. Vogel, Carol. "Swimming With Famous Dead Sharks." *The New York Times*. The New York Times, 30 Sept. 2006. Web. 11 May 2016.
15. Whiteley, L. "Accounting for Tastes." *Oxford Art Journal* 2.2 (1979): 25-28. Web.

16. Zorloni, Alessia. *The Economics of Contemporary Art: Markets, Strategies and Stardom*. Print.