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ALGORITHMIC VISUALITIES AND AESTHETIC INEQUALITY: The Pink Tax as Gender Bias in Artificial Intelligence

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ABSTRACT
This article examines the Pink Tax as a manifestation of aesthetic and economic inequality within algorithmic visual culture. Rather than treating gender-based price differentiation as a residual market practice, it explores how artificial intelligence reproduces feminized visual codes historically embedded in consumer marketing. Using a mixed-method approach that combines comparative price analysis, visual semiotics, and experimental AI image generation, the study identifies recurring aesthetic patterns that translate visual difference into symbolic value hierarchies. The article proposes a critical framework linking algorithmic visualities, gender bias, and the ethics of design, contributing to current debates on inequality in automated visual systems.

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1. Introduction

IN recent years, the concept of *algorithmic visuality* has become a key analytical lens in communication and cultural studies. It refers to the ways in which artificial intelligence and computational systems produce, organize, and circulate images, thereby shaping new regimes of visibility and meaning. Unlike traditional visual media, where aesthetic choices are consciously authored, algorithmic visuality emerges from large-scale data correlations and machine learning processes that are themselves embedded in social and cultural structures. As Beller (2021) argues, the algorithmic turn transforms seeing into a form of computation, converting visual perception into an economic process governed by data extraction and predictive modeling.

This algorithmic mediation of perception reconfigures the cultural economy of images in ways that cannot be reduced to mere technological efficiency. Machine learning models do not simply replicate pre-existing visual codes; they actively participate in stabilizing particular notions of what appears aesthetically legitimate, desirable, or normal (Buolamwini & Gebru, 2018; D'Ignazio & Klein, 2020; Noble, 2018). When trained on datasets shaped by historical asymmetries of gender, race, or class, these systems tend to sediment those hierarchies rather than disrupt them. Rather than treating such outcomes as accidental bias or technical malfunction, this study approaches algorithmic visuality as a cultural process in continuity with earlier regimes of commercial representation.

From this standpoint, visuality exceeds the question of representation and becomes a matter of power: who is rendered visible, under which aesthetic conditions, and with what economic consequences. Drawing on critical visual theory, visual culture can be understood as a terrain where symbolic hierarchies are produced, negotiated, and naturalized. As Mirzoeff (2016) has argued, visual regimes organize perception through social and political logics that establish norms of legitimacy and exclusion. In algorithmic environments, these logics are operationalized through automated decisions about color, form, composition, and affect —decisions that increasingly intervene in the production of value within digital markets and consumer cultures.

The Pink Tax provides a particularly revealing case for examining the entanglement between aesthetics, economy, and gender bias (Barnes & Brounstein, 2024). Traditionally analyzed as a form of price discrimination where women pay more than men for equivalent products, the phenomenon has increasingly been examined through cultural and communicational lenses. Rather than framing the Pink Tax as an isolated market distortion, this study reads it as a structurally normalized outcome of gendered differentiation. Empirical research shows that gender-based price differences are rarely explained by production costs but are instead sustained through processes of aesthetic differentiation embedded in product design, packaging, and branding (Guittar et al., 2022; Moshary et al., 2021, 2023).

From the standpoint of symbolic economy, price functions not only as an economic indicator but as a cultural signifier of distinction. As Bourdieu (1984) demonstrated, markets operate through systems of symbolic differentiation that legitimize social hierarchies under the appearance of neutral exchange. In consumer culture, design elements (color palettes, shapes, textures, and language) operate as semiotic codes that assign value and meaning to products (Floch, 1990; Velthuis, 2003). Feminized aesthetics thus do not simply appeal to consumer preference; they reproduce a cultural logic in which femininity is aestheticized, commodified, and rendered economically unequal.

Feminist research in marketing and advertising has shown that aesthetic differentiation plays a central role in legitimizing gender-based pricing. Products targeted at women are frequently associated with visual codes emphasizing softness, delicacy, care, and beauty (features communicated through pastel colors, rounded forms, floral motifs, and affective language; Åkestam, 2018; Åkestam et al., 2021; Heidary et al., 2024). These aesthetic cues function as a visual premium, naturalizing higher prices by framing them as markers of personalization, quality, or emotional value (Vandellos et al., 2023).

This symbolic dimension becomes especially relevant in algorithmic design contexts, where artificial intelligence systems generate or curate visual representations that shape consumer perception. Studies on algorithmic bias have shown that AI systems tend to reproduce dominant cultural patterns embedded in their training data, including stereotypical gender associations (Heidary et al., 2024; Lambrecht & Tucker, 2019). When applied to consumer imagery, these systems often reinforce conventional markers of femininity, embedding aesthetic inequality into the digital infrastructure of markets.

The notion of *aesthetic inequality* extends beyond representation to encompass the unequal distribution of visual legitimacy, affective value, and symbolic recognition. In algorithmic environments,

this inequality is operationalized through the selective amplification of certain visual patterns over others, driven by optimization processes that privilege familiarity, symmetry, and conventional beauty norms. As research on visual culture and postfeminist media has shown, such dynamics tend to marginalize difference while reinforcing normative gendered aesthetics (Chidgey, 2021; Gill, 2008, 2017).

This study is grounded in two complementary theoretical frameworks: the symbolic economy of consumption and feminist visuality studies. Symbolic economy provides the conceptual tools to understand how material differences —such as price— operate as markers of cultural distinction (Bourdieu, 1984; New York City Department of Consumer Affairs, 2015; Velthuis, 2003; Witt, 2010). Feminist visuality studies, in turn, examine how gendered representations in media and advertising function as sites of ideological negotiation, where femininity is simultaneously commodified and regulated (Banet-Weiser, 2018; Garzón & Quisimalín Santamaría, 2025; Gill, 2021; Wishart et al., 2024).

The purpose of this study is to examine the Pink Tax as a manifestation of algorithmic gender bias operating simultaneously at the levels of design, pricing, and representation. It seeks to demonstrate that artificial intelligence systems, far from being neutral, participate in the cultural reproduction of gendered hierarchies by reconfiguring aesthetic codes historically embedded in consumer markets.

Three research questions guided our analysis:

(1) How does artificial intelligence reproduce or amplify gendered aesthetics in consumer marketing?
(2) What relationships exist between aesthetic differentiation and price discrimination in gendered products?
(3) How can symbolic economy help explain the cultural legitimacy of gender-based pricing in algorithmic visual systems?

This article contributes to the expanding field of critical AI aesthetics by integrating feminist theory, marketing semiotics, and empirical analysis. It advances an ethical discussion on the visual politics of artificial intelligence, arguing that the automation of aesthetic decisions entails the automation of cultural inequality. By situating the Pink Tax within the framework of algorithmic visuality, the study offers both theoretical and practical insights relevant to debates on design ethics, algorithmic transparency, and inclusive communication.

2. Research Design and Methodology

2.1. Overall Research Design

This study is grounded in an interpretivist epistemological orientation that understands price, design, and algorithmic imagery as culturally situated practices rather than neutral variables (Föhl et al., 2025). The methodological approach is informed by critical traditions that emphasize reflexivity, situated knowledge, and the political implications of data production, particularly in contexts where automated systems mediate visual and economic value (Beller, 2021; Fang et al., 2025).

Rather than positioning economic indicators, visual attributes, and algorithmic outputs as discrete analytical layers, the research design approaches them as interrelated dimensions through which gendered distinctions are produced and stabilized. Price differentials are examined not only as market outcomes, but as symbolic effects that acquire legitimacy through aesthetic form. Packaging design and branding are therefore analyzed as semiotic configurations that materialize cultural hierarchies, while AI-generated images are approached as sites where those hierarchies are learned, reproduced, and amplified through automated visual synthesis.

This convergent mixed-method design allows empirical observation and theoretical interpretation to inform one another iteratively (Timmermans & Tavory, 2012). Patterns identified through quantitative comparison guide semiotic and interpretive analysis, while critical reading of visual material informs the selection and interpretation of numerical indicators (Creswell & Plano Clark, 2007). In this sense, the methodological framework operates less as a fixed procedural sequence than as an analytic movement between data, visual form, and cultural meaning.

2.2. Data Collection and Analytical Procedures

The empirical foundation of this study lies in the Chilean retail sector, chosen for two reasons. First, Chile provides a representative case of Latin American consumer culture, characterized by strong global brand integration and a growing influence of algorithmic marketing systems (Ministerio de Economía, 2025). Second, prior studies by SERNAC (2022) and ComunidadMujer (2023) have documented persistent gender-based pricing gaps (ranging from 8% to 15% in general) across everyday consumer categories such as personal hygiene, apparel, and beauty products. The sample was deliberately stratified to ensure both empirical comparability and symbolic diversity:

I. Retail and E-commerce products (n = 90):
   - Category A: Personal care (e.g., shampoos, razors, deodorants).
   - Category B: Apparel and accessories.
   - Category C: Health and hygiene.

Each category includes 15 female-targeted and 15 male-targeted items from major Chilean retailers (Falabella, Paris, Ripley, Jumbo).

In terms of data collection, retail prices were collected between November and December 2025 from both physical stores and e-commerce sites. To ensure validity, each product's SKU was matched across male/female versions with comparable volume, quality, and brand segment. Prices were normalized to Chilean pesos and converted to U.S. dollars using the average exchange rate for Q4 2025. According to Flick (2018) and Geetanjali et al. (2025), the price differential (Δ%) was computed for each matched pair as:

$$\Delta = \frac{(P_f - P_m)}{P_m} \times 100$$

where P_f and P_m represent average prices for products marketed to women and men, respectively.

II. AI-generated images (n = 180). Produced through controlled prompts in three generative platforms (DALL·E 3, Midjourney v6, and Leonardo AI) to examine aesthetic consistency and algorithmic bias. This sampling strategy provides symmetry between human and algorithmic outputs, allowing comparison between market visualities and machine-generated imaginaries.

Descriptive statistics (mean, median, SD) and correlational analysis were conducted in SPSS 26.0 to assess relationships between price differentials and visual attributes such as color saturation and typographic complexity. The visual and semiotic analysis applied a dual approach combining content analysis and semiotic reading as follows:

(a) Content Analysis. A systematic coding scheme was developed based on previous literature in gendered marketing (Åkestam, 2018; Banet-Weiser, 2018; Baxter, 1987). Several variables were included:

- Color spectrum: dominant hues, contrast levels, and pastel presence (quantified via red, green, and blue analysis, RGB).
- Typographic features: type families, weight, and curvature.
- Shape morphology: curvature index, symmetry, and packaging volume ratio.
- Imagery and symbolism: nature motifs, abstract shapes, metallic surfaces, etc.
- Linguistic framing: adjectives and claims (e.g., "soft", "gentle", "care", "power", "active").

Two independent coders analyzed all 90 packages; A coding matrix was developed in NVivo 14, and inter-coder reliability was verified (Krippendorff's $\alpha = 0.87$).

(b) Semiotic Reading. Using Floch's (1990) semiotic square of values, each product was interpreted along oppositions such as care/performance, softness/strength, and aesthetic/functional. According to Biswas et al. (2024), this interpretive stage contextualized visual choices within gendered discourses of consumption. The analysis thus moves from quantitative description to cultural interpretation, tracing how visual form legitimizes differential economic value. This semiotic layer complements the quantitative coding by situating visual choices within broader cultural oppositions.

(c) Algorithmic Image Generation. AI image generation experiments were conducted in December 2025. Each platform was selected to represent a different architecture of visual synthesis (diffusion, transformer, hybrid). For each product category, identical prompts were constructed, varying only the

gender term (e.g., for women / for men). All prompts were standardized in English, resolution (1024×1024), and temperature parameters to ensure comparability. Example: "A high-quality advertisement photo of [product] for [women/men], minimalist background, professional lighting, commercial design." Each prompt generated ten outputs per gender per model, yielding 180 images in total.

AI-generated outputs were analyzed through a combined computational and interpretive procedure:

1. Color analysis: Average hue and brightness extracted via Python matplotlib and OpenCV tools.
2. Visual complexity: Measured by edge density, object count, and compositional entropy (using the scikit-imagelibrary).
3. Symbolic motifs: in terms of qualitative identification of gendered visual tropes (color associations, human figures, typography).

This process allowed quantitative detection of algorithmic aesthetic bias, complemented by interpretive commentary (that is, qualitative interpretive reading) linking machine-generated aesthetics to pre-existing gendered codes.

To achieve convergence, results from the three analytical layers were integrated through triangulation (Flick, 2018; Garzón & Quisimalín Santamaría, 2025). To integrate findings across the economic, visual, and algorithmic layers, the analysis followed an iterative process as follows (ALLEA, 2021; European Commission, 2020, UN Women, 2023):

1. Transparency: Full disclosure of AI parameters and prompt design; all datasets are reproducible.
2. Accountability: Critical reflection on the researcher's interpretive stance, acknowledging that visual reading is culturally situated.
3. Equity: Avoidance of essentializing or pathologizing gender categories; focus on structural critique rather than individual blame.

This perspective aligns with feminist epistemologies of care (Chidgey, 2021; Manzano et al., 2018; Menéndez, 2019), which advocate accountability in knowledge production and awareness of one's positionality within systems of power (see details in Table 1).

Table 1. Analytical Framework Summary.

Dimension	Focus	Key Variables / Indicators	Analytical Tools
Economic	Gendered pricing patterns	Price differential (Δ%), category, brand	SPSS 26.0
Visual	Packaging and branding aesthetics	Color palette, typography, shape, lexical markers	NVivo 14, RGB analysis
Algorithmic	AI-generated imagery	Hue, texture, symbolic motifs, complexity index	Python (matplotlib, OpenCV, scikit-image)
Interpretive	Symbolic and cultural analysis	Aesthetic hierarchy, legitimacy, gender coding	Semiotic reading, discourse analysis

Source: Own elaboration, 2025

3. Results

3.1. Gender-Based Price Differentials in Retail Products

This section presents the empirical findings related to gender-based price differences observed across the analyzed retail categories. The results indicate the existence of systematic price differentials between products marketed to women and those marketed to men, even when functional equivalence is maintained in terms of brand positioning, quantity, and product specifications.

Across the full sample of 90 products, items marketed to women exhibited higher average prices than their male-targeted counterparts in all three categories examined. The overall mean price differential (Δ%) was positive, indicating a consistent premium associated with products designed and branded for women. While the magnitude of the differential varied by category, the pattern remained stable across both physical retail outlets and e-commerce platforms. Table 2 summarizes the average price differentials observed across the three product categories, showing a consistent premium associated with products marketed to women.

Personal care products showed the most pronounced price disparities. Female-targeted items such as shampoos, razors, and deodorants displayed average price differentials ranging from moderate to high, with several matched pairs exceeding a 10% difference. Apparel and accessories presented more heterogeneous results, with price gaps varying depending on brand and product type yet still revealing a recurrent tendency toward higher pricing for women's products. In the health and hygiene category, although price differentials were generally smaller, the direction of the difference remained consistent, favoring male-targeted products.

Table 2. Average Gender-Based Price Differentials by Product Category.

Product category	Mean price (women) USD	Mean price (men) USD	Mean Δ%	Median Δ%	Standard deviation
Personal care	6.84	6.05	+13.1%	+11.4%	4.6
Apparel & accessories	24.60	22.85	+7.7%	+6.9%	5.2
Health & hygiene	5.42	5.05	+7.3%	+6.1%	3.8
Overall sample (n = 90)	—	—	+9.4%	+8.1%	4.9

Source: Own elaboration based on retail and e-commerce price data (Chile, 2025).

Notably, the observed price differentials could not be attributed to differences in packaging volume, ingredient composition, or brand tier, as these variables were controlled during product matching. This suggests that the price premium associated with female-targeted products is not incidental but reflects a structured pattern of gender-based pricing within the retail environment.

In addition, comparisons between physical stores and online platforms revealed no substantial reduction of gendered price gaps in digital contexts. In some cases, e-commerce prices reproduced or slightly amplified the differentials observed in brick-and-mortar retail, indicating that the migration to digital retail does not inherently mitigate gender-based pricing practices.

Taken together, these results provide empirical confirmation that gender-based price differentiation persists across product categories and retail formats, establishing a material foundation for the subsequent analysis of visual and algorithmic dimensions of differentiation.

3.2. Visual Differentiation in Gendered Product Design

3.2.1. Chromatic patterns and gender coding

The analysis of chromatic patterns reveals a systematic association between color use and gender targeting across all product categories. Products marketed to women predominantly employ low-saturation, high-brightness color palettes, with recurrent use of pastel tones such as pink, lavender, light blue, beige, and soft green. RGB analysis confirms these tendencies, showing significantly higher average brightness values and lower chromatic contrast in female-targeted products compared to their male-targeted counterparts.

By contrast, products marketed to men display a consistent preference for darker and more saturated colors, including black, navy blue, dark grey, and metallic tones. These palettes are characterized by higher contrast levels and lower overall brightness, contributing to visual associations with strength, efficiency, and technical performance. The persistence of these chromatic differences across brands and retail formats suggests a standardized coding of gender through color rather than isolated design decisions.

Importantly, these patterns appear regardless of product function, indicating that chromatic differentiation operates as a primary marker of gender identity in product design rather than as a response to functional requirements.

3.2.2. Typographic and morphological features

Typographic and morphological analysis further reinforces the existence of gendered visual regimes. Female-targeted products show a marked preference for rounded, cursive, or script-like typefaces, often combined with lighter font weights and increased use of lowercase lettering. These typographic choices tend to convey softness, intimacy, and personalization, and are frequently integrated with flowing graphic elements and organic layouts. In contrast, male-targeted products predominantly employ sans-

serif or condensed typefaces, heavier font weights, and uppercase lettering. These features are commonly associated with clarity, control, and functionality. The consistency of these typographic patterns across categories suggests the presence of a shared visual grammar through which masculinity is communicated.

Morphological features of packaging display a similar logic. Products marketed to women exhibit higher curvature indices, smoother edges, and elongated or fluid forms, while male-oriented packaging favors angular geometries, compact volumes, and symmetrical structures. These differences are especially pronounced in personal care products, where shape and surface texture function as key indicators of gender differentiation.

3.2.3. Linguistic framing and symbolic cues

Linguistic framing complements visual differentiation by reinforcing gendered meanings through verbal cues. Female-targeted products disproportionately employ adjectives and claims associated with care, gentleness, beauty, and emotional well-being, including terms such as “soft,” “delicate,” “gentle,” and “nourishing.” These descriptors often appear alongside visual motifs emphasizing tactility, naturalness, and sensory pleasure.

Male-targeted products, by contrast, prioritize language related to performance, activity, and strength. Terms such as “power,” “active,” “strong,” and “control” are frequently used, framing the product in terms of efficiency and functional superiority. This linguistic contrast operates with visual elements, producing coherent semiotic systems that align verbal and aesthetic cues.

Symbolic imagery follows the same pattern. Female-oriented products often incorporate natural or abstract motifs (for example, flowers, water, and gradients) while male-oriented items emphasize technological, metallic, or minimalist symbols. Together, these linguistic and symbolic cues contribute to a stable and recognizable repertoire of gendered meanings embedded in product design. These chromatic and morphological patterns are visually illustrated in Figure 1 which contrasts gendered packaging designs within the same product categories, based on products observed in major Chilean retail settings.

Figure 1. Gendered packaging differentiation in personal care products.



Note: Comparative examples of female- and male-targeted product packaging illustrating chromatic, typographic, and morphological differences in gendered design observed in large-scale Chilean retail environments.

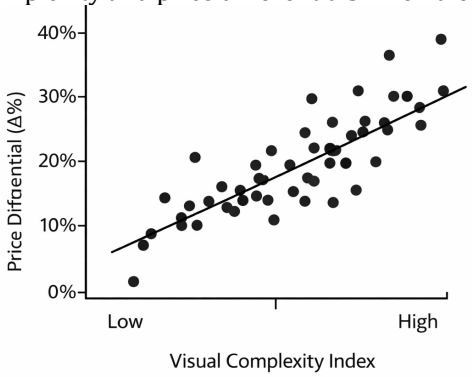
Source: Own elaboration based on photographic documentation from Chilean retail settings.

3.3. Relationship Between Visual Complexity and Price Differentials

This subsection examines the relationship between visual complexity (or differentiation) and price differentials across the analyzed products. By correlating aesthetic attributes with pricing data, the analysis explores whether certain visual characteristics are systematically associated with higher price premiums in gendered products.

Figure 2 illustrates the relationship between visual complexity and price differentials (Δ%) in female-targeted consumer products across three categories (personal care, apparel, and health) in the Chilean retail sector (2025). Visual complexity was quantified through a composite index combining three standardized variables: chromatic saturation (RGB analysis), typographic ornamentation (font variation and decorative elements), and morphological curvature (shape index). Each point represents a matched product pair (female- vs. male-targeted version). The positive trend indicates that higher levels of aesthetic elaboration are systematically associated with greater price premiums.

Figure 2. Visual complexity and price differentials in female-targeted products.



Source: Own elaboration based on retail price data and visual analysis.

Particularly in our analysis, the results indicate a positive association between visual complexity and price differentials in products marketed to women. Items displaying higher levels of chromatic saturation, greater use of pastel tones, and increased visual ornamentation tend to exhibit larger price differentials when compared to their male-targeted counterparts. This relationship is particularly evident in personal care products, where aesthetic variation is most pronounced.

For analytical consistency, visual attributes were operationalized using standardized indicators. Chromatic brightness was calculated as the mean luminance value derived from RGB analysis of packaging imagery. Curvature index was computed based on the proportion of rounded versus angular contours in packaging morphology. Typographic ornamentation was measured through the presence of decorative typefaces, font variation, and non-functional graphic embellishments. Finally, these indicators were combined into the composite visual complexity index, allowing comparative analysis across product categories.

Quantitative analysis revealed that products with higher curvature indices and more elaborate packaging designs are associated with higher Δ% values. Regression models show that curvature and color brightness emerge as significant predictors of price differentials, even when controlling product category and brand positioning. Typographic complexity (measured through font variation and decorative elements) also displays a moderate positive correlation with overpricing, although its effect varies across categories. To further examine this relationship, Table 2 reports the correlations (Pearson's correlation coefficients) between key visual attributes and price differentials (Δ%).

The results indicate moderate to strong positive associations between aesthetic elaboration (particularly curvature and chromatic brightness) and price premiums in female-targeted products. These correlations support the interpretation of visual complexity as a material mechanism of value legitimation rather than a purely stylistic variation.

By contrast, visual attributes commonly associated with male-targeted products, such as darker color palettes, minimal ornamentation, and angular forms, show no comparable association with increased pricing. As shown in Table 2, visual attributes exhibit statistically significant correlations with price differentials exclusively in female-targeted products. In male-targeted products, correlations remain weak and non-significant across all indicators, suggesting that aesthetic elaboration operates as a gender-specific mechanism of economic legitimation rather than as a general feature of pricing strategies.

Table 2. Correlations between visual attributes and price differentials (Δ%) by gender targeting.

Visual attribute	Female-targeted products (r)	p-value	Male-targeted products (r)	p-value
Visual complexity index	0.48	< 0.01	0.11	0.29
Chromatic brightness	0.42	< 0.05	0.09	0.34
Curvature index	0.51	< 0.01	0.14	0.21
Typographic ornamentation	0.36	< 0.05	0.07	0.41

Note: Visual complexity index is a composite standardized measure including chromatic saturation/brightness, typographic ornamentation, and morphological curvature.

Source: Own elaboration based on retail price data and visual analysis (Chile, 2025).

Importantly, the observed relationships are not uniform across all categories. Apparel and accessories display greater variability, suggesting that fashion-specific dynamics may partially mediate the relationship between aesthetics and price. However, the overall pattern remains consistent: greater aesthetic elaboration in female-targeted products corresponds to higher price premiums.

To sum up, these findings suggest that visual differentiation is not merely a stylistic feature but is systematically linked to economic valuation. The association between aesthetic complexity and price differentials provides empirical support for the interpretation of design as a mechanism through which gendered value hierarchies are materially enacted in retail market.

3.4. Algorithmic Reproduction of Gendered Aesthetics

This subsection presents the results of the analysis of AI-generated images, focusing on how algorithmic systems reproduce gendered aesthetic patterns in the visual representation of consumer products. The findings indicate a high degree of consistency between the visual codes identified in retail packaging and those generated by artificial intelligence, suggesting that algorithmic systems tend to replicate established gendered design conventions.

Across the three generative platforms analyzed (DALL·E 3, Midjourney v6, and Leonardo AI), images produced in response to prompts specifying female-oriented products consistently displayed feminized aesthetic features. These included the dominant use of light and pastel color palettes, soft gradients, rounded shapes, and organic textures. Brightness and hue analysis revealed higher average luminosity values in images generated for female-targeted prompts, closely mirroring the chromatic patterns observed in retail product design.

In contrast, images generated for male-oriented prompts exhibited darker color schemes, higher contrast levels, and a prevalence of angular or structured forms. These images frequently incorporated metallic textures, minimalist backgrounds, and visual cues associated with strength, precision, or technological performance. Despite variations in visual style across platforms, these gendered differences remained stable, indicating a cross-platform consistency in algorithmic gender coding. This systematic differentiation is visually illustrated in Figure 3, which compares AI-generated outputs produced under identical prompting conditions differing only by gender specification.

Figure 3. Algorithmic reproduction of gendered aesthetic conventions under controlled prompts.



Source: Own elaboration based on experimental image generation (Midjourney v6).

Analysis of visual complexity further revealed that AI-generated images for female-targeted products tended to display higher levels of ornamentation and compositional richness. Outputs reveal systematic aesthetic differentiation: feminized images emphasize pastel chromatic palettes, soft gradients, rounded forms, and intimate framing, whereas masculine outputs privilege darker tones, higher contrast, angular structures, and functional visual cues. Thus, measures of edge density and object count were systematically higher in these images, while male-targeted outputs favored visual simplicity and reduced decorative elements. This pattern aligns with the aesthetic differentiation identified in market-produced visuals.

Symbolic motifs also followed gendered conventions. Female-oriented outputs frequently included abstract natural elements, soft lighting effects, and intimate framing, whereas male-oriented images emphasized functional clarity, symmetry, and spatial distance. Notably, these motifs emerged even when prompts were neutral in tone and identical in structure, differing only by the gender specification.

Taken together, the results suggest that AI-generated imagery reproduces and stabilizes gendered aesthetic patterns already present in consumer markets. Rather than introducing novel visual

configurations, algorithmic systems appear to draw upon historically established design repertoires, embedding them within automated processes of image generation.

3.5. Visual Parallelism Between Market and Algorithmic Outputs

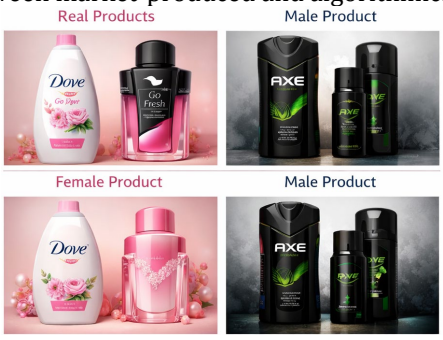
This subsection examines the degree of visual parallelism between market-produced product designs and AI-generated images. By comparing retail packaging and branding materials with algorithmically generated visuals, the analysis identifies patterns of continuity and reinforcement across human and automated modes of visual production.

The comparative analysis reveals a strong alignment between the aesthetic features present in gendered retail products and those reproduced by artificial intelligence. In female-targeted categories, visual attributes such as pastel chromatic schemes, rounded morphologies, decorative typographies, and affective symbolic cues appear consistently across both datasets. These similarities persist regardless of product category, brand, or AI platform, suggesting a stable aesthetic repertoire associated with femininity.

This parallelism is particularly evident in personal care and hygiene products, where both market visuals and AI-generated images emphasize softness, intimacy, and emotional proximity. In these cases, the algorithmic outputs closely mirror the visual logic of commercial packaging, reproducing similar compositional balances, color harmonies, and symbolic motifs. The convergence between human-designed and machine-generated images indicates that algorithmic systems internalize and replicate dominant market aesthetics rather than disrupting them.

Figure 4 visualizes this convergence by directly juxtaposing retail packaging designs with algorithmically generated images across equivalent product categories. The figure highlights strong continuity in chromatic schemes, morphological features, typographic styles, and symbolic cues across human-designed and algorithmically generated visuals. This parallelism suggests that artificial intelligence systems internalize and reproduce dominant market aesthetics, reinforcing existing gendered visual economies rather than disrupting them.

Figure 4. Visual parallelism between market-produced and algorithmically generated gendered designs.



Note: Comparative panel contrasting retail packaging designs observed in Chilean consumer markets (top row) with AI-generated images produced using equivalent prompts (bottom row).

Source: Own elaboration based on retail photographic documentation and experimental AI image generation.

Male-targeted products also display parallel patterns, although with less visual elaboration. Both retail and AI-generated visuals associated with masculinity prioritize functional clarity, darker tones, geometric forms, and reduced ornamentation. The relative visual restraint observed in these outputs corresponds to lower levels of price differentiation, reinforcing the empirical link between aesthetic elaboration and economic valuation identified in previous subsections.

Importantly, the visual parallelism observed is not limited to surface-level stylistic elements. It extends to deeper compositional logics, including framing choices, spatial hierarchies, and affective orientation. In both market and algorithmic images, femininity is associated with closeness, warmth, and sensory richness, while masculinity is linked to distance, control, and efficiency.

These findings suggest that algorithmic image generation operates as an extension of existing visual economies rather than as an autonomous creative force. By reproducing established gendered design

conventions, AI systems contribute to the stabilization and amplification of aesthetic differentiation already embedded in consumer markets.

4. Discussion

4.1. From Price Differentiation to Symbolic Inequality

Rather than approaching gender-based price differentiation as a marginal distortion within otherwise efficient markets, this study reframes the Pink Tax as a mechanism of symbolic inequality embedded in contemporary regimes of value production. The empirical findings indicate that price operates not simply as an economic variable, but as a culturally saturated sign that encodes distinctions of gender, legitimacy, and worth.

In line with symbolic economy approaches, price functions here as a communicative device that renders inequality intelligible and acceptable within consumer culture (Ong et al., 2025; Rodríguez & Gutiérrez, 2017). As Bourdieu (1984) and Langrill & Storr (2012) emphasized, markets do not merely allocate resources; they organize hierarchies through symbolic forms that appear naturalized. The observed correlation between aesthetic differentiation and price premiums reinforces this insight, suggesting that the Pink Tax is less an anomaly than a normalized outcome of gendered value regimes.

Importantly, this interpretation challenges regulatory narratives that frame the Pink Tax as an issue of transparency or information asymmetry alone (Papadopoulou et al., 2025; Thomas & Fowler, 2021; Zayer & Coleman, 2015). Such framings underestimate the cultural work performed by price as a symbolic marker. The persistence of gendered pricing, despite growing awareness and critique, points to its deep entrenchment within visual and semiotic systems that legitimize distinction under the rhetoric of choice, customization, and identity.

4.2. Feminized Aesthetics as Economic Legitimation

Furthermore, the results demonstrate that feminized aesthetics function as a key mechanism through which economic inequality is legitimated rather than contested. Visual codes traditionally associated with femininity (that is, soft chromatic ranges, ornamental typography, rounded morphologies, and affective lexical framing) operate as aesthetic justifications that naturalize higher prices for gendered products (Biswas et al., 2024; OCDE, 2023; ONU Mujeres, 2023).

Rather than merely signaling difference, this aesthetics actively participate in the construction of value: they transform economic disparity into perceived added worth, framing overpricing as an expression of care, refinement, or emotional resonance. This dynamic aligns with feminist critiques of consumer culture that identify the aestheticization of femininity as a strategy of commodification rather than empowerment (Gill, 2017; Banet-Weiser, 2018; Panigrahi & Ansari, 2025). Crucially, the findings suggest that feminized design does not function independently of market logics, but in close articulation with them. Aesthetic cues become economic arguments (Lluch et al., 2023; Papadopoulou et al., 2025; Pushpa & Jeevitha, 2023). In this sense, feminized aesthetics act as cultural intermediaries that translate symbolic difference into material inequality, reinforcing what might be described as an affective economy of gendered consumption.

4.3. Algorithmic Visuality and the Automation of Aesthetic Inequality

One of the central contributions of this study lies in demonstrating how these established aesthetic-economic logics are not disrupted but intensified through algorithmic systems. The convergence between retail visuals and AI-generated imagery reveals that artificial intelligence operates as a mechanism of cultural continuity rather than rupture.

Algorithmic visuality does not invent new gendered aesthetics; it learns, stabilizes, and amplifies existing ones. By training on historically biased visual datasets, AI systems reproduce normative associations between femininity, softness, ornamentation, and emotionality. This process results in what can be described as the automation of aesthetic inequality: gendered visual hierarchies are reproduced at scale, with speed and opacity.

From a critical AI perspective, this challenges narratives that frame algorithmic bias as a technical flaw to be corrected through better data alone. Instead, the findings support the view that algorithmic

systems are embedded within broader symbolic economies that shape what is rendered visible, desirable, and valuable. The Pink Tax thus emerges as an algorithmically mediated phenomenon, where historical patterns of discrimination are rearticulated through automated visual production.

4.4. Ethical Implications for Design and Algorithmic Governance

These dynamics raise pressing ethical questions concerning the role of design and artificial intelligence in contemporary markets. If aesthetic differentiation functions as a mechanism of inequality, and if AI systems contribute to its normalization and amplification, then ethical responsibility must extend beyond pricing strategies to encompass visual and algorithmic design practices.

Design decisions, often perceived as neutral or purely aesthetic, must be understood as interventions with economic and social consequences (Panigrahi & Ansari, 2025; Zayer & Coleman, 2015). Similarly, algorithmic governance frameworks need to address not only transparency and accountability, but also the cultural and symbolic effects of automated visual systems. Feminist approaches to technology emphasize that claims of neutrality often mask the reproduction of dominant norms under the guise of efficiency or personalization (Föhl et al., 2025).

From this standpoint, addressing the Pink Tax requires rethinking the ethics of visual production in algorithmic environments. This includes critical auditing of training datasets, reflexive design methodologies, and regulatory frameworks that recognize aesthetic inequality as a form of structural discrimination rather than a secondary concern.

4.5. Theoretical Contributions and Limitations

Theoretically, this study contributes to ongoing debates at the intersection of feminist marketing studies, symbolic economy, and critical AI aesthetics. By conceptualizing the Pink Tax as an instance of algorithmic aesthetic inequality, it advances a framework that integrates material pricing practices with visual and computational processes of meaning-making.

This approach moves beyond dichotomies between economic and cultural explanations, showing how inequality is co-produced through symbolic, visual, and algorithmic mechanisms. At the same time, this study is not without limitations. Its focus on the Chilean retail sector constrains broader generalization, and the rapid evolution of generative AI systems may alter specific aesthetic patterns over time.

Nevertheless, these limitations do not diminish the study's core contribution: demonstrating that artificial intelligence does not merely reflect social inequalities but actively participates in noticing, amplifying, and stabilizing them through visual form. In doing so, the article invites further research into the cultural politics of algorithmic design and the ethical responsibilities embedded in automated systems of visual production.

5. Conclusions, implications, and recommendations for future research

This paper approaches the Pink Tax as a culturally stabilized form of inequality that is sustained through visual practices and, increasingly, through algorithmic mediation. The evidence discussed throughout the research suggests that price disparities are not incidental market effects; they are produced and symbolically legitimized through aesthetic regimes that make inequality both visible and socially acceptable within consumer culture.

From a theoretical perspective, this research contributes to critical debates on artificial intelligence by placing aesthetics at the center of analysis. One of its main contributions lies in showing that aesthetic differentiation is not a secondary or decorative aspect of gendered pricing, but one of the conditions that make such pricing culturally plausible. Feminized visual codes identified in feminist advertising and marketing research do not merely accompany higher prices; they participate in their justification by framing difference in terms of care, personalization, or emotional value. Under these conditions, the Pink Tax appears less as an economic irregularity than as a normalized outcome of symbolic valuation processes.

The analysis of AI-generated imagery further reinforces this argument: AI-based image generation systems tend to reproduce and consolidate historically gendered aesthetic patterns the findings presented here point to a phenomenon linked to the automation of aesthetic normalization. At a

methodological level, the study demonstrates the usefulness of combining price analysis, visual semiotics, and experimental AI image generation within a single analytical framework. Furthermore, this approach may be extended to other contexts in which automated systems mediate design, value attribution, and representation, particularly in platform-based markets and digital branding environments.

The findings also raise ethical and regulatory concerns. If aesthetic differentiation functions as a mechanism of economic legitimation, then visual and algorithmic decisions cannot be regarded as neutral or purely technical. Design choices, marketing strategies, and AI development processes all contribute to shaping who pays more, and under what symbolic conditions. Governance frameworks addressing artificial intelligence should therefore go beyond transparency and accountability to incorporate critical evaluations of aesthetic bias and processes of symbolic normalization.

Although the empirical analysis is situated within the Chilean retail context, similar mechanisms are likely to operate across different regions, platforms, and algorithmic systems. Future research could expand the comparative scope of this work, as well as explore consumer interpretations, negotiations, and forms of resistance to gendered aesthetic norms embedded in both market and algorithmic visual cultures.

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