



**TECHNIUM**  
SOCIAL SCIENCES JOURNAL

[www.techniumscience.com](http://www.techniumscience.com)



**Vol. 77/2025**  
**A New Decade for Social Changes**

**PLUS**  
**COMMUNICATION**



**International**  
Communication & PR

## **How does this increase Pricing and Consumers' Willingness to Pay in the Art Market?**

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### **Abstract**

New artists in contemporary art markets, mostly of the Gen-Z generation and Millennials, are significantly challenged in terms of value creation and identification of buyers. They are not established artists and have no historical sales records, customer networks, and therefore struggle to build their market positioning, and thus bring high uncertainty to revenue levels. Customers in this very market are heterogeneous: some consumers care about aesthetics, technical expertise, or a reputation, whereas others are concerned about ethical production, sustainability, or environmental values. This is a combination of both market uncertainty and a variety of consumer intentions that leads to these unstable early income streams.

The paper discusses how the term upcycled can be a strategic tool to reduce valuation uncertainty, stabilize prices, and capture consumers with a greater WTP. We used signaling and screening theory to model the decision-making process of an artist who decides whether to create normal artwork or upcycled artwork with an emphasis on buyers who are environmentally conscious. The consumers have been classified into the general and environmentally conscious types, with different WTP distributions. The model takes into consideration production costs, price volatility, and the expected payoffs in order to find the conditions under which the upcycled labeling would maximize the expected utility of the artist.

### **Introduction**

Emerging artists have to deal with numerous problems in modern art markets. Unlike established artists with reputational capital and consistent collector bases, younger artists often lack reliable information about consumer demand and valuation, which leads to unstable revenue streams and significant pricing uncertainty (Khaire, 2017). This insecurity extends not only to the volatility of prices but also to the issue of consumer segmentation: buyers are highly diversified in terms of their preferences, motivations, and willingness to pay (WTP), and this is a problem that artists face in attempting to position their work strategically (Velthuis, 2011).

In these markets, we can distinguish two kinds of consumers: First, there are general buyers who are interested in style and aesthetic appeal, where the artistic and symbolic value of the work is seen as more important than material composition (Beckert & Rssel, 2013). Second, there are eco-conscious buyers who value the sustainability and ethical production. According to surveys, consumers belonging to the latter category are ready to pay a 10-50% premium on a product marketed as sustainable or upcycled, with even greater effects coming when labeling is viewed as authentic and credible (Nielsen, 2015). Among millennials and Gen Z, who represent the majority of new art buyers, more than 75% report that sustainability influences purchasing decisions, and 40% are willing to pay significantly higher prices for sustainable products (Deloitte, 2023). The increasing disconnect between the motivations of the buyers forms a complicated landscape where the new artists need to strike a balance between affordable prices and premium positioning.

In this regard, upcycled labeling potentially provides a solution to pricing and segmentation issues. By indicating environmental values and ethical manufacturing, upcycled labeling helps not only as a marketing tool but also as a screening mechanism in a game-theoretic approach. By screening, the artists can gain buyers with greater WTP, i.e., those who are environmentally congruent with their purchases, and weed out price-conscious buyers. This reduces revenue volatility and helps stabilize pricing outcomes in markets where reputation is not yet established. In other words, labeling can transform an uncertain and highly volatile demand environment into one where buyers effectively self-select into predictable categories.

This study, therefore, investigates the role of upcycled labeling as a strategic screening mechanism for emerging artists, asking:

1. How does upcycled labeling affect consumers' willingness to pay across buyer segments?
2. Can upcycled labeling reduce pricing uncertainty for artists lacking established reputations?
3. To what extent does the credibility of sustainability claims influence the premium that eco-conscious buyers are willing to pay?

Answering these questions contributes both theoretically and practically: it connects signaling and screening theory to cultural markets while also offering emerging artists a palpable strategy for reducing income instability. At the same time, it situates upcycling within the broader \$67.5 billion global art market, which has seen rising demand from Gen Z and millennial buyers, who now account for 34% of high-value art purchases worldwide (Art Basel & UBS, 2023). By framing upcycled labeling not only as an environmental act but as an economic tool of market differentiation, this study explores how sustainability can be leveraged as both cultural capital and financial strategy.

Labeling as a form of upcycling is an instrument of market segmentation. By making sustainability obvious, artists will gain access to buyers concerned with environmentally friendly business and will essentially form a niche within a larger market. The advantage of this segmentation is that it focuses sales on consumers with high WTP, which maximizes expected revenue and makes prices less variable. As an example, assume that a general buyer is capable of paying 50 dollars for a painting, whereas an eco-conscious buyer is likely to pay 80 to 100 dollars. Without labeling, the artist can sell mostly to the mass customer, which will lead to a lower average revenue. Strategic upcycled labeling can also be used to offset sales toward the more environmentally-minded cohort, raising the total potential payoff and improving the reputation of the artist among the sustainability-minded collectors.

The adverse selection is also less due to the screening effect of the labeling. In the absence of a clear signal, an artist can find buyers whose valuation of sustainability is too low and resulting in an

inefficient match and possible dissatisfaction. Labels can be viewed as a communication device that links the features of a product to the values of the intended consumers. They also enable the artist to communicate not only about the choice of material but also the environmental and ethical narrative behind what the work is made of. In this manner, labeling has a direct impact on the demand patterns, predictability of revenue, and long-term positioning in the market.

Psychological stimuli such as identity signalling, social norms, and perceived authenticity do influence consumer behaviour as well. Eco-friendly customers tend to enjoy making a purchase where they can feel good about the sustainability of the artist, so labeling with upcycled may lead to repeat business, referrals, and lifelong customers. This way, labeling is an immediate financial and a longer-term reputational instrument in setting the market outcomes.

## Literature Review

Research on eco-labeling and green marketing provides strong parallels. According to Nielsen, (2015) it reports that 66% of global consumers are willing to pay more for sustainable products, with the effect strongest among younger demographics. Similarly, Deloitte (2023) finds that 40% of Gen Z and millennials report higher WTP for sustainable goods, which is more than the older generations.

From a theoretical standpoint, Spence's (1973) signaling theory and Rothschild & Stiglitz's (1976) screening theory provide the foundation for analyzing how upcycled labeling functions in markets with asymmetric information. Recent works by Parguel, Benoît-Moreau, & Larceneux (2011) examine how eco-labels act as credibility devices, while other research stresses the role of identity signaling and social preferences in consumer behavior.

We chose this specific research topic to not only dig deeper into the art market, where pricing is often based on emotion, and combine it with behavioral economics and sustainability economics, which are economic topics that we have an intersection of interest in.

## Methods & Modeling

We construct a model where an emerging artist chooses between:

1. **Normal artwork (N):** Appeals to general consumers, WTP uniformly distributed over  $[0,1]$ .
2. **Upcycled artwork (U):** Explicitly labeled as sustainable, targets eco-conscious consumers with WTP distributed over  $[x,y]$ , where  $0 < x < y \leq 1$ .

## Model Setup

### Agents

- ⑩ A: Artist
- ⑩  $k \in K$ : Individual Customers
- ⑩ *Customer type*:
  - E: Environmentally conscious customers
  - G: General public

### Population Mass

- ⑩  $mass_E$ : Proportion of environmentally conscious customers
- ⑩  $mass_G$ : Proportion of general public

### Artwork Types

- ⑩  $U$ : Upcycled Artwork
- ⑩  $N$ : Normal artwork
- ⑩  $\hat{P}_U$ : Estimated price for upcycled art
- ⑩  $\hat{P}_N$ : Estimated price for normal art

### Willingness to Pay (WTP)

$P_N^G \sim u[0, 1]$  (General customer WTP for Normal Art)

$P_N^E \sim u[0, 1]$  (Eco-conscious customer WTP for Normal Art)

$P_U^E \sim u[x, y]$  (Eco-conscious customer WTP for Upcycled Art), with  $x < y$

### Artist's Decision Problem

An artist A Chooses between:

$$\text{Upcycle } (U) \Rightarrow \hat{P}_U \in \mathbb{R}$$

$$\text{Normal } (N) \Rightarrow \hat{P}_N \in \mathbb{R}$$

### Model

#### Agents

#### Producing Choice of the Artist

An artist ( $A$ ) chooses between producing one of two types of artwork. The first is normal artwork ( $N$ ), which is produced without special labeling and is expected to be sold at an estimated price  $\hat{P}_N \in \mathbb{R}$ . The second is recycled artwork ( $U$ ), which is explicitly labeled environmentally friendly and is expected to be sold at an estimated price  $\hat{P}_U \in \mathbb{R}$ .

#### Willingness to Pay (WTP)

General consumers are assumed to have a willingness to pay for normal artwork that is normalized and uniformly distributed over the interval  $[0, 1]$  that is:

$$P_N^G \sim u[0, 1]$$

Environmentally conscious consumers are assumed to have a willingness to pay for upcycled artwork that is uniformly distributed over the interval  $[x, y]$ , where  $0 < x < y$ , that is:

$$P_U^E \sim u[x, y]$$

### Artist's Expected Payoffs

Let  $\pi_A^N$  and  $\pi_A^U$  denote the artist's expected payoff from producing normal art-work and upcycled artwork, respectively. These payoffs depend on the distributions of consumers' WTP, the mass of consumer types, and the production costs.

#### If Artist choose to produce Normal Art

The expected payoff from producing normal artwork is the following:

$$\pi_A^N(\hat{P}_N) = \mathbb{E}[P_N^G] \cdot mass_G - \mathbb{E}[(\hat{P}_N - P_N^G)^2] - C_N$$

Where  $\mathbb{E}[P_N^G]$  is the average willingness to pay of general consumers for normal artwork, and  $C_N$  is the production cost of normal art. Here, the mass of general consumers is normalized to  $mass_G = 1$ , and the cost of normal art is also normalized to  $C_N = 0$ .

#### If Artist Chooses to Produce Upcycled Art

The expected payoff from producing upcycled artwork is:

$$\pi_A^U(\hat{P}_U) = \mathbb{E}[P_U^E] \cdot mass_E - \mathbb{E}[(\hat{P}_U - P_U^E)^2] - C_U$$

Where  $\mathbb{E}[P_U^E]$  is the average willingness to pay of environmentally conscious consumers for upcycled artwork, and  $C_U$  is the production cost of upcycled art.  $C_U > 0$ , reflects additional costs such as materials or time required to produce upcycled work.

### Compare the Payoffs

Artist would prefer to produce upcycled art over normal art if the following condition is satisfied:

$$\pi_A^U > \pi_A^N$$

In this model, the artist can choose to produce artwork between normal artwork for the general public and upcycled artwork targeted toward environmentally conscious customers who may be expected to have a higher willingness to pay, but also introduce the expected higher production costs and pricing uncertainty. The decision was made depending on which of the two choices yielded the higher expected payoffs. The next section will discussion different scenarios under various parameter settings. By varying the average willingness to pay, the variance in consumer valuation, and the production cost, we explore the strategic conditions under which producing upcycled art becomes the artist's optimal choice.

### Analysis

#### Artist's payoff when producing Normal Art

$$\begin{aligned} \pi_A^N(\hat{P}_N) &= \mathbb{E}[P_N^G] \cdot mass_G - \mathbb{E}[(\hat{P}_N - P_N^G)^2] - C_N \\ &= \frac{1}{2} \cdot mass_G - \frac{1}{12} - C_N \end{aligned}$$

#### Artist's payoff when producing Upcycled Art

$$\pi_A^U(\hat{P}_U) = \mathbb{E}[P_U^E] \cdot mass_E - \mathbb{E}[(\hat{P}_U - P_U^E)^2] - C_U$$

$$= \frac{x + y}{2} \cdot mass_E - \frac{(y - x)^2}{12} - C_U$$

Substitute in expected profit values:

$$\frac{x + y}{2} \cdot mass_E - \frac{(y - x)^2}{12} - C_U > \frac{1}{2} \cdot mass_G - \frac{1}{12} - C_N$$

### Comparison Condition

To ensure that offering only upcycled artwork yields a higher payoff than offering both types simultaneously, the following inequality must hold:

Producing upcycled artwork requires higher costs due to sourcing and labor, but may yield higher expected payoffs if eco-conscious buyers value sustainability sufficiently. Expected payoff is calculated based on average WTP, number of consumers, and production costs.

The model evaluates mixed strategies (producing both types) versus exclusive upcycled production, capturing trade-offs between higher costs, price volatility, and the screening effect. This allows identification of conditions under which upcycled labeling maximizes expected utility.

### Discussion & Implications

The analysis's results imply certain practical and theoretical implications. Strategically, upcycled labelling may help achieve better pricing results even in the event of higher production costs. Artists who go the extra mile to locate and fit upcycled products can compete based on higher levels of WTP among green-minded consumers and thus recoup these expenses.

First, the potential effectiveness of labeling depends to a great extent on the presence of fit between the label and the values of customers. Inauthentic or unclear sustainability labels with inconsistent sustainability improvements may give the impression of not appealing to high-WTP customers and potentially have the effect of tainting perceived authenticity. Thus, budding artists ought to weigh heavily the validity of their sustainability statements and, in addition to these, use overlapping combinations of certification, sourcing documentation, and narrative to strengthen the signal.

Third, the labeling has a two-fold function as it will increase perceived authenticity and will have the role of a screening device. Actively communicating their values will allow artists to put together their consumer base by focusing sales on the high WTP buyers and minimizing sales to their low WTP segments. Such a strategic role of labeling helps differentiate it from labeling of products in mass markets, where the signals most often might be used to signal brand recognition or general preferences instead of a selection mechanism.

### Conclusion

Upcycled labeling is an addition, not limited to visual distinction. The application of signaling and screening theory reveals that such labeling is price-stabilizing and draws environmentally conscious consumers, and alleviates the uncertainty of valuation. Integrating values of sustainability into the product enables emerging artists to add economic and cultural value to them and to distinguish themselves in a highly saturated, unstable market.

Utilization of upcycled labeling can help artists to coordinate the production with what customers desire, efficiently balance their store's stocks, and establish the brand image based on ethical and creative principles. Future considerations can empirically validate these theoretical postulations, discuss how the consumer types can interact with each other over time, and determine the role of digital platforms in magnifying the effect of the upcycled labeling.

Generally, strategic labeling of upcycled items provides genuine understanding and theoretical input to cultural economics, sustainability, and niche market planning. By proactively combining material selection, labelling, and narrating, new artists can achieve a win-win situation between the consumers and the designers, where sustainability would be used as a strategic business decision.

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