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AN ECONOMIC EVALUATION OF ART PRODUCTION IN THE AGE OF ARTIFICIAL INTELLIGENCE: A HEDONIC APPROACH¹

Abstract

This study examines the determinants of the economic value of artworks within the framework of a hedonic approach and evaluates the findings in the context of art production in the age of artificial intelligence. Artworks are considered not only products carrying aesthetic and cultural meaning, but also heterogeneous entities that generate economic value. Therefore, price formation in art markets is shaped by multidimensional elements beyond physical characteristics, such as historical context, aesthetic classification, and symbolic value. In recent years, the increasing integration of artificial intelligence technologies into art production processes necessitates a re-examination of traditional art valuation mechanisms. In this study, observations of a total of 754 works of art were analyzed using an open-access dataset. First, descriptive statistics were used to reveal the general structure of art prices. Then, non-parametric tests were applied to determine whether prices

¹ This study is derived from the abstract entitled "Economic Evaluation of Art Production in the Age of Artificial Intelligence," presented at the 15th International Conference on Economics and Social Sciences, held in Tashkent, Uzbekistan on April 10-12, 2026.

differed according to art movement and period. Finally, a logarithmic multiple regression model was estimated to evaluate the determinants of the economic value of the works of art. In the model, the natural logarithm of the price was used as the dependent variable, while variables related to production year, art movement, period, and signature information were included as explanatory variables. Furthermore, robust standard errors were used in model estimations to counteract heteroskedasticity. The findings indicate that the economic value of artworks is strongly correlated with aesthetic and historical variables. Art movement and period variables were found to have significant effects on price, while the explanatory power of variables related to production year and signature information was found to be more limited. Furthermore, the distinctly right-skewed price distribution reveals that economic value is not homogeneously distributed in the art market and is concentrated in certain works. This study presents a conceptual framework regarding the position of (Artificial Intelligence) AI-assisted art production within existing valuation structures by revealing the mechanisms that explain the formation of economic value in the traditional art market. In this respect, the study aims to provide an interdisciplinary contribution by bringing together the art economics literature and discussions on artificial intelligence and art.

Keywords: Artificial intelligence, Art economics, Cultural economics, Hedonic pricing, Multiple regression analysis, Artwork prices.

YAPAY ZEKÂ ÇAĞINDA SANAT ÜRETİMİNİN EKONOMİK DEĞERLENDİRMESİ: HEDONİK BİR YAKLAŞIM

Öz

Bu çalışma, hedonik bir yaklaşım çerçevesinde sanat eserlerinin ekonomik değerinin belirleyicilerini incelemekte ve bulguları yapay zekâ çağında sanat üretimi bağlamında değerlendirmektedir. Sanat eserleri sadece estetik ve kültürel anlam taşıyan ürünler olarak değil, aynı zamanda ekonomik değer üreten heterojen varlıklar olarak da kabul edilmektedir. Bu nedenle, sanat piyasalarındaki fiyat oluşumu, tarihsel bağlam, estetik sınıflandırma ve sembolik değer gibi fiziksel özelliklerin ötesinde çok boyutlu unsurlar tarafından şekillendirilmektedir. Son yıllarda, yapay zekâ teknolojilerinin sanat üretim süreçlerine artan entegrasyonu, geleneksel sanat değerlendirme mekanizmalarının yeniden incelenmesini gerektirmektedir. Bu çalışmada, açık erişimli bir veri seti kullanılarak toplam 754 sanat eserinin gözlemleri analiz edilmiştir. İlk olarak, sanat fiyatlarının genel yapısını ortaya çıkarmak için tanımlayıcı istatistikler kullanılmıştır. Daha sonra, fiyatların sanat akımına ve döneme göre farklılık gösterip göstermediğini belirlemek için parametrik olmayan testler uygulanmıştır. Son olarak, sanat eserlerinin ekonomik değerinin belirleyicilerini değerlendirmek için logaritmik çoklu regresyon modeli tahmin edilmiştir. Modelde, fiyatın doğal logaritması bağımlı değişken olarak kullanılırken, üretim yılı, sanat akımı, dönem ve imza bilgileri ile ilgili değişkenler açıklayıcı değişkenler olarak dahil edilmiştir. Ayrıca, model tahminlerinde sağlam standart hatalar kullanılmıştır. Bulgular, sanat eserlerinin ekonomik değerinin estetik ve tarihsel değişkenlerle güçlü bir şekilde

ilişkili olduğunu göstermektedir. Sanat akımı ve dönem değişkenlerinin fiyat üzerinde önemli etkileri olduğu bulunurken, üretim yılı ve imza bilgileri ile ilgili değişkenlerin açıklayıcı gücünün daha sınırlı olduğu tespit edilmiştir. Ayrıca, belirgin şekilde sağa doğru çarpık fiyat dağılımı, ekonomik değerin sanat piyasasında homojen olarak dağılmadığını ve belirli eserlerde yoğunlaştığını ortaya koymaktadır. Bu çalışma, geleneksel sanat piyasasında ekonomik değerin oluşumunu açıklayan mekanizmaları ortaya koyarak, yapay zekâ destekli sanat üretiminin mevcut değerlendirme yapıları içindeki konumuna ilişkin kavramsal bir çerçeve sunmaktadır. Bu bağlamda, çalışma, sanat ekonomisi literatürünü ve yapay zekâ ile sanat üzerine tartışmaları bir araya getirerek disiplinlerarası bir katkı sağlamayı amaçlamaktadır.

Anahtar Kelimeler: Yapay zekâ, Sanat ekonomisi, Kültür ekonomisi, Hedonik fiyatlandırma, Çoklu regresyon analizi, Sanat eseri fiyatları.

1.INTRODUCTION

The question of how the economic value of works of art is formed constitutes one of the most fundamental areas of debate in the economics of culture. Works of art are considered, on the one hand, as original products carrying aesthetic and cultural meaning, and on the other hand, as assets that can be traded in financial markets. This dual structure necessitates the analysis of both the symbolic and economic dimensions of art. In this context, the literature on the economics of art reveals that the value of works of art is shaped not only by physical characteristics but also by historical, aesthetic, and institutional contexts (Ginsburgh and Throsby 2006; Frey 2019).

The unique structure of art markets demonstrates that value formation in this field differs from classical market mechanisms. Elements such as high levels of originality, information asymmetry, the decisive role of intermediaries, and symbolic value are among the fundamental characteristics that distinguish the art market from other commodity markets (Ginsburgh and Throsby 2006). Within this framework, determining the economic value of artworks is considered a multi-dimensional process that cannot be explained solely by the balance of supply and demand.

One of the most commonly used methods for analytically examining this multi-dimensional structure is the hedonic pricing approach. Hedonic modeling aims to explain price formation by differentiating artworks according to their characteristics. Within this approach, various studies have shown that variables such as artist identity, production period, technique used, type of artwork, and physical characteristics have significant effects on price (Fedderke and Li 2020; Fedderke and Chen 2023). Furthermore, analyses using large-scale datasets show that artworks, as financial assets, have specific return profiles, and these returns vary according to art movement, media type, and market segment (Renneboog and Spaenjers 2013; Zhukova et al. 2020; Jang and Park 2020).

However, in recent years, the focus of the art economics literature has expanded beyond pricing mechanisms to include new themes such as digitalization, artist branding, market effectiveness, and platform economies (Guo et al. 2024). This transformation indicates that the art market is undergoing a structural change and that economic value creation is gaining new dynamics.

One of the most important components of this transformation process is the increasing integration of artificial intelligence technologies into the field of art. While artificial intelligence is used in areas such as the classification, analysis, and archiving of artworks, it has also become a direct part of creative production processes (Cetinic and She 2021). Generative artificial intelligence models, in particular, are enabling the emergence of new aesthetic forms and transforming art production processes.

AI-assisted art production is considered not only a technical innovation but also a phenomenon that reopens the debate on fundamental concepts of art. In this context, the question of how to evaluate AI-generated works in terms of creativity, originality, and aesthetic value has become a significant topic of discussion in the literature (Chatterjee 2022; Garcia 2025). Empirical studies show that AI-assisted production can increase both productivity and audience appreciation, but it can also weaken the perception of originality and the value attributed to the artist (Zhou and Lee 2024; Messer 2024). Furthermore, it has been shown that viewers often have difficulty distinguishing between human- and AI-generated works, yet tend to value human-generated works more (Oksanen et al. 2023).

These developments raise the question of how valid traditional criteria used to determine the economic value of artworks will be in the age of artificial intelligence. While the hedonic pricing approach in the current literature offers a powerful tool for explaining the value of artworks, the place of AI-assisted productions within these valuation mechanisms has not yet been systematically analyzed (Guo et al. 2024). In particular, the price dynamics of AI-produced or co-produced works, their impact on artist influence and market structure, stand out as a significant research gap in the literature.

The main objective of this study is to analyze the determinants of the economic value of artworks within the framework of the hedonic approach and to discuss the findings in the context of art production in the age of artificial intelligence. To this end, the study examines the factors influencing price formation using an open-source dataset on artworks, the effects of art movement, period, and other characteristics on economic value are analyzed. The findings provide a conceptual framework for how AI-assisted art production can be related to existing valuation mechanisms.

In this respect, the study aims to provide a holistic assessment of the transformation of the economic value of artworks by combining the hedonic pricing approach in the art economics literature with current AI discussions.

2. LITERATURE REVIEW

The literature on the economics of art offers a broad theoretical and empirical accumulation aimed at explaining the formation of the economic value of artworks. The foundations of this literature extend back to the early studies of the economics of culture and comprehensively address issues such as art demand, artist labor markets, subsidies, and the functioning of art markets (Ginsburgh and Throsby 2006). In this context, the art market is considered a specific type of market that differs from other markets due to its characteristics such as high authenticity, information asymmetry, the strong role of intermediaries, and symbolic value (Ginsburgh and Throsby 2006; Frey 2019).

In recent years, the focus of the art economics literature has expanded beyond classical pricing approaches to include topics such as digital platforms, artist brand management, market

efficiency, and regulatory frameworks (Guo et al. 2024). This transformation reveals that the art market is undergoing a structural change and that the creation of economic value is gaining new dynamics.

Parallel to this, the integration of artificial intelligence technologies into the field of art is receiving increasing attention in the literature. While AI applications are used in areas such as the analysis, classification, and archiving of artworks, they have also become directly part of creative production processes, particularly through generative AI models (Cetinic and She 2021). These developments are transforming human-AI interaction in art production processes into a new economic and aesthetic area of debate.

Studies examining the relationship between artificial intelligence and art primarily focus on concepts such as creativity, originality, and aesthetic value. In this context, it has been shown that AI-assisted productions can increase both productivity and audience appreciation, but can also weaken the perception of originality (Zhou and Lee 2024; Messer 2024). Furthermore, it has been determined that viewers often have difficulty distinguishing between human- and AI-produced works, yet tend to value human-produced works more (Oksanen et al. 2023). Theoretical studies emphasize that AI necessitates redefining the concepts of agency, authorship, and aesthetic experience in art production (Chatterjee 2022; Garcia 2025).

Especially in perceptual valuation studies, it is emphasized that human-produced works are subject to higher aesthetic and monetary valuations compared to similar works produced with AI. Originality, artist influence, and the perception of creative contribution are considered among the fundamental elements determining the market value of artworks. Furthermore, it is argued that factors such as the oversupply of AI-generated works, quality heterogeneity, and public biases can suppress the economic value of these works. Studies on NFTs and digital art markets also show that mass AI production creates price pressure, while human-produced works can be differentiated with higher price premiums (Włodarczyk, 2024; Wang, 2024; Mei et al., 2025). This situation leads to a reshaping of the supply-demand balance in digital art markets.

However, when the literature is considered generally, it is seen that the fields of art economics and artificial intelligence largely progress independently of each other. While the literature on the economics of art focuses primarily on hedonic pricing and the analysis of art as a financial asset (Renneboog and Spaenjers 2013; Zhukova et al. 2020; Fedderke and Chen 2023), the literature on artificial intelligence and art focuses more on creativity, aesthetics, and ethical dimensions (Zhou and Lee 2024; Oksanen et al. 2023; Garcia 2025; Messer 2024). This indicates a significant disconnect between the two literatures.

Studies on the relationship between artificial intelligence and art focus not only on production processes but also on legal, ethical, and property debates. Copyright and authorship issues, in particular, have become significant factors in determining the economic value of AI-assisted art. Furthermore, AI is not only a technology that produces artwork but is also used as a valuation tool in the art market. Current studies show that deep learning and neural network models can predict the prices of artworks more successfully than classical hedonic models (Mei et al., 2025; Wang, 2024). Thus, AI plays a transformative role in the art market, not only in production but also in price prediction and valuation processes.

In this context, the main gap in the literature is the limited number of empirical and holistic studies on how AI-assisted art production relates to economic valuation mechanisms.

The impact of AI-generated or collaboratively produced works on price formation, the transformation of artist influence, and changes in market structure have not yet been systematically analyzed (Guo et al. 2024).

This study addresses this literature gap with a two-pronged approach. First, the determinants of the economic value of artworks are empirically analyzed within the framework of a hedonic approach. Second, the findings are interpreted within the context of art production in the age of artificial intelligence, and the validity of traditional valuation mechanisms in the face of these new forms of production is discussed. In this respect, the study aims to offer an interdisciplinary contribution by bringing together the literature on art economics and discussions on artificial intelligence and art.

3. DATA SET AND METHOD

This study used an open-source dataset to examine the determinants of the economic value of artworks. The dataset used in this study was obtained from the “Art Price Dataset” available on the Kaggle platform and offered as open access (<https://www.kaggle.com/datasets/flkuhm/art-price-dataset>). The dataset consists of price information for artworks (the price variable in the dataset is in US dollars (USD), and the analyses were performed in this currency) along with observations containing artwork characteristics. After cleaning and organizing, the dataset included in the analysis contains a total of 754 artworks. The main dependent variable of the study is the price of the artworks, and the explanatory variables used are the year of creation, period, art movement, and the sign status.

3.1. Data Set Preparation

The data set underwent a series of preprocessing steps before analysis. In the first stage, textual expressions in the price variable were removed, currency terms were eliminated, and prices were converted to numerical format. Similarly, the production year variable was also converted to numerical format. Unnecessary or analytically non-functional columns were removed from the data set. As a result of this process, a usable and organized data structure was obtained for analysis.

The categorical variables in the data set, namely period and art movement, were used directly in descriptive statistics and group comparisons, in multivariate modeling, they were included in the analysis as categorical dummy variables. The signed variable does not directly reflect the "signed/unsigned" distinction in the data set. Therefore, this variable was transformed into a binary indicator of "whether or not a record of signature information exists" in the study and used in this form. Therefore, it should be specifically noted that the findings regarding this variable indicate not whether the artwork is definitely signed, but whether or not information about the signature is present in the data record.

In the multivariate modeling phase, observations lacking production year information were excluded from the analysis. Therefore, the number of observations used in regression analysis is lower than the total number of observations used in descriptive statistics. The final model was estimated based on 649 observations.

3.2. Variables

The variables used in the study are summarized below:

- Price: Indicates the price of the artwork. It is the dependent variable of the study.
- YearCreation: Indicates the year of creation of the artwork.
- Period: Expresses the historical period to which the artwork belongs.
- Movement: Indicates the art movement to which the artwork belongs.
- Signed: This variable indicates whether or not there is a record of signature information in the dataset; it was used as a binary indicator in this study.

These variables were chosen to represent both the aesthetic-historical context and some record-based characteristics of the economic value of the artwork.

3.3. Analysis Strategy

The analysis in this study was conducted in three stages. In the first stage, descriptive statistics were calculated to reveal the general structure of the data set. In this stage, the mean, median, minimum and maximum values, and quartile distributions of the price variable were examined. Thus, the general overview of the price distribution of works of art was evaluated.

In the second stage, it was examined whether the price differed according to variables such as period, art movement, and signature information registration status. For this purpose, group statistics were calculated based on period and art movement, in addition, non-parametric tests were used to test the statistical significance of the differences between groups. The Kruskal-Wallis test was applied for period and art movement groups, and the Mann-Whitney U test was applied for signature information registration status, which requires a comparison of two groups. The main reason for preferring non-parametric tests is that the price variable is not symmetrically distributed and there are outliers in the dataset.

In the third stage, multivariate regression analysis was applied to evaluate the determinants of the economic value of works of art together. In this stage, the natural logarithm of the price was used as the dependent variable. A logarithmic transformation was preferred because the price variable exhibits a significantly right-skewed distribution. This transformation both ensures a more balanced distribution and reduces the excessive influence of the small number of high-priced observations on the model. Therefore, the main model of the study was established as in Equation 1 below:

$$\ln(\text{price}) = \beta_0 + \beta_1 \text{yearCreation} + \beta_2 \text{signed} + \beta_3 \text{period} + \beta_4 \text{movement} + \varepsilon \quad (1)$$

Since period and art movement are included as categorical variables in the model, they were defined as dummy variables through reference categories in the regression analysis. In addition, HC3 robust standard errors were used in coefficient estimations to counter the possibility of heteroskedasticity. Thus, the aim was to interpret the model results more reliably.

3.4. Justification for Method Selection

Artworks are inherently heterogeneous entities. Works traded in the same market can differ significantly in terms of artist, period, movement, technique, size, and cultural meaning. Therefore, one of the most commonly used approaches in the art economics literature to explain artwork prices is the hedonic pricing approach. Hedonic modeling is based on explaining the prices of heterogeneous goods through the characteristics these goods possess. In this respect, the method offers a suitable analytical framework in a multi-dimensional and differentiated field such as the art market.

The main reason for choosing the hedonic approach in this study is that the economic value of artworks is so multi-dimensional that it cannot be reduced to a single cause. Evaluating the impact of aesthetic-historical variables such as art movement and period on price together allows for a more systematic examination of the formation of economic value in the art market. Furthermore, this method is also important in terms of the discussion that the study develops on art production in the age of artificial intelligence. Because when the elements that determine the economic value in traditional artworks are revealed, the position of AI-assisted art productions in relation to these established valuation mechanisms can be discussed more soundly.

3.5. Methodological Limitations of the Study

The study has some methodological limitations. First, the dataset does not directly include artworks produced by artificial intelligence. Therefore, rather than directly measuring the economic value of AI-assisted art, the study reveals the elements that constitute economic value in the traditional art market and discusses the transformation in the age of artificial intelligence based on these findings.

Secondly, the fact that the signed variable in the dataset does not explicitly represent the signed/unsigned distinction requires careful interpretation of this variable. Thirdly, some important variables that can affect price in the art market, such as the artist's level of fame, artwork size, sales channel, auction house, or collection history, are not included in the dataset. Therefore, the explanatory power of the model is limited to a certain framework. However, the current dataset provides a meaningful initial framework for the economic valuation of artworks through basic aesthetic-historical variables such as art movement, period, and year of production.

4. FINDINGS

In this study, the economic value of works of art was examined using descriptive statistics, group comparisons, and multivariate regression analysis. The price of the artwork was used as the dependent variable in the analyses, due to the significantly skewed price distribution, the natural logarithm of the price was used in the regression model.

4.1. Descriptive Statistics

In the first stage, the basic statistics related to the price variable in the data set were examined. The results show that the prices of works of art are distributed over a very wide range and contain a high level of heterogeneity.

Table 1.

Descriptive statistics for the price variable

Statistical	Value
Number of observations	754
Average price	6,760.77
Standard deviation	12,828.99
Minimum	595.00
25% percentile	1,000.00
Median	2,500.00
75% percentile	7,000.00
Maximum	160,000.00

According to Table 1, the fact that the average price is considerably higher than the median indicates that the price distribution is skewed to the right. In other words, the small number of very high-priced works in the dataset push the average upwards. Therefore, it can be said that the formation of economic value in the art market is not homogeneous and that prices are concentrated in certain works.

4.2. Price Differences by Period

In order to examine the price differences of the works according to the period to which they belong, summary statistics were calculated on a period basis.

Table 2.

Price Statistics by Period

Period	Number of Observations	Average Price	Median	Std. Deviation	Minimum	Maximum
19th Century	12	10,900.00	8,575.00	9,519.48	2,250.00	34,000.00
Contemporary	414	9,064.98	4,000.00	15,714.43	650.00	160,000.00
Modern	42	4,382.86	2,775.00	4,672.35	600.00	25,000.00
Post-War	285	3,608.21	1,500.00	7,157.71	595.00	70,000.00
Missing/Unspecified	1	1,500.00	1,500.00	—	1,500.00	1,500.00

Table 2 shows significant price differences between periods. The highest average price is observed in 19th-century works, followed by contemporary works. However, it is important to note that the 19th-century group consists of only 12 works. In contrast, the contemporary period group has a much larger sample size with 414 observations. Therefore, the high average of 19th-century works should be interpreted considering the sample size.

A Kruskal-Wallis test was applied to test whether the price distributions differed statistically between periods. The results show a significant difference between the period groups ($p < 0.001$). This finding indicates that the historical period to which the work belongs plays a significant role in its economic value.

4.3. Price Differences According to Art Movement

To examine the impact of art movements on economic value, average and median prices were calculated for movements with a sufficient number of observations. Only movements with at least 10 observations were included in the table.

Table 3.

Price Statistics by Art Movement ($n \geq 10$)

Art movement	Number of observations	Average price	Median
Abstract Expressionism	16	18,195.94	9,287.50
Pop Art	88	12,747.16	4,500.00
Conceptual	73	10,230.14	7,500.00
Minimalism	18	6,457.22	1,500.00
Realism	177	5,622.49	3,000.00
Impressionism	20	5,306.50	2,027.50
Abstract	153	4,303.89	1,275.00
Surrealism	21	4,046.19	1,500.00
Expressionism	103	3,064.37	1,500.00
Geometric Abstraction	19	2,449.21	1,275.00

According to Table 3, the highest average price in terms of economic value was observed in Abstract Expressionism, Pop Art, and Conceptual art movements. In contrast, Geometric Abstraction, Expressionism, and some other movements are concentrated at lower price levels.

The Kruskal-Wallis test, conducted to examine the statistical significance of price differences between art movements, shows a significant difference between the movements ($p < 0.001$). This result reveals that art movement is significantly related to economic value.

4.4. Relationship between Signature Information Availability and Price

The 'signed' variable in the dataset does not clearly distinguish between signed and unsigned items in each row. Therefore, in this analysis, this variable was interpreted as "whether or not a record of signature information exists." Accordingly, the works were divided into two groups: records with signature information and records without signature information.

Table 4.

Price statistics according to the availability of signature information

Group	Number of Observations	Average Price	Median
No signature information	153	4,256.90	1,500.00
Signature information available	601	7,398.19	2,700.00

As shown in Table 4, records with signature information have higher average and median prices. However, a Mann-Whitney U test was conducted to determine if the difference between the two groups was statistically significant, yielding a p-value of 0.0534. Since this value is just above the 0.05 threshold, it cannot be definitively stated that the difference is significant at the

classical significance level. Therefore, although records with signature information appear to have higher prices, it is not appropriate to present this effect as a strong and definitive finding.

4.5. Relationship between Year of Production and Price

The linear relationship between price and year of production was examined using the Pearson correlation coefficient.

Table 5.

Relationship between price and year of production

Variables	Correlation coefficient (r)
Price – year of production	0.1270

According to Table 5, there is a weak but positive relationship between price and year of production. This result suggests that newer works may be associated with slightly higher prices on average however, the strength of the relationship is quite limited. Therefore, it can be said that the year of production variable alone is not a strong explanatory factor.

4.6. Regression Analysis Results

An Ordinary Least Squares (OLS) regression model was estimated to examine the determinants of the economic value of artworks within a multivariate framework. The natural logarithm of the artwork price [$\log(\text{price})$] was defined as the dependent variable. Explanatory variables included year of production, signature information, period, and art movement. Categorical variables were included in the model using dummy coding, and robust standard errors of HC3 were used to account for potential heteroskedasticity. The final regression model was estimated using 649 observations, as records with missing information about the year of production were excluded from the analysis.

Table 6.

General statistics regarding the regression model

Indicator	Value
Number of observations	649
R ²	0.2165
Adjusted R ²	0.1967
F-statistic (probability)	p < 0.001

According to Table 6, the model appears to be generally significant. The R² value of 0.2165 indicates that approximately 22% of the price variation is explained by the variables included in the model. Considering the multidimensional nature of price formation in the art market, this level can be considered reasonable.

Table 7 presents the regression coefficients that stand out in terms of interpretation. The reference categories are 19th Century (period) and Abstract (art movement).

Table 7.

Regression coefficients

Variable	Coefficient	p-value	Interpretation
Contemporary	-1.3044	0.0789	Marginally significant, lower relative to the reference period
Modern	-1.4054	0.0356	Significant, lower relative to the reference period
Post-War	-1.7742	0.0102	Significant, lower relative to the reference period
Abstract Expressionism	1.6919	<0.001	Strong and positive
Conceptual	1.0273	<0.001	Strong and positive
Pop Art	0.9619	<0.001	Strong and positive
Realism	0.6494	<0.001	Positive and significant
Other	0.7626	0.0001	Positive and significant
Year (centered)	0.0066	0.0913	Marginally significant, weakly positive
Signature information availability	0.0863	0.3977	Not significant

According to Table 7, the art movement variable has a relatively stronger explanatory role on economic value. Specifically, works belonging to Abstract Expressionism, Conceptual, and Pop Art movements are associated with higher prices compared to the reference category. Regarding the period variable, the Modern and Post-War periods are associated with lower prices compared to the 19th century, the reference category. The Contemporary variable appears borderline significant.

The year of production variable shows a weak and borderline positive effect. In contrast, the availability of signature information variable was not found to be significant in the multivariate model. This result indicates that the initial observations regarding signature information do not have a stable explanatory power when other variables are controlled.

Table 8.

Percentage effects of logarithmic regression coefficients

Variable	Coefficient (β)	% Effect
Abstract Expressionism	1.6919	+443%
Conceptual	1.0273	+179%
Pop Art	0.9619	+162%
Realism	0.6494	+91%
Other	0.7626	+114%
Contemporary	-1.3044	-73%
Modern	-1.4054	-75%
Post-War	-1.7742	-83%

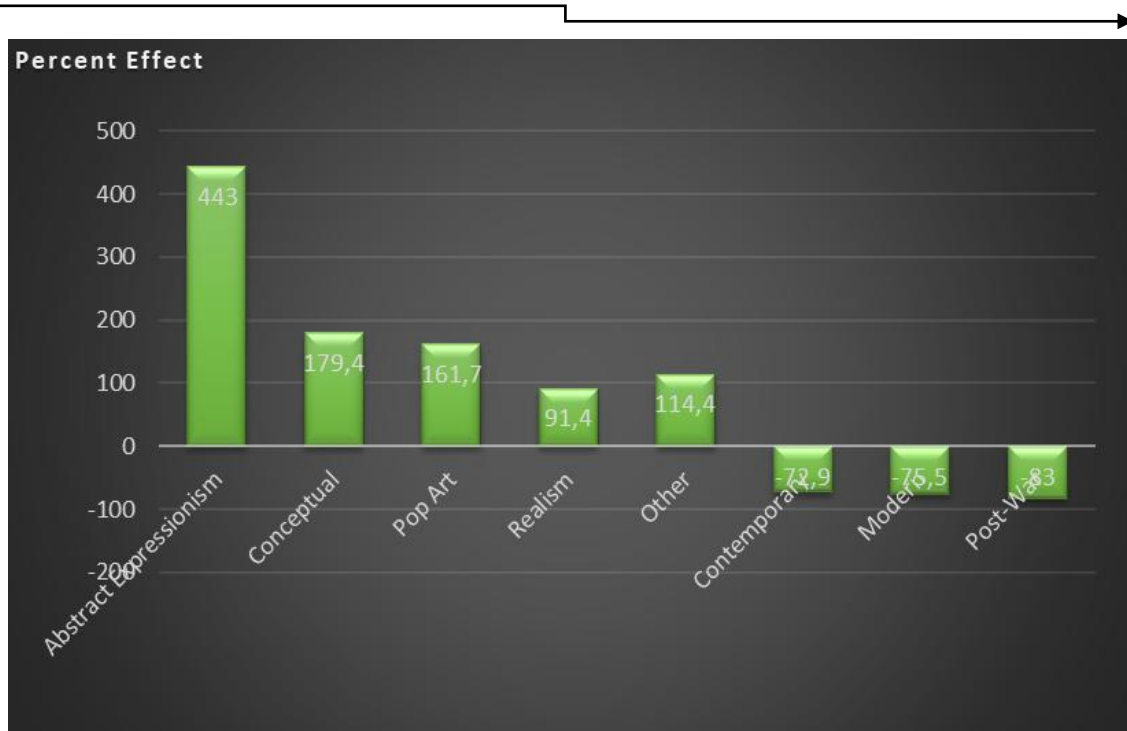


Figure 1. Percentage effects of art movement and period variables on price (Source: Created by the authors.)

When the coefficients are interpreted as percentage changes within the logarithmic regression model (Table 8 and Figure 1), it is seen that the art movement variable has a strong impact on economic value. Works belonging to the Abstract Expressionism movement were found to be associated with approximately 443% higher prices compared to the reference category, Abstract art. Similarly, Conceptual and Pop Art movements are associated with approximately 179% and 162% higher prices, respectively. In contrast, when the period variable is examined, it is seen that works from the Contemporary, Modern, and Post-War periods are at approximately 73%, 75%, and 83% lower price levels, respectively, compared to 19th Century works.

4.7. General Evaluation of Findings

When the analysis results are evaluated together, it is seen that the economic value of artworks is particularly related to aesthetic and historical classifications such as art movement and period. Descriptive statistics and group comparisons have shown that prices are quite heterogeneously distributed and concentrated in certain movements and periods. Regression results also support this observation, revealing that some art movements, in particular, have a significant and positive effect on price.

In contrast, the effect of variables such as the availability of signature information and the year of production remained more limited. The findings regarding signature information, in particular, need to be interpreted carefully, because the relevant variable in the dataset does not directly and cleanly reflect the signed/unsigned distinction.

In conclusion, it can be said that the dimension that most strongly explains economic valuation in this dataset is the variables expressing the aesthetic-historical position of the artwork. This finding shows that, in the context of art economics, value is nourished not only by physical or technical qualities but also by the artistic context to which the artworks belong.

5. DISCUSSION

The findings of this study demonstrate that the economic value of artworks cannot be explained by a single variable, but rather is determined by a multidimensional structure where historical, aesthetic, and contextual elements operate together. In particular, the fact that art movement and period variables produce significant differentiations in price reveals that economic value in the art market is not only derived from physical qualities or technical characteristics, but also from the artistic context in which the artwork is situated. In this respect, the study supports the approach that value in the art economy is a socially and culturally constructed category.

The significantly right-skewed price distribution in the analyses suggests that the art market has a structurally unequal and concentrated character. The fact that the average price is considerably higher than the median value indicates that a small number of high-priced works are driving up the overall market. This situation reveals that economic value in the art market is not distributed evenly across a wide area rather, it is concentrated in certain clusters of works, movements, or periods. Therefore, the art market can be considered a specific value domain, distinct from standard commodity markets, where elements such as symbolic capital, historical legitimacy, and aesthetic recognition have a strong influence.

The findings regarding the period variable can be interpreted similarly. Although this category requires careful consideration due to the limited number of observations in the 19th-century group, the significant differences in price distributions between periods show that historical context is an important factor in the economic valuation of a work of art. This result implies that a work of art is valued not only by "what it is," but also by "the historical-aesthetic framework in which it is situated." In other words, the economic value of works gains meaning within the market through historical narratives and cultural classifications.

The results regarding art movements constitute one of the most striking findings of the study. The association of movements such as Abstract Expressionism, Pop Art, and Conceptual with higher prices shows that aesthetic orientations play a strong role in determining economic value. The significant and positive coefficients of these variables in the regression analysis confirm that art movement is not only a descriptive classification but also an influential determinant of economic value. This finding suggests that certain movements may have historically gained higher prestige, visibility, or collectible value in the art market. Therefore, economic value is shaped not only by the artist's individual characteristics but also by the broader aesthetic regime to which the work belongs.

In contrast, the results regarding signature information require a more cautious interpretation. While it is initially noticeable that records with descriptive signature information appear to command higher prices, the fact that this effect loses its significance in the multivariate model indicates that this relationship is not an independent and strong determinant. Moreover, the fact that the 'signed' variable in the dataset does not directly and cleanly represent the signed/unsigned distinction necessitates a methodologically cautious approach to the results

related to this variable. Therefore, it seems more appropriate to evaluate the findings regarding signature information within a limited interpretive framework in this study.

The results regarding the year of production variable are also noteworthy. The weak but positive relationship between price and year of production, and the borderline nature of this effect in the regression model, demonstrates that the year of production alone is not a decisive economic factor. This result reveals that the value of artworks cannot be simply reduced to whether they are "old" or "new." As seen, value gains meaning not so much from historical time itself, but from the artistic and cultural context of that time. Therefore, in the art economy, the time variable cannot be considered independently of aesthetic and historical classifications.

The most important contribution of these findings to art production in the age of artificial intelligence is that they make visible the foundations upon which economic value is built in the traditional art market. The current dataset does not directly include AI-assisted Works, therefore, the study's contribution to AI is based more on conceptual discussion than direct measurement. However, precisely for this reason, the results obtained raise important questions about the economic valuation of art production in the age of artificial intelligence. If, in the traditional art market, economic value is largely shaped by elements such as art movement, period, and historical-aesthetic context, then how AI-assisted productions will be positioned within these established valuation mechanisms becomes a fundamental area of debate.

Especially in works produced with or developed with AI assistance, concepts such as "originality," "creative subject," "uniqueness of the production process," and "the artist's role" are being reconsidered. This raises the question of to what extent the criteria supporting value in the traditional art market will be preserved or transformed within the context of AI. Since the findings of this study show that economic value is strongly related to aesthetic-historical classifications, it can be assumed that AI-assisted art may similarly produce new classifications, new areas of legitimacy, and new value regimes over time. In other words, the economic value of AI-assisted works will depend not only on their technical production capacity but also on which aesthetic category these works are defined under, which cultural circles accept them as legitimate, and how they are positioned within the art world.

Therefore, the overall argument of this study is that in the art economy, value is not merely a material or technical phenomenon, but also a cultural and symbolic process of construction. In the age of artificial intelligence, this construction process does not disappear on the contrary, it is reshaped by new actors, new forms of production, and new debates. Therefore, to understand the economic valuation of AI-assisted art, focusing solely on variables such as production cost, reproducibility, or technological innovation will not suffice. The real determining factor will be how these new forms of production are classified in the art world, within which aesthetic frameworks they gain meaning, and through which cultural legitimization processes they pass.

In conclusion, this study reveals that in the traditional art market, economic value is particularly related to aesthetic-historical variables such as art movements and periods, thus pointing to the conceptual framework upon which art production in the age of AI should be discussed. The economic valuation of AI-assisted art should not be considered as a completely new field outside the existing market structure, but rather as a contemporary extension of the aesthetic and cultural mechanisms that historically produce value in the art market. Within this

framework, the study positions the relationship between the economics of art and artificial intelligence within a critical discussion supported by quantitative findings.

6. CONCLUSION

In this study, the determinants of the economic value of artworks were examined within the framework of a hedonic approach using an open-source dataset, and the findings were evaluated in the context of art production in the age of artificial intelligence. The analysis results, supported by robust standard errors, reveal that the economic value of artworks has a multi-dimensional structure that cannot be explained by a single factor.

Descriptive statistics showed that artwork prices are distributed over a wide range and are significantly skewed to the right. This indicates that economic value is not homogeneously distributed in the art market rather, a limited number of high-value artworks significantly influence the overall market. This finding supports the idea that the art market has a specific value formation mechanism different from classical market structures.

Findings regarding period and art movement variables show that the economic value of artworks is closely related to aesthetic and historical context. The presence of significant price differences among art movements and the association of certain movements with higher economic values reveal that aesthetic orientations and art historical positioning are decisive in price formation. Similarly, findings regarding the period variable show that the economic value of artworks cannot be considered independently of their historical context.

In contrast, the fact that the variable related to signature information did not show a significant effect in the multivariate model reveals that this variable alone is not a strong economic determinant. Furthermore, the limited and weak effect of the production year variable shows that the value of artworks cannot be explained by simple chronological factors. When these results are considered together, it becomes clear that the economic value of artworks is primarily shaped by aesthetic-historical classifications.

The literature shows that these technologies (artificial intelligence) have significantly expanded artistic production in terms of quantity and accessibility, but that the value premium is mostly concentrated in human-centered segments due to supply pressures at the market level, perceptual biases, and legal uncertainties. This indicates that the economic value of AI-assisted art productions should be evaluated not only in terms of technical production capacity but also in conjunction with elements such as originality, authorship, and aesthetic perception.

When the classic hedonic pricing approach is expanded upon AI-specific attributes (mode of production, human involvement, copyright status, and digital/NFT context) and perceptual components, it offers a powerful analytical framework for the economic evaluation of art in the age of AI. This framework provides a suitable structure for both understanding the market position of AI-produced artworks and examining the institutionalization of AI-based valuation technologies.

One of the most important contributions of this study is that it reveals the fundamental determinants of economic value formation in the traditional art market, offering a basis for discussion on how this structure might transform in the age of AI. Although the dataset used in this study does not directly include works produced by artificial intelligence, the findings clearly demonstrate the elements upon which existing valuation mechanisms are based. This

allows for questioning the position of AI-assisted art production in relation to these established valuation criteria.

The integration of artificial intelligence technologies into art production processes necessitates a reassessment of traditional criteria used to determine the economic value of artworks. In particular, the transformation of concepts such as originality, artist influence, and the uniqueness of the production process within the context of artificial intelligence suggests that the formation of economic value may be shaped by different dynamics in the future. In this framework, it is considered that the economic value of AI-assisted artworks will be related not only to their technical production capacity but also to how these works are classified in the art world and how they are positioned within an aesthetic context.

This study has some limitations. Firstly, the dataset used does not include all variables that could affect the economic value of artworks. Factors such as the artist's level of fame, artwork size, sales channel, and auction conditions are not included in the dataset. Furthermore, the analysis does not directly cover works produced using artificial intelligence. Therefore, the results obtained do not provide a direct measurement of the economic value of AI-assisted art production rather, they offer an indirect assessment through traditional valuation mechanisms.

For future studies, using auction and platform data on artworks produced with AI or through collaborative production processes will allow for a more direct analysis of their economic value. Additionally, how artist influence is reshaped within the context of AI and how market dynamics change in this process stand out as important research areas for future studies.

In conclusion, this study reveals that the economic value of artworks is particularly related to aesthetic and historical context, and based on these findings, offers a conceptual framework for the economic valuation of art production in the age of artificial intelligence. In this respect, the study provides an interdisciplinary contribution by bringing together the literature on art economics, cultural economics, and artificial intelligence on a common ground for evaluation.

Declaration of competing interest

The authors declare no conflict of interest.

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