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Commodity evaluation of decorative and applied art objects

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Abstract. The purpose of this study was to examine the patterns of pricing in the modern Ukrainian market of decorative and applied art objects and to build a mathematical model for predicting the estimated value using the example of products made of wood and metals, as well as to determine the level of financial losses resulting from the destruction or loss during hostilities. Decorative and applied art objects were represented by everyday objects that have become symbols of the material culture of mankind, ethnic and national characteristics. Such works were made of various materials and are widely distributed on the market. The study created a source database, which included 115 samples made of wood and metal: interior wall decorations, mini-sculptures and decorative household items. The value indicators of the samples were distributed from the smallest to the largest and logarithmised to the base 2. As a result, three intervals of distribution of value indicators in the source database were identified. In the second interval, the logarithmic value indicators increased linearly, which made it possible to build a mathematical model for predicting the estimated value in the context of the issue of determining the level of possible losses resulting from the destruction and loss.

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Also, ranges of permissible predicted value indicators were determined for items from the source database. The article provides 3 examples of calculating the estimated value of decorative and applied art objects and compares these prices with the prices offered by sellers. It was found that an interior decoration made of wood was offered for sale at an abnormally low price (79 UAH), an inlaid rachva for jewellery – at an abnormally high price (2,500 UAH), a metal wall panel – at a slightly inflated price (1,500 UAH), but within the regulatory liquidity. The more useful information was published when describing decorative and applied art objects, the higher the sociocultural value and estimated value became. The results of the study showed that decorative and applied art objects made of wood and metals had a market value that was determined by the financial capabilities of potential buyers

Keywords: decorative and applied art objects; wooden products; metal products; value forecasting; value indicators

Introduction

Decorative and applied art objects are cultural monuments and, at the same time, commodities presented on the modern global market in a wide range – personal, interior, exterior and garden decorations, amulets, amateur painting and sculpture, painted household items, clothing, embroidery, ceramics, furniture and home accessories, dishes, ceremonial items, household tools, etc. In addition to the utilitarian purpose, decorative and applied art objects serve as symbols that satisfy people's humanitarian needs in the involvement in ideas about beauty, the work of individual masters, beliefs, the way of social organisation, as well as national traditions professed by individual families, communities, and peoples. The market for decorative and applied art objects has become the object of research by many scientists. Thus, I. Hrabynskyi (2021) considered the methodological problems of analysing the world market for works of art, antiquities, and antiques and considered the valuation to be an important problem, which the author proposed to derive from the sale price at the last auction of such or similar items.

L. Demydchuk (2023) analysed the problems of the market for folk art and souvenir products in Ukraine and noted that very little attention was paid to these local markets. The author noted that organisations and individual masters of folk art often did not have the opportunity to properly organise sales, marketing, trade and educational activities. Also, L. Demydchuk (2021) considered the classification, manufacturing features and commodity valuation of souvenirs and folk art products. L. Bogaychuk *et al.* (2024) noted the underestimation of the market for contemporary art in Ukraine, in particular for objects of decorative and applied art of Ukrainian production, which was found out by the authors based on the results of a survey. Scientists O. Dmytriyeva *et al.* (2023) pointed out that not only the classical art school of the academic tradition has been preserved in Ukraine, but also numerous crafts. For example, Petrykivka and Kyiv painting, wood carving, hand weaving, artistic fabric painting and ceramics exist and are developing. The authors emphasised that the art market in general and the market for objects of decorative and applied art are a window of opportunity for the economy and business.

O. Kalashnykova (2022) noted that art has increasingly become a significant segment of the market of the most profitable goods, and art auctions have become platforms that oppose illegal art business. M. Zinchenko (2023) considered the auction as a cultural and economic phenomenon of the modern artistic process. The concept of the market for art and antiques was considered in two meanings: as the purchase and sale of objects that had artistic value, and as the sphere of commodity and monetary relations that arose between legal entities and individuals regarding the purchase and sale of art and antiques. The author noted that pricing on the art market depended not only on the cost of the created cultural and artistic product, but also on a number of sociocultural factors. M. Besaha (2025) investigated the impact of digital technologies on art historical support of auctions and identified key digitalisation trends that contributed to the modernisation of mechanisms for identifying, evaluating, and promoting works of art. Virtual exhibitions, online auctions, and digital platforms expanded access to the art market, attracting a new audience. The study revealed the potential for the development of new forms of interactive communication between experts, buyers, and sellers, which allowed for a more open and dynamic bidding system. Zh. Denysiuk (2025) noted the importance of art projects of modern decorative and applied arts in shaping the cultural brand and image of Ukraine. Such projects served not only as a means of aesthetic representation, but also as a tool of cultural diplomacy, which contributed to improving the international image of the state. A. Kravets (2025) noted that effectively planned and successfully implemented art projects became ambassadors of Ukrainian art, spreading its unique and inimitable image. Art projects formed trust and interest in Ukrainian decorative and applied art.

Decorative and applied art objects had a complex and diverse specific nature, which allowed for a differentiated analysis of the world market for these objects based on the involvement in the work of outstanding

masters, utilitarian purpose, complexity of the execution technique, materials, and manufacturing technologies used, age and region of origin. At the same time, many years of research into the patterns of market pricing indicated the expediency of ignoring the specific nature and the appropriateness of conducting predictive research based on the study of the permanent distribution of financial capabilities of potential buyers within a given market. The aim of the study was to study the patterns of price formation in the market of decorative and applied art objects in Ukraine and to create a mathematical model for predicting the value, in particular, using the example of products made of wood and metal. Also, within the framework of the study, the task was set to assess the financial losses from the loss of such products as a result of military operations. The study was based on the hypothesis that, based on the analysis of value indicators for decorative and applied art objects exhibited on the open market, it is possible to develop a mathematical model for scientifically substantiated and effective determination of the predicted estimated value of such items.

Materials and Methods

The methodology for studying the market of decorative and applied art monuments involved three main stages of the expert's work. The first stage consisted of creating a database of initial data on a certain type of cultural monuments, as well as on the value. For this purpose, information was used from the Internet sources Violity (n.d.), Rozetka (n.d.), Temu (n.d.) and Prom (n.d.), using data such as a photo of the object, its brief description (dimensions, weight, material, manufacturing technique, author), source of information and cost (or price) at which it was offered to the buyer (Resolution of the Cabinet of Ministers of Ukraine No. 1440, 2003). The number of objects entered into the source database had to ensure a representative sample and contain at least one hundred samples. Therefore, a source database was created, which included 115 samples made of wood and metal: interior wall decorations, mini-sculptures and decorative household items. The total cost of the goods described in the source database was 122586.6 hryvnias. An interior decoration made of wood – a painted duck, about which no information was indicated on the website, except for its dimensions, was evaluated. Also, another product made of wood – an inlaid box for decorations and trinkets, made by the master Vasyl Grepinyak, was considered and a decorative and household decoration made using the laser cutting technique of metal – a wall panel "Zebra of Happiness" was evaluated.

The second stage consisted of the procedure of sorting the source database in order of increasing the value indicators indicated in it. This work allowed displaying the distribution of value indicators on the graph and establish the number of cheap and expensive goods on the market and the ratio. The third stage of the work involved testing the hypothesis of the implementation of the basic law of pricing and building a regression mathematical model to predict value indicators taking into account data on the distribution of financial capabilities of potential buyers on the market. Also, data from the works of V. Indutnyi (2022) and V. Indutnyi *et al.* (2024) were taken into account, where possible losses arising from damage or loss of cultural values were considered and assessed. As examples, the authors of these works took precious stones, rocks, and minerals from museums, graphics, iconography and painting, mosaic works, other types of jewellery. The assessment was based on the results of research into the markets of various cultural monuments and the proposed mathematical models for predicting value. To assess the correlation between the observed and theoretically calculated indicators of the predicted estimated value of works of decorative and applied art, the Pearson correlation coefficient (R^2) was calculated, which allowed assessing the accuracy of the developed mathematical model.

Results and Discussion

Decorative and applied art was distinguished by its devotion to traditions, the preservation of its forms and decorative elements developed and polished over the centuries. At the same time, there was a constant process of expanding the subject, using new materials, and improving production techniques (Zapasko, 2000). The analysis of the market for decorative and applied art objects was carried out on the basis of studying the combined distribution of value indicators of decorative and applied art objects made of wood and metals. The first interval of value indicators of objects presented for sale (from the first to the 12th sample) was 10.43% of the entire sample and corresponded to value indicators from 3 to 100 hryvnias per sample. The second interval – from 13 to 42 samples – was 26.09% of the entire sample of decorative and applied art objects, with a cost from 101 to 250 hryvnias. The third interval – from 43 to 68 samples – accounted for 22.61% of the entire sample and was valued at 250 to 500 hryvnias per sample. The fourth interval – from 69 to 84 samples – accounted for 13.91% of the total number of samples in the source database and had value indicators in the range from 500 to 1000 hryvnias. The fifth interval – from 85 to 101 samples – accounted for 14.78% and had value indicators in the range from 1000 to 2000 hryvnias. Moreover, the interval from the first to 101 samples, which recorded a cost level of up to 2000 hryvnias, described 87.82% of the entire sample. The sixth interval included 14 samples with a cost of more than 2000 hryvnias (12.17% of the sample). It was impractical to highlight the remaining intervals, as these intervals covered a very small number of figurative points (Fig. 1).

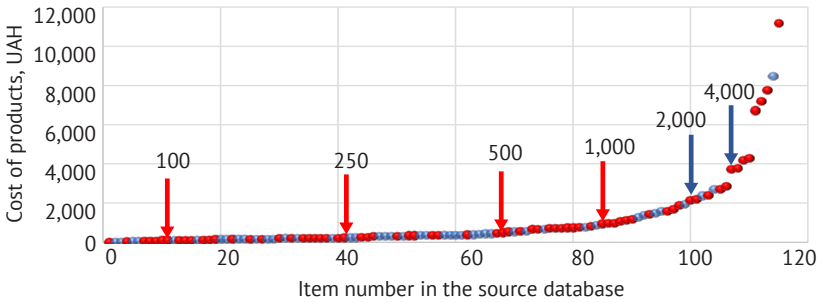

Figure 1. *Polygon of distribution of value indicators for decorative and applied art objects, built on the basis of the source database created on 10.08.2025*
Note: *red dots indicate products made of wood, blue dots indicate products made of metals: iron, bronze, nickel silver and cast iron*
Source: *based on Viority (n.d.), Rozetka (n.d.), Temu (n.d.), Prom (n.d.)*

The polygon of distribution of value indicators showed that the market value indicators of wooden and metal products in the space of the graph were distributed evenly, covering the range from the smallest to the largest values recorded in the source database. This meant that the potential buyer did not consider it necessary to divide decorative and applied art objects by material, execution technique or manufacturing complexity. The potential buyer's attention was drawn to the possibility of purchasing things that were most suitable for satisfying the potential buyer's own humanitarian needs and within the available financial capabilities. Decisions were made individually, taking into account the aesthetic impressions from observing the objects, the authorship of the presented works, as well as the availability of particularly valuable materials, for example, mahogany and ebony, bronze or silver. Figure 1 showed the financial capabilities of people to purchase decorative and applied art objects on the Ukrainian market, since the cost of the objects was formed freely in the interaction of sellers and buyers. It can be stated that 87.82% of potential buyers were ready to acquire goods valued at no more than 2,000 hryvnias per sample (or 41.428 euros) (as of 10.08.2025 the euro exchange rate was 48.276 hryvnias) (MinFin, 2025).

Also, buyers were ready to purchase cheaper goods if these goods were suitable for satisfying the buyers' humanitarian needs. Having information on the number of goods sold in each of the selected intervals (such information was confidential for many market participants), it became possible to assess the liquidity, but only goods with a value of up to 2,000 hryvnias should be considered liquid by regulation. It is worth noting that the sellers were well-informed about the needs of potential buyers and were interested in carrying out trading operations with maximum benefit for the sellers. Thus, the polygon of value indicators reflected the market for works of decorative and applied art, taking into account value indicators and the number of buyers. The construction of a mathematical model for predicting the value of decorative and applied art objects assumed compliance with the law of pricing, which linked the estimated value of the object and the amount of information about it in bits (Indutnyi, 2022). The formula for determining the predicted estimated value will be as follows:

$$C = \alpha * 2^N, \quad (1)$$

where C is the predicted estimated value; α is the estimation base; N is the amount of information in bits; 2^N is the integrated quality indicator, which is measured in exbits (exb).

From formula (1), it is clear that for an empirical study of the relationship between the value of objects C and the amount of information about those objects N, it is necessary to logarithmise the value indicators described by the ordinate axis to the base 2 in order to observe this polygon in values proportional to N – the amount of information about those objects (Fig. 2).

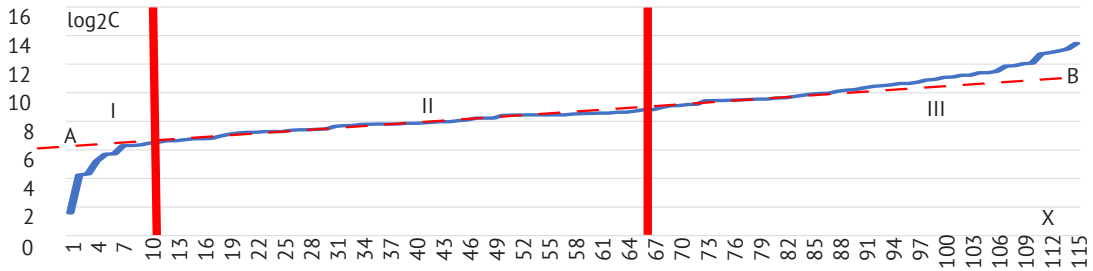

Figure 2. *Distribution of item value indicators after logarithmisation, built on the basis of the original database*
Note: *the ordinate axis is the logarithmised base 2 cost (log_2C); the abscissa axis is the item number (X) in the original database. The vertical lines divide the entire polygon of indicators into 3 intervals. The line AB approximates the trend of cost growth within the second interval*
Source: *based on Viority (n.d.), Rozetka (n.d.), Temu (n.d.), Prom (n.d.)*

V. Indutnyi (2022) presented a protocol for accounting for the amount of known information about an item, which contained a list of criteria for evaluation in bits. The most important criteria for evaluating decorative and applied art objects were: "Relationship of the monument to cultural traditions", "Reproduction", "Age of the monument", "Level of recognition of the author", "Relationship of the monument to outstanding manufactories and schools" and "Level of technical perfection". The protocol provided a ranking of the evaluation criteria. After evaluation by individual criteria, a general indicator was determined by multiplication, which reflected the amount of positive information about the object and was used in further modelling. In the first interval (I) in Figure 2 (1-12 samples) there were abnormally low indicators, for which the distribution was characterised by a rapid increase in specific value indicators. Underestimation by sellers of the starting price at auctions became thoughtful actions that were associated with the desire to interest a larger number of buyers. Low value indicators can be explained by the fact that there is no demand for some items at the time of sale, but sellers want to sell these items. Also, unprofessional manufacturing of the item, violation of characteristic stylistic features and carrying out rough restoration work reduces the value of works of decorative and applied art. Given the variety of reasons for undervaluation of decorative and applied art, which was observed in the first interval in Figure 2, meaningful prediction of value based on the law of pricing is impossible. At the same time, abnormally low indicators were useful, because these indicators allowed having an idea of the minimum levels of liquidation value (Indutnyi *et al.*, 2024). In the second interval (II) (from 13 to 67 samples) logarithmic value indicators increased linearly and proportionally to the available information about the monument, and also in full accordance with the law of pricing, this trend was reflected in the graph. So, it is worth calculating the parameters of the linear regression equation that described this trend:

$$C = 2^{0.038 * x + 6.33} = 86.39 * 2^{0.038 * x}, \quad (2)$$

where C is the indicator of the predicted estimated value; x is the sample number in the table of initial data.

The value 86.39 indicated the point of intersection of the approximating function of the ordinate axis and was a mathematically modelled "evaluation base" ("α") (Resolution of the Cabinet of Ministers of Ukraine No. 1440, 2003), which was determined in hryvnias, and at the same time the minimum theoretically justified value of a work of decorative and applied art, which was put up for sale in the auction mode. There was no positive information for such a work. The point was in the first interval of abnormally low value indicators. In the second interval, forecasting value indicators based on the pricing law became appropriate, which was reflected in Figure 3 and the Pearson correlation coefficient (R^2).

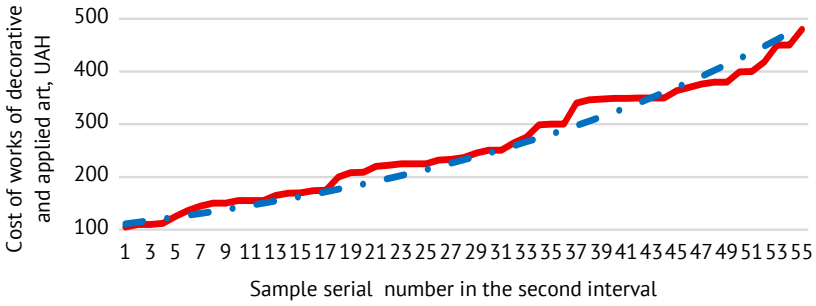

Figure 3. *Distribution of value indicators for decorative and applied art objects in the second interval*
Note: *the solid line represents the recorded value indicators. The dash-dotted line reflects the theoretical dependence. Pearson correlation coefficient (R^2) = 0.98*
Source: *based on Violity (n.d.), Rozetka (n.d.), Temu (n.d.), Prom (n.d.)*

The third interval (III) of the distribution of value indicators in the source database – from 68 to 115 samples – was described by an increasing uncertain function and did not demonstrate compliance with the law of pricing. At the same time, if the figurative points from the third interval are moved to the right, arbitrarily increasing the own numbers in the source database (along the abscissa axis), then the points will lie on the theoretical straight line AB, described by the regression equation in the second interval. Thus, by performing these operations, it is possible to virtually supplement the number of samples in the source database and determine the imaginary number of the sample, based on the described regression equation and the amount of useful information about it in bits. This method simulated the process of artificial expansion of the source data distribution polygon along the "X" axis. For example, if a sample of a decorative and applied vase, indicated as number 110 in the source database (flare "Kosiv", 28 × 19 cm), had a declared cost of 4300 hryvnias (Kosiv painted ceramics, 2025), then its new virtual number in the database – "X", calculated based on the regression formula (2), can be found by solving the equation:

$$4{,}300 = 86.39 * 2^{0.038 * x} \rightarrow 49.774 = 1.027^{x} \rightarrow x = \\ = \log_{1.027}(49.774) = 146.667 \text{ or } x \approx 147. \quad (3)$$

The sample number is an integer, so rounding was performed. The estimated cost of this work of decorative and applied art, calculated on the basis of the new virtual number, will be 4149.7 hryvnias and will differ from the price declared by the seller by only 3.5%. This is a good indicator of the reliability of the forecast and justifies the calculation of the virtual number. If making an extrapolation assumption about the inclusion of numerous imaginary samples in the source database, then for items from the third interval it is possible to calculate new virtual numbers, while the implementation of the pricing law will be observed within all intervals described in Figure 2. The forecasted value indicators in the third interval will differ slightly from those recorded due to rounding in the calculations of the value "X". In this case, abnormally low value indicators will be replaced by new ones – forecasted ones. The application of extrapolation assumptions is possible provided that the pricing law is implemented in the second interval.

The observed value indicators in the third interval should be considered anomalous (Indutnyi *et al.*, 2024), since these indicators were not directly described by the law of pricing and, accordingly, were considered unsuitable for creating reasoned predictive conclusions, because in expert work it is worth using only mathematical models that can be verified by third-party experts. At the same time, the price recorded at the auction was also partially justified, although it depended on the action of emotional factors. Determining the influence of emotional factors on the formation of market value became a separate task that required theoretical development and concerned the explanation of the phenomenon of unmotivated increase in value indicators during auction trading. At the same time, unmotivated underestimation of value was not considered at all due to the lack of such a need. The emotional factor present during the competitive struggle of potential buyers was indirectly determined by the difference between the predicted and market value, which could also be described by the amount of information about the emotional state of the seller, associated with the seller's intuitive premonitions about the presence of an interested and financially capable buyer on the market. For the already described conditional example of a decorative and applied vase, the amount of additional information that described the emotional state of the seller or potential buyers during the auction trade can be determined in bits (Goleman, 2005). If C1 is the predicted value of the product, C2 is the market value declared by the seller or formed as a result of auction trading, and C1 < C2, then the amount of emotional information (N) for the decorative and applied vase under number 110 will be:

$$N = \log_2(C2/\alpha) - \log_2(C1/\alpha) = \log_2(4{,}300/86.39) \\ - \log_2(4{,}149.7/86.39) = 0.051. \quad (4)$$

Since the result N = 0.051 bits is a value less than one, it is reasonable to assume that information about the influence of the emotional factor on trading is absent or insignificant. Therefore, the proposed approach to forecasting value indicators in the third interval, which is associated with ignoring the influence of the emotional factor and calculating the virtual number, is fully justified. The mathematically predicted and market indicators of specific value are distinguished. The difference between these indicators does not require explanation – it is unmotivated and intuitively formed. Fulfilment of the condition when $N \geqslant 1$ bit should be considered as a criterion for the presence of a significant influence of the emotional factor on pricing. This situation arises only in the conditions of selling an item in the auction trading mode. In addition, the description of the emotional factor of influence is not described by any criteria, since it is based on the intuition of market participants.

It is worth noting that the final auction prices for decorative and applied art objects cannot be used in calculating losses, pledges and investments, since such prices depend on permanent trading circumstances and are not subject to theoretical justification. However, the Order of the Ministry of Culture and Arts of Ukraine No. 325 (1998) recommends the use. Knowing the value "C", predicted by the extrapolation method, and the "assessment base" – "α", it is possible to calculate the amount of positive information in bits, which is theoretically necessary to substantiate the estimated value according to the Resolution of the Cabinet of Ministers of Ukraine No. 1440 (2003) for each of the samples of decorative and applied art objects presented in the source database:

$$C = \alpha * 2^{N} \rightarrow C/\alpha = 2^{N} \rightarrow N = \log_2(C/a). \quad (5)$$

The calculation yielded real numbers, however, only integers were used to determine the amount of information (in bits) (Shannon, 1948; Cruces, 2019), so it was necessary to round off. Therefore, the predicted estimated value of the studied objects belonged to the information interval {(N – 1);(N + 1)}. The permissible error of the expert was ±1 bit of information in the protocol to account for the amount of known information about the object. The range of permissible predicted indicators expanded in accordance with the increase in the level of information security of the object of assessment (Fig. 4).

Depending on the content of the expert task, the result of predicting the value of decorative and applied art objects can be either the average value of the estimated value or the interval of values {min(C) – max(C)}. In this case, the interval increases with the increase in the predicted value of the works, i.e. a more valuable

item has a less unambiguous estimate. The more likely price after the auction is ΣC, the justified level of liquidation value is min (C), and the highest justified price is max (C). Therefore, when carrying out expert activities, it is worth noting possible (non-anomalous) indicators and providing explanations for anomalous indicators in case these indicators are achieved during the bidding process. Figure 4 shows justified value indicators for works of decorative and applied art. Since the sale of objects is influenced by many factors, it is possible to encounter anomalous value indicators associated with the action of emotional factors. The total number of objects in the first and third intervals determines decorative and applied art objects with anomalous value indicators. In this study, 60 such samples were used, which amounted to 52.17% of the total number of decorative and applied art objects described in the source database. Therefore, it was important to show the possibility of making the forecasting procedures used by the expert fully substantiated and suitable for independent audit. Figure 5 shows the first example of forecasting the cost of a work of decorative and applied art, namely an interior decoration made of wood, put up for sale on the Apricot website. There is no information about the availability of useful information about the work. The price of the work from the seller is 79 hryvnias.

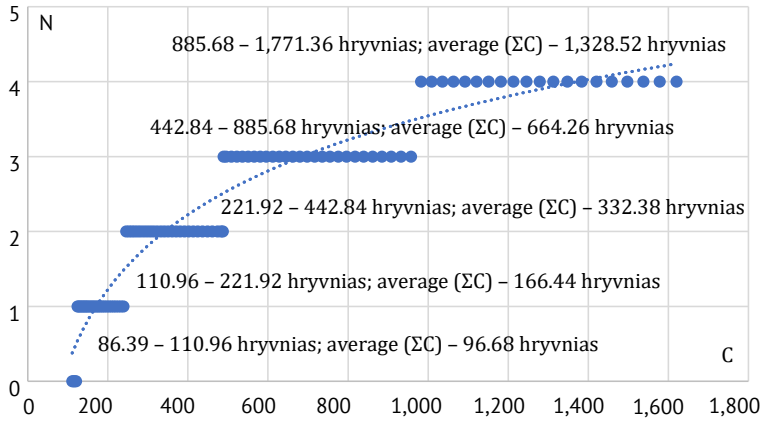

Figure 4. *Projected value indicators for decorative and applied art objects from the source database*
Note: *the ordinate axis is the number of positive information in bits (N), and the abscissa axis is the predicted value indicators for decorative and applied art objects (C). The dotted curve indicates the trend of growth of the average (ΣC) values of the estimated value of decorative and applied art products on the Ukrainian market*
Source: *developed by the authors*

Figure 5. *Painted wooden duck (10.5 × 6 × 5 cm)*
Source: *Apricot Opt (n.d.)*

Given the absence of any positive information about the quality of this item (N = 0), the predicted estimated value will be: C = 86.39 × 20 = 86.39 hryv nias. This indicator exaggerates the price offered by the seller, therefore, the value of this work of decorative and applied art on the market should be recognised as abnormally low. The average estimated value of this item is 98.68 hryvnias. This indicator can also be used in expert forecasting the estimated value. The second example is an inlaid rachva for jewellery and trinkets, put up for sale on the Chichka website. Material: pear wood, mother-of-pearl, beads. Size: 17 × 6 cm. Hand-made by a craftsman from the village of Richki, Vasyl Grepinyak. The current price of the work from the seller is 2,500 hryvnias (Fig. 6).

Figure 6. *Inlaid rachva for decoration*
Source: *Chichka (n.d.)*

The estimated value, which is calculated based on the protocol for assessing the sociocultural significance of a cultural monument, which takes into account information about the subject's involvement in folk traditions and the level of recognition of the craftsman at the national level (N = 4), is determined as follows: C = 86.39 × 24 = 1,382.24 hryvnias. This figure is

significantly lower than the price offered by the seller, therefore, the value of this work of decorative and applied art on the market is declared abnormally high – more than 2,000 hryvnias, which are more affordable for a potential buyer. The third example (Fig. 7) is the wall panel "Zebra of Happiness" – a decorative and applied decoration made using the laser cutting technique of metal and presented on the Ekans website. The price of the work, declared by the seller, is 1,500 hryvnias.

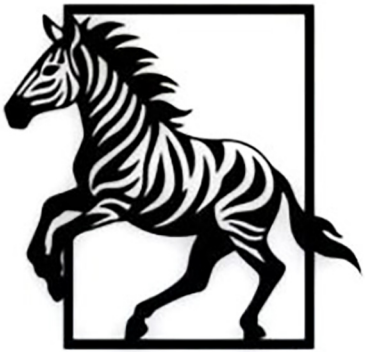

Figure 7. *Wall panel "Zebra of Happiness"*
Source: *Ekans (n.d.)*

The estimated value of this work was calculated based on the protocol for assessing the sociocultural significance of a cultural monument, which took into account useful information about the high technical perfection and relatively large dimensions of the work (N = 4), and is determined as follows: C = 86.39 × 24 = 1,382.24 hryvnias. Therefore, the price offered by the seller on the website is slightly overstated, but is within the regulatory liquidity of 2,000 hryvnias. Thus, the developed mathematical model for predicting the estimated value of decorative and applied art objects made of wood and metal allowed determining the value based on the accounting of known useful information. In addition, this model can be used to analyse the prices for these goods set by sellers – whether the prices are justified or not.

Other scholars have also dealt with the issues of predicting the value of works of art and antiques. O. Kalashnykova (2006) presented a fundamental work on the basics of art historical expertise and valuation of cultural values, which was referred to by many scholars. An important feature of the book was the coverage of methods for attribution and expertise of objects of historical and cultural significance, as well as modern methods for determining the value of works of art. B. Platonov (2013) reviewed the existing approaches, principles, and methods of evaluation, which were considered classics of evaluation and the features of the application in the assessment of cultural values, special attention was paid to the consideration of cost and comparative approaches to evaluation. V. Karpov & Zh. Denysiuk (2020) described expert activities in Ukraine related to the study of movable monuments of history and culture, and presented a methodology for determining the estimated value of museum objects. A. Dmytrenko (2024) revealed the essence and practical use of the state methodology for the examination of cultural values, in particular, determining the insurance value of museum objects, and provided a brief analysis of the author's methods for conducting an appraisal examination. O. Vagonova *et al.* (2022) proposed to improve the conduct of commodity appraisal of antiques and collectibles, presenting a formula for calculating the predicted market price and a list of parameters for determining the collector's premium. Thus, the mathematical model presented in the study for predicting the estimated value of decorative and applied art objects expanded the existing base of scientific research, in particular for products made of wood and metal.

Conclusions

Thus, decorative and applied art objects made of wood and metals had a market value that was determined by the financial capabilities of potential buyers, the cost of the materials from which those works were made, and the manufacturer's overhead costs. When predicting the estimated value of decorative and applied items, it is advisable to use a single valuation base – 86.39 hryvnias per sample. The results of these calculations were reasonable and corresponded to the mathematical model built on the basis of the law of pricing. The quality of forecasting the estimated value of decorative and applied items was high and was briefly assessed by the correlation index between the observed and theoretically calculated indicators at the level of 0.98 according to K. Pearson.

The nature of the distribution of value indicators for decorative and applied items on the open market indicated the possibility of distinguishing separate groups of goods according to the liquidity level, as well as determining the upper limit of price indicators favourable for the rapid sale of goods. 87.82% of potential buyers on the Ukrainian market were ready to purchase decorative and applied art objects worth up to 2000 hryvnias per sample. The high level of sociocultural significance of decorative and applied art objects contributed to the manifestation of emotional factors of potential buyers, which allowed sellers to reasonably increase the value and liquidity. The more useful information was taken into account when describing decorative and applied art objects, the higher the sociocultural value became and the wider the range of theoretically justified predictive indicators of estimated value. The estimated value of decorative and applied art objects presented on the Ukrainian market should be determined as an average indicator in the range of possible predicted values. 3 examples of the evaluation of decorative and applied art objects were given, and it was established that an interior decoration made of

wood – a painted duck – was offered for sale at an abnormally low price (79 UAH), an inlaid rachva for decorations – at an abnormally high price (2,500 UAH), a wall panel made of metal – at a slightly inflated price (1,500 UAH), but within the limits of regulatory liquidity. Final auction prices for decorative and applied items cannot be used when calculating losses, pledges and investments, since these prices depend on permanent circumstances of the auction and are not subject to theoretical justification. The prospect of further research is to consider other types of decorative and applied items, create a database of initial data and build a mathematical model to predict the estimated value.

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Товарознавча оцінка творів декоративно-ужиткового мистецтва

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Анотація. Метою цього дослідження було вивчити закономірності ціноутворення на сучасному українському ринку декоративно-ужиткових предметів та побудувати математичну модель для прогнозування їх оціночної вартості на прикладі виробів, створених з дерева і металів, а також визначити рівень фінансових збитків від їх втрати в ході воєнних дій. Твори декоративно-ужиткового мистецтва представлені предметами побуту, які стали символами матеріальної культури людства, етнічних та національних особливостей. Вони виготовлялися з різноманітних матеріалів і широко розповсюджені на ринку. У дослідженні було створено базу вихідних даних, до якої було внесено 115 зразків, виготовлених з дерева та металу: інтер'єрні настінні прикраси, міні-скульптури та декоративні побутові речі. Вартісні показники зразків були розподілені від найменшого до найбільшого та логарифмовані за основою 2. В результаті було виділено три інтервали розподілу вартісних показників в базі вихідних даних. В другому інтервалі логарифмовані вартісні показники зростали лінійно, це дозволило побудувати математичну модель для прогнозування їх оціночної вартості в контексті питання про визначення рівня можливих збитків від їх втрати. Також, для предметів з бази вихідних даних було визначено діапазони допустимих прогнозованих вартісних показників. В статті наведено 3 приклади розрахунку оціночної вартості декоративно-ужиткових предметів і здійснено порівняння із цінами, запропонованими продавцями. Встановлено, що інтер'єрна прикраса з дерева пропонувалася до продажу за аномально низькою ціною (79 грн), інкрустована рахва для прикрас – за аномально високою ціною (2500 грн), настінне панно з металу – за незначно завищеною ціною (1500 грн), але в межах нормативної ліквідності. Чим більше корисної інформації було опубліковано при описі декоративно-ужиткових предметів, тим вищою стала їх соціально-культурна цінність та оціночна вартість. Результати дослідження показали, що твори декоративно-ужиткового мистецтва з дерева та металів мали ринкову вартість, яка визначалася фінансовими можливостями потенційних покупців

Ключові слова: декоративно-ужиткові предмети; вироби з дерева; вироби з металів; прогнозування вартості; вартісні показники