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Original Article

Economic Lessons of AI Intrusion into the Art World

[1]Carlos A. Ponzio
[1]Department of Economics, ITESM, Campus Monterrey, N.L., Mexico

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Abstract: *Human choices are not the result of simple needs or genetic programming. They are close to enjoyment and pain avoidance: not defined in the void, but as psychological responses towards an experience, which is full of knowledge and prejudices, and sometimes of attachments drawn from ignorance. These elements form prices. The work of art, on the other hand, is a symbolic discourse. When something looks strange to us, it is because its symbols are unfamiliar. It may be creative and not so beautiful, at first. Science requires insight, and Art provides a special form of insight. It is a specific kind of science that we, as economic agents, sometimes confuse with enjoyment. Artificial Intelligence (AI), modeled on human behavior and language has revealed that Human beings confuse or are unaware of their true Marginal Rates of Substitution to the extent that they are influenced by factors traditionally considered "information" by economists, and which AI has revealed to be nothing more than noise, prejudices, and ignorance, mixed with some truth, sometimes. Current markets are not always reliable in answering the question of what constitutes Art. This essay proposes that decisions about which art products should be considered art and which are merely attempts with no future in the market are made through expert opinions, based on two concepts: Beauty and Creativity.*

Keywords: *Artificial Intelligence and Economics, Art Intelligence, Beauty and Creativity, Virtual Economy Models.*

I. INTRODUCTION

The simplest model of human creation combines two different elements: the most complex human creation we know is, precisely, a human being, born from the combination of female and male elements. Human-made creations usually solve a need. It comes from an economic problem, at least to some extent. Mathematics was born from commerce and taxation, and from agricultural and travel needs that were solved through astronomical observations. Human and economic interactions, therefore, are the basis of all creation. Even the religious need for the myth of creation solves an economic problem, the need for an answer to the question: What do we do on Earth? The discovery or invention of Agriculture was the first interaction between human intelligence and non-human intelligence: Nature.

Artificial Intelligence is the latest development of a collaboration between human and non-human intelligence. Part science, part random: That's the current state of AI output. What are the implications for Art Markets? The answer depends on another question: Why do we need Art? That is something that will probably change very soon, as further developments of AI are made public. AI can be both an exogenous and an endogenous variable.

Without going too deep into the differences between art and entertainment (they both are being affected by AI), I will simply accept that Art is one of the human endeavors that must be preserved until the end of time. It inspires and gives sense to our ordinary existence. In the end, Art is a dream that helps us keep moving, no matter what the circumstances are. It makes us feel the touch of divinity. It is nature divinely transformed by human beings. It is the most permanent artifact that is human-made, making us close to eternity. The artist who conquers the Art World is a species of demigod: future generations will talk about him.

Are art markets ready to embrace AI art or AI combined with Human Intelligence (HI) art? Will markets still be the best way to allocate resources in a world dominated by AI-HI collaborations? The speculative answer I offer in this essay is a simple "no". Markets will be transformed, and we still do not know how. But AI models for Art creation are already changing our perspective on optimality and the economy we live in. I will go now to the details of such a claim.

Section 2 summarizes what AI computational models are. Section 3 argues that Insight is an essential element in human choice and creation, and it is not currently involved in AI models. Higher degrees of interaction between AI and humans are required to help us construct AI intelligence with insight. AI-HI Art creations, as currently practiced by artists, are a good example of how this type of collaboration may work in the future in all endeavors where AI is involved.

AI models can create much more art than the human mind can absorb and evaluate in a lifetime. Therefore, a choice rule over AI models is necessary. A proposal based on collaborative and expert grading of beauty and creativity in a work of art (or

AI model) is presented in Section 4. Finally, the need to integrate choice rules into the AI model is brought to attention, neither against nor in favour of it. But care must be taken. AI has introduced a new form of knowledge. We live in some kind of Divine Matrix where humans are not perfect, not even when trying to reach optimality through markets. Markets may be perfect, but the human mind is not.

II. ARTIFICIAL INTELLIGENCE

Computational science (Russell and Norvig, 2020; Goodfellow et al., 2016) states that the characteristics that transform any intelligence into an artificial intelligence are the following: It must be able to perform tasks that normally require human intelligence, but from machine learning algorithms and techniques that allow the machine to process large amounts of data, learn patterns, and make decisions or take actions based on that data. Other methodologies will certainly be added soon. We do not know if the human brain works like an AI, but we must start somewhere, so we can accept that initially.

The key components of artificial intelligence are defined by machine learning algorithms that allow artificial intelligence to learn from data by identifying patterns and extracting relevant features. The most used algorithms are supervised, unsupervised and reinforcement learning. There are also Natural Language Processing (NLP) models. There are artificial intelligence systems that interact with human language, such as chatbots or voice recognition systems, and these NLP models can understand and generate text in a similar way to the way a human being would. We must also consider Artificial Neural Networks, which are computational models inspired by the human brain's functioning. Deep neural networks have proven to be highly effective in a wide range of artificial intelligence tasks, including image recognition, speech processing, and machine translation. We can also find optimization and training techniques that improve the performance of artificial intelligence. Various optimization and training techniques are used, such as stochastic gradient descent, regularization, and data augmentation techniques, among others.

Artificial intelligence combines these elements to simulate human intelligent behavior in carrying out specific tasks, using specific techniques and algorithms for data processing and decision making. For an economist, it is important to keep in mind that Artificial Intelligence is faster than the human brain at generating solutions, but it lacks the insight that motivates human behavior. It lacks the incentives that motivate humanity to carry out specific actions, such as those that have defined the Transcendence in the History of Fine Arts throughout the centuries. Suppose the reader thinks that it is simply a matter of feeding the appropriate equations or objectives into the computational model to arrive at a humanly optimal solution. In that case, we are overlooking three philosophical concepts that are not part of the economist's language, but are elements of human knowledge. Among them: Insight.

Before I talk about this in the next section, let me summarize that Artificial Intelligence has already had a significant impact on art markets in several ways:

1. Creation of AI-Generated Art: AI algorithms, particularly generative models like Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs), can create original artworks. These AI-generated artworks have garnered attention in the art market, with pieces being sold at auctions and exhibited in galleries. This has expanded the range of artistic creation and challenged traditional notions of authorship.

One prominent example of AI-generated art that was sold at auction is "Portrait of Edmond de Belamy." This artwork was created by an AI algorithm developed by the Paris-based art collective Obvious using a Generative Adversarial Network (GAN). In October 2018, "Portrait of Edmond de Belamy" was auctioned at Christie's in New York and sold for around $432,500, which was a groundbreaking moment for AI-generated art entering the traditional art market.

This sale sparked discussions about the intersection of AI and art, the role of algorithms in creative processes, and the value of machine-generated artworks in the art world. It also highlighted the growing interest and acceptance of AI-generated art among collectors and institutions.

2. Accessibility and Democratization: AI tools have made art creation more accessible to a broader range of people. For example, AI-powered software can assist artists and amateurs in generating ideas, refining compositions, and even creating entire artworks. This democratization of art creation has led to a proliferation of diverse styles and perspectives in the art market.

AI-generated art is accessible to aspiring artists and creators who may not have traditional artistic training or resources. AI tools and software allow individuals to explore and express their creativity in new ways, regardless of their background or skill level. AI-powered software tools like deep learning algorithms and generative models are becoming more user-friendly and widely available. A simple, verbal instruction may be all that is needed to generate a new image. This enables artists to experiment with digital art, generate complex compositions, and explore innovative techniques without the need for specialized technical knowledge.

Many AI art tools are accessible at low or no cost, particularly open-source platforms and community-driven projects.

This affordability lowers barriers to entry for artists who may not have the financial means to invest in expensive art supplies or software licenses. AI-generated art can encompass a wide range of styles, from traditional to abstract, surreal, and experimental. This diversity enables artists to explore various artistic genres and express their unique perspectives, thereby contributing to a more inclusive and diverse art scene. Creativity is at one´s hand disposal.

AI also facilitates global collaboration and knowledge-sharing among artists and creators from diverse cultural backgrounds. Online platforms and communities enable artists to collaborate on AI art projects, share insights and techniques, and showcase their work to a worldwide audience, fostering a more interconnected and collaborative art ecosystem.

And most importantly, AI algorithms can generate endless variations of an artwork, based on input parameters, sparking creative exploration and experimentation. This freedom to explore different artistic possibilities encourages artists to push boundaries, challenge conventions, and discover new artistic directions.

In summary, AI-generated art contributes to democratization by providing accessible tools, affordable resources and diverse artistic styles to a broader range of individuals, thereby democratizing the art-making process and promoting inclusivity in the art world.

3. Data Analysis and Market Insights: AI is also used for data analysis and market insights in the art world. It can analyze trends, predict market movements, and provide valuable information to artists, collectors, galleries, and auction houses. This data-driven approach helps stakeholders make informed decisions regarding pricing, marketing strategies, and investment opportunities.

4. Personalized Recommendations: AI-driven recommendation systems are used by online art platforms to provide personalized recommendations to buyers based on their “preferences” and browsing history. This enhances the user experience and can lead to increased sales and customer “satisfaction”.

5. Art Conservation and Authentication: AI technologies are employed in art conservation and authentication processes. For instance, AI algorithms can analyze artworks to detect forgeries, assess the condition of a piece of art, and recommend preservation techniques. This ensures the integrity of the art market and helps protect collectors and institutions from fraudulent practices. These are still imperfect tools, but improvements can be made soon.

6. Impact on Traditional Art Practices: The presence of AI in the art market has sparked discussions about the role of technology in art and the boundaries between human creativity and machine-generated art. This has led to collaborations between artists and AI researchers, pushing the boundaries of what is possible in artistic expression.

An example of collaboration between AI and human creation is the "AICAN" project by Dr. Ahmed Elgammal and his team at the Art and Artificial Intelligence Laboratory at Rutgers University. AICAN (Artificial Intelligence Creative Adversarial Network) is an AI system that collaborates with human artists to produce new images. With totally different outputs, other, similar AI models are collaborating with music performers and composers, like those employed in the Center for Practice and Research in Science and Music (PRiSM) at the Royal Northern College of Music, Manchester, UK, directed by Emily Howard. In popular music, IA is in part responsible for completing the most recent (and incomplete) song by The Beatles, “Now and Then”.

The collaboration involves training the AI using a dataset of artworks from various styles and periods. This training helps the AI learn patterns, styles, and techniques used in art. Then, AICAN uses Generative Adversarial Networks (GANs), a type of deep learning algorithm, to generate new artworks. The AI can produce original pieces based on the patterns and styles it has learned from the training data. Human artists collaborate with the AI by providing input, guidance, and feedback. They can interact with the AI system to steer the creative process, make artistic decisions, and refine the generated artworks. The collaboration between the AI and human artists is often iterative, with multiple rounds of generation, evaluation, and refinement. This iterative process allows for experimentation, exploration of new ideas, and the creation of diverse artworks. The final artworks produced through this collaboration reflect a blend of AI-generated elements and human creativity. They showcase the unique synergy between AI algorithms and human artistic sensibilities. Though all these topics may be important, this paper concentrates on points 3, 4 and 6, because of their impact on resource allocation and innovation in the art market.

III. INSIGHT AND KNOWLEDGE

Intuition refers to the ability to comprehend or perceive something directly and instantaneously, without relying entirely on reason or logical reasoning. It is a form of knowledge that seems to arise spontaneously, without the need for conscious process or detailed analysis.

Characteristics of intuition include:

1. Speed: Intuition is often experienced quickly, without the need for extensive analysis or deep reflection.

2. Inner Feeling: Intuition is often associated with an inner feeling or hunch. It can be perceived as a sense of certainty or conviction without an immediate logical explanation.

3. Implicit Knowledge: Sometimes, intuition is based on prior knowledge and experiences that are implicitly stored in the mind, even if they cannot be expressed consciously.

3. Creativity: Intuition often plays a role in the creative process, allowing for unexpected connections or innovative ideas.

4. Unconscious decisions: In the realm of decision-making, intuition can influence decisions that are made quickly and seemingly without detailed conscious analysis.

Importantly, intuition is not always infallible and can be influenced by cognitive biases, previous experiences, and other factors. Although it is sometimes associated with an "instinctive" sense of knowledge, it is not always a reliable substitute for critical thinking and logical reasoning.

The relationship between intuition and reason has been the subject of debate in fields such as philosophy and psychology. Some argue that intuition can provide valuable information and complement conscious reasoning, while others caution against the need to be wary of decisions based solely on intuition.

In a sense, Artificial Intelligence may be a substitute for Intuition when it is confronted with new problems. But in general, it tends to be unreliable unless helped by the human mind. There is a tendency for AI models to satisfy a human need, so they provide tentative answers that can just be hallucinations. Two examples will help me clarify this point.

From this researcher's experience, I can tell that I once asked ChatGPT for the formula of Cobb-Douglas demands. Instead of asking a clarifying question, the AI model provided the formula of a Cobb-Douglas production function, rather than a regular demand for goods or factors arising from Cobb-Douglas utility or production functions. So, when confronted with problems that are not well understood by human intelligence, it can just blow up the world to satisfy the human need to get an answer.

In another example, I asked the AI chat to name the best composer born in Monterrey, N.L., Mexico. It answered with the name of Juan Gabriel. Again, the computational model did not ask for clarifying questions, such as: What kind of music are you talking about? When I told ChatGPT that Juan Gabriel was not from Monterrey, but from Michoacán or Juárez, it excused its answer by telling "That's right, he was born in Juárez, but he stayed in Monterrey for some time. (Did he come to the city to offer a concert?). I cannot tell if ChatGPT knew Juan Gabriel was born in Juarez or Michoacán, and tried to please me with an answer giving the name of an important composer from Monterrey, or if it did not know where Juan Gabriel was born and tried to please me afterwards giving me the reason that Juan Gabriel was born in Juarez when I complained about its first answer. That is something important to consider when programming Artificial Intelligence. Not only are recognizing ignorance or a "does not exist" answer less dangerous, but asking clarifying questions can also be helpful.

Henri Ponciaré's influence on our understanding of creativity, insight, and problem-solving may be significant, providing new tools to incorporate into AI models. To some point, psychologists have modified their model only slightly his model to reflect recent advances in neuroscience and other fields. The French scientist talked about periods of intense search and brain work, interceded by periods of rest, when looking for an answer to a question. That's how the human brain works to solve new problems and create new works of art, according to the psychologist's point of view (Kahneman and Tversky surely have influenced the economist's way of thinking about economic problem solving, too). But Artificial Intelligence is different in that respect from the human brain. It lacks rest. What happens in the human mind during those periods of rest? Some researchers believe that the subconscious works on the solution to the problem in the background. At this point (2024), we certainly do not know if that is true, but it is something to consider when constructing an Artificial Intelligence system capable of transforming the world with even more innovative solutions than the ones it offers now.

Finally, another important difference between AI and human intelligence is that the brain can ask relevant and specific, as well as philosophical, questions. The difference is important. A clarifying question may be selecting one of several possible answers. Philosophical reasoning is looking for answers outside the Universe of answers. An understanding of how creativity works in the human brain has doubled its importance now.

In creating new styles of art in several ways, AI models can help in a somewhat different but still restrictive way: AI can generate an entirely new artwork based on existing styles or a combination of styles. Generative models, such as GANs (Generative Adversarial Networks), can produce original pieces by learning from a dataset of artworks and then creating something new that reflects those learned styles.

AI can also transfer styles from one artwork to another. For example, you could take a photograph and apply the style of a famous painter like Van Gogh or Picasso to create a unique blend of photography and classical art.

More importantly, AI can help artists explore unconventional ideas and push the boundaries of traditional art forms by analyzing vast amounts of data and patterns. AI can suggest novel combinations, themes, or approaches that humans might not have considered. This includes AI tools that can act as assistants to artists, helping them generate initial concepts, refine compositions, or even automate repetitive tasks, allowing artists to focus more on the creative aspects of their work.

The problem may come when providing valuable insights into the artistic process by analyzing artworks, identifying patterns, and offering feedback based on aesthetic principles or historical context. If it is not in the database, doubts may surge for an AI model.

However, AI opens a world of possibilities for creating new styles of art. So, where are these new styles? Are they probably being produced by the millions by prompt creators who are consumers of AI platforms like Midjourney and the like, exhibiting their artworks in social networks? Regarding these products, are they market relevant? The most probable answer is "no", or at least "not for now". More sophisticated computational tools that give more control to creators in image making will help convert them into market-relevant artifacts.

Economists who study prices and returns of artworks are conscious that a dummy variable accounting for the name of the artist cannot be easily eliminated from the regression equations. And that, to some extent, is a measure of our ignorance. Because, in fact, we do not know what made Leonardo and Michelangelo have the status they currently have in the contemporary world (as Raphael does, too). "Perfection", some art historians will tell. But how is that perfection measured? That is what an economist probably wants to know.

IV. CHOICE RULES

Since the start of the 20th century, the Fine Arts experienced a tremendous break from the past in terms of what is beautiful and creative in a work of Art. Painting, Literature and Music, just to mention a few of the Fine Arts, experimented with new forms, techniques, and materials to express their messages. Technical competence seems to have been sacrificed for the sake of novelty and creativity, resulting in artworks that are difficult to comprehend for the wider public. Abstract paintings by Wassily Kandinsky, novels like Finnegans Wake by James Joyce, and Expressionist music by Arnold Schoenberg left a legacy of incomprehensible art techniques for the masses. As a result, many artists struggled economically during their lifetime (with some well-known exceptions). The traditional concept of beauty was transformed, or at least abandoned, in search of new frontiers of creativity for art. Were the traditional preferences of the wider public forsaken by artists when creating their works of art?

I pay attention to a possible trade-off between beauty and creativity in preferences for artworks. I rely on my previous work with choice and ranking experiments between artistic objects. Experimental subjects graded (neoexpressionist) figurative and abstract paintings (mixed media on paper), according to perceived levels of beauty, creativity, complexity, novelty, interestingness, and expensiveness, as perceived in them. Then, each subject chose or ranked the paintings according to their preferences. I tested the hypothesis that only the level of creativity is important in individual preferences, and it was rejected in favor of a utility function that corresponds to a linear combination of beauty and creativity.

Economists have inherited the psychologist's definition of creativity through the work of Herbert Simon (2001). And there is probably nothing wrong with that concept of the creative as something close to the novel and valuable, or novel and appropriate to an objective, except that creativity cannot be the only defining characteristic of artworks. Creativity has been embodied in the creation of ALL goods and services, artistic and non-artistic, because all goods and services were all new at some point in time, as well as valuable or appropriate to an objective. The notion that artistic goods need to be novel or creative is relatively recent, perhaps originating in 20th-century art. Before that, the Philosopher's defining characteristic of an artistic good was Beauty. The job of the artist was to create new beauty with each work of art, as demonstrated by Hutter and Shusterman (2006). Other desirable characteristics have probably been added by the 20th-century art connoisseur or consumer, including novelty, complexity, and interestingness, where the last one perhaps just measures some type of conscious or unconscious ignorance of why we like a particular work of art.

My own previous findings in experiments give prominence to beauty and creativity in the preferences for art (Ponzio, 2024). Beauty has played an important role in the formation of art's value, as demonstrated by Philosophers. But as I mentioned, Creativity is in the Psychologist's approach to the pleasant. My previous work shows that a traditional economic model of choice, adapted to the choice among paintings, supported by evidence from experiments, suggests that the best way to evaluate a work of Art, coming from human or AI, is through a combination of evaluations of the beauty and creativity of the work of art.

Creativity is the defining characteristic of modern art. It is the main concept when accounting for goods produced by the most important 20th-century artists (McCain, 2006). However, the public also cares about the beauty embodied in the object. Suppose artists and AI creators are aiming at artistic transcendence or a place in the history of art, and that is granted by art historians and critiques according to the creativity in the works of art. In that case, an economic problem is in place, because the market does not put all the weight of its preferences only on creativity, but also on beauty. Put in other words: If what is important for society and the history of art, if what makes Great a work of Art, worthy of being preserved as a human

achievement for the rest of the times, is its level of creativity, but the wide public does not care only about it, a disparity between what is good for society and what the wide public desires is in place. And so public action may be necessary when we consider the Fine Arts if we want to promote the contribution of the Great Creative Geniuses to Humankind's Output.

V. VIRTUAL ECONOMY MODELS

All human behavior is influenced by preconceptions, future beliefs, past experiences, hunches, and an array of different aspects that give birth to individual differences. Psychology and Philosophy are just two fields of study that try to correct imperfections in human behavior, sometimes leading agents towards a healthy life with the right choices when confronted with decisions and trying to reach the truth. But the reality is that therapy, an insight or a discovery can change our choices: making us believe we could have been making the wrong decision all our past lives. The implication is very simple and profound for economists. Economic agents are always optimizing utility functions that we are not sure represent or "true preferences": those of a healthy human being that knows how to healthily love and attach to things. Perhaps the truth comes at some point at the end of life, or perhaps it never arrives, but in the meanwhile, individuals behave through Virtual Economy Models, living in some sort of Imaginary Universe (to use a mental expression), and the value we give to Art is different to the one it ought to have.

It follows that in General Equilibrium Models, a better way to capture the equilibrium of an Arrow-Debreu economy is through equations like:

$$c_i \cdot MRS^i = {P_j}/{P_k}$$

$$(MRS^i)^{c_i} = {P_j}/{P_k}$$

$$c_i + MRS^i = {P_j}/{P_k}$$

where i denotes an individual and (j, k) pair represents two different goods. With a more general scope, I can make the constant c also depend on the pair of goods, but surely, these equations convey the message.

So, it must be evident that in a crazy, cruel, or ill-meaning world like ours, (an insight), individuals are not reaching Pareto optimal solutions tough they believe they are. That's an insightful, speculative, and painful truth full of Philosophy, Psychology and Economics, which was this essay's purpose to establish. Therefore, a collaborative choice rule like the one presented in the last section, where an average of expert opinions over beauty and creativity is required to make the right choices in Art, where the corresponding average over experts' *c's* obey the requirement for that.

All the paraphernalia in the Fine Arts, with art critiques, galleries, collectors, and general audiences, are a necessity for the choice of what constitutes immortal Art. A very different choice from eating a red apple that may lead the world to expulsion from Paradise, but that, anyway, would also have required some expert opinion before making.

The idea that prices can convey useful information, all the time, is just outside consideration in Art markets. And it is something that must be stressed when AI is involved in the production of artworks. Simple examples suffice to clarify. Look at the case of Leonardo's, Van Gogh's and Frida Kahlo's prices at the time of the artists' deaths. They finally surged to reach today´s values after some time, even though the physical properties of the paintings remained the same. Their beauty and creativity remained constant for decades or centuries, but their prices or economic values did not.

A very similar question can be put in place: How much would humanity pay for Pythagoras' theorem, or Einstein's Theory of Relativity or for the Quantum Mechanics of Max Planck. Probably a lot of money could be a normal answer, even though they are alright, but they are all wrong.

VI. CONCLUSION

Marginal Rates of Substitution are not the result of simple needs or genetic programming. They are close to enjoyment: an enjoyment not defined in the void, but the psychological result of responses towards an experience, which is full of knowledge and prejudices, and sometimes of attachments drawn from ignorance. These elements form prices and do not reveal the true value of a work of art.

The work of art is, in part, a symbolic discourse, and when it looks strange to us, it is because its symbols are not familiar. It may be creative and not so beautiful, at first. The market values of artworks are influenced by all these factors and are susceptible to fashion, at least in the short and medium term. That information is conveyed in prices. But the real value of a work of art comes from a cosmological knowledge and sometimes from an ethical sense, not necessarily a moralizing one, but

from an ethic that varies through history, and which teaches us truth in the form of an insight. That is the aesthetic experience as explained by philosophers. And as Pablo Picasso put it: Art is a lie that lets us know the truth. Science requires insight, and Art provides a special form of insight for a healthy human being. It is a specific kind of science that we, as economic agents, sometimes confuse with enjoyment.

The relevance of Artificial Intelligence and its influence on art markets has not been fully revealed yet. But it has made clear that the human mind is influenced by factors that are within the environment surrounding each human being, with Artificial Intelligence being just one of those factors of influence. Given the random nature of the results obtained between different Artificial Intelligence models, we can say with certainty that human beings operate in mental virtual reality models. Virtual General Equilibrium Models. The economic decisions of a human being, perfectly free of prejudices and ignorance, are not widespread but probably exist in some cases. Human beings confuse or are unaware of their true Marginal Rates of Substitution to the extent that they are influenced by factors traditionally considered "information" by economists, but which Artificial Intelligence has revealed to be nothing more than noise, prejudices and ignorance, mixed, sometimes, with a fraction of truth.

For the specific case of Art, current Art markets are not reliable at valuing Art. The solution proposed in this essay is that decisions about which Artificial Intelligence products should be considered Art and which are just a bunch of attempts with no future in the markets are made through expert opinions on works of art in terms of two concepts, particularly: Beauty and Creativity. That seems to be the optimal solution, for the moment.

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[33] The scope of government intervention to solve for market failures in Art are at the heart of the field, as in Peacock (1969) and Throsby (1994). However, the present essay does not explore any public policy implications of the analysis or of the persistance of Virtual Economy Models as a better description of economic reality.
[34] Seminal works on Art Investment Return Analysis are Baumol (1986) and Frey and Eichenbergen (1995).
[35] A probably related topic to expert opinion is taste formation. See Scitovsky (1972) and McCain (1986; 1995).
[36] For a standard reference: Mas-Colell, Whinston and Green (1995).