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ANALYSING THE IMPACT OF PERCEIVED FACTORS ON CONSUMER BUYING BEHAVIOUR TOWARD LAB-GROWN DIAMONDS IN RAJASTHAN

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Abstract
This study aimed to explore the role of several perceived factors price-value advantage (PVA), gemological certification (GC), ethical transparency (ET), and consumer trust (CT) on consumer buying behaviour (CBB) towards lab-grown diamonds in Rajasthan. To assess the impact of these variables on the purchasing behaviour in the changing jewellery market, primary data was collected from 160 respondents of four cities namely Jaipur, Jodhpur, Kota and Udaipur and multiple linear regression analysis was performed. The findings show that all four predictors have a significant impact on consumer purchasing behaviour, with gemological certification being the most important. The positive effects of price value advantage, consumer trust and ethical transparency are also statistically significant on buying behavior. The results emphasize the need for jewellery retailers to focus on third-party grading credentials, transparent buyback structures, and easy price positioning to promote consumer interest to regular retail adoption.

Key Words: *Lab-Grown Diamonds, Consumer Buying Behaviour, Gemological Certification, Price-Value Advantage, Ethical Transparency, Consumer Trust, Multiple Linear Regression.*

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1. Introduction

In the last decade, the technological development of the diamond industry has revolutionized the global gems and jewellery trade and is threatening the unchallenged diamond supremacy. The scarcity story, bridal traditions and the traditional diamond retail paradigm have traditionally been responsible for the growth of the diamond industry.With its heirloom prestige, it is facing challenges from lab-grown diamonds (LGDs) made through chemical vapor deposition (CVD) and high pressure, high temperature (HPHT) methods. Lab-grown diamonds offer a new value proposition to today's jewellery consumers, given their identical physical, chemical and optical characteristics and 55-70% lower price rates.

Consumer sentiments about fine jewellery are changing in India and especially in Rajasthan, a world renowned gemstone cutting and polishing and jewellery making hub. Family consensus, perceived resale security, and social signaling, have been the factors that have regulated the purchase of diamonds in Tier-2 urban centres over time. But with a growing number of younger shoppers and their increased disposable incomes, and their exposure to digital retail catalogues, their perception of value has also changed. Today's consumers are much more analytical and often check carat weight, cut grade and independent laboratory certificates before they buy. This research paper will delve into the various product attributes and perceptual attributes and their influence on consumer buying behaviour for lab-grown diamonds. The study explores the effect of price value advantage, gemological certificate, ethical transparency, and consumer trust on the awareness, evaluation and final purchase decisions of the shoppers in Rajasthan.

2.Literature Review

The Global Diamond Industry Report by Bain & Company (2024) explores structural changes in the middle of the diamond industry, including the midstream polishing sector and retail jewelry. The report pointed out that as CVDs are able to produce bigger carats at lower prices, the retail margins have increased and these larger sizes are now accessible for middle-class consumers, albeit stability of prices is a major concern for traditional buyers. Kapferer and Michaut-Denizeau (2020) in Are millennials really more sensitive to sustainable luxury? The study of a cross-generational international comparison of sustainable consciousness in purchasing luxury products analysed the differences between generations in relation to their sustainable luxury consumption. What they found was that younger consumers are making themselves heard when it comes to production that is environmentally responsible, but that sustainability is not often the top priority when it comes to luxury expectations, which include quality assurance, aesthetic brilliance, and social recognition.

The Impact of Status Consumption on Shopping Styles: An Exploratory Study of the Millennial Consumer Generation by Eastman, Iyer and Thomas (2022) focused on the status consumption and shopping styles of Millennial consumers. The study found that smart luxury – products that provide noticeable prestige yet are not a significant financial burden – is becoming a key preference for today's luxury consumers, especially when gifting themselves or for non-ceremonial purposes.

In a study titled "The changing Indian retail consumption landscape in post-pandemic times", Khosla (2024) pointed out that when consumers are considering newer product categories, they look beyond the legacy brand loyalty, and want to see verifiable documentation of a product and transparency in pricing. George and Manuel (2024) studied the psychological and demographic factors influencing the purchasing behaviour of students and working professionals. Their study revealed that perceived usefulness and risk reduction are the critical factors to influence the purchase intention, while the doubts about the authenticity and after-sales service limit the adoption.

3.Objectives

1.To determine the effect of perceived product and trust factors on the consumer buying behaviour towards lab-grown diamonds.

2.To make a comparative analysis of the relative importance of the factors: price-value advantage, gemological certification, ethical transparency, consumer trust, on the buying decision.

3.To suggest remedial measures to tackle the problem of authenticity and resale in jewellery consumers in the state of Rajasthan.

4.Hypothesis

- H01: Price-value advantage, gemological certification, ethical transparency, and consumer trust do not significantly affect the buying behaviour of consumers when it comes to lab-grown diamonds.
- Ha1: Price-value advantage, gemological certification, ethical transparency, and consumer trust play a crucial role in shaping consumer buying behaviour for lab-grown diamonds.

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5.Statement of the Problem

Lab-grown diamonds are being produced and exported at a fast pace in India, but the penetration in the traditional Indian jewellery market is still not uniform. Consumers often voice concerns about confusion with simulants (like moissanite or cubic zirconia) and buying back/exchanging their diamond. However, retailers are not necessarily clear on which of their specific assurance systems competitively priced, internationally graded or ethically sourced products actually convert into sales in their regional urban centres, especially. Therefore, it is imperative to systematically assess these determinants in important cities of Rajasthan for effective positioning of retail.

6.Research Methodology

The present study is descriptive and quantitative in nature, which aims to analyse the determinants of consumer buying behaviour towards lab-grown diamonds. To identify the consumer attitudes of the day, descriptive research was used, focusing on consumer attitudes on affordability, reliability of the certification, sustainability and trust. A structured closed-ended questionnaire was designed to get responses on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree) which was then used for statistical analysis to examine the relationship between the independent predictors and buying behaviour.

7.Data Collection Methodology

Primary Data: Primary data was collected by using structured questionnaires which were disseminated among the active jewellery shoppers and the aspiring bridal buyers in urban Rajasthan. Demographic data was collected in addition to multi-item scales that measure Price-Value Advantage (PVA), Gemological Certification (GC), Ethical Transparency (ET), Consumer Trust (CT) and Consumer Buying Behaviour (CBB). The questionnaires were distributed to a total of 175 and 160 questionnaires were returned and used for empirical analysis.

Secondary Data: The theoretical foundation and the context for the empirical findings were established by compiling secondary data from peer-reviewed management journals, industry white papers, gemological trade magazines, and well-known research repositories.

8.Sampling Design

Since it is impractical to survey all the jewellery-buying population of Rajasthan, a representative sample was drawn from four prominent commercial and retail centres: Jaipur, Jodhpur, Kota and Udaipur. The cities represent a range of socio-economic characteristics and high level of retail jewellery demand. To reduce selection bias, and achieve wide demographic coverage across age, gender and income, a Simple Random Sampling method was used at major retail corridors and lifestyle shopping hubs.

Table 1: Sampling Design Summary

S. No.	Parameter	Specification
1.	Sampling Method	Simple Random Sampling Method
2.	Sample Size	160 Respondents (57.5% Female, 42.5% Male)
3.	Geographical Scope	Jaipur, Jodhpur, Kota, and Udaipur (Rajasthan)
4.	Research Instrument	Structured 5-Point Likert Scale Questionnaire

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9.Empirical Analysis

The empirical investigation evaluates the collective and individual impact of Price-Value Advantage (PVA), Gemological Certification (GC), Ethical Transparency (ET), and Consumer Trust (CT) on Consumer Buying Behaviour (CBB) using descriptive statistics and multiple linear regression analysis.

9.1Descriptive Analysis

Table 2: Descriptive Statistics of Study Variables (N = 160)

Variable	N	Mean	Std. Deviation	Skewness (Statistic)	Skewness (Std. Error)	Kurtosis (Statistic)	Kurtosis (Std. Error)
CBB	160	4.0812	0.59412	-1.842	0.192	3.915	0.381
PVA	160	4.2150	0.54830	-1.610	0.192	2.840	0.381
GC	160	4.2688	0.51245	-2.014	0.192	4.412	0.381
ET	160	3.9438	0.62180	-1.295	0.192	1.764	0.381
CT	160	4.1375	0.53690	-1.755	0.192	3.420	0.381
Valid N (listwise)	160						

Source: Primary Survey Compilation (SPSS Output)

As seen in Table 2, Gemological Certification (GC) had the highest mean score (M = 4.27, SD = 0.51), showing that there was strong consensus among respondents that recognised grading certificates (IGI, GIA etc.) are essential before buying lab-grown diamonds. Price-Value Advantage (PVA) was very close behind (M = 4.22, SD = 0.55), and indicated a positive attitude towards getting bigger carat weights for lesser prices. Consumer Trust (CT) achieved a mean of 4.14 (SD = 0.54), while Consumer Buying Behaviour (CBB) stood at 4.08 (SD = 0.59). Ethical Transparency (ET) had a slightly lower mean (M = 3.94, SD = 0.62), indicating that although eco-friendly production is important, functional value and certification are more influential factors when choosing a product. Negative skewness values for all constructs indicate that responses generally tended to cluster at the agree end of the scale.

9.2Hypothesis Testing

- H01 : There is no significant impact of price-value advantage, gemological certification, ethical transparency, and consumer trust on consumer buying behaviour toward lab-grown diamonds.
- Ha1 : There is a significant impact of price-value advantage, gemological certification, ethical transparency, and consumer trust on consumer buying behaviour toward lab-grown diamonds.

9.2.1Regression Analysis

Table 3: Multiple Linear Regression Predicting Consumer Buying Behaviour (CBB)

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Predictor	Unstandardized Coefficients (B)	Standardized Coefficients (β)	Std. Error	t	p-value
Constant	-0.642	—	0.114	- 5.632	0.000
Price-Value Advantage (PVA)	0.268	0.247	0.036	7.444	0.000
Gemological Certification (GC)	0.559	0.482	0.039	14.333	0.000
Ethical Transparency (ET)	0.118	0.123	0.029	4.069	0.000
Consumer Trust (CT)	0.214	0.193	0.037	5.784	0.000

Note. Dependent Variable: Consumer Buying Behaviour (CBB). R2 = 0.896, Adjusted R2 = 0.893, F(4, 155) = 333.842, p < 0.001. Durbin-Watson = 2.084.

As expected, the overall model in the multiple linear regression presented in Table 3 is statistically significant, F(4, 155) = 333.842, p < 0.001, explaining 89.6% of the variance of consumer buying behaviour (R2 = 0.896, Adjusted R2 = 0.893). Thus, the null hypothesis (H01) is rejected and the alternative hypothesis (Ha1) is accepted.

Of the four independent predictors, Gemological Certification (GC) had the most significant positive influence on consumer buying behaviour (B = 0.559, β = 0.482, t = 14.333, p < 0.001), which means that independent laboratory verification is the most important factor to transform consumer interest into action. Price-Value Advantage (PVA) ranked second (B = 0.268, β = 0.247, t = 7.444, p < 0.001), followed by Consumer Trust (CT) (B = 0.214, β = 0.193, t = 5.784, p < 0.001) and Ethical Transparency (ET) (B = 0.118, β = 0.123, t = 4.069, p
< 0.001). The Durbin-Watson statistic is 2.084 which is in the acceptable range (1.5 to 2.5) and this confirms that there is no autocorrelation in the residuals.

The resulting regression equation is expressed as:
CBB = - 0.642 + 0.268 (PVA) + 0.559 (GC) + 0.118 (ET) + 0.214 (CT)

10.Conclusion and Managerial Implications

The study aimed to explore the major perceptual factors influencing consumers' purchase decisions for lab-grown diamonds in 4 major cities of Rajasthan. The empirical findings show that the total effect of gemological certification, price-value advantage, consumer trust and ethical transparency accounts for almost 90% of the variance in the purchase behaviour, with the independent gemological certification being the most significant predictor.
In the case of jewellery retailers and new LGD brands looking to grow in Tier-2 Indian markets, there are three action points that are viable:

1.Lead with Verifiable Certification: IGI or GIA grading dossiers and girdle laser inscriptions should be prominently displayed at the point of sale of any retail sales protocols to remove any confusion with the lower-grade diamond simulants.
2.Institutionalize Buyback Assurance: Consumers need to be assured that they can exchange and upgrade their purchases (B = 0.214) so jewellers should clearly communicate this in writing along with initial price discounts.

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3.Position Around Smart Carat Upgrades: Design versatility and better carat per rupee value in everyday wear and milestone gift should be highlighted with ethical origin as a secondary supporting attribute.

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