Painted Lemons: Evidence from the Art Market on the Importance of Credibility for Information

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Abstract

This paper provides causal evidence on how the credibility of expert information affects price formation and market efficiency. I develop a signalling model, adapted to the art market, in which privately informed intermediaries decide whether to verify authorship, and low credibility causes attributions to lose informational value, resulting in a pooled "lemons" equilibrium. I exploit an unforeseen legal change in 1836 Britain that introduced liability for false claims about authorship, exogenously increasing the credibility of attributions. After the reform, works attributed to a named artist sold for about 60 percent higher prices, and the probability of sale rose by 30 percent, consistent with a shift to a separating equilibrium. Intermediaries also became more conservative, assigning the highest attribution rating 8 percentage points less often. The effects were concentrated where authenticity was most uncertain and absent in Continental Europe, where the ruling did not apply. The findings show that credibility is essential for information to translate into efficient pricing and market segmentation.

JEL Codes: D82, N23, G14, L15, G18

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Introduction

Markets for opaque assets pose a fundamental challenge to price formation. When quality is difficult or impossible to verify—even ex post—information becomes a credence good, and trade depends not only on information availability but on whether that information is believed. In such settings, intermediaries often emerge to certify quality and mitigate asymmetric information. Yet their ability to perform this role hinges on incentives to produce credible information rather than merely abundant information.

This paper studies how the credibility of intermediary-produced information affects prices and market depth. I examine a setting in which assets are highly heterogeneous, quality is intrinsically hard to verify, and intermediaries play a central role in belief formation: the art market. While information is central to all financial markets (Grossman and Stiglitz 1980; D. Chen et al. 2022), modern asset markets are supported by extensive disclosure requirements, auditing, and regulatory oversight that generate a baseline of systemic trust. These institutions make it difficult to separately identify the role of credibility itself. By contrast, the art market historically operated with minimal formal regulation, allowing credibility constraints to be observed directly.

For buyers in the art market, the central question is whether a work is genuine. Attribution—the assignment of a work to a particular artist—is often highly uncertain, evolves over time, and is rarely verifiable with certainty. Intermediaries such as auction houses and dealers are best positioned to assess authenticity, yet their incentives may not always align with those of buyers. As Thomas Hoving, former director of the Metropolitan Museum of Art, famously observed, roughly 40 percent of the works he examined were either forgeries or so severely misattributed as to be indistinguishable from them (Hoving 1997).

I adapt a simple signaling model in which art market intermediaries—auction houses and dealers—are privately informed about an artwork's quality and can invest in producing information about the artwork's authorship. The artist's name is one of the most important determinant's of the price (Renneboog and Spaenhers 2013). These intermediaries can choose whether to invest time and resources in verifying an artwork's authorship, for exam-

ple by consulting experts (connoisseurship) or tracing documented ownership (provenance research). As with credit ratings, where letter grades reflect estimated default probabilities, attributions convey the probability that a given work was executed by a particular artist (e.g., 'Leonardo da Vinci' versus 'Workshop of Leonardo da Vinci'). In the model buyers decide how much to pay based on both the attribution and how credible they believe the attribution to be. Just as rating agencies have faced criticism for inflated assessments under issuer-pay models (Frost 2007, Hunt 2009), intermediaries in the art market can exhibit similar incentive problems and inflate attributions. The model predicts that when claims about an artwork's authorship are not credible, they fail to signal quality and, thus, price differentiate. The market resembles a "market for lemons," with a pooled equilibrium in which the best works are withdrawn from sale.

I test the signaling model's predictions using a natural experiment created by the 1836 court case Power v. Barham. This ruling broke with prior legal precedent by making sellers legally liable for false claims about an artwork's authorship, thereby increasing the credibility of attributions. This change provides a way to identify how markets respond when the production of information becomes more reliable. The treatment group consists of works attributed to specific, named artists—where the artist's name signals value and quality—so changes in attribution credibility can directly affect prices. The control group consists of anonymous works, described only in broad terms of place and period or labelled as copies, whose value does not depend on individual authorship and thus is unaffected by the ruling.

To conduct this analysis, I construct a novel dataset of over 150,000 nineteenth-century British art market transactions from 1820 to 1850. I extend the Getty Provenance database with hand-collected data from sales dictionaries and auction catalogues. Focusing on auction is representative since most old master paintings were sold through auction in this period (Bayer and Page 2011). About a third of the transaction are conducted by Christie's.

The results show that the 1836 Power v. Barham ruling, which introduced legal liability for false attributions, fundamentally altered how information was priced in the British art

market. After the reform, artworks attributed to a named artist sold for roughly 60 percent higher prices relative to comparable works without named attributions. These findings are robust across alternative samples and specifications, including restricting the analysis to a narrow window around the ruling, excluding contentious artists such as Rembrandt, and implementing a triple-difference design that uses Continental European transactions as a control group.

The paper then provides evidence on the mechanism through which legal liability affected market outcomes. By increasing the expected cost of misattribution, the 1836 ruling altered intermediaries' incentives to exaggerate attribution claims. Consistent with this channel, intermediaries became more conservative in their use of attribution, with the incidence of the highest attribution category declining following the reform. Buyers responded to this change in information provision by adjusting their beliefs, leading to improved market clearing and a decline in the probability that artworks remained unsold.

The resulting price effects are strongest precisely where attribution credibility was weakest prior to the ruling: at the lower end of the market, where expected rewards from careful attribution were limited, and at the upper end, where the potential costs of misattribution were largest. Finally, the response is attenuated for Christie's, whose established reputation already served as a partial substitute for legal enforcement. Together, these patterns are consistent with a shift from a pooling to a separating equilibrium driven by increased credibility of intermediary-provided information.

Since Akerlof's (1970) seminal analysis of markets with asymmetric information, a large literature has studied how information frictions shape market outcomes. In asset markets, this work has emphasized the production of information (Diamond 1984; Barlevy and Veronesi 2000), its disclosure (Hughes 1986; Diamond and Verrecchia 1991; Goldstein and Yang 2017), and trading under differential information (Admati 1985;Glosten and Milgrom 1985). In modern financial markets, extensive regulation, auditing, and disclosure requirements generate a baseline level of systemic trust, and empirical work therefore often focuses on heterogeneity in beliefs or trust across investors rather than on the credibility of infor-

mation itself (e.g., Guiso, Sapienza, and Zingales 2008; Wei and Zhang 2023).

This paper instead studies a setting in which systemic credibility is itself scarce. The nineteenth-century art market was largely unregulated and relied almost entirely on intermediaries to certify quality through attributions, making it a natural laboratory to examine how markets function when assets are opaque and information is a credence good. While the importance of informational frictions in art markets is widely acknowledged, credible empirical identification of their pricing effects remains limited (W. Goetzmann 1995; David, K. Oosterlinck, and Szafarz 2013).

A growing empirical literature in finance studies how information affects asset prices using quasi-experimental variation. Koudijs (2016) exploits a historical natural experiment to examine how the arrival of news affects trading behavior, while Chen, Kelly, and Wu (2020) study how an exogenous decline in information production alters prices and liquidity. These studies provide compelling evidence that information quantity matters for market outcomes. By contrast, this paper isolates a positive shock to the credibility of information, holding constant the underlying object being valued. The results provide causal evidence that information is priced only when it is credible, and that improvements in credibility enable separating equilibria and deepen markets.

More broadly, the paper contributes to the literature on opaque assets, intermediaries, and belief formation, which emphasizes that reputation alone may be insufficient to discipline intermediaries when quality is hard to verify ex post (Flandreau et al. 2010; Gennaioli, Shleifer, and Vishny 2012; De Jong, Kooijmans, and Koudijs 2025). I show that legal liability can serve as a powerful disciplinary device in such environments by altering intermediaries' incentives to produce and certify information. In markets for heterogeneous, credence-good assets, formal institutions can therefore complement—or substitute for—reputational mechanisms in sustaining trust and market depth.

By examining how changes in intermediary credibility affect prices and trading, the paper also speaks to the broader literature on institutions and regulation, which highlights the role of legal frameworks in shaping market development (North 1990). The 1836 Power

v. Barham ruling illustrates how a discrete change in legal liability can directly influence the functioning of markets that rely heavily on trust and certification, without mandating specific disclosure technologies.

Finally, the paper contributes to the economics of art markets and the emerging art-and-finance literature. Prior work documents the importance of attribution for prices and returns (Goetzmann 1993; Mei and Moses 2002; Renneboog and Spaenjers 2013; Chambers, Dimson, and Spaenjers 2000; Ginsburgh, Radermecker, and Tommasi 2019), but typically assumes that attributions are credible. I show instead that attribution premia arise only when intermediaries are trusted: absent credibility, attributions fail to differentiate quality or sustain market depth. In this sense, the paper links informational asymmetry directly to price formation in art markets.

The paper is structured as follows: The first two sections of the paper establish the theoretical and historical framework, focusing on the costs of producing information and the incentives faced by art dealers and auctioneers. Section three outlines the difference-in-differences methodology, demonstrating why Power v. Barham provides an ideal setting to analyze the role of credibility in producing information. Results are presented in section four before I conclude.

1 Historical Background: The Emergence of the British Art Market & the Problem of Fakes

The nineteenth century marked the emergence of the modern art market in Britain, with London supplanting Paris as the primary commercial hub during the disruptions of the French Revolution. This shift was particularly pronounced in the trade of Old Master paintings—a term used to describe works by European painters active roughly between 1300 and 1800, including artists such as Titian, Rubens, and Rembrandt.

1.1 Expansion of the London Market for Old Masters

The outbreak of the French Revolution, followed by the Napoleonic Wars, triggered a substantial influx of artworks to London. Initially, these came from France, but soon the Netherlands and Italy also became major sources, with Italy particularly affected by the upheavals of Napoleonic rule. Figure 2 documents the steady expansion of the British art market during this period, measured by the number of artworks traded. The years surrounding the Italian campaign of 1796–1797 show a pronounced uptake in volume. As a contemporary commented on the Italian artworks coming into the country at the time "the French plundered - we purchased" (Mrs. Jameson, 1844, p.30).

The influx of previously inaccessible Old Master paintings sparked a pronounced boom in the London art market at the turn of the nineteenth century. As these works entered circulation, new groups of buyers from the rising professional and mercantile classes emerged (Avery-Quash and Huemer 2019). This transformation is reflected in Figure 2, which shows a clear increase in prices that accompany the surge in trading activity.

> The best and most immediate result of the importation of the Orleans Gallery was, that it spread everywhere an interest about art—it made pictures a profitable speculation at the very moment when an opportunity offered for pursuing those speculations, such as the world had never beheld since the invasion of Greece by the armies of Mummius.
>
> - Mrs. Jameson, 1844

Auctions emerged as the most efficient mechanism for handling the large volumes of imported art from the Continent (Lyna et al. 2009). In response to growing demand, the number of active auction houses nearly tripled between the 1780s and the 1810s (Vermeylen and van Ginhoven).

Despite increased competition, Christie's rapidly established itself as the dominant auction house, accounting for approximately 35% of lots auctioned during this period (Vermeylen and van Ginhoven). Its dominance was particularly pronounced in the upper segment of

the market, where more than half of high-value works were sold through the firm. Over the course of the nineteenth century, Christie's consolidated its position further, ultimately handling over 90% of high-end transactions recorded in Grave's Art Sales by the century's end.

Christie's success rested on its reputation for expertise and reliability. Unlike competitors such as Sotheby's, which initially specialized in books, Christie's concentrated on paintings—especially Old Masters imported from the Continent. The firm cultivated a network of trusted advisors, including connoisseurs and practicing artists, whose expertise supported both attribution and valuation (Vermeylen and Ginhoven 2025). Among these advisors was the British painter and Royal Academy founding member Thomas Gainsborough, who not only advised Christie's but also appeared as an expert witness in legal disputes (e.g., Desenfans v. Vandergucht, 1787).

1.2 Fakes, Forgeries, and the Role of Attribution

The rapid expansion of the market created opportunities for both fakes and, later, forgeries (Briefel 2006, Helstosky 2009). Fakes are artworks by contemporary or lesser-known artists that are mistakenly or deliberately labeled as works by more famous painters. Unlike forgeries, which are created with the intent to deceive, fakes are not necessarily produced with the intention of fraud. For instance, a 16th century Dutch painting may be attributed to Leonardo da Vinci even though it was painted by a contemporary. Attribution could dramatically influence an artwork's value. For example, 'Leda and the Swan', initially attributed to Leonardo da Vinci, was offered for £7,000 in 1825 but failed to sell at the Barker sale of 1874 when the attribution got contested, and was later sold for just £84 in 1879 no longer a work by the Old Master.

The practice was facilitated by a long-standing tradition of copying artworks, which was considered an essential part of an artist's training. This tradition sometimes blurred the line between genuine works and later copies, fueling the prevalence of fakes in the market.

Two methods of determining artistic attribution developed in the nineteenth century (Hod-

kinson 2014). The first was connoisseurship, in which experts analyzed style and technique to identify formal characteristics consistent with a particular artist. Developing such expertise required extensive training through fieldwork, often by touring continental Europe to study canonical works first-hand (Avery-Quash and Pezzini 2021). Reliable attribution frequently depended on direct comparison, as when the National Gallery sought access to the Royal Collection before approving a potential acquisition. Such access demanded substantial financial resources and social capital (Clarke 2022, p.105f.). Moreover, close inspection was limited to intermediaries with privileged access, since public exhibition or preview at auction rarely permitted detailed or comparative analysis.

The second method was historical research, most prominently tracing provenance from the current owner back to the artist. Dealers and auction houses typically held this information, though it was often unavailable to buyers: between 1830 and 1840, over 90 percent of transactions included no details about the seller. Experts could also consult artists' writings, those of their contemporaries, or available exhibition and auction catalogues. Yet provenance research was resource-intensive, and particularly difficult in the British market. The category of "Old Masters" largely excluded British artists, and roughly 85 percent of works sold between 1830 and 1840 were of continental origin. Political turmoil on the continent compounded these challenges, raising costs and increasing the circulation of looted or dubious works (Avery-Quash and Pezzini 2021).

1.3 From Opinion to Liability: The Legal Treatment of Misattribution

The growing awareness of the problem of fakes is reflected in a series of court cases: Jendwine v. Slade (1790), Lomi v. Tucker (1829), De Sewhanberg v. Buchanan (1832), and Pennell v. Woodburn (1835). An overview of these cases is provided in the Appendix. While art historians often attribute the decline in Old Master prices to changing tastes, evidence presented in this paper suggests the problem was largely one of information. Uncertainty about attribution reduced buyers' willingness to pay. The example of Titian illustrates this

effect:

> After doubts had assailed some two-thirds of the twenty-seven Orleans Titians in England, no one attempted any longer to master the subject. To distinguish between master and pupils was bad enough; to risk revelations of thorough cleaning was worse.
>
> Reitlinger 1961, Vol. 1

Titian's Noli me tangere was purchased by Samuel Rogers for £330, equivalent to £27,739 today. It now resides in the National Gallery and is valued significantly higher (source: valuation records).

A new class of wealthy but inexperienced buyers exacerbated the market's vulnerabilities (Fletcher and Helmreich 2013). Buyers were largely unprotected, as attributions in auction catalogues carried no legal warranty. The prevailing precedent, Jendwine v. Slade (1790), illustrates this principle:

> "It was impossible to make this the case of a warranty; the pictures were the work of artists some centuries back, and there being no way of tracing the picture itself, it could only be a matter of opinion whether the picture in question was the work of the artist whose name it bore or not."
>
> — Lord Kenyon, Judge

Under this legal framework, attributions were treated as subjective opinions rather than verifiable claims, insulating intermediaries from liability. Despite this, misattributions remained common, as evidenced by Lomi v. Tucker (1829), De Sewhanberg v. Buchanan (1832), and Pennell v. Woodburn (1835) (Thomas 2022).

The ruling in Power v. Barham (1836) marked a departure from earlier precedent. Although it bore clear parallels with Jendwine v. Slade, the court held the dealer accountable, reasoning that sufficient information was available to exercise due diligence, given that the artist had died only 64 years earlier. This case underscores that attribution is fundamentally a problem of information: the availability and quality of knowledge determine whether a

dealer can be held liable. After Power v. Barham, disputes over misattributions largely disappear from the record until 1905. A complete overview of the U.K. legal history of misattribution is provided in the Appendix.

2 A Signalling Model for the Art Market

This section outlines the theoretical mechanisms through which attribution influences pricing. I use the concepts used in signalling models. The concrete model adopted in this section is based on labour markets (Spence 1973, Weiss 1995, Daley and Green 2014), where investment in attribution is analogous to investment in education, and ratings serve a role similar to academic grades. In financial markets, such models are commonly employed to describe how entrepreneurs use equity holdings to signal the underlying quality of their ventures.

The structure of the art market meets the conditions of adverse selection described by Akerlof (1970). First, intermediaries such as dealers and auction houses are better informed about the quality of the artwork because they can closely inspect it and have private knowledge of its provenance, both relevant for authenticating an artwork. Second, both sides of the market—buyers and sellers—care deeply about quality, since an artwork's authenticity directly determines its value. Third, prices are determined in auctions, reflecting the willingness to pay of the less informed buyers rather than the assessment of experts. Finally, external mechanisms such as expert opinions and institutional reputation help mitigate, but cannot fully eliminate, uncertainty. Artworks are highly heterogeneous goods: each piece is unique, rarely traded, and purchased infrequently. Unlike markets for standardized or frequently consumed goods, buyers and sellers in the art market cannot rely on repeated interactions to discipline behavior or to build reputational trust. As a result, reputation mechanisms are weak, and informational asymmetries persist even among established intermediaries.

Let $q \in L, H$ denote the quality of the artwork and V_t the value of the artwork, where high-quality artworks are more valuable $V_H > V_L$.

Artworks are sold through intermediaries (art dealers and auction houses) who are privately

informed about the quality of the artwork. This advantage arises from (1) their ability to inspect the artwork more closely than potential buyers and (2) the informational advantage of knowing who the current owner is and how they acquired the artwork. Intermediaries can decide to produce information about the attribution of the artwork $x \in R_+$. Attribution can be printed in different ways, depending on the certainty with which the artwork was painted by the artist (henceforth rating). Buyers observe both the attribution and the rating in the auction catalog ($g \in R$). $R(g)$ measures the informativeness of the rating given. In other words, the credibility buyers place on the information in the catalog. It is a function of the distribution of ratings depending on the quality of the artwork $R(g) \equiv \frac{f_L(g)}{f_H(g)}$, where f_q is the density function. $R(g) = 1$ implies that the signal conveyed no meaningful information about the true quality or authorship of the artwork.

If an artwork is sold, the intermediary is paid a commission as a percentage of the final price *delta*. For reference, the average commission reported by *The Year's Art* for auction houses in the 1880s was 10%. Intermediaries maximize profit: $\delta P - Cx$. When a transaction fails, i.e. when the buyer's reservation price is not met, the intermediary incurs the cost of verifying an attribution, denoted $-Cx$. In the 19th century, two methods were developed to attribute artworks: (A) Connoisseurship, relied on visual analysis and comparison to known works of the artist, which required both specialized training and access to reference collections. (B) Provenance research aimed to reconstruct an artwork's ownership history, ideally back to the artist. This approach is time-consuming and depends on access to relevant historical records. In both cases, the intermediary must invest labor and social capital ex ante, with the decision to do so contingent on the expected surplus generated by a successful attribution.

There are multiple competing buyers who form beliefs based on their initial beliefs about the attribution $\mu(x)$ and the credibility with which it is given $R(g)$:

$$\mu_f(x, g) = \frac{\mu(x)}{\mu(x) - (1 - \mu(x))R(g)} \tag{1}$$

The highest price achieved for an artwork at the auction is equal to the expected value of V_t given the buyer's final belief:

$$P(x, g) = \mu_f(x, g)V_H + (1 - \mu_f(x, g))V_L$$

$$p_q(\mu) = \int \frac{\mu V_H + (1 - \mu)V_L}{\mu + (1 - \mu)R(g)} f_t(g)dg$$

I estimate buyer's belief with the empirical framework by solving the above equation for μ_f ($\mu_f = \frac{P - V_H}{V_L - V_H}$. Results are presented in the Appendix.

The expected profit of the intermediary of a quality-q artwork depends only on their action and the resultant belief:

$$max \text{ Profit}(x, \mu) = \delta \; p_q(\mu) - C * x$$

When ratings are uninformative and thus fail to credibly signal quality, the market converges to a pooling equilibrium in which prices do not vary with quality. In this environment, intermediaries lack sufficient incentives to invest in the production of attribution-related information. Although not formally modeled, an additional factor that reinforces this underinvestment is the uncertainty surrounding the outcome of such efforts. Attribution to a well-known artist can significantly increase market value, but comparative analysis and provenance research may also lead to reattribution to a lesser-known artist, thereby reducing prices. This downside risk distorts incentives and may further discourage information production, even when such verification would enhance overall market efficiency. In contrast, when the ratings are sufficiently informative, the equilibrium separates: higher-quality artworks can credibly signal their value through favorable attribution and command higher prices.

3 New Auction Data

I assemble a novel dataset of 19th-century British art market transactions. The dataset contains over 300,000 individual sales records and, to my knowledge, is the most comprehensive source currently available for empirical study of this market. For each transaction, it records the attribution, title, sale price, date, auction house and location, along with painting characteristics (e.g., dimensions, medium) and seller or buyer names when catalogued.

This study builds on the Getty Provenance Index, a prominent dataset covering British sales over the 18th and into the beginning of the 19th century. While the Getty data provide extensive coverage for Britain—capturing approximately 92% of extant English sales catalogues—they become increasingly sparse after 1831 and conclude in 1840. I extend the dataset by digitizing the art sales dictionaries compiled by Algernon Graves (1918) and Hippolyte Mireur (1911). While prices are recorded, information on artwork characteristics must be collected directly from the original historical auction catalogues. I use the digitized catalogues in Fritz Lugt's Repertory of Catalogues of Public Sales to hand-collect the information. To address periods with limited coverage, I further supplement the data by manually collecting and digitizing annotated auction catalogues from archives, including those held at the National Art Library (London) and the Yale Centre for British Art (New Haven). Table 10 in the Appendix shows number of observations per year.

Focusing on auction houses should provide a representative perspective. In the 19th century, art dealers and auction houses maintained a close relationship: prominent galleries often contributed to stocking the catalogues of auction houses like Christie's (Miyamoto 2019, p. 38). Simultaneously, these galleries were among the most active buyers at auctions. In fact, four of the five most frequent buyers at London auctions were renowned London galleries, accounting for approximately 30% of total sales recorded in Grave's 'Art Sales'.(Bayer and Page 2011, p. 9)

In addition to British sales, Graves (1918) and Mireur (1911) also include sales on the continent, mainly Belgium, France, and the Netherlands. I use those as a further point of comparison as the legal change in Britain had no legal implications on sales conducted in

those countries. For comparison, I convert prices into British pounds using yearly exchange rates from Fineon, previous Global Financial Data. These have been used previously in the literature, including Piketty and Zucman (2014). Details provided in the Appendix.

Table 1: Number of Auction Sales Observations by Sample Period and Region

	Full Sample (1725–1914)	Analysis Sample (1820–1850)	Robustness Sample (1830–1840)
All sales	600,636	203,635	102,060
Sales in Britain	308,951	153,269	82,246
Christie sales	149,880	58,320	33,207

Source: Sales data from the Getty Provenance Index, auction data from Graves (1918) and Mireur (1911), and hand-collected auction records from annotated catalogues at the National Art Library (London) and the Yale Center for British Art. "All sales" includes observations from Britain, France, Belgium, the Netherlands, and Germany. "Christie sales" refers to sales conducted by Christie's in London. Column headings indicate sample period: Full Sample (1725–1914), Analysis Sample (1820–1850), and Robustness Sample (1830–1840).

3.1 Prices

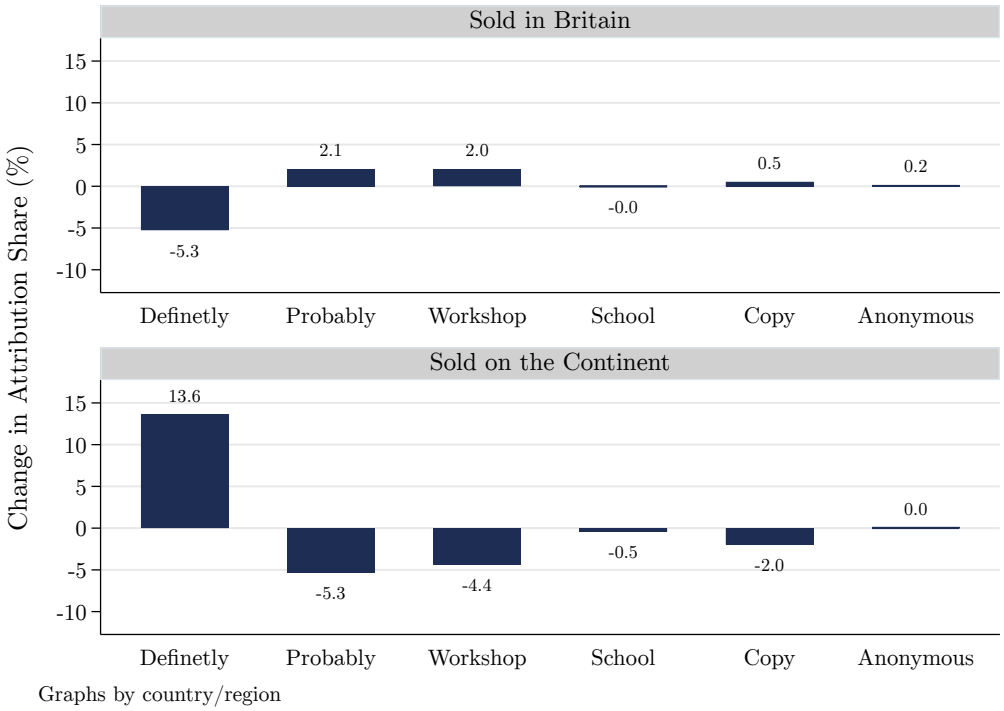
All prices are expressed in shillings, using the standard conversion of 20 shillings to the pound and 12 pence to the shilling. A "guinea," a common unit in art auctions, equals one pound and one shilling (21 shillings). The dataset primarily captures the middle to upper segment of the nineteenth-century art market, consistent with the focus on works sold through auctions and professional dealers. To provide a concrete comparison, consider the year 1840. In that year, the average weekly wage was approximately 11 shillings for agricultural labourers and 33 shillings for artisans (Bowley and Cambridge 1928). The lower decile of artworks in the sample sold for 17 shillings or less—within reach of middle-income buyers. The median sale price was 189 shillings and the mean 506 shillings (about £25). The price distribution is highly skewed: the top decile sold for 620 shillings (£31) or more, and the top one percent exceeded £451. For reference, the National Gallery purchased Guido Reni's The Magdalen (NG177) for £430 in 1840. The most expensive painting in the sample for 1840 was a Murillo acquired by the Rothschild family for £3,045.

3.2 Attribution

Attribution is central to the valuation of artworks, and nineteenth-century auction houses developed terminology to express degrees of certainty regarding authorship. I encode these conventions into a six-point ordinal scale, where lower values indicate greater confidence that the work was executed by the named artist. At the top of the scale are works with the artist's full name explicitly stated (Rating 1), or with slightly weaker formulations such as an initial or the phrase "Attributed to" (Rating 2). These designations suggest direct authorship and were widely understood by buyers as signals of authenticity and quality. The middle categories reflect more qualified associations: a surname alone or references to a workshop or studio (Rating 3), and formulations such as "School of" or "Follower of" (Rating 4), which acknowledge stylistic or geographic proximity but stop short of individual authorship. At the bottom of the scale are copies and imitations (Rating 5), and finally works described only in broad spatio-temporal terms, such as "17th-century Flemish" (Rating 6). Each level of uncertainty carries a discount rate, similar to how lower credit ratings come with higher spreads. Table 12 in the Appendix provides an example of these discount rates from the Worthington galleries.

Figure 1 plots how the distribution of attributions assigned by intermediaries changes over time. After the court case attributions in Britain carry more indication of uncertainty (categories 2 to 4), while the opposite prevails for sales in continental Europe: the share of top ratings (1) rises while intermediate ratings fall. This divergence aligns with the model's predictions about intermediary incentives. Without legal repercussions, dealers face distorted incentives to inflate attributions, as higher ratings typically command higher prices. Moreover, buyers tend to select dealers who provide the most favourable attributions, aiming to maximize potential resale price—thereby reinforcing the tendency toward inflated ratings in the absence of legal deterrents. The stark rise in top attribution ratings observed on the Continent may reflect a similar pattern of selection across markets: owners may have chosen to sell their artworks on the continent when the attribution assigned in the British market was less favourable.

Figure 1: Distribution of Artwork Attribution Ratings Before and After Power v. Barham (1836)



Notes: The figure shows the percentage of artworks assigned to each attribution category 15 years before and after the 1836 Power v. Barham ruling. Categories 1–5 correspond to named artists, ranked by decreasing certainty, while category 6 includes artworks with no specific artist attribution (only spatial or temporal descriptors). Data cover auction sales from 1820 to 1850. The "Continent" group includes sales in France, Belgium, the Netherlands, and Germany; all other sales are in Britain. The figure illustrates changes in attribution practices following the introduction of legal liability for false attributions.

3.3 Controls

To rule out compositional changes in the types of artworks sold as an alternative explanation for price trends, I control for artwork characteristics. This includes medium, support, signature, date, and size when noted. I also create genre categories from the titles.

Genre

Based on the title, I classify artworks into five genres—history and religious painting, portraiture, landscape, still life, and everyday genre—using a list of keywords. This five-genre hierarchy traces back to the 16th century and was an established teaching practice at the

time of observation. Artworks that cannot be clearly assigned to a single genre are coded as zero.

Landscape paintings were the most prevalent genre, accounting for 19% of all transactions before the reform and 13.2% thereafter. History and religious paintings—traditionally regarded by the academy as the highest artistic form—maintained a steady 15% share, followed by portraits at roughly 10% throughout the period. Overall, the distribution of genres remained relatively stable across time and attribution categories. A detailed list of genre keywords and their temporal distribution is provided in the Appendix.

Auctioneer

I include auctioneer fixed effects to absorb both reputation and auction-house-specific heterogeneity. This specification ensures that estimated effects are not confounded by systematic differences across auction houses. The vast majority of sales occur at Edward Foster (42 percent) and Christie's (38 percent), with the remainder concentrated among Phillips (7 percent), George Stanley (3 percent), and Sotheby's (1 percent).

I also control for day-specific variation. First, I include the lot number to account for the order in which artworks are sold. The literature documents anchoring effects in sequential auctions, and auction houses are known to place higher-quality works earlier in the sale to boost prices (Beggs and Graddy 1997, Ashenfelter 1989). Second, I control for month and day of sale, in addition to year, to capture seasonal patterns in auction activity. As contemporaries observed, sales were concentrated in the spring "season" when elites returned to town. Indeed, more than half of the artworks in my sample are sold between March and June.

Artist

Artist fixed effects are included to account for systematic differences in valuation across painters. The most frequently observed artists in the sample are Teniers (2,735 transactions), Rubens (2,254), Reynolds (1,531), Wouwerman (1,504), and Ruysdael (1,503). Artist names were standardized across spelling variations and attribution categories (e.g., "studio of," "circle of," etc.) to ensure consistency.

Formal Characteristics of the artwork

The specification includes the standard controls used in hedonic regressions: size, medium, support, signature, and date. Auction catalogue at the period studied are typically brief. They become longer towards the end of the 19th century, especially descriptions about exhibition and collection history to enhance the value of the artwork. Only 30% of the artworks include a medium and almost all of them are oil.

Less than 1% of the sample is indicated to be either signed or dated. This is unsurprising considering we are dealing with older paintings. In addition signatures were purposepully overpainted in hopes of disguising it to be attributed to a more famous artist.

4 Empirical Strategy: Using History for Causal Inference

I examine how credibility shapes the value of information in the art market by exploiting a legal shock as a natural experiment: the 1836 *Power v. Barham* ruling, which made intermediaries legally liable for false attributions. By raising the cost of misrepresentation, the ruling altered incentives for information production. To identify its impact, I implement a difference-in-differences design using auction sales data. The treatment group consists of works attributed to a named artist, where attribution credibility directly affects value, while the control group consists of anonymous works, whose value does not depend on individual authorship and should therefore be unaffected.

Identification comes from comparing price and market outcomes for artworks differentially exposed to attribution credibility before and after an unanticipated legal change, holding constant market-wide demand and supply conditions. Each observation is a unique artwork sold at auction, with recorded information on sale date, physical characteristics, and attribution certainty. The dataset constitutes a repeated cross-section over time, allowing outcomes to be compared before and after the 1836 reform.

4.1 Power v. Barham as an Unanticipated Credibility Shock

Unlike legislative changes, which are typically subject to prolonged debate, political negotiation, and phased implementation, shifts in common law can take immediate effect upon ruling. As such, the decision introduced a sudden and unanticipated increase in the legal risk associated with attribution, allowing for a clean identification of its impact on market behavior.

The departure from established legal precedent reportedly caused considerable consternation among art dealers, highlighting that the ruling was neither anticipated by nor shaped through market expectations:

> The verdict against the defendant had created great consternation among the dealers in paintings, as they had considered the doctrine of Lord Kenyon [from *Jendwine v. Slade*] conclusive in cases of this nature, and had invariably acted upon it. The COURT thought the case had been properly left to the Jury, and refused to disturb the verdict.
>
> — "Court of King's Bench - Thursday", *Morning Herald*, 15.01.36

The rapid response of auction houses demonstrates that the ruling had tangible effects on market behavior. In an effort to limit legal exposure, firms revised their conditions of sale: whereas earlier contracts dealt almost exclusively with bidding procedures and payment, many now included explicit disclaimers stating that attributions should not be construed as warranties. Moreover, although several misattribution cases appear between *Jendwine v. Slade* and *Power v. Barham*, the legal record is largely silent in the subsequent decades. As shown in the Appendix, no further litigation over misattribution is reported until 1905. This gap is consistent with the interpretation that misattribution in the early nineteenth-century art market largely reflected misaligned incentives—an issue that the ruling appears to have mitigated.

4.2 Ruling Out Concurrent Shocks

I consider whether other legal, institutional, or informational changes coincided with the 1836 *Power v. Barham* ruling in ways that could affect attribution or valuation in the art market. I examine each and find no evidence that they drive the results. First, the House of Commons inquiry into the engraving trade began in 1836 but did not lead to any legal changes until the 1842 Copyright Act, and concerned reproduction rights rather than attribution. Second, John Smith's 1836 *Catalogue Raisonné* of Rembrandt could have reduced attribution uncertainty for that single artist; excluding all works attributed to Rembrandt or his circle leaves the results unchanged. Third, while the National Gallery was founded in 1824, it did not become an active market participant until after its 1855 reorganization; sales to or from the Gallery are absent in the estimation window. Taken together, these considerations support the interpretation of *Power v. Barham* as an isolated and unanticipated credibility shock.

4.3 Sample Construction and the Absence of Repeated-Sales Bias

The empirical analysis is based on the universe of observed auction transactions rather than on repeated sales of the same artwork. Each observation corresponds to a distinct sale event, and the identification strategy compares cross-sectional outcomes for artworks sold before and after the 1836 *Power v. Barham* ruling. The analysis therefore does not track individual artworks over time but examines how prices and market outcomes respond to an exogenous change in attribution credibility across the full distribution of artworks brought to market.

Focusing on repeated sales would be problematic in this setting. Even when artworks enter the market for plausibly exogenous reasons such as death, debt, or divorce, owners retain discretion over whether and when to resell a work. This creates scope for timing the market: artworks that are expected to transact at favorable prices are more likely to reappear, while works that have depreciated or attracted limited demand are less likely to be resold except in cases of distress. Conditioning on repeated sales therefore selects a non-random subset of

artworks with non-negative capital gains, which can bias estimated price effects upward when market conditions improve. This concern is particularly acute in markets for heterogeneous, illiquid assets such as art, where resale is infrequent. By contrast, the auction data used here encompass the full universe of observed sales attempts, including one-off transactions and artworks that fail to meet reservation prices. Incorporating bought-in works avoids an additional source of selection highlighted in the literature and ensures that the analysis captures changes in both prices and market clearing.

4.4 Ruling Out Discrete Quality Shocks and Compositional Change

A potential alternative explanation for the estimated price effects is a discrete improvement in the quality of artworks offered for sale following the 1836 *Power v. Barham* ruling. If unusually high-quality attributed artworks entered the market precisely at that time, observed price changes could reflect compositional shifts rather than belief updating in response to increased attribution credibility.

First, sales were and are widely understood to occur for the "three Ds"—debt, divorce, and death—factors plausibly exogenous to conditions within the art market itself (Li, Ma, and Luc Renneboog 2024). As a result, supply is unlikely to adjust discretely in response to the ruling. To further discipline this concern, I run a robustness check restricting the sample to estate sales due to death or other verifiable exogenous reasons for sale.

Second, large, market-wide inflows of exceptional artworks were historically salient events. The entry of major collections into the market was closely followed by contemporaries and extensively documented in both the press and later art-historical scholarship.* Neither contemporary newspapers nor subsequent scholarship identify an exceptional concentration of high-quality attributed artworks entering the British market in the period surrounding the ruling. Institutional buying behavior provides a further check: the National Gallery, a highly informed buyer, shows no unusual clustering of acquisitions around 1836 that

*A prominent example is the Hamilton sale of 1882, described by Gerald Reitlinger as "unquestionably the most magnificent sale of a single collection that has ever been held anywhere." No comparable episode is documented around 1836.

would suggest a discrete improvement in the quality of artworks offered for sale during the treatment window.

Finally, I validate the interpretation using market clearing. A credibility-driven increase in buyers' willingness to pay predicts improved market clearing, whereas a positive shift in unobserved quality has no clear implication for sale probabilities and, if anything, would increase buy-ins through higher reservation prices. I exploit this distinction by examining auction outcomes beyond prices. Results are reported in the robustness section.

4.5 Difference-in-Differences

I estimate the effect of the 1836 *Power v. Barham* ruling using a difference-in-differences design that exploits two complementary sources of variation in attribution as information. The baseline specification focuses on the extensive margin—whether an artwork is attributed to a named artist—while a complementary specification exploits the intensive margin, capturing variation in the strength of attribution claims. Together, these designs allow me to assess both the presence and the precision of attribution as signals of quality.

The baseline binary specification compares strongly attributed works (ratings 1–2) to artworks without specific attribution (ratings 5–6). Artworks attributed to a named artist are classified as treated, since their value depends directly on the artist's reputation. I focus on works described as "definitely" or "probably" painted by the artist, where attribution credibility is most salient. Anonymous artworks serve as the control group. While such works can be of high artistic quality, they lack the brand premium associated with individual authorship and should therefore be unaffected by changes in attribution credibility, while remaining exposed to the same market-wide demand conditions.

The object is to identify the price premium buyers are willing to pay for an original relative to a copy. Because the outcome is log price, the difference-in-differences specification identifies changes in the price ratio between attributed and anonymous works. Any market-wide proportional price movements affecting both groups cancel out in the log specification, so the estimates capture shifts in the relative valuation of originality rather than changes in

price levels. To further isolate this originality premium, the regressions include artist fixed effects, which compare works associated with the same artist under different degrees of attribution certainty.

To address concerns that attributed and anonymous works are traded in segmented markets, I document substantial buyer overlap across attribution categories; results are reported in the Appendix. Additionally, I implement a triple-difference specification that introduces geographic variation. By comparing attributed artworks sold in Britain to similar works sold in Continental Europe before and after 1836, this design removes reliance on anonymous works as a control group within Britain.

An event-study specification with leads of the treatment indicator provides support for the identifying assumption. The coefficients on the leads are jointly insignificant, and prices for attributed and anonymous works evolve similarly prior to 1836. A formal test for differential linear pre-trends indicates a small downward trend in the treatment group before the ruling, implying that the estimated post-1836 divergence, if anything, reflects a conservative effect. Additional details are reported in the robustness section. Figure **??** plots mean transaction prices for both groups, with the January 1836 ruling marked as the intervention.

In a complementary analysis, I relax the binary treatment definition and estimate a continuous specification that incorporates all attribution categories. Attribution certainty is measured on an ordinal scale, allowing treatment intensity to vary with the strength of the attribution claim. This design exploits variation among named works—ranging from confident attributions to weak associations—and captures the intensive margin of attribution credibility.

Both specifications are estimated using the following regression framework:

$$y = \beta_0 + \beta_1 \text{Treated}_i \times Post_t + \beta_2 Post_t + \beta_3 \text{Treated}_i + D_t + \gamma_i + \epsilon$$

where y is the log transaction price. $Post_t$ indicates transactions after January 1836, D_t includes year, month, day, and auction-house fixed effects, and γ_i controls for observable

artwork characteristics. Standard errors are clustered by attribution category.

5 Results

This section presents empirical evidence that information affects market outcomes only when it is perceived as credible. Guided by the signaling framework developed in Section 2, I test whether the introduction of legal liability through Power v. Barham (1836) shifted the art market from a pooling to a separating equilibrium. The results reveal both price and quantity effects: Across all specifications, introducing legal liability increased prices of attributed works by 50–60%, improved market clearing by 30%, and reduced inflated attributions by 8 p.p.

5.1 Significant Price Premia for Attributed Artworks

Following the reform, artworks attributed to a named artist sold for markedly higher prices. As reported in Table 3, treated artworks—those with explicit attributions—commanded prices approximately 60 percent higher than anonymous works. The dependent variable is the log of the transaction price, expressed in shillings. The table shows that the results are robust for different specifications, including controlling for auctioneer and artist fixed effects.

In the continuous-treatment specification, shown in Table 4, a one-step increase in attribution certainty on the six-point scale raises average prices by 15 percent, consistent with the theoretical prediction that credibility enhances the value of the signal.

6 Mechanism Tests

Having established that the 1836 Power v. Barham ruling increased the prices of attributed artworks, this section examines the mechanisms through which legal liability affected market outcomes. The central mechanism is that increased liability raises the expected cost of misattribution for intermediaries, leading them to moderate inflated attribution claims. I

show that intermediaries became more conservative in their attribution practices following the ruling, reducing the use of the strongest attribution categories.

I then examine how changes in intermediaries' behavior translate into price effects through buyers' belief updating. The analysis exploits two incentive-based dimensions that shaped attribution credibility prior to the reform: the cost of producing credible information and the reward to doing so. Consistent with this framework, price effects are larger for artworks with higher information costs and for lower-priced works, where commission-based incentives provided weaker justification for costly authentication or reputation building. Finally, I show that the price effects are smaller for highly reputable intermediaries such as Christie's, where attribution credibility was already relatively high prior to the ruling.

Attribution as a Credence Good: Descriptive Evidence

This subsection provides descriptive evidence that attribution in the nineteenth-century art market exhibited the key features of a credence good. The exercises presented here are not intended to establish causal effects of the 1836 ruling, but rather to validate the informational environment underlying the theoretical framework and the subsequent mechanism tests.

A natural concern is that attribution uncertainty may have primarily affected uninformed buyers, while professional dealers were able to verify quality more accurately. To assess this, I separately estimate buyers' implied beliefs for private collectors and professional dealers purchasing at auction. The resulting estimates of μ are similar across groups (0.29 for private buyers and 0.21 for dealers), indicating that the two groups act similarly when assessing attribution signals.

Further evidence comes from acquisitions by the National Gallery, arguably the most informed buyer in the British art market. Between its founding in 1824 and the 1836 Power v. Barham ruling, the Gallery acquired 77 paintings, of which only six were purchased; the remainder were donations or bequests. Among works acquired during this period, 17 percent have since been reattributed. In contrast, among the 272 paintings acquired in the twelve years following the ruling, only 8.8 percent have been reattributed. While this

comparison is descriptive, it suggests that attribution reliability improved even for highly informed institutional buyers, consistent with a broader increase in the credibility of attribution signals.

6.1 Mechanism I: Intermediaries Inflate Attribution Less

The first implication of the model concerns intermediary behavior. If legal liability increases the expected cost of misattribution, intermediaries should respond by reducing the use of the strongest attribution categories, substituting toward more cautious or qualified signals.

A probit regression controlling for observable artwork characteristics shows that this probability declines by approximately 8 percentage points after Power v. Barham (Table 8). In other words, intermediaries became less likely to assign the strongest attribution category, consistent with the introduction of legal liability discouraging overstatement. As discussed in the data section, sellers increasingly used qualifying phrases such as "probably Rembrandt" or "Workshop of Rembrandt" to signal uncertainty more explicitly.

6.2 Mechanism II: Belief-Based Price Effects

The theoretical model in Section 2 shows that when attribution signals are imperfectly credible, the equilibrium price reflects a weighted average of high- and low-quality valuations based on buyers' beliefs about authenticity:

$$p_q(\mu) = \mu V_H + (1 - \mu)V_L$$

If the 1836 *Power v. Barham* ruling increased the credibility of attribution signals, buyers should update beliefs more strongly in response to attributions. The model therefore predicts larger implied increases in μ in market segments where attribution uncertainty was highest ex ante. I test this prediction by exploiting heterogeneity across major schools of painting. Italian Renaissance paintings are the oldest and typically the most distant in provenance, implying high information costs and greater scope for misattribution. Dutch and Flemish

seventeenth-century paintings are somewhat newer and better documented, while British paintings are the most recent and, being domestic, involve lower costs of information acquisition for both intermediaries and buyers. Improvements in credibility should therefore generate larger belief revisions for Italian and Dutch works than for British works. The model is most informative in segments where attribution uncertainty is nontrivial; where quality is already well understood, the linear pooling structure need not apply.

Empirically, buyers' beliefs can be inferred by comparing prices of artworks with the strongest attribution ratings to those of anonymous works before and after the ruling. Changes in this price gap provide a direct measure of how buyers' confidence in intermediary-provided attribution responds to the legal reform. Table 2 reports estimated post-ruling prices for attributed and anonymous artworks by school of painting, along with the implied buyer belief μ that reconciles observed prices with the theoretical framework.

Table 2: Estimated Buyer Beliefs and Prices by School of Painting

	Equilibrium Price $p_q(\mu)$	High-Quality Price V_H	Low-Quality Price V_L	Implied Buyer Belief μ
Italian	4.84	5.41	4.78	0.10
Dutch	4.60	5.59	4.36	0.20
Flemish	4.44	5.15	4.10	0.32
British	4.53	5.28	4.80	-0.56

Notes: This table reports estimated prices of artworks after the 1836 *Power v. Barham* ruling. V_H is the price of artworks with high attributions (proxy for high quality), and V_L is the price of anonymous artworks (proxy for low quality). The pooled equilibrium price, $p_q(\mu)$, is assumed to be the weighted average of V_H and V_L (Section 2). The implied buyer belief, μ, is the weight that reconciles these values with the observed equilibrium price. Results are shown separately for four attribution-based painting schools: Italian, Dutch, Flemish, and British.

Consistent with expectations, Italian attributions exhibit the steepest discount, with an average inferred belief of $\mu = 0.10$, reflecting low confidence in authenticity for these older works. Dutch paintings follow with $\mu = 0.20$ and display the largest price premia. After the ruling, anonymous artworks sold at an average log price of 4.36—second lowest after Flemish works—while attributed Dutch artworks achieved the highest post-ruling price of 5.59. For British paintings, the estimated weights are negative, suggesting that the model's linear combination does not hold in this subsample. This pattern is consistent with the

hypothesis that attribution uncertainty was relatively limited for domestic artists, for whom information was more readily available to both intermediaries and buyers.

6.3 Mechanism III: Heterogeneous Price Effects Across the Distribution

The 1836 *Power v. Barham* ruling applies uniformly to all attributed artworks, regardless of their price. Any heterogeneity in price responses across the distribution therefore cannot reflect differential legal exposure, but must arise from differences in how attribution credibility was produced and valued prior to the reform.

Auction houses were typically compensated through commissions set as a percentage of the final sale price. As a result, intermediaries' incentives to invest in costly verification of attribution depended on the expected value of the artwork. For lower-priced works, the marginal commission gain from producing a more credible attribution was small relative to the cost of verification, leading intermediaries to supply attribution signals of limited credibility. By contrast, for very high-value works, the potential commission gains were large, making verification effort worthwhile. For the top of the market, reputation, repeat interactions, and informal networks may have partially sustained credibility even in the absence of strong legal enforcement.

To assess this heterogeneity, I estimate quantile regressions of log prices on the treatment indicator, allowing the effect of the reform to vary across the conditional price distribution. Figure 3a shows that effect on prices by the reform was not uniform. Effects are largest at the lower end of the market, suggesting that buyers previously priced the incentive structure of the intermediaries. Estimated effects are smaller and statistically insignificant across the middle to top of the distribution, where attribution credibility may already have been partially internalized.

At the very top of the market, price responses increase again. In this segment, buyers place exceptionally high value on owning an authentic work by a celebrated master, so the marginal value of credibility is particularly large. Despite dense networks and sophisticated

buyers, the significant price effects imply that reputation alone may not have fully eliminated concerns about authenticity, leaving room for formal credibility enhancements to generate substantial price responses.

6.4 Mechanism IV: Reputation and Attenuated Price Effects

This subsection examines whether the effects of the 1836 *Power v. Barham* ruling vary with the pre-existing credibility of intermediaries. The central idea is that reputation can partially sustain trust in attribution even in the absence of formal legal enforcement. If the main results reflect a credibility channel, then the marginal impact of a legal credibility shock should be smaller where reputation already provides discipline. By contrast, if the observed price effects were driven by a broad change in tastes or demand for attributed artworks, similar effects should be present across all intermediaries, including those with strong reputations.

Christie's provides a natural setting to test this mechanism. Founded in 1766, Christie's was already the leading auction house in London by the early nineteenth century and had developed a reputation for expertise and reliability well before the 1836 ruling (Filip 2025). Buyers transacting through Christie's therefore likely placed greater baseline trust in its attributions, reducing the scope for additional credibility gains from legal reform. I assess this prediction by replicating the baseline analyses using only transactions conducted through Christie's.

Consistent with this mechanism, Christie's exhibits weaker responses along several dimensions. The frequency with which the auction house assigned the strongest attribution category does not change significantly after the ruling, suggesting that its attribution practices were already disciplined prior to the reform. Similarly, there is no detectable change in the likelihood that an artwork fails to sell (Table 7), indicating stable market clearing even in the absence of a legal shock to credibility.

Prices, however, continue to respond positively, though the magnitude of the effect is substantially smaller than in the full sample. The baseline estimates indicate that attributed

artworks sold through Christie's experience an increase in prices of approximately 32 percent following the ruling, compared to roughly 60 percent in the overall market. Quantile regression results further show that these effects are concentrated in the lower segment of Christie's price distribution, where attribution credibility may have been less firmly established even within a highly reputable intermediary.

7 Robustness and Validation

This section presents a set of robustness and validation exercises designed to assess the identification strategy and to rule out alternative explanations for the main results. I first conduct a series of identification checks that exploit additional sources of variation in the data. These include a triple difference-in-differences specification that compares attributed and anonymous artworks across Britain and the Continent before and after the 1836 *Power v. Barham* ruling, placebo tests using continental sales only, and event-time analyses that show no evidence of differential pre-trends.

I then examine the sensitivity of the results to sample construction and specification choices by restricting attention to narrower time windows around the legal change and by considering alternative samples. Finally, I provide evidence on external validity by showing that the effects of the ruling extend beyond prices to other market outcomes, in particular market clearing as measured by buy-ins.

7.1 Triple Difference-in-Differences

To address the possibility that anonymous works are an imperfect counterfactual within Britain, I add geographic variation: the same attribution types sold in Britain vs France/Continent, before vs after 1836. Earlier analyses compare attributed artworks to anonymous ones within Britain. I now exploit the fact that the 1836 *Power v. Barham* ruling affected only British common law, and therefore applied to sales in Britain but not to sales on the Continent.

The treated group consists of artworks attributed to named artists and sold in Britain. The

control groups include (i) anonymous artworks sold in Britain and (ii) both attributed and anonymous artworks sold on the Continent. Continental sales includes auction records from France and the Netherlands. The specification includes country fixed effects to account for differences in market structure, auction practices, and reporting conventions, and standard errors are clustered at the country level.

Table 5 reports the results. The estimated treatment effects remain positive and statistically significant at the 1% level in both OLS and quantile regressions. These findings indicate that the main results are not driven by broader market trends or contemporaneous changes affecting European art markets more generally, but are specific to attributed artworks sold in Britain following the legal reform.

7.2 Placebo: Continental Sales only

Because the 1836 Power v. Barham ruling applied only under British common law, it should have had no direct effect on sales outside Britain. France and the Netherlands were geographically close and commercially integrated with Britain, yet subject to different legal institutions, making them a natural placebo comparison.

Consistent with the ruling having no effect on the continent, we don't see any of the prediction of the theoretical model realized. Table 5 shows the results for the baseline difference-in-differences on log prices. The coefficient for sales on the continent are insignificant. The continuous-treatment specification shows a notable negative effect (-0.23, significant at the 5% level), in contrast to the signficant positive effect in Britain.

be explained by underlying market behavior, as shown in the probit regressions. While market clearing improves in Britain, on the Continent the probability that an artwork remains unsold actually rises by 9%. Similarly, the likelihood of an artwork receiving the highest attribution rating increases by 15%, suggesting that intermediaries outside Britain may have inflated attributions in the absence of legal enforcement. Both mechanisms would contribute to higher observed median prices: bought-in artworks are recorded at their reservation price, which exceeds the realized market price, and higher attributions are assigned

in hopes of higher prices.

Taken together, these results provide a valid placebo: in markets not subject to the 1836 ruling, we see the opposite of Britain. This reinforces the causal interpretation of the British results, supporting the view that observed price and quantity effects in the UK were driven by the legal enhancement of information credibility rather than broader European trends.

7.3 Event-time pre-trends

To assess the identifying assumption, I estimate an event-study specification that includes leads of the treatment indicator. The coefficients on the leads are jointly insignificant, consistent with historical accounts indicating that the 1836 Power v. Barham ruling was unforeseen. Figure **??** plots mean prices for attributed and anonymous artworks after adjusting for observable characteristics. The series exhibit no clear differential pre-trends and evolve similarly prior to 1836.

A formal test for linear differential pre-trends indicates a small downward trend in the treatment group before the ruling, implying that the post-1836 divergence in prices provides, if anything, a conservative estimate of the effect of increased attribution credibility. Additional details are reported in the Appendix.

7.4 Market Clearing: Bought-In Artworks

This subsection examines whether the estimated price effects are accompanied by corresponding changes in market clearing. In auction markets, an artwork fails to sell ("is bought in") when the highest bid does not meet the seller's reservation price. When quality information is not credible, prices pool across high- and low-quality works. Sellers of high-quality artworks have reservation prices above the pooled equilibrium price, causing these works to remain unsold. As attribution becomes credible, buyers are willing to pay more, allowing these reservation prices to be met. Accordingly, artworks should be more likely to sell after the 1836 ruling.

Table 7 reports difference-in-differences estimates of the probability that an artwork is

bought in, using the same specification as in the main analysis but with a binary outcome. The results are consistent with the model's predictions. Attributed artworks are, on average, more likely to be bought in than anonymous works, as indicated by the positive and statistically significant coefficient on the attribution indicator. Following the 1836 ruling, market clearing improves substantially: the probability that an artwork is bought in declines by approximately 30 percent.

In addition, the interaction between the post-ruling indicator and attribution status is negative and statistically significant at the 1 percent level, implying a further 7 percent reduction in buy-in rates for attributed artworks relative to anonymous ones. This differential effect indicates that the improvement in market clearing was concentrated among artworks for which attribution credibility was most directly affected by the legal reform.

These results show that the legal reform affected not only prices but also market clearing. Higher prices for attributed artworks are accompanied by a greater probability of sale, reinforcing the interpretation that the price effects reflect improved information credibility rather than mechanical revaluation or changes in reporting practices.

8 Discussion and Policy Implications

8.1 Market Efficiency: Quality versus Quantity of Information

The evidence presented here speaks to a central question in the economics of information: when does additional information translate into efficiency gains? Advances in digital tools and artificial intelligence have vastly expanded the quantity of information available to market participants, yet they have also made reliability harder to verify.

My findings complement and extend Goetzmann's (1995) account of declining "price risk" in the British art market over the nineteenth century. Goetzmann attributed this decline to the accumulation of market-relevant information, reducing uncertainty surrounding resale values. The results here are consistent with that interpretation but point to an additional, distinct mechanism: in the short run, efficiency gains arose primarily from a shift in perceived

credibility, not from a surge in informational content. The Power v. Barham ruling predates the systematic development of art-historical scholarship and provenance documentation, which only accelerated in the latter half of the century. Instead, the ruling enhanced trust in the information already circulating, compressing the dispersion of price errors and raising the probability of trade.

This distinction is relevant for modern markets where the production of data outpaces the development of verification mechanisms. The art market's nineteenth-century experience suggests that the credibility channel can operate independently of information quantity and may be especially potent in environments where expertise is costly to verify.

8.2 Designing for Trust: Liability over Procedure

The results also contribute to the debate on the design of regulatory interventions in expert-mediated markets. Contrasting these findings with Oosterlinck and Radermecker (2023), who study a French legal change with no measurable effect, highlights the importance of institutional design. Whereas the French statute prescribed specific attribution procedures, the British ruling altered intermediaries' incentives by introducing legal liability for misattribution without mandating a methodology. By targeting incentives rather than procedures, the British reform allowed market actors to innovate in signal production.

Importantly, effective policy must account for how incentives shift across all market participants. By increasing the price premium for strongly attributed works, market segmentation raises the potential payoff for forgeries. Historical evidence shows a marked rise in both the prevalence and sophistication of counterfeits in mid-nineteenth-century Britain (Lenain 2012). This pattern persists into the modern art market, where market insiders estimate almost half of all artworks to be fakes. Policymakers should recognize that interventions enhancing allocative efficiency may simultaneously alter the incentives for illicit actors, necessitating adaptive and targeted enforcement strategies.

9 Conclusion

This paper demonstrates that when intermediaries have private information and incentives to inflate claims, credibility—not information itself—determines whether markets can allocate efficiently. Exploiting the 1836 Power v. Barham ruling in Britain, which introduced legal liability for false attributions in the art market, I show that an exogenous increase in the perceived reliability of the information produced by intermediaries transformed pricing dynamics.

After the ruling, works attributed to named artists sold for about 60 percent higher prices, the probability of sale rose by 30 percent, and intermediaries became significantly more cautious in assigning top attributions. The market moved from a pooled "lemons" equilibrium toward one in which credible signals differentiated quality and improved liquidity.

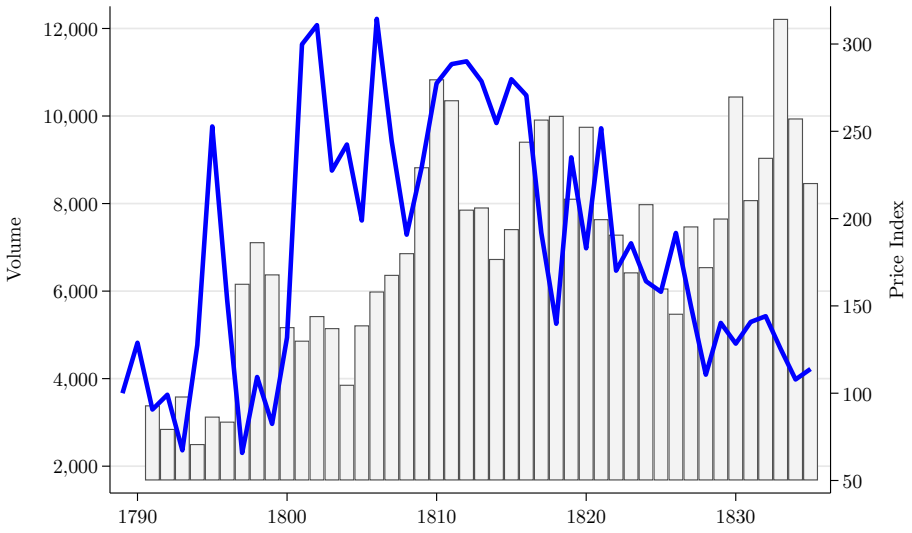
The mechanisms are analogous to modern expert-mediated markets, such as credit rating agencies or ESG certification, where sellers seek favorable evaluations to attract capital. For markets to function efficiently, it is essential that intermediaries' incentives are not aligned exclusively with the sellers they serve. I study the nineteenth-century art market precisely because it provides a historical setting in which wrong incentives undermine market efficiency. The evidence here demonstrates that credible enforcement—through liability or comparable institutional constraints—can lend credibility to the information provided by intermediaries and improve market clearing.

Importantly, the results from Christie's reveal that reputation can partially substitute for regulation: the leading auction house, already trusted for expertise, showed little change after the legal shock, whereas less-established intermediaries adjusted sharply.

More broadly, these findings highlight that information asymmetry is not self-correcting—markets need mechanisms that make expert claims believable. Whether through nineteenth-century courts or twenty-first-century disclosure standards, credibility remains the bridge between information and efficiency. Understanding how legal, reputational, and technological institutions provide that bridge offers a path for future work on the economics of information,

certification, and market design.

Figure 2: Expansion of the British Art Market: Hedonic Prices and Transaction Volumes, 1789–1835



Notes: The figure presents the evolution of the British art market from 1789 to 1835. The price series is a hedonic index constructed from logged auction prices, controlling for artwork characteristics, auctioneer and year fixed effects. Transaction volume is the total number of sales recorded per year. Both series are normalized to 1789 = 100. Data are drawn from historical auction records collected for this project.

Table 3: Difference-in-Differences Estimates: Binary Treatment on ln(Price), British Sales 1820–1850

	Baseline	Auctioneer FE	Artist FE	Full FE
Treatment	0.51**	0.47**	0.35**	0.29**
SE	(0.01)	(0.01)	(0.03)	(0.02)
Obs	122,338	122,284	63,814	63,814
R^2	0.07	0.07	0.08	0.08
Controls				
Artwork characteristics	✓	✓	✓	✓
Auctioneer FE		✓		✓
Artist FE			✓	✓
Time FE	✓	✓	✓	✓
Clustered SE	✓	✓	✓	✓

Notes: Binary treatment = artworks attributed to a named artist (ratings 1–2). Control = anonymous artworks (ratings 5–6). Post-period begins after 1836 Power v. Barham ruling. Artwork controls: date painted, dated (dummy), signed (dummy), area, area^2, genres (5), mediums (6), supports (5). Standard errors clustered at treatment. t statistics in parentheses, * p<0.05, ** p<0.01, *** p<0.001.

Table 4: Difference-in-Differences Estimates: Continuous Treatment on ln(Price), British Sales 1820–1850

	Baseline	Auctioneer FE	Artist FE	Full FE
Treatment	0.16**	0.14**	0.09*	0.10
SE	(0.04)	(0.03)	(0.04)	(0.05)
Obs	122,338	122,284	63,814	63,814
R^2	0.07	0.07	0.10	0.10
Controls				
Artwork characteristics	✓	✓	✓	✓
Auctioneer FE		✓		✓
Artist FE			✓	✓
Time FE	✓	✓	✓	✓
Clustered SE	✓	✓	✓	✓

Notes: Continuous treatment = certainty weight based on attribution. Other notes as in Table 3.

Table 5: Difference-in-Differences Estimates: Binary Treatment, British and Continental Sales 1820–1850

	Baseline OLS (Mean)	Triple-Diff OLS (Mean)	Continental OLS (Mean)	Christie's OLS (Mean)
Treatment × Post	0.47***	1.95**	0.05	0.28***
SE	(0.01)	(0.09)	(0.03)	(0.00)
Obs	122,268	137,970	15,702	45,384
R^2	0.07	0.10	0.17	0.10
Controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Clustered SE	✓	✓	✓	✓

(a) Ordinary Least Squares (Mean Effects)

	Baseline QR ($\tau = 0.5$)	Triple-Diff QR ($\tau = 0.5$)	Continental QR ($\tau = 0.5$)	Christie's QR ($\tau = 0.5$)
Treatment × Post	0.43***	0.33***	0.79***	0.20**
	(0.10)	(0.06)	(0.12)	(0.10)
Post	0.83***	0.95***	0.79***	0.91***
	(0.10)	(0.06)	(0.12)	(0.10)
Treatment	-0.19***	1.10***	0.33***	0.17**
	(0.06)	(0.01)	(0.06)	(0.07)
Obs	124,983	162,932	37,949	45,387
R^2	0.06	0.08	0.05	0.07
Controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓

(b) Quantile Regression (Median Effects, $\tau = 0.5$)

Notes: Post-period = after 1836 Power v. Barham ruling. Baseline = British sales; Triple-Diff = adds Continental sales (Belgium, France, Netherlands). Placebo tests: (i) Continental only, (ii) British via Christie's. Standard errors clustered at country level. Controls as in Table 3.

Table 6: Difference-in-Differences Estimates: Continuous Treatment, 1820–1850

	Baseline OLS (Mean)	Triple-Diff OLS (Mean)	Continental OLS (Mean)	Christie's OLS (Mean)
Treatment × Post	0.14**	0.42***	-0.22**	-0.12***
SE	(0.04)	(0.01)	(0.06)	(0.01)
Obs	122,338	138,078	15,740	45,384
R^2	0.07	0.10	0.20	0.10
Controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Clustered SE	✓	✓	✓	✓

(a) Ordinary Least Squares (Mean Effects)

	Baseline QR ($\tau = 0.5$)	Triple-Diff QR ($\tau = 0.5$)	Continental QR ($\tau = 0.5$)	Christie's QR ($\tau = 0.5$)
Treatment × Post	0.20***	-0.13***	0.15***	0.09***
	(0.02)	(0.01)	(0.03)	(0.02)
Post	0.25**	1.80***	0.88***	0.62***
	(0.10)	(0.03)	(0.13)	(0.11)
Treatment	-0.20***	-0.14***	0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.02)
Obs	124,999	162,948	37,949	47,653
R^2	0.07	0.08	0.14	0.06
Controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓

(b) Quantile Regression (Median Effects, $\tau = 0.5$)

Notes: Continuous treatment = certainty weight. Post-period = after 1836 ruling. Baseline = British sales; Triple-Diff adds Continental sales. Placebo tests: (i) Continental only, (ii) British via Christie's. SE clustered at country level. Controls as in Table 3.

Table 7: Probit Difference-in-Differences: Probability of Being Bought-In, 1820–1850

	Baseline	Continental	Christie's
Treatment × Post	-0.22***	-0.26***	-0.09
	(0.08)	(0.07)	(0.09)
Post	-0.91***	-0.87***	-0.70***
	(0.11)	(0.11)	(0.14)
Treatment	0.27***	0.38***	0.14**
	(0.05)	(0.04)	(0.07)
Obs	124,592	14,363	47,391
R^2	0.02	0.19	0.05
Controls	✓	✓	✓
Time FE	✓	✓	✓

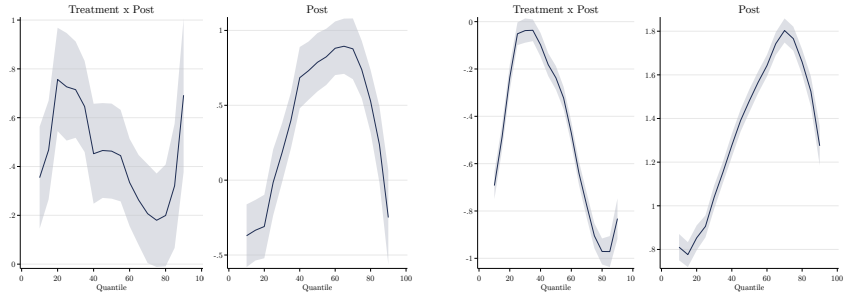
Notes: Treatment group = artworks attributed to a named artist (ratings 1–2). Post-period = after 1836 ruling. Baseline = British sales; Continental = Austria, Belgium, France, Germany, Netherlands; Christie's = British sales via Christie's.

Table 8: Probit Regression: Probability of Highest Attribution (Rating = 1), 1820–1850

	Baseline	Continental	Christie's
Post	-0.46***	0.48***	-0.15
SE	(0.08)	(0.12)	(0.11)
Obs	124,428	18,195	47,664
R^2	0.11	0.17	0.09
Controls	✓	✓	✓
Time FE	✓	✓	✓

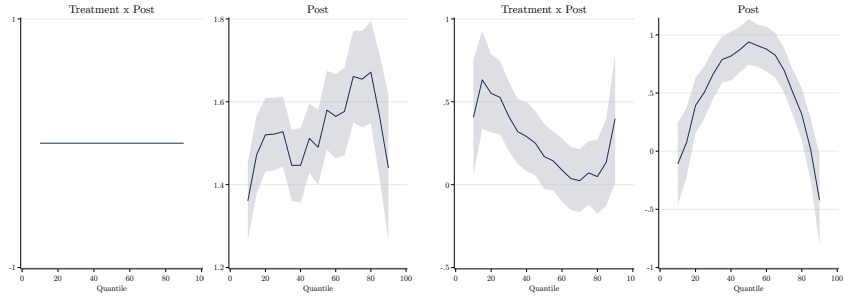
Notes: Post-period = after 1836 ruling. Baseline = British sales; Continental = Austria, Belgium, France, Germany, Netherlands; Christie's = British sales via Christie's.

Figure 3: Quantile Regression Estimates on ln(Price), Binary Treatment, 1820–1850



(a) Baseline

(b) Triple-Diff

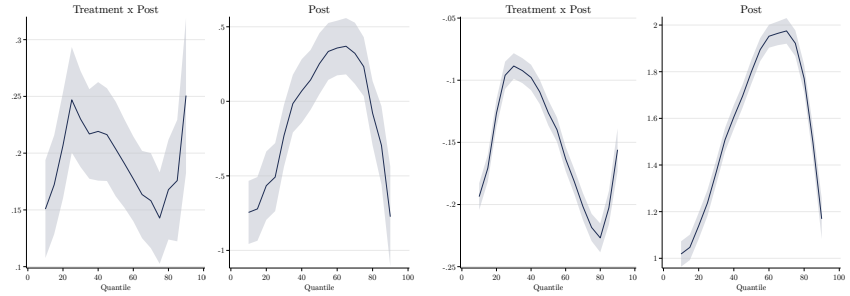


(c) Continental

(d) Christie's

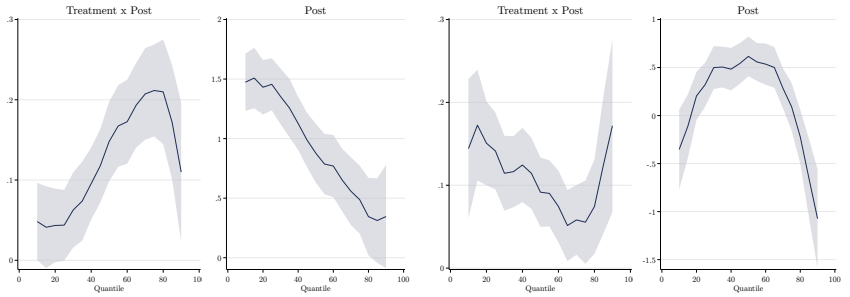
Notes: Treatment = artworks attributed to a single artist (ratings 1–2). Post-period = after 1836 Power v. Barham ruling. Shaded areas = 95% CI. Baseline = British sales; Placebo = Continental only or British via Christie's.

Figure 4: Quantile Regression Estimates on ln(Price), Continuous Treatment, 1820–1850



(a) Baseline

(b) Triple-Diff



(c) Continental

(d) Christie's

Notes: Continuous treatment = certainty weight. Post-period = after 1836 ruling. Shaded areas = 95% CI. Baseline = British sales; Placebo = Continental only or British via Christie's.

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Appendix Contents Overview

This Appendix provides additional details on the legal background, data construction, variable definitions, and robustness analyses referenced in the main text.

- **Appendix A: Legal and Historical Background**

  Summarizes key British court cases concerning misattribution and buyer protection, and discusses the emergence of major European museums during the 19th century, including their potential role as market and taste makers.

- **Appendix B: Data Construction and Sources**

  Details the compilation of the dataset of nineteenth-century art market transactions. Describes data sources, digitization of historical auction catalogues, variable coding. Presents descriptive statistics by attribution category and time period.

- **Appendix C: Robustness Checks**

  Presents robustness and validation exercises. These include (1) restricting the estimation window to five years around the 1836 ruling; (2) excluding artworks with references to Rembrandt; (3) pre-trend plots for all specifications; and (4) pre-trend analyses by artistic school.

A Legal and Historical Background

A.1 Overview of Legal cases on Misattribution in the UK

Historiography based on the cases discussed in Lanier (1994), Harter-Bachmann (2007), Bonner (2017), and Thomas (2022).

1797 Jendwine v Slade - Court treated catalogue attributions as statements of opinion rather than binding warranties; buyer who relied on the catalogue could not recover absent an express warranty.

1829 Lomi v Tucker - The court held that if an express warranty of authorship is proved, the buyer may recover.

The dispute was about a couple of paintings sold for £95 as original Poussins but were "not originals but very excellent copies" (172 Eng.Rep.587, KB 1829).

1832 De Sewhanberg v Buchanan - Reaffirmed that express warranties of authenticity, when proved, are enforceable.

The case was about a painting the seller warranted was by Rembrandt: "I warrant you that it is a true picture of Rembrandt; I am an ancien militaire, and would not deceive you." However, several witnesses testified that the painting was not an original and "of no use to a connoiusseur in pictures" The court found a breach of warranty and awarded De Sewhanberg the full sale price. (172 Eng. Rep. at 1004, K.B. 1836)

1835 Pennell v Woodburn — The court extended the reasoning in Lomi by recognizing that warranties may protect subsequent purchasers who rely on the seller's attribution.

In this case, a buyer resold a painting—originally represented as a work by Claude—to a secondary purchaser, who later discovered it was a fake. The secondary buyer sued the intermediate seller, who had repeated the attribution. The court held that the intermediate seller could, in turn, recover from the original seller the costs incurred in defending the suit under the original warranty. (Lanier 1994)

1836 Power v Barham

1905 Hyslop v Shirlaw — The Scottish Court of Session refused rescission where the buyer delayed in rejecting paintings later shown to be wrongly attributed, emphasising that prompt rejection under the Sale of Goods Act 1893 is essential to preserve the remedy.

1950 Leaf v International Galleries — The Court of Appeal held that although the painting had been misattributed (claimed to be by Constable), the buyer's attempt to rescind was barred by lapse of time — again stressing limits on rescission for mistaken attribution.

1991 May v Vincent — An auction house catalogue attribution to J.M.W. Turner led to criminal and civil consequences under trade-description rules when the attribution proved false, illustrating how catalogue descriptions can attract regulatory as well as contractual liability.

2022 Estates Gazette Feilding & Anr v Simon C. Dickinson Ltd — Commercial negligence claim by vendors over the valuation/attribution of a Chardin painting was dismissed by the High Court, showing modern courts' caution in second-guessing expert attributions and dealer judgments absent clear negligence.

A.2 Museums

The nineteenth century marked the rise of the public art museum. Many of Europe's major national collections were founded during this period, including the National Gallery in London, established in 1824 (see Table 9 for an overview). One possible concern is that the National Gallery may have influenced market prices and tastes during the period under study. However, despite its early founding, the Gallery did not receive a regular acquisition budget until its reconstitution in 1855, when the position of Director was also created. Prior to that, acquisitions were highly irregular in both timing and style.

As shown in Table 9, the Alte Pinakothek in Munich was also established in 1836, contemporaneous with the British court ruling. However, given its location in Bavaria, the institution is unlikely to have influenced buyers or prices in the British art market. The museum was established to display the collection of King Ludwig I, who favored early German and Ital-

ian Renaissance paintings, acquired primarily through his personal agent rather than via London auctions.

Table 9: Major European Museums of Fine Art

Museum	Date	Location	Collection
Musée du Louvre	1793	Paris	French Royal collection
Rijksmuseum	1800	Amsterdam	Purchase and donations
Museo del Prado	1819	Madrid	Spanish Royal collection
National Gallery	1824	London	Purchase and donations
Alte Pinakothek	1836	Munich	Bavarian Princely collection
State Hermitage Museum	1852	St. Petersburg	Catherine the Great
Nationalgallerie	1861	Berlin	Purchase and donations
Uffizi	1865	Florence	Medici family
Museu Nacional de Arte Antiga	1884	Lisbon	Church (Nationalized)
Kunsthistorisches Museum	1891	Wien	Habsburg family

This table reports the founding year and origin of collections for major European museums established in the 19th century. Data are compiled from publicly available sources (primarily Wikipedia). Highlighted rows indicate museums comparable to the National Gallery in that they were not founded with a substantial endowment.

B Data Construction and Sources

Table 10: Distribution of Sales

Year	Total	Britain	Continent	Christie's
1820	9,349	4,662	4,687	2,466
1821	7,512	5,814	1,698	2,402
1822	6,242	5,114	1,128	1,231
1823	6,340	4,593	1,747	1,295
1824	7,041	6,434	607	3,071
1825	5,848	4,835	1,013	1,814
1826	5,200	4,221	979	1,821
1827	6,900	5,915	985	2,521
1828	6,203	5,190	1,013	1,762
1829	7,125	6,484	641	1,733
1830	9,043	8,285	758	2,581
1831	6,628	6,443	185	2,095
1832	7,762	7,199	563	1,646
1833	11,070	7,411	3,659	2,621
1834	8,743	6,732	2,011	2,519
1835	7,984	6,591	1,393	2,451
1836	8,560	7,957	603	3,451
1837	6,649	4,823	1,826	4,080
1838	5,071	3,531	1,540	3,894
1839	4,475	3,827	648	4,335
1840	4,217	3,147	1,070	3,534
1841	739	528	211	243
1842	1,299	705	594	617
1843	4,376	299	4,077	215
1844	1,198	410	788	311
1845	1,369	493	876	413
1846	1,166	506	660	469
1847	1,590	541	1,049	512
1848	1,084	997	87	1,133
1849	1,278	788	490	769
1850	1,016	544	472	315

Source: Getty Provenance Index, Auction data from Graves (1918) and Mireur (1911) as well as hand-collected auction records from annotated catalogues held at the National Art Library (London) and Yale Center for British Art.

B.1 Attribution

Table 11: Attribution by category before and after Power vs. Barham

Attribution	Pre (1820-1835)		Post (1836-1950)	
1	105,449	73.6%	38,664	73.0%
2	10,888	7.6%	4,194	7.9%
3	23,405	16.3%	8,592	16.2%
4	800	0.6%	271	0.5%
5	2,233	1.6%	934	1.8%
6	420	0.3%	280	0.5%
Total	143,195		52,935	

Table 12: Artwork Attribution Ratings and Associated Market Discounts

Rating	Attribution Description	Example Discount (%)
1	Full name (first name spelled out)	0
2	First name initial or 'Attributed to'	20–50
3	Last name only or 'Workshop/Studio/Atelier of'	40–60
4	'School/Circle/Follower of'	50–90
5	'Style of', 'Manner of', 'After', 'Copy of'	>90

This table presents different ways an artwork can be attributed to an artist, ranked by certainty (Rating 1 = highest certainty, 5 = lowest). Example discount rates reflect the reduction in market value associated with lower attribution certainty (from Worthington Galleries). The continuous treatment decreases as the attribution becomes less certain, reflecting the lower reliance of artwork value on the artist's market reputation.

B.2 Genre

Table 13: Genre

	Genre	Pre (1820-1835)		Post (1836-1950)	
0	No	70,456	47.5%	30,426	54.9%
1	History/Religious	22,869	15.4%	8,438	15.2%
2	Portrait	14,798	10.0%	5,744	10.4%
3	Landscapes	28,911	19.5%	7,286	13.2%
4	Still life	2,073	1.4%	656	1.2%
5	Genre/Everyday	9,146	6.2%	2,832	5.1%

These words were used if the genre was not already in the title (e.g. 'Portrait of ...' or 'A Landscape'). Note that since the data include sales outside Britain, I ran this list in French, German, and Dutch.

1. **History/Religious**
    - **History**: Siege, Battle, Army, Cavalry, Queen, King, Empress, Henry the [0-9]th, Cleopatra, Pharao, Histor, Democritus
    - **Religious events**: Crucifix, Ascension, Adoration, Holy, Last Supper, Last Judgement, Judgment, Salvator Mundi, Offering of the Magi, Baptism of Christ, Ecce Homo, Descent from the Cross, Annunciation, Purgatory, Nativity, Flight into Egypt, Susannah + (Elders or Bath), Offering, Scripture, Altar, Worshipping, Martyr
    - **Religious People**: Christ, Our Saviour, Our Lord, Virgin, Noah, Madona, Madonna, Magdalen, Goliah, Lazarus, John the Baptist, Holofernes, St (and variants like St., S.t), Saint, Moses, Angel(s), Adam and Eve, Potiphar, Sheba, Delilah, Cain, Job, Samaritan, Naama
    - **Allegorical**: Venus, Nymph, Adonis, Hercules, Judgement, Cupid, Perseus, Bacch(us), Orpheus, Narcissus, Apollo, Erminia, Achilles, Mercury, Romulus, Endymion, Diana, Armida, Satyr, Daphne, Alpheus, "A Sybil", Rape of Helen, Charity, Flora, Shakespeare, Summer, Spring, Winter, Autumn, Virtue
2. **Portraits**
    - "A Head", Half Length, Full Length, Whole Length, Man's Head, Head, Head of
    - **Titles**: Countess, Prince, Duke, Duchess, Lord, Count, Marqu, Earl, VI, IV, Bishop, Roman numerals like "I." (excluding "Romano"), Mary, Q. of Scotts, Sultan
3. **Landscape**
    - **General Landscapes**: Shipping, River Scene, A Calm, A Small Calm, A Storm, Moon-light, Frost-piece, Exterior, A Water-fall, Ruins, Fair, Bridge, Venice, View, A Gale, Hurricane, Cattle + landscape, Peasant + landscape, Hunting Party, Hawking Party
    - **Seascapes**: Sea View, Ship Wreck, Sea Piece, Sea Port, Shipping, Coast Scene
    - **Cityscapes**: Architecture, Church Piece, Ceiling, Street Scene, Inside/Interior + (Church, Cathedral, Temple, Pantheon), Market (without Woman or Girl)
4. **Still Life**
    - Fruit, Flowers, Dead Game (when genre empty), Fruit Piece, Flower Piece, Vase, Fruit + Flower (without Boy or Girl)
5. **Everyday (Genre paintings)**
    - **Activity**: Play, Smoking, Conversation, Scene + Domestic, Merrymaking, Merry-making
    - **Places**: Yard + (Farm, Court, Inn), Shop, Interior, Village, Inside, Ale House

- **People**: Peasant (without Landscape), Fortune teller, Backgammon Player, Party, Gyps(y), Sportsman, Beggar, Shepherd (without Landscape), Robber
- Boors, Country Wake, A Country..., Tooth

B.3 Exchange Rates

I use spot exchange rates quoted in French francs per British pound (ticker: GBPFRF) and Dutch guilders per British pound (ticker: GBPNLG). According to Fineon, the London exchange rate series draws on Larry Neal, *The Rise of Financial Capitalism* (Cambridge University Press, 1990) and John J. McCusker, *Money and Exchange in Europe and America, 1600–1775: A Handbook* (University of North Carolina Press, 1978). The Amsterdam series is based on Nicholas W. Posthumus, *Inquiry into the History of Prices in Holland* (Leyden: E. J. Brill, 1964).

C Buyer Overlap Across Attribution Categories

This appendix examines whether attributed and anonymous artworks are traded in segmented markets by analyzing buyer participation across attribution categories. Buyer identities are recorded inconsistently in auction catalogues and are observable for approximately 44% of transactions.

To assess overlap, I classify artworks into attributed works (ratings 1–2) and anonymous works (ratings 5–6) and examine purchasing patterns among buyers with repeated activity. Focusing on buyers with at least ten recorded purchases, nearly 80% acquire both attributed and anonymous artworks, while fewer than 5% purchase only anonymous works. The remaining buyers specialize exclusively in attributed works. This pattern indicates substantial overlap in buyer participation across attribution categories among economically active buyers.

To evaluate whether buyer observability is itself systematically related to attribution status, I estimate a probit model in which the dependent variable indicates whether a buyer name is recorded. The specification includes attribution-category indicators and time fixed effects. I find no evidence that buyer recording differs systematically across attributed and anonymous works. This suggests that the observed-buyer subsample used in the overlap analysis is unlikely to be mechanically selected on attribution status.

Taken together, these findings indicate that attributed and anonymous artworks are not traded in disjoint markets and that the choice of anonymous works as a control group does not primarily reflect differences in buyer composition. While buyer identities are not observed for all transactions, the available evidence supports the view that both categories are purchased by largely the same set of market participants.

Table 14: Probit Regression

	Prob (Buyer recorded)	
Attribution = 1	0.05	(0.05)
Attribution = 2	-0.06	(0.05)
Attribution = 3	-0.24***	(0.05)
Attribution = 4	-0.21***	(0.05)
Attribution = 5	0.01	(0.05)
Attribution = 6	-0.01	(0.05)
Obs	401,276	
R^2	0.05	
Time FE	✓	

D Robustness Checks

D.0.1 Robustness Check with 5 year window (1830-1840)

As a robustness check, I re-estimate the main specification using a narrower 5-year window in place of the baseline 15-year interval, thereby further limiting the scope for confounding shocks. The results on prices hold, as reported in the regression table for the baseline regression and shown in the figure for the quantile regression. While the effect on prices in the short run is economically smaller, though no less statistically significant, this could be driven by what we can see in the figure to be the largest effect at the lower end of the market.

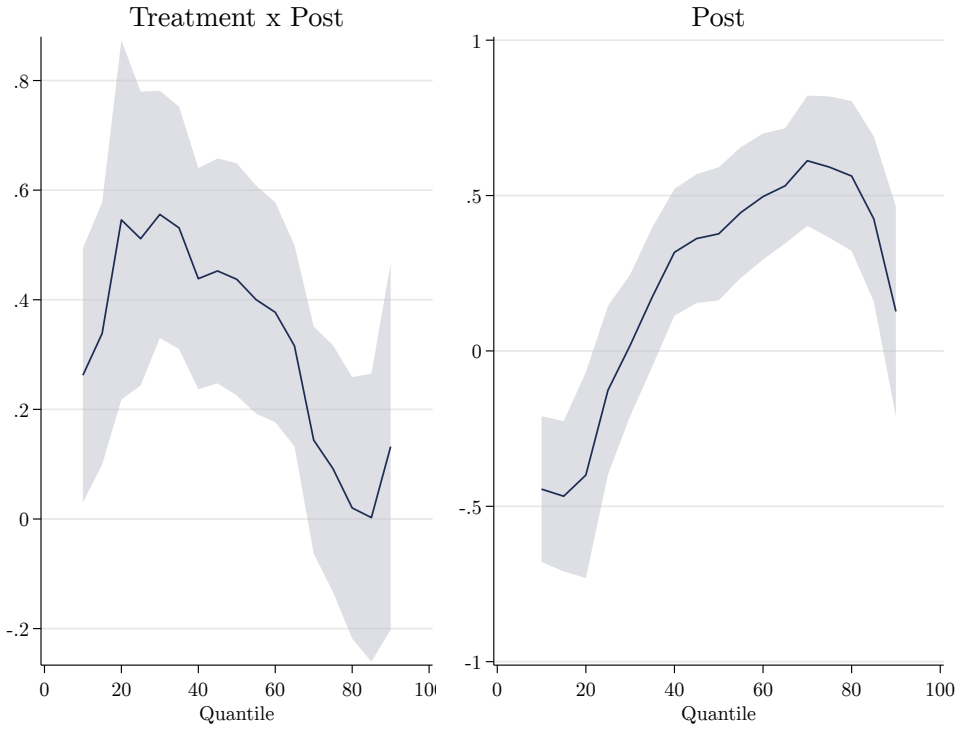
Table 15: Binary Diff-in-Diff 1830-1840

	$ln(Price)$	Prob (Attribution = 1)	Prob (Sold =0)
Treatment × $Post_{\text{Jan 1836}}$	0.418***		-0.132
	(4.99)		(-1.48)
Treatment	-0.162**		0.166**
	(-2.86)		(2.71)
$Post_{\text{Jan 1836}}$	0.319***	-0.113***	0.119
	(3.66)	(-4.34)	(1.35)
Time FE	YES	YES	YES
Controls	YES	YES	YES
Constant	3.368***	1.338**	-0.743***
	(10.55)	(3.06)	(-12.20)
N	65,010	82,244	65,929

OLS binary difference-in-differences estimates for 1830–1840. The treatment group includes artworks attributed to a single artist (ratings 1–2); the post-period begins after the 1836 Power v. Barham ruling. t statistics in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Controls: date painted, dated (dummy), signed (dummy), area, area^2, genres (5), mediums (6), supports (5), year, month, day

The probability with which intermediaries give the highest ranking drops significantly in the short run. This makes sense considering that the court decision had immediate legal effect. We can see the rapid reaction of auction houses when looking at their terms of sale. Before 1836 terms of sale largely governed the rules on bidding and payment stipulations. After the court case many auction houses, including Christie's added a sentence on attributions.

Figure 5: Quantile Regression (1830-1840)



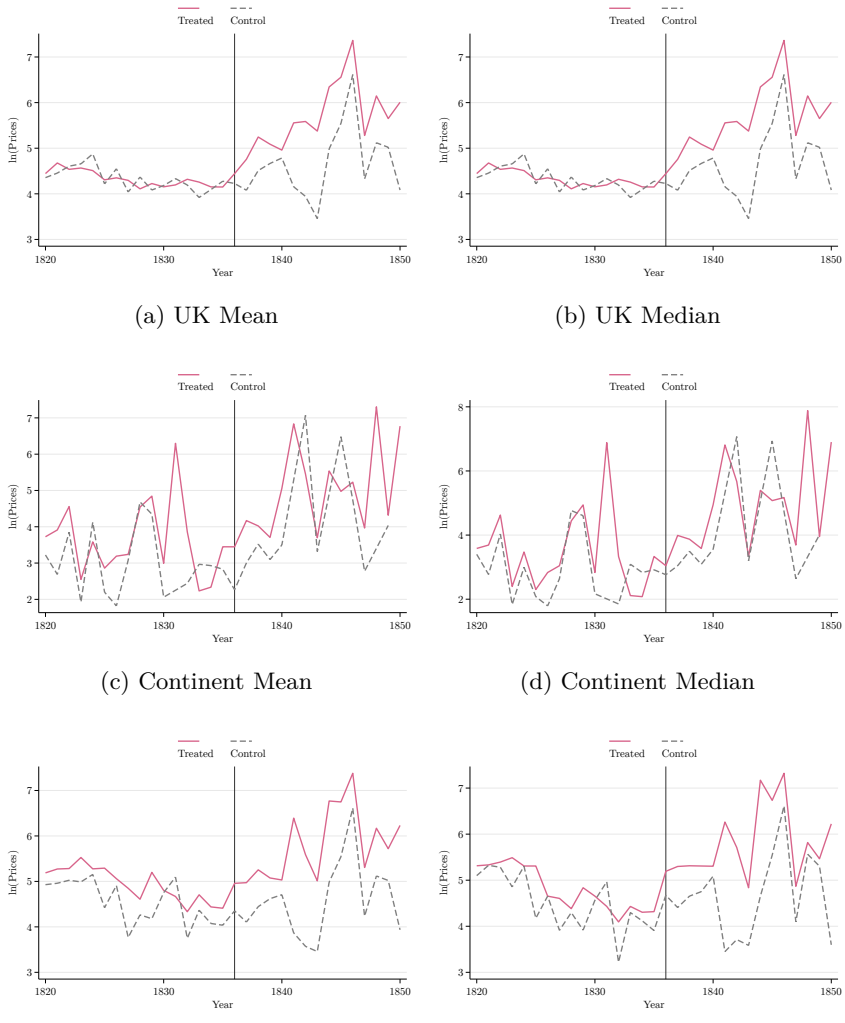
This figure presents quantile regression estimates for robustness in a 5 year time frame from 1830 to 1850 (82,246 observations). The treatment group comprises artworks attributed to a single artist (ratings 1 and 2), and the post-period is defined as after the 1836 Power v. Barham court case. Coefficients measure the Treated × Post effect across the conditional price distribution. Shaded areas indicate 95% confidence intervals. Controls: medium, genre, support, standardized height, standardized width, signed, dated

D.0.2 Robustness without Rembrandt

Art historian John Smith published his seventh catalogue raisonné on Rembrandt in 1836. His books served to educate the novice investor by also providing information about prices. Since the book impact market uncertainty around Rembrandt by making information on his artworks more accessible, I exclude the 1,370 artworks that are attributed to or otherwise refer to Rembrandt.

D.0.3 Pre-Trends Validation Exercises

Figure 6: Difference-in-Differences Pre-Trends



(a) UK Mean

(b) UK Median

(c) Continent Mean

(d) Continent Median

(e) Christie Mean

(f) Christie Median

Table 16: Binary Diff-in-Diff 1830-1840

	(1) ln(Price)	(2) Prob(Attribution=1)	(3) Prob(Sold=0)
Treatment × $Post_{\text{Jan 1836}}$	0.554***		-0.214**
	(7.44)		(-2.86)
Treatment	-0.118**		0.250***
	(-2.61)		(5.43)
$Post_{\text{Jan 1836}}$	0.676***	-0.279***	0.0735
	(6.81)	(-4.87)	(0.99)
Time FE	YES	YES	YES
Controls	YES	YES	YES
Constant	2.197***	0.0331	-0.826***
	(15.80)	(0.35)	(-18.02)
N	121,088	151,926	123,705

OLS binary difference-in-differences estimates for 1820–1850. The treatment group includes artworks attributed to a single artist (ratings 1–2). For robustness, it excludes paintings relating to the Dutch Old Master Rembrandt van Rijn. The post-period begins after the 1836 Power v. Barham ruling. t statistics in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Controls: date painted, dated (dummy), signed (dummy), area, area^2, genres (5), mediums (6), supports (5), year, month, day

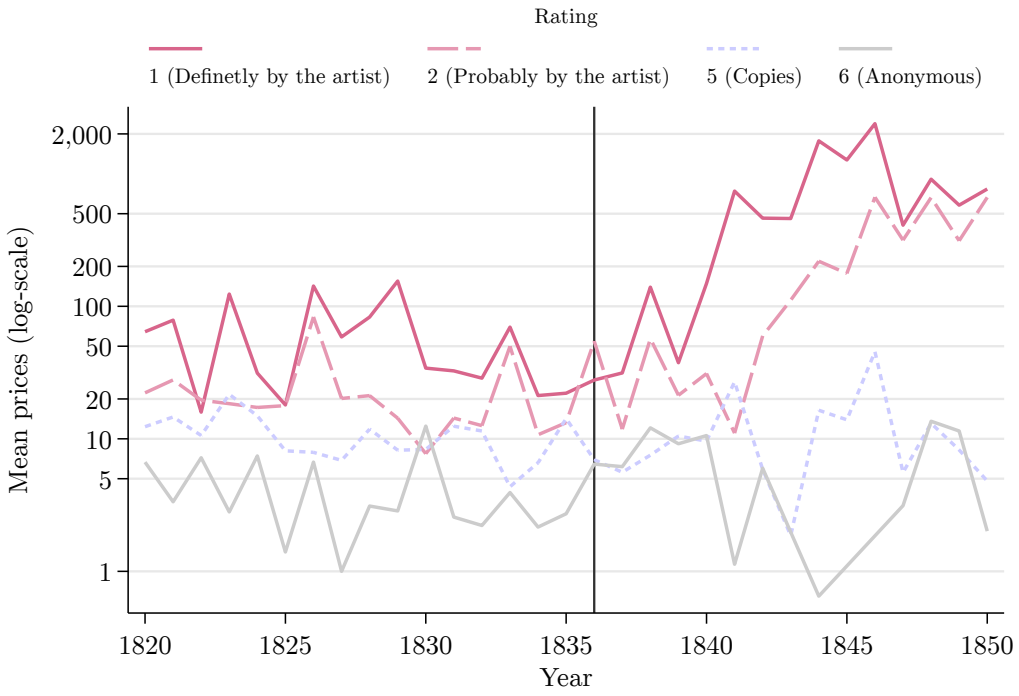
Figure 7: Pre-Trends by School of Art



(a) Flemish School

(b) Italian School

Figure 8: Times-series of mean prices



This figure illustrates the difference-in-differences framework by showing the evolution of average prices across attribution categories. Ratings 1 and 2—artworks attributed to specific artists—serve as the treatment group, as their value depends on the artist's market reputation. Ratings 5 and 6—artworks without a specific attribution—form the control group, as their value is unaffected by re-attribution. The vertical line marks 1836, the year of the Power v. Barham court case, which provides the exogenous shock. Data comprise 153,269 British auction transactions from 1820 to 1850.