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ABSTRACT

The Extraordinary Art Critic Roger de Piles (1635-1709): An Empirical Analysis of his Rankings and Sale Prices*

Roger de Piles (1635-1709) was a French art critic who decomposed the style and ability of each artist into areas of composition, drawing, color and expression, rating each on a 20 point scale. Based on evidence from two datasets that together span from 1740 to the present, this paper shows that de Piles' four characteristics are each both currently and historically correlated with prices achieved at auction. The effect of de Piles' drawing characteristic on price has steadily decreased over the period 1736-1960 while the effect of de Piles' color characteristic appears to have increased over the same period. De Piles' overall ratings have also withstood the test of a very long period of time, with estimates indicating that the works of his higher-rated artists achieved a greater return than his lower rated artists. The annual returns of all artists that he rated achieved comparable returns to other art indices.

JEL Classification: N00 and z11
Keywords: art, de piles, expert opinion and rankings

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Roger de Piles (1635-1709) was a French art critic who ventured beyond the normal realm of art critics. Specifically, de Piles decomposed an artist's style into the areas of composition, drawing, color and expression, rating each on a 20 point scale. These ratings were published in his 1708 work, *Cours de Peinture par Principes* in a table known as his "*Balance des Peintres*." De Piles' decomposition of the overall quality of the work into four properties was revolutionary and ambitious at the time and, 300 years later, remains an extraordinary endeavor. His ratings provide economists and art historians with a unique numerical measure of taste.

The first purpose of this research is to provide an empirical analysis, comparing de Piles' ratings with the prices subsequently achieved at auction for the artists that he rated, from 1740 to the present. To preview the results, de Piles' four characteristics are each both currently and historically correlated with prices achieved at auction. However, the effect of de Pile's drawing characteristic on price has steadily decreased over the period 1736-1960 while the effect of de Pile's color characteristic on price appears to have increased over the same period. We interpret this decline within the classical debate between *disegno,* which is related to drawing, and *colore*.

The second area of inquiry is whether or not de Piles' overall ratings have withstood the test of a very long period of time. Recent work has criticized experts' opinions as being random (Ashenfelter and Jones (2000) and Ginsburgh and Van Ours (2003)) or failing to withstand the test of time (Ginsburgh (2003) , Landes (2004)). The results of this paper contradict much of

the work on relatively recent experts' opinions in that both de Piles' rated artists and de Piles' overall ratings have held up quite well over time, as measured by price fetched at auction.[1]

Two datasets were used for the analysis. The first dataset consists of all paintings by artists that were rated by de Piles and that appeared on Art Sales Index. This dataset starts in 1920 and goes through 2010, with over 4,000 observations. The second dataset consists of all paintings by artists that were rated by de Piles and that were included in Reitlinger's definitive work, *The Economics of Taste* (1961, 1963, and 1971). The time span of this dataset is from 1740 to 1960, and there are over 600 observations.

Other papers have used de Piles' ratings, notably Ginsburgh and Weyers (2002, 2008), Davenport and Studdert-Kennedy (1972), and Studdert-Kennedy and Davenport (1974). Ginsburgh and Weyers (2008) focused on the importance of de Piles' four characteristics using a relative short time span of prices at auction. Prices at auction for these works between the years of 1977 and 1993 were used as well as the number of lines in text devoted to each artist in Jane Turner's Dictionary of Art, published in 1996. For both dictionary measures and price measures of quality, Ginsburgh and Weyers conclude that color is the only significant predictor of quality. Davenport and Studdert-Kennedy (1972) and Studdert-Kennedy and Davenport (1974) perform a principal components analysis on the 4 characteristics and determine that two components explain 85% of the variance, concluding that "the analysis as a whole does seem to indicate the

[1] Ginsburgh and Weyers (2010), using length of entry in art dictionaries, show that artists chosen by the Italian critic, Giorgio Vasari (1511-1574) and the Flemish critic, Karel van Mander (1548-1606), have remained important over time.

difficulty experienced by a perceptive and highly trained critic and collector in applying verbal categories to aesthetic responses." (Studdert-Kennedy and Davenport (1974), p. 498)

This paper proceeds as follows. Section 1 describes Roger de Piles and his contributions as an art critic, section 2 describes the data and section 3 presents the hedonic analysis of de Piles' characteristics. Section 4 covers the importance of de Piles' ratings over time. Section 5 discusses the results in the context of the "Masterpiece Effect" and section 6 concludes the analysis.

1. Roger de Piles

Roger de Piles was born in Clemacy, located within the Burgundy region in France on October 7, 1635. He went to Paris at about the age of 15 and studied philosophy at the *College du Plessis* and then theology at the *Sorbonne*. He also learned to paint while in Paris. In 1662 Charles Amelot, President of the King's Great Council, employed him as a tutor to his seven year old son, Michel Amelot de Gournay. De Piles remained attached to Michel Amelot de Gournay for the rest of his life, subsequently serving him in the capacity of personal secretary.

De Piles spent significant time in Italy. In 1673 de Piles accompanied Michel Amelot on a 14-month grand tour of Italy and then in 1682 went to Venice when Amelot was appointed the French Ambassador in Venice. The Venetian style of painting, with its emphasis on warmth and color, had a profound effect on de Piles.

The French government apparently appreciated de Piles' service and, in 1685, sent him on a secret spying mission to Germany and Austria under the pretext of studying and purchasing art as an expert and helping with Royal acquisitions. In 1692 he was again a secret agent but this time in Holland. While in Holland his mail was intercepted, and he ended up spending four years in a Dutch prison. During his time in prison he wrote his first critical

work, the *Abrege de la Vie des Peintres*, published in 1699, two years after his release. During the same year de Piles was admitted to the Academy of Painting and Sculpture. For the next ten years de Piles was the leading and official theorist of the Academy. In 1708, one year before his death, de Piles wrote the *Cours de Peinture par Principes*, in which his controversial table of ratings, the *Balance des Peintres*, was published.

In his *Balance des Peintres* de Piles rated the characteristics, composition, drawing, color and expression each on a 20 point scale, with each characteristic implicitly having equal importance. Composition is the way that a work is ordered and laid out; the way that various objects are placed on a canvas. Expression is the emotional effect that a work has on its viewer, which can be achieved by representation of expressiveness or human emotions (Grove Art Online). De Piles' drawing (*disegno*) characteristic represents more than just the physical ability to draw or depict an object. According to Rosand (1982), "drawing is viewed as the key to the entire imaginative process, the medium of the painter's very thought as well as of its concrete expression. From the initial conception of the idea through its formal statement in sketches to its final execution in a finished cartoon, the entire creative procedure is defined by Vasari [1511-1574] essentially in terms of *disegno*." (p. 16). According to Puttfarken (1985), color was often philosophically compared with elocution or ornamentation; de Piles broke with tradition and did not consider color as simply accidental ornamentation, but the main condition of an object's visilibity. Thus color, to de Piles, was part of the natural order of painting (p. 65).

De Piles' *Balance des Peintres* was very controversial. Puttfarken (1985), in his definitive work, *Roger de Piles' Theory of Art*, criticizes the table as follows:

> … he was at his worst when he tried to be most systematic. His *Balance des Peintres*, for instance, although highly acclaimed in the eighteenth century, is now considered his most notorious contribution to criticism. It is an attempt to assess the achievement of the major artists since Raphael in very much the same way in which teachers would assess their pupils' class-papers; by awarding marks out of twenty for each composition, design or drawing, colour, and expression. Only Rubens and Raphael qualify for a high mark with sixty-five out of the maximum of eighty; Poussin has to be content with only fifty-three, an[d] Michaelangelo looks like a total failure with a mere thirty-seven out of eighty. [p. 42]

Below, this paper examines the importance and relevance of the *Balance des Paintres* by examining the influence of the ratings on prices over a long time period.

2. The Data

The price data were compiled from two sources. First, the online version of Art Sales Index[2] was used to download information on price, title, size and date of sale for each painting. Only paintings were included and works were excluded that had any qualifier such as "attributed to" or "school of." Information on paintings from this source only goes back to 1922, with relatively sparse data prior 1950.

The second source of the price data is Reitlinger's famous work, *The Economics of Taste*, which published sale prices of famous works of art (1961, 1963, and 1971). The Reitlinger

[2] Formerly known as Hislop's Art Sales Index, this is now advertised as Gordon's Blouin Art Sales Index and can be accessed at http://artsalesindex.artinfo.com

dataset covers the period 1740-1960 and includes both private sales and sales at auction. Reitlinger includes only a selection of de Piles' artists and their paintings. These two datasets were then combined with the ratings that de Piles gave each of the artists.

Table I presents the number of artists included in each of the datasets. The name used is the name by which the artist is commonly known and is identical to the names in Ginsburgh and Weyers (2008). The artist name is the name given to the artist in the Art Sales Index database. Some painters, such as Pietro Buonaccorsi (1500-1547), known as Perino de Vaga, have completely different names by which they are commonly known. From the Art Sales Index database all observations on de Piles-rated artists were included, with the exception of David Teniers the Younger. Teniers was not included because Art Sales Index listed over 1600 sales of his work from 1920 to the present, which is about 4 times the amount of the next most prolific artist. The number of sales raised concerns about attribution in addition to concerns about an unbalanced dataset. Two other artists, Reni and Polidoro de Caravaggio, were not included since de Piles had not given them complete rankings. 4,136 observations on 54 different artists derive from the Art Sales dataset and 761 observations on 24 different artists from the Reitlinger dataset.

Figure 1 presents a histograms of the various characteristics. It is interesting to note that the average drawing ratng is actually slightly higher than the average color rating. Furthermore, the histogram becomes approximately normal when the characteristics are combined.

Tables 2 and 3 present summary statistics of prices and various characteristics. One feature of the data that is apparent by comparing Tables 2 and 3 is the differences in works included in the two datasets. For example the 1921-1930 period in the Art Sales Index Data lists an average price of £851, and the average price for the 1911-1930 period in the Reitlinger dataset

is £22,798. This large price difference is not solely explained by different artists in the two datasets, but is likely explained by Reitlinger only including selected reported sales in his dataset, mainly private sales between individuals. Because of the differences in the two datasets, the two datasets are not combined but are analyzed separately.

Table 1: Artists

Name	Artist	Art-Sales Index Data	Reitlinger Data	Composition	Drawing	Color	Expression	Total
Albani	Francesco Albani (1578-1660)	95		14	14	10	6	44
Barocci	Federico Barocci (1526-1612)	54		14	15	6	10	45
Bassano	Jacopo Bassano (1515-1592)	106	6	6	8	17	0	31
Bourdon	Sebastien Bourdon (1616-1671)	82		10	8	8	4	30
Caravaggio	Caravaggio (1571-1610)	55		6	6	16	0	28
Corregio	Correggio (1494-1534)	52	21	13	13	15	12	53
Cortona	Pietro da Cortona (1596-1669)	62		16	14	12	6	48
Da Udine	Giovanni da Udine (1487-1564)	1		10	8	16	3	37
Del Piombo	del Piombo (16th C)	3	14	8	13	16	7	44
Del Sarto	Andrea del Sarto (1487-1530)	69	22	12	16	9	8	45
Del Vaga	Pietro Buonaccorsi (1500-1547)	10		15	16	7	6	44
Diepenbeek	Abraham van Diepenbeck (1596-1675)	59		11	10	14	6	41
Domenichino	Domenichino (1581-1641)	81	27	15	17	9	17	58
Durer	Albrecht Durer (1471-1528)	34	16	12	16	9	8	45
F. Zuccaro	Federico Zuccaro (1540-1609)	34		10	13	8	8	39
G. Bellini	Giovanni Bellini (1427-1516)	27	43	4	6	14	0	24
Giordano	Luca Giordano (1632-1705)	451		13	12	6	6	37
Giorgione	Giorgione (1477-1510)	12	26	8	9	18	4	39
Giulio Romano	Giulio Romano (1499-1546)	20		15	16	4	14	49
Guercino	Guercino (1591-1666)	149		18	10	10	4	42
Holbein	Hans Holbein the Younger (1497-1543)	108		9	10	16	13	48
Jordaens	Jacob Jordaens (1593-1678)	229		10	8	16	6	40
Josepin (Arpino)	Giuseppe Cesari (1568-1640)	50		10	10	6	2	28
Lanfranco	Giovanni Lanfranco (1582-1647)	51		14	13	10	5	42
Le Brun	Charles Lebrun (1619-1690)	32		16	16	8	16	56
Le Sueur	Eustache le Sueur (1617-1655)	41		15	15	4	15	49
Leonardo da Vinci	Leonardo Da Vinci (1452-1581)	8	18	15	16	4	14	49
Michelangelo	Michelangelo (1475-1564)	1	7	8	17	4	8	37
Muziano	Girolamo Muziano (1528-1592)	25		6	8	15	4	33
Palma Giovane	Jacopo Palma il Giovane (1544-1628)	132	5	12	9	14	6	41
Palma Vecchio	Jacopo Palma (16/17th C)	57	7	5	6	16	0	27
Parmigiano	Il Parmegiano (1504-1540)	17	15	10	15	6	6	37
Penni	Giovanni Francesco Penni (1488-1528)	5		0	15	8	0	23
Perugino	Pietro Vannucci (1445-1523)	18	23	4	12	10	4	30
Pordenone	Pordenone (1483-1576)	9	3	8	14	17	5	44
Pourbus	Peeter Jansz Pourbus (1510-1584)	35		4	15	6	6	31
Poussin	Nicolas Poussin (1594-1665)	116		15	17	6	15	53
Primaticcio	Francesco Primaticcio (1504-1570)	7		15	14	17	10	56
Raphael	Raphael (1483-1520)	69	35	17	18	12	18	65
Rembrandt	Rembrandt (1606-1669)	191	106	15	6	17	12	50
Rubens	Sir Peter Paul Rubens (1577-1640)	265	108	18	13	17	17	65
Salviati	Francesco Salviati (1510-1563)	29		13	15	8	8	44
T. Zuccaro	Taddeo Zuccaro (1529-1566)	2		13	14	10	9	46
Testa	Pietro Testa (1611-1650)	18		11	15	0	6	32
The Carracci	Agostino Carracci (1557-1602)	7		15	17	13	13	58
	Annibale Carracci (1560-1609)	35	46					
	Lodovico Carracci (1555-1619)	49	6					
Tintoretto	Il Tintoretto (1518-1599)	150	34	15	14	16	4	49
Titian	Titian (1488-1576)	156	73	12	15	18	6	51
Van Dyck	Van Dyck (1599-1641)	499	63	15	10	17	13	55
Van Leyden	Lucas van Leyden (1494-1538)	21		8	6	6	4	24
Vanius	Francesco Vanni (1563-1610)	19		13	15	12	13	53
Venius (Van Veen)	Otto van Veen (1556-1629)	78		13	14	10	10	47
Veronese	Veronese (1528-1588)	151	37	15	10	16	3	44
Volterra	Daniele da Volterra (1509-1566)	5		12	15	5	8	40

*notes: Teniers the younger not included because of unrealistic number of sales (over 1600). Reni and Polidoro de Carravagio dropped because of incomplete rankings.

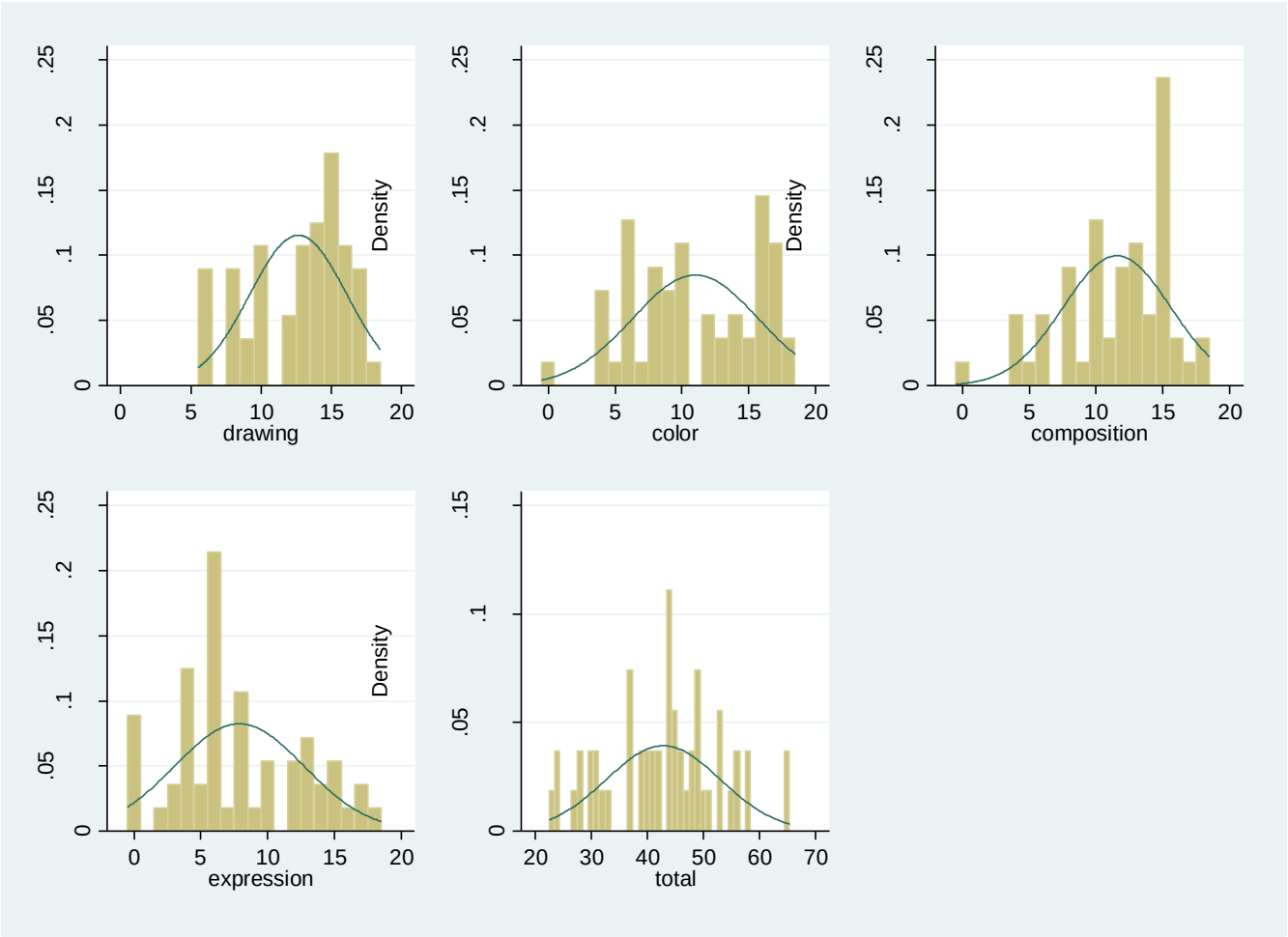


Figure 1: Histograms of de Piles' Rankings

Table 2: Characteristics of Art Sales Index Data

Time Period	1921-1930	1931-1940	1941-1950	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010
Observations	121	47	43	358	653	1272	670	485	487
Characteristic Means:									
overall rating	50.02	51.09	46.09	47.87	47.28	45.39	45.38	44.75	45.72
composition	13.10	13.21	12.23	13.27	13.36	12.93	13.13	13.08	13.44
drawing	10.98	10.06	10.72	11.18	11.81	11.76	11.77	11.78	11.62
color	15.40	15.72	13.47	14.05	13.11	12.42	12.00	11.99	12.25
expression	10.55	12.09	9.67	9.36	9.01	8.28	8.48	7.90	8.40
height (in)	34.03	39.98	33.86	35.99	35.79	34.07	35.82	35.26	36.07
width (in)	30.83	31.51	33.98	35.49	35.21	33.32	35.16	34.57	35.48
birth (year)	1544	1564	1552	1557	1562	1565	1576	1573	1574
price (US$)	$4,108	$4,642	$6,120	$6,466	$18,656	$20,561	$87,106	$352,191	$823,759
price (GBP)	£851	£967	£1,518	£2,309	£7,157	£8,971	£54,331	£219,113	£486,766

Table 3: Characteristics of Reitlinger Data

Time Period	1731-1750	1751-1770	1771-1790	1791-1810	1811-1830	1831-1850	1851-1870	1871-1890	1891-1910	1911-1930	1931-1950	1951-1970
Observations	5	11	25	105	67	52	55	80	50	98	53	44
Characteristic Means												
overall rating	56.80	51.91	50.80	51.76	52.40	51.63	47.45	52.43	48.56	50.62	51.85	52.20
composition	16.20	14.36	13.96	13.91	14.16	14.23	12.69	14.13	13.02	13.81	14.08	14.61
drawing	11.20	10.55	10.72	12.40	12.69	11.58	10.78	12.18	11.52	11.81	11.53	11.20
color	16.80	15.73	15.12	15.24	14.30	14.23	15.05	14.66	15.44	15.56	15.55	15.43
expression	12.60	11.27	11.00	10.21	11.25	11.60	8.93	11.46	8.58	9.45	10.70	10.95
price (GBP)	£506	£534	£791	£1,016	£1,506	£1,627	£1,959	£5,977	£6,564	£20,200	£22,798	£38,647

The nature of the dataset does change over the decades. Namely the average "quality" of the artists sold at auction -- as measured by de Piles' ratings -- declines in the Art Sales Index dataset. The reason for this decline may be that better paintings during this time period are not being resold but are being held in museums or in private collections. A decline in de Piles' rated quality is not present in the Reitlinger dataset, in which all sales occur before 1970, and in which the bulk of the sales occur before 1960. The fact that a decline appears to take place only in the

Art Sales dataset may either reflect the 20th century boom in the art market or Reitlinger's anecdotal collection of prices. Reitlinger only collects prices on a subsample of de Piles' artists.

3. An Analysis of de Piles' Characteristics

The econometric model used to test whether de Piles' characteristics have an effect on price is as follows,

$$\ln p_{it} = \sum_{T=1}^{m} X_i \tau_T \beta_T + \sum_{t=1}^{n} \gamma_t \delta_t + \varepsilon_{it} \quad (1)$$

where p_{it} is the price of work i in year t, X_i is a vector of characteristics of painting i, τ_T are a set of either decade dummy variables (for the Art Sales Index database) or 20-year period dummy variables (for the Reitlinger database) that are interacted with the painting characteristics, and β_T are the coefficients on the characteristics that vary by either decade or 20-year period. In the Art Sales Index dataset, the characteristics are de Piles' ratings on composition, drawing, color and expression, which vary by artist, in addition to height and width of the paintings, which vary by painting. In the Reitlinger dataset the only characteristics are de Piles' ratings. In the Art Sales Index database year dummy variables were included (equal to 1 if painting i is sold in year t and zero otherwise) with corresponding yearly coefficients γ_t. For the Reitlinger dataset, decade dummy variables are included rather than year dummy variables. The error term, ε_{it}, varies by item i at auction date t.[3]

Table 4 presents the results of this analysis for the Art Sales Index database and Table 5 presents the results of this analysis for the Reitlinger database. The first thing to notice is that the coefficients for each characteristic, with the exception of composition in the Art Sales

[3] Prices have not been deflated, as the time dummy variables take into account changes in price over time.

dataset, are jointly significantly different from zero over time in both datasets. De Piles' ratings on the individual characteristics have an effect on price in the 300 years after his ratings were given, though this effect is not constant.

When the coefficients are restricted across years in the shorter time period dataset collected from Art Sales index, only composition, color, and width are statistically significant. Not surprisingly, when the characteristics coefficients are restricted across the 220 year period in the Reitlinger database, none of the restricted coefficients are significantly different from zero.

Table 4
Art Sales Index Regressions
Dependent Variable: ln Price

	Composition	Drawing	Expression	Color	Width	Height
Interacted						
1921-1930	0.037	-0.011	-0.002	0.042	-0.477	0.586
	(0.032)	(0.023)	(0.024)	(0.022)	(0.313)	(0.253)
1931-1940	0.033	-0.155	-0.055	-0.068	-0.371	0.742
	(0.048)	(0.045)	(0.047)	(0.062)	(0.953)	(0.876)
1941-1950	-0.103	-0.075	0.176	0.046	0.368	0.359
	(0.106)	(0.036)	(0.075)	(0.035)	(0.606)	(0.568)
1951-1960	0.036	0.001	0.028	0.052	-0.009	0.231
	(0.030)	(0.029)	(0.029)	(0.030)	(0.254)	(0.311)
1961-1970	0.033	-0.014	0.020	0.082	0.263	-0.108
	(0.039)	(0.048)	(0.036)	(0.030)	(0.234)	(0.235)
1971-1980	0.036	-0.061	0.039	0.029	0.629	-0.111
	(0.034)	(0.032)	(0.031)	(0.031)	(0.163)	(0.214)
1981-1990	0.055	-0.025	-0.025	0.031	0.312	0.184
	(0.037)	(0.048)	(0.036)	(0.023)	(0.233)	(0.305)
1991-2000	0.137	0.021	0.021	0.079	0.379	0.262
	(0.050)	(0.071)	(0.039)	(0.025)	(0.293)	(0.375)
2001-2010	0.123	-0.045	0.031	0.076	-0.103	0.824
	(0.050)	(0.072)	(0.027)	(0.020)	(0.194)	(0.280)
	F(9, 54) = 1.59	F(9, 54) = 8.11	F(9, 54) = 5.27	F(9, 54) = 6.19	F(9, 54) = 3.22	F(9, 54) = 2.88
	Prob > F = 0.1423	Prob > F = 0.0000	Prob > F = 0.0000	Prob > F = 0.0000	Prob > F = 0.0034	Prob > F = 0.0075
Restricted						
1921-2010	0.056	-0.030	0.023	0.053	0.310	0.164
	(0.027)	(0.023)	(0.024)	(0.020)	(0.125)	(0.168)

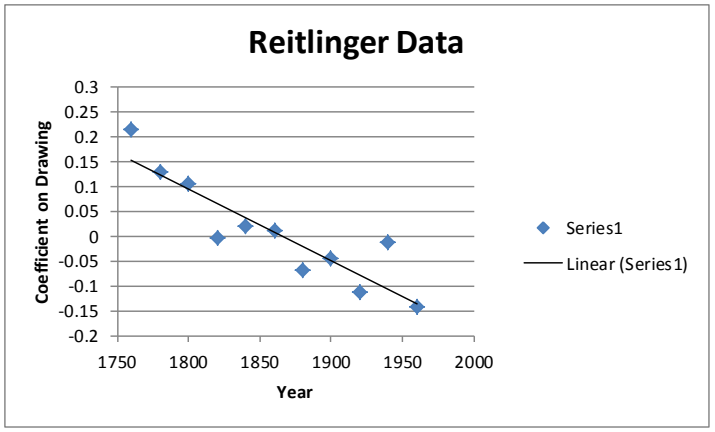
Number of observations = 4136, R-squareds = .5853 (interacted) and .572 (restricted), regressions include 74 year dummy variables and a constant. Robust standard errors, clustered by artist, are in parentheses.

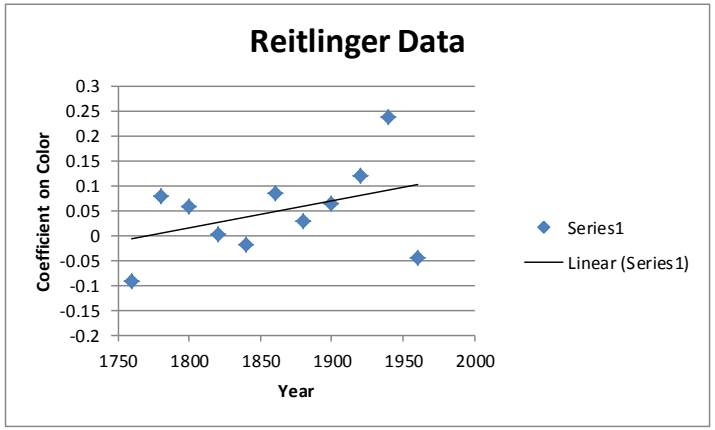
Table 5
Reitlinger Regressions
Dependent Variable: ln Price

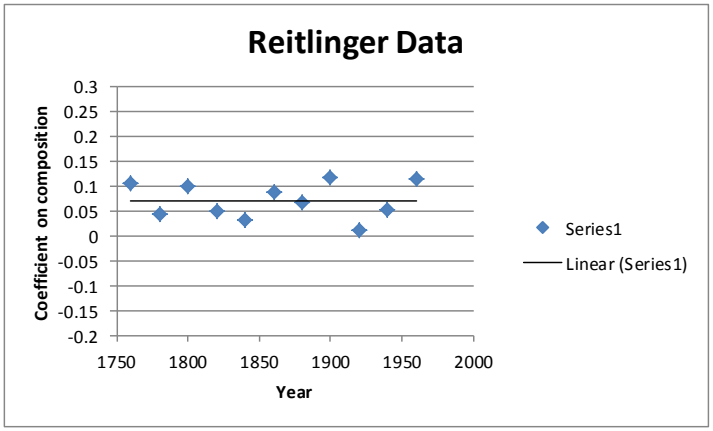
Interacted	composition	drawing	expression	color
1736-1750	0.761		-0.136	-0.338
	(0.630)		(0.156)	(0.682)
1751-1770	0.104	0.214	-0.044	0.157
	(0.222)	(0.262)	(0.161)	(0.391)
1771-1790	0.043	0.129	0.042	0.078
	(0.194)	(0.105)	(0.131)	(0.090)
1791-1810	0.100	0.106	0.038	0.058
	(0.064)	(0.042)	(0.038)	(0.043)
1811-1830	0.049	-0.003	0.092	0.003
	(0.098)	(0.056)	(0.055)	(0.050)
1831-1850	0.033	0.020	0.084	-0.017
	(0.121)	(0.054)	(0.078)	(0.057)
1851-1870	0.086	0.010	0.016	0.085
	(0.081)	(0.055)	(0.055)	(0.078)
1871-1890	0.067	-0.069	0.124	0.029
	(0.096)	(0.054)	(0.062)	(0.052)
1891-1910	0.117	-0.046	0.073	0.064
	(0.083)	(0.057)	(0.055)	(0.070)
1911-1930	0.010	-0.113	0.070	0.121
	(0.063)	(0.040)	(0.037)	(0.050)
1931-1950	0.053	-0.014	-0.005	0.238
	(0.097)	(0.056)	(0.060)	(0.077)
1951-1960	0.115	-0.141	0.002	-0.044
	(0.120)	(0.067)	(0.062)	(0.076)
Test of	F(12, 15) = 4364.14	F(11, 15) = 43.60	F(12, 15) = 540.22	F(12, 15) = 102.63
joint significance	Prob > F = 0.0000	Prob > F = 0.0000	Prob > F = 0.0000	Prob > F = 0.0000
Restricted				
1736-1960	0.069	-0.019	0.058	0.048
	0.052	0.041	0.041	0.531

Number of observations = 644, R-squareds = .525 (interacted) and .466 (restricted) , both regressions includes 20 decade dummy variables and a constant.
Robust standard errors, clustered by artist, are in parentheses.

The coefficients are almost all jointly significantly different from zero. However, when the coefficients are restricted to be identical across time, the significance disappears for all of the characteristics in the Reitlinger dataset and for some of the characteristics in the Art Sales Index database. This change in significance strongly indicates that while de Piles' ratings influence price over the time period of the study, the effects differ over time. It is interesting to simply plot the characteristics coefficients by year especially over the historical period in the Reitlinger dataset, as in Figure 1 below. The plots that stand out amongst the others are the plots of the coefficients on drawing and color in the Reitlinger dataset that spans from 1736-1960. The plot clearly shows a decline in the importance of drawing over time and less clearly but still visible, an increase in the importance of color as reflected by prices.







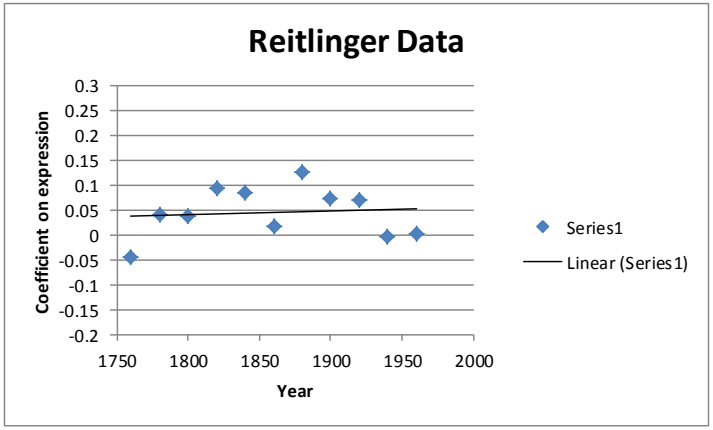


Figure 2: Plots of Characteristic Coefficients Over Time

The debate between the importance of drawing and color (*disegno* and *colore*) is longstanding, and in many ways culminates at the time of Giorgio Vasari (1511-1574) whom many consider to be the founder of art-historical study and who is well-known for his biographies of Renaissance artists. The establishment at that time firmly believed that the importance of a painting lies in its design rather than its execution. De Piles was an important player in this debate. For many, color was considered mere ornamentation. Some art theorists believe this view began with Plato's rejection of the image; the dichotomy between color and drawing was drawn with Artistotle. According to Lichtenstein (1993), "Plato condemned painting because of its colors and Aristotle reprieves it for its drawing. [p. 62]" In 1673 de Piles published the *Dialogue sur le Coloris* in support of the Venetian style and their use of color. The followers of Poussin were on the side of design (*disegno*) and the followers of Rubens were on the side of color (*colore*). The supporters of Rubens ultimately triumphed when Rubens became known as the greatest European Master (Grove Art Online). De Piles was prescient to emphasize color over drawing in that results shown above demonstrate that the importance of drawing appears to have declined over the decades, while that of color has marginally increased. In his emphasis on *colore* vs. *disegno* de Piles foresaw the change in taste that was to occur.

4. De Piles as an Art Critic

Roger de Piles was both a painter and an art critic. However most of his life was spent outside the Academy and his views, especially on color, did not coincide with the art critics of his generation, Charles LeBrun (1619-1690) and Andre Felibien (1619-1695). De Piles, in particular, disagreed that a painting should be viewed as a story with episodes, but that the way a picture should be viewed should be more in tune with nature, in which colors and shapes of great

importance. (Holt, 1994). His views were undoubtedly influenced by the importance of color in Venetian painting, but also may have reflected the popular viewpoint, rather than the expert theoretical views of the time.

By the time the *Balance de Peintres* was published, de Piles was a member of the Academy. Furthermore, the artists ranked by de Piles already had established reputations. It is impossible to tell how much of de Piles rankings were influenced by their popular reputations of these artists, whether indirectly through popular influences on de Piles' own expert opinion or directly through reputation.

Much of the current literature concludes that experts' opinions do not hold up over time. For example, Ginsburgh (2003) finds that movies that won prizes such as an Oscar or an Academy Award do not necessarily withstand the test of time, as indicated by their presence on greatest all-time movie lists. Landes (2004) found that less than 50% of the American artists who were chosen to be represented at three important exhibitions in the early part of the 20th century had works appear at auction during the very last part of the 20th century.

A price index is constructed using the two datasets on works by de Piles' artists in order to compare the long-term success of the artists that de Piles chose to rate. Because the samples are so different, separate indices are constructed for the Reitlinger dataset and for the Art Sales Index dataset. The econometric model used to construct the index is a variant of equation (1) above, except that for the painting characteristics, X_i, artist dummy variables as well as *ln* height and *ln* width are used for the Art Sales Index dataset and artist dummy variables alone are used for the Reitlinger dataset.[4] The index is then calculated as $\exp^{\gamma_t}$ and the annual return over a

[4] We cannot include de Pile's characteristics as well as artist characteristics because of perfect multicollinearity.

period t_1 to t_n is calculated as $[(\exp^{\gamma_n-\gamma_1})^{(1/(t_n-t_1))}-1]$, where t_n is year n and t_1 is year 1. The regression coefficients on the time dummies for the regressions are presented in Appendix Table 1 for the Art Sales database and in Appendix Table 2 for the Reitlinger database. In addition, two indices are constructed by splitting the dataset using the median overall artist rating (44) in the entire dataset as a break point. Artists whose overall ratings are greater than the median are included in one dataset and those whose overall ratings are less than or equal to the median are included in the other dataset.

Table 6 presents the annual return estimates. The returns to de Piles' rated artists are similar to the returns estimated in other larger datasets. For example, the de Piles average annual return for 1740-1960 is 1.83% and is between Baumol's (1986) and Goetzman's (1993) average returns for similar time periods. The more recent returns, from 1950 to 1999 are less than the Mei and Moses (2002) estimated returns, but the Mei and Moses returns are high when compared with other studies.[5]

[5] For a complete table of authors estimating returns to holding art, see Ashenfelter and Graddy (2003, 2006).

Table 6
Nominal Returns to DePile's Artists

De Piles return:	Overall return	Depiles combined ratings >44	Depiles combined ratings<=44
1740-1960	1.83%	1.97%	1.55%
De Piles return:			
1920-2010	6.45%	7.32%	3.53%
Depiles return:			
1951-1999	10.00%		
Baumol return:			
1652-1961	1.30%		
Goetzman return:			
1740-1960:	3.00%		
Mei and Moses return:			
1950-1999	12.25%		

*In their 2002 paper, Mei and Moses only report real returns. We use Shiller's calculations of CPI to inflate these returns to the nominal returns shown above.

Comparing the two samples of de Piles' artists that were split by de Piles' ranking is extremely interesting. In both datasets the average returns to the top sample exceed the returns to artists with lower ratings, and the coefficients on the final time period are statistically significantly different from one another at the 1% level for the Art Sales dataset but not for the Reitlinger dataset.

The fact that several centuries later de Piles' top rated artists significantly outperformed de Piles' lower rated artists over a 90 year period is astounding. This result in many ways validates de Piles' judgment as an art critic and contradicts much of the previous literature on expert opinion, which has largely found expert opinions do not hold up well in the long run (see Ashenfelter and Jones (2000), Ginsburgh and Van Ours (2003), Ginsburgh (2003) and Landes (2004)).

5. A Note on the Masterpiece Effect

The estimates that indicate higher returns for de Piles' higher-rated artists contradict much of the literature on the "Masterpiece Effect." Even a finding of no difference between the two groups is anomalous to many of the findings in the literature. The "Masterpiece Effect" was coined by art dealer Edwin Merrin, who stated "…it's always better to buy one $10,000 object than ten $1,000 objects, or one $100,000 object --- if that is what you can afford---than ten $10,000 ones." [6] When testing for the "Masterpiece effect," Pesando (1993) and Mei and Moses (2002) found a negative Masterpiece effect -- more expensive paintings had lower returns, and Ginsburgh and Jeanfils (1995) and Goetzmann (1996) found no "Masterpiece Effect." Only one study, de la Barre, Docclo and Ginsburgh (1996), found a positive "Masterpiece Effect."

Most studies that test for a "Masterpiece Effect" use price to determine a "Masterpiece". For example, James Pesando (1993) tested for the effect by constructing a portfolio of the top 10 or 20% of prints by price, where price is determined during the first few years of his sample, in this case 1977-1979. Prints are especially useful when looking at price growth because it is relatively easy to find subsequent sales of prints of the same work of art, unlike original works of

[6] *Art & Auction* (September 1988, p. 131)

art. If the “art trade” view is correct, the estimated price indices for these “Masterpieces” should uniformly outperform the general portfolio. Using price data from 1980 to 1992, Pesando found no support for this view and in fact found that in part of his sample, "Masterpieces” provided the lowest cumulative return.

When price is used as a measure, the paintings may be subject to “overbidding” at the first sale and then having the price revert at the second sale (Mei and Moses (2002)). This explanation appears quite reasonable given the way that various studies above have defined “Masterpieces” as the highest price paintings that were sold. If a “Masterpiece” is defined purely by price, there may be some paintings in the “Masterpiece” sample that randomly commanded a higher price, perhaps because two or more bidders had high private valuations for the paintings. At a later auction the prices on these paintings revert to an average or normal price, thus resulting in a negative “Masterpiece” effect.

A different explanation for the negative “Masterpiece Effect” may be what Will Goetzmann (1996) termed “survivorship bias." When testing for the "Masterpiece Effect", paintings are often separated into two samples, a "Masterpiece" sample and a "non-Masterpiece" sample, based on price and then these prices are followed through time. It is likely that paintings remain in the "Masterpiece" sample throughout -- they are resold even if they decreased in value -- whereas less expensive paintings that decrease in price may drop out and never appear again in the "non-Masterpiece" sample. If less expensive paintings have dropped out of the "non-Masterpiece" sample, those omissions will raise the overall price of this sample. Hence it may appear that “Masterpieces” have underperformed in the sampled data, but this is only because the “non-Masterpiece” sample no longer contains some paintings that have decreased in price.

The only study that found a positive "Masterpiece Effect", de la Barre, Docclo and Ginsburgh (1996), did not use price as a measure of a "Masterpiece," but rather chose well-known artists to be in one sample -- they called this sample "Great Masters" -- and other lesser known artists their other sample. Hence they did not measure Masterpiece by price. Likewise, this study uses de Piles' ratings rather than price to define a "Masterpiece" sample. A finding of a negative "Masterpiece effect" can be rejected in the current sample, with estimates for the Art-Sales database indicating significantly higher returns to artists with higher de Piles' ratings.

Economic theory states that a "Masterpiece effect" should not exist. If art markets were efficient, there should not be a higher return from purchasing "Masterpieces." If everyone knew and believed that higher priced items provided a higher return, then the price for these items would be higher in the first place. In other words, an efficient art market should capitalize expected future higher prices into current prices, so rates of returns should not exceed that obtained on other art objects. This does not necessarily rule out that, for some period of time in a market with transactions costs and little information, the return on some objects may exceed the return on other objects. Furthermore, when "Masterpieces" are not chosen by price, the bias toward a negative "Masterpiece effect" has been removed.

6. Conclusion

A broad interpretation of the above analysis is that Roger de Piles is still relevant. Overall, de Piles' ratings have held up very well, whereas a body of work has shown that other critics have not done so well over time, or have produced random judgments.

Roger de Piles differs from most other critics in two ways. First, he was judging artists who were born on average about 150 years prior to his *Balance des peintres*, whose reputation

was already well established. This reputation in all likelihood influenced de Piles' judgment, and may have helped his critique.

Secondly, de Piles decomposed each artist's oeuvre into the four characteristics of drawing, color, expression and composition, and rated each of the categories numerically. This decomposition and then numerical ranking is a discipline followed by very few critics and a discipline that may improve critical accuracy. Despite art historians perceiving the rankings as a "notorious" contribution to art criticism, de Piles' rankings have been effective in predicting returns.

Roger de Piles was simply an extraordinary critic.

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Appendix Table 1
Yearly Coefficients for Art Sales Index Data

Year	Coeff	Std Err	Year	Coeff	Std Err	Year	Coeff	Std Err
1921	0.000		1951	0.424	1.025	1981	1.766	0.845
1922	-0.286	1.057	1952	-0.473	1.001	1982	1.752	0.848
1923	0.206	0.943	1953	0.260	0.880	1983	1.914	0.857
1924	-	-	1954	-0.031	0.874	1984	2.924	0.858
1925	0.435	1.120	1955	0.316	0.866	1985	3.606	0.864
1926	-	-	1956	0.090	0.866	1986	3.926	0.860
1927	-0.322	0.911	1957	0.248	0.864	1987	4.129	0.861
1928	1.238	1.054	1958	0.321	0.858	1988	3.934	0.859
1929	0.279	0.852	1959	0.456	0.859	1989	4.616	0.856
1930	-0.230	1.105	1960	0.590	0.857	1990	4.445	0.862
1931	-0.540	1.059	1961	0.344	0.866	1991	4.236	0.862
1932	-	-	1962	0.361	0.853	1992	4.370	0.867
1933	-	-	1963	1.320	0.885	1993	4.452	0.869
1934	0.896	0.999	1964	0.448	0.853	1994	4.813	0.866
1935	-	-	1965	0.981	0.848	1995	4.412	0.867
1936	-	-	1966	1.077	0.857	1996	4.354	0.864
1937	-	-	1967	0.948	0.856	1997	4.863	0.858
1938	0.516	0.883	1968	1.397	0.851	1998	4.603	0.858
1939	-0.456	0.956	1969	1.534	0.851	1999	4.405	0.861
1940	-	-	1970	1.000	0.855	2000	4.998	0.854
1941	-	-	1971	1.520	0.847	2001	4.690	0.856
1942	-	-	1972	1.373	0.847	2002	4.953	0.860
1943	-	-	1973	2.033	0.844	2003	5.420	0.870
1944	-	-	1974	1.617	0.845	2004	4.770	0.860
1945	-	-	1975	1.457	0.846	2005	4.897	0.865
1946	0.386	0.880	1976	1.882	0.845	2006	4.816	0.856
1947	-0.150	0.999	1977	1.589	0.846	2007	5.542	0.863
1948	0.867	0.979	1978	1.653	0.844	2008	5.126	0.867
1949	-	-	1979	1.723	0.848	2009	5.398	0.857
1950	-	-	1980	1.956	0.845	2010	5.630	0.872

$R^2 = 0.62$. There are 4136 observations. F-value = 52.12 with 128 d.o.f.

Appendix Table 2
Decade Coefficients for Reitlinger Index Data

Decade	Coefficient	Standard Error
1751-1760	1.080	0.880
1761-1770	0.541	0.782
1771-1780	0.898	0.696
1781-1790	1.291	0.762
1791-1800	0.803	0.646
1801-1810	1.556	0.650
1811-1820	1.225	0.658
1821-1830	1.811	0.664
1831-1840	1.104	0.699
1841-1850	1.320	0.660
1851-1860	1.309	0.661
1861-1870	2.116	0.682
1871-1880	1.587	0.682
1881-1890	2.282	0.645
1891-1900	2.200	0.663
1901-1910	3.362	0.695
1911-1920	3.483	0.662
1921-1930	3.645	0.644
1931-1940	3.852	0.668
1941-1950	3.438	0.674
1951-1960	3.972	0.652

$R^2 = 0.54$. There are 644 observations.
F-value = 20.20 with 36 d.o.f.