Original Researcher Article

Determinants Of Consumer Purchase Behaviour Toward Counterfeit Products: Evidence From Sem And Nca

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ABSTRACT

Purpose:The rapid growth in the availability and consumption of counterfeit goods highlights the urgent need to understand the factors that drive consumers to purchase these fake products. This study aims to examine the purchase behaviour of the working class toward counterfeit products and identify the key determinants influencing their purchase decisions.

Design/methodology/approach

The study was conducted among individuals who had purchased counterfeit products at least once (N = 183). Data were collected through a self-administered questionnaire. To analyse the relationships among the variables, a combination of Partial Least Squares Structural Equation Modelling (PLS-SEM) and Necessary Condition Analysis (NCA) was employed.

Findings:The results revealed that purchase intention has a significant positive impact on consumers' purchase behaviour. The NCA results further indicated that Perceived Behavioural Control (PBC) and Purchase Intention (PI) are necessary conditions for Purchase Behaviour (PB) at initial levels to meet the threshold requirement. These findings enhance the understanding of psychological and behavioural factors influencing counterfeit product consumption.

Research Limitation:The study is limited to a sample of working-class consumers who had previously purchased counterfeit products, which may restrict the generalizability of results to other demographic groups. Future studies could expand the sample across different occupational and cultural contexts or use longitudinal data to capture changes in behaviour over time. Despite these limitations, the findings provide valuable implications for policymakers and marketers in designing awareness campaigns and strategic interventions to reduce counterfeit consumption.

Originality/value:This study is among the first to apply Necessary Condition Analysis (NCA) in exploring purchase behaviour toward counterfeit products. It contributes to the existing literature by integrating PLS-SEM and NCA to provide a comprehensive understanding of the factors shaping consumers' behavioural intentions and actions toward counterfeit goods.

Keywords: Consumer intention, Purchase behaviour, theory of planned behaviour, counterfeit products, NCA, duplicate products

INTRODUCTION:

Counterfeiting has emerged as a pervasive global issue, posing significant threats to both the economy and the integrity of markets worldwide. This illicit practice, which involves the unauthorized production or sale of goods bearing replicated trademarks, undermines the integrity of brands, compromises consumer safety, and distorts international trade. While counterfeiting has existed for centuries, its rise in the 21st century, particularly in the luxury gooads sector, has reached unprecedented levels. Luxury brands, due to their high market value and symbolic social prestige, have become prime targets for counterfeiters, resulting in a booming underground industry (Bain, 2016).

Counterfeiting is defined as the deliberate production or sale of goods that intentionally replicate a genuine trademark, often with the intent to deceive consumers and undermine legitimate businesses (Alsaid & Saleh 2019; Khurana 2019). The impact of counterfeiting extends far beyond the loss of revenue for manufacturers and brand owners. It contributes to the erosion of brand value, hampers innovation, and disrupts fair competition. In addition, counterfeit product is often of inferior quality and pose substantial risks to consumer health and safety, particularly in sectors like pharmaceuticals, electronics, and automotive industries. Despite efforts by governments and private entities to curb this illegal activity, counterfeiting remains an ongoing challenge, fuelled by several factors, including consumer demand, global supply chains, and the digital marketplace.

One of the central drivers of the counterfeiting market is consumer demand for luxury goods. Many consumers, particularly in emerging economies, seek to obtain luxury items as a means of signalling wealth, status, and social

class (Franscis et al., 2015). Research has shown that a significant proportion of consumers purchase counterfeit luxury goods, not necessarily out of economic necessity but as a desire to replicate the image of affluence associated with high-end brands (Singh, 2016). According to studies, nearly half of the counterfeit luxury products are bought deliberately by consumers, often at a fraction of the cost of the genuine articles (Singh & Davidson, 2017). This creates a cyclical relationship, where the availability of counterfeit products meets the desires of consumers seeking luxury at lower prices, thereby sustaining and expanding the counterfeiting industry (Elsantil et al., 2021)

The global scale of the counterfeiting trade is staggering. In 2022, the value of counterfeit goods worldwide was estimated to cause losses of over $1.1 trillion to legitimate manufacturers and brand owners, with counterfeit products infiltrating nearly every sector of the global market (Corsearch, 2023). The economic impact is even more profound when considering the jobs affected estimated at 5.4 trillion lost opportunities in both developed and developing countries. Projections suggest that by 2030, the global market for counterfeit goods could expand to an alarming $1.79 trillion, exacerbating the challenges facing both private companies and governments in regulating and mitigating this issue (Corsearch, 2023).

Moreover, the rise of digital platforms and e-commerce has facilitated the growth of counterfeiting, enabling counterfeiters to reach a broader, more global consumer base. E-commerce platforms and social media have made it more convenient to be buy and sell fake goods directly to consumers, often bypassing traditional regulatory mechanisms. The rise of digital transformation has made it increasingly difficult to enforce intellectual property rights and monitor the movement of illicit goods.

Despite increased awareness and the presence of strict legal frameworks including international agreements like the TRIPS (Trade Related Aspects of Intellectual Property Rights) Agreement, counterfeiting continues to pose a significant challenge. The success of counterfeiting schemes relies not only on consumer ignorance but also on the global interconnectedness of supply chains. Counterfeit goods are often manufactured in one region and distributed or sold in another. The complexities of these global networks, coupled with consumer willingness to purchase counterfeit products, make it increasingly difficult for authorities to effectively address the issue.

In Indian context, the issue of counterfeit consumption is prevailing high in-service class people due to income constraints and desire to have luxury goods. Despite the increasing presence of counterfeit products in regional markets of markets of Punjab, yet little research has explored behavioural drivers influencing such consumption patterns within this demographic.

This study aims to fill the existing research gap by examining the key factors that influence the intention to purchase counterfeit products among service-class consumers in the Punjab region of India. The theoretical foundation of this study is based on the Theory of Planned Behaviour (TPB) proposed by Ajzen (1991)). The

research investigates how attitudes, subjective norms, and perceived behavioural control contribute to counterfeit purchase behaviour. While TPB has been widely used to predict various consumer behaviours, its application in the context of counterfeit consumption among service-class consumers in India remains underexplored.

To increase the robustness of the analysis, the study performed a dual-method approach by integrating "Partial Least Squares Structural Equation Modelling" (PLS-SEM) (hair et al., 2022) "Necessary Condition Analysis" (NCA) (Dul et al., 20220). While PLS-SEM is effective in identifying relevance of the proposed model. NCA complements this by uncovering necessary conditions factors that must be present for a specific outcome. Coupled with traditional methods, this approach enriches the understanding of key drivers behind counterfeit product purchase intentions.

By addressing a critical gap in the literature and employing a novel methodological approach, this research contributes to the broader discourse on consumer behaviour and counterfeit product consumption, particularly within emerging markets like India.

REVIEW OF LITERATURE

THEORETICALFOUNDATIONSAND HYPOTHESES DEVELOPMENT

Luxury products are desire of every common man as they symbolize a prestigious status in society. Luxury fashion items, such as clothing, jewellery, beauty products, and other appearance-related goods, are often associated with status, exclusivity, rarity, and superiority (Franscis et al., 2015). In an attempt to fulfil these desires, consumers may choose to purchase counterfeit items to satisfy their needs as these premium products are often tagged at very high prices. The present study is a based on core model of Theory of Planned Behaviour (TPB). The Theory of Planned Behaviour (TPB), as outlined by Azjen (1991), addresses the antecedents of attitude, subjective norms, and perceived behavioural control, which ultimately shape individuals' intentions and actions. In present study, we made an attempt to address the factors affecting purchase behaviour towards counterfeit goods. The authors have made an attempt by addressing the research gap, i.e. the current study focus on rising demand of counterfeit products in India.

ATTITUDE

Attitude, "is a dispositional factor which describe the persons favorable or unfavorable evolution or appraisal of the behavior" (Azjen 1991; Gavin et al., 2019). According to existing literature, attitude is a key determinant in shaping the intention to buy counterfeit goods (Singh et al., 2020; Bhatia, 2018; Quoquab et al., 2017; Swami et al., 2009). Researches revealed that when consumers hold a more favourable attitude towards buying counterfeit products, they are more likely to actually purchase them (Chiu et al., 2016; Ang et al., 2001; Wee et al., 1995). Noor and Muhammad suggest that in Malaysia, attitude significantly influences people's behavioural intentions. Additionally, attitude was positively influenced by factors such as past purchase experiences (Khan et al., 2017), fashion consciousness (Faruqui et al., 2017),

informational susceptibility, and value consciousness (Ting et al., 2016). Several studies have emphasized the crucial role of attitude in shaping consumers intentions to purchase counterfeit products. Singh et al. (2020) observed that self-perception significantly influences attitude formation, while moral integrity appears to have minimal impact. Similarly, Ting et al. (2016) noted that individuals who perceive a higher risk in purchasing counterfeit goods tend to hold less favourable attitudes toward such behaviour. Furthermore, Wu et al. (2019) identified that the perceived risk of counterfeit detection serves as a moderating factor, influencing the relationship between consumer attitudes and their intentions to engage in counterfeit purchases.

H1: Attitude demonstrated positive relation towards purchase intention of counterfeit products

H1a: Attitude demonstrated positive relation towards purchase behavior of counterfeit products

SUBJECTIVE NORMS

Subjective norm is a key social component within the Theory of Planned Behaviour, referring to the "perceived social pressure to engage in or avoid a certain behaviour" (Azjen, 1991). Luxury brands carry significant social value, helping to enhance consumers' self-identity (Kim, Lloyd, &Carvellon, 2016). Social influence is a key driver behind purchasing counterfeit products (Hamelin et al., 2013). When consumers lack knowledge of a product category, they tend to rely heavily on the opinions of others (Moon et al., 2018). If consumers observe their family, friends, peers, or reference groups using counterfeit products and gaining functional or emotional benefits, they are likely to form a more favourable attitude (Ajzen & Fishbein, 2005). Research widely reveal that subjective norms significantly encourage the intention of consumer to purchase counterfeit goods (Chiu et al., 2014; Rahman et al., 2011; Chinu & Leng, 2015; Penz &Stotlinger, 2005; Prendergast et al., 2002). It has been observed that if a social group approves the buying of these goods, individuals are more likely to make such purchases. Conversely, disapproval or rejection from friends or family may discourage such purchases (Lan et al., 2012). Malik et al. (2020) also observed that consumers who are socially driven and sensitive to the opinions of influential figures tend to maintain behaviours that preserve their social image and status. In the study by Kastanakis&Balabanis (2012), subjective norms also had positive relationship with purchasing behaviour and intention (Elsantil&Bedair, 2022).

H2: Subjective norms demonstrated positive relation towards purchase intention of counterfeit products

H2a: Subjective norms demonstrated positive relation towards purchase behavior of counterfeit products

PERCEIVED BEHAVIORAL CONTROL

Ajzen 1991, explained PBC as, "perceived ease or difficult of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles". It is assumed that PBC is positively correlated with attitude and subjective norms (Azjen, 1991). In study of Wu et al., 2019 done in China among

college students had hardly any impact on purchase intention but other side PBC had positive and substantial influence on purchase intention (Cheng et al., 2016). It was found that PBC, was more dependent on risk awareness which states that if consumer have risk awareness so they will not buy counterfeit products. Hence risk is negatively related to perceived behavioral control (Frauqui et al., 2017).

In Bangladesh ethical values, sincerity, risk averrers, integrity has positive impact on PBC (Wan et al., 2019). Individuals with strong moral principles are more likely to feel in control of avoiding counterfeit purchases (Faruqui et al., 2017). Similarly, Francis et al. (2015), in an Australian context, revealed that consumers' attachment to authentic brands and their brand loyalty enhanced their perceived control whereas had no impact on CBBE of genuine brand. Kim & Kapoor posits that perceived behavioral was the least influential factor affecting purchase intention.

H3: Perceived behavioral control demonstrated positive relation towards purchase intention of counterfeit products

H3a: Perceived behavioral control demonstrated positive relation towards purchase behavior of counterfeit products

PURCHASE INTENTION

Intention is key element to trigger or stimulate the behavior of an individual. The behavior of an individual is high correlated with his/her intention. In, TPB Ajzen, 1991 has also considered intention as the key element of his theory. Intention is thought to reflect the motivation that drives behaviour (Ajzen, 1991). Buying intention refers to a consumer's willingness to purchase a particular product or service in the future (Hussain et al., 2017). Bouhlel et al. (2011) posits that purchase intention is the reflection of future choices, marking the intent to buy before the actual purchase Intention indicate, "how hard people are willing to try, or how much of an effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991). Intention was largely influenced by the perceived benefits and value of branded products (Musnaini et al., 2017). A study by Verma et al. (2019) on counterfeit readymade garments and footwear in Delhi found that buying intention was positively related to price, status, and novelty, while integrity had a negative relationship with intention. Interestingly, value consciousness did not impact purchase intention. In Malaysia, subjective norm was identified as the main factor influencing purchase intention toward counterfeit mobile accessories, while price was found to be a less significant factor (Hassim et al., 2020). Purchase intention was positively influenced by attitude (Singh et al., 2020; Ting et al., 2016; Wu et al., 2019; Chen et al., 2011) and status consumption (Hussain et al., 2017). In both Pakistan and the UK, well-known brands and high social status led to more purchase of counterfeit goods and hence leading forming high intention to purchase. intention for counterfeit products, while individuals with ethical values in the UK showed less favourable intentions toward counterfeit goods (Hussain et al., 2017).

H4: Purchase Intention demonstrated positive relation towards purchase behavior of counterfeit products.

H5: Purchase intention mediation the relation between (a) attitude, (b) subjective Norms, (c) Perceived behavior control and purchase behavior

METHODOLOGY

Sampling frame

A total of 250 respondents from the service sector were approached. Data was collected through structured questionnaire. A non-probability sampling technique was adopted for data collection due to the accessibility and relevance of the target group. A total of 250 respondents were approached from service class. However, after screening only 183 met the criteria and were analyzed. The sample was 65.6 % female and 33.2 % male. It was found that 60 % of respondents purchase counterfeit products and most preferred were fashion goods followed accessories (Bags, Belts and wallets). The consumers agreed that they purchased counterfeit goods intentionally and are easily available in their vicinity. Surprisingly most of respondents were not able to distinguish between original and duplicate products. Mostly employee belong to district of Mohali, Amritsar followed by Bathinda.

Measurement Scale Development

The questionnaire was developed from the well-established scales of the constructs of the study from the literature. The language of the questions was modified according to the suitability of our study. The questionnaire consisted of three sections. First section included screening questions, followed by items of constructs and demographic information was asked in the last section.

To measure attitude, six items were adapted from latent constructs. Specifically, four items were taken from Youjae and Joon (2003), and two from Garretson et al. (2002). Subjective Norms was operationalized using six items from Bearden, 1989. The five items measuring perceived behavioral control were obtained from Cheng, 2011. Purchase intention was captured through four items adapted from Dodds et al., (1991). The research instrument was measured on 5-point Likert's scales, that went from "strongly disagree" to "strongly agree"

Common method bias

To assess the biasness of the result, the study employed both VIF (Variance Inflation Factors) and Harman Single Factor test.

The VIF scores were tabulated on PLS-SEM software to check the collinearity among the variables. As per Hair et., 2022, the VIF values should be 3or lower. The VIF values ranged between 1.16 to 2.41, which were below the limit.

Further, Harman single factor was also performed on SPSS and it also supported the result of VIF. The variance explained was 38.142 %, which is below the critical limit of 50 % (Podsakoff et al., 2003).

Hence, common method bias (CMB) was not a concern in the present study.

RESULT

To evaluate the proposed model, the study used Smart PLS (Ringle et al., 2015) to perform structural equation modeling. The PLS-SEM technique was executed in two stages; involving assessing of measurement model (reliability and validity of the model) followed by structural model (Hair et al., 2022 & Chin, 2010).

Measurement model

To evaluate the suitability of the reflective measurement model, reliability and validity were assessed at both the indicator level (indicator reliability) and the construct level (internal consistency reliability.

To measure the reliability, the outer loading of every latent construct was checked. As suggested by Hair et al. (2019), an acceptable outer loading value should exceed 0.708. Table 1, clearly shows all the values of outer loadings are above threshold limit. To assess internal consistency, Cronbach's alpha was used as the traditional metric (Hair et al., 2022). The accepted benchmark for Cronbach's alpha is a value greater than 0.7 (hair et al., 2022). The values of Cronbach alpha ranged from .822 to 0.865 (Refer to Table 1). Hence, fulling the limits of internal constancy too.

Table I: Assessment of measurement model

	OUTER LOADINGS	CRONBACH ALPHA	CR	AVE
ATT1	0.885	0.835	0.88	0.55
ATT2	0.961			
ATT3	1.038			
ATT4	1.031			
ATT5	0.975			
ATT6	1.113			
SN1	0.952	0.855	0.896	0.633
SN2	0.986			

SN3	1.078			
SN4	1.018			
SN5	0.973			
PBC1	0.734	0.868	0.871	0.58
PBC2	1.035			
PBC3	1.026			
PBC4	1.072			
PBC5	0.94			
PI1	1.048	0.822	0.885	0.659
PI2	1.048			
PI3	1.007			
PI4	0.891			
PB1	1.022	0.826	0.904	0.654
PB2	1.012			
PB3	1.009			
PB4	0.969			
PB5	0.981			

To assess the construct validity of the measurement model, both convergent and discriminant validity were evaluated. Convergent validity was tested using Average Variance Extracted (AVE) and Composite Reliability (CR). The AVE values for all constructs exceeded the acceptable threshold of 0.50, confirming that each construct explains more than half of the variance of its indicators (Hair et al., 2022). Additionally, Table I shows that composite reliability (CR) scores ranged from 0.70 to 0.909, indicating satisfactory internal consistency (Hair et al., 2019).

Further, HTMT ratio has been used for discriminant validity (Henseler, Ringle & Sarstedt, 2015). As shown in Table II, all HTMT values fall within the recommended limit of 0.90, thereby confirming acceptable discriminant validity.

Table II: Discriminant Validity: HTMT Ratio

	ATT	PB	PBC	PI	SN
ATT					
PB	0.73				
PBC	0.553	0.521			
PI	0.729	0.846	0.567		
SN	0.552	0.584	0.553	0.616	

Thus, the measurement model satisfies all the required thresholds for reliability and validity.

Assessment of Structural model

The structural model determines the ability of model to explain and predict one or more target constructs (hair et al., 2022). The procedure followed while assessing the structural model indulge assessing collinearity issues (VIF), significance and relevance of path coefficient (hypothesis testing), R^2 (coefficient of determination, Q^2

(model's predictive power) (Hair et al., 2019).We applied the bootstrapping algorithm with 500 samples.

Firstly, VIF values of the construct was measured to check the collinearity among the exogenous variable. As per Hair et al., 2019, VIF values should be close to 3 and lower. The highest observed VIF value was 2.546, indicating that collinearity was not a concern in the model.

The hypothesis testing of structural model results indicate that attitude (ATT) has positive influence on both purchase behaviour (PB) ($\beta = 0.303$, $t = 2.848$, $p = 0.004$) and purchase intention (PI) ($\beta = 0.455$, $t = 4.729$, $p = 0.000$), supporting both hypotheses (H1 & H1a). Subjective norm (SN) significantly affects PI ($\beta = 0.226$, $t = 0.069$, $p = 0.001$), but not PB ($\beta = 0.102$, t = 0.076, $p = 0.194$), supporting only one of the related hypotheses. Similarly, perceived behavioural control (PBC) has a significant impact on PI ($\beta = 0.184$, $t = 0.080$, $p = 0.022$) but not on PB ($\beta = 0.073$, $t = 0.074$, $p = 0.314$). Finally, PI significantly influences PB ($\beta = 0.508$, $t = 0.078$, $p =$

0.000), further reinforcing its mediating role in the model (Refer table III).

The model demonstrates strong explanatory and predictive power, as evidenced by the R² and Q² values (Refer table 3). Specifically, the R² value for Purchase behaviour (PB) is 60.8 % indicating that 60 % of the variance in PB is explained by its predictors (ATT, SN, PBC,) and 47.60 % value for PI. These values reflect substantial explanatory power, based on established benchmarks in behavioural research (hair et al., 2022). Furthermore, the Q² values for PB (0.933) and PI (0.946) indicate exceptionally high predictive relevance, derived through the blindfolding procedure. Since both Q² values significantly exceed the threshold of 0.35, the model not only fits the observed data well but also demonstrates strong capability in predicting out-of-sample data (Hair et al., 2022). Collectively, these results affirm the robustness of the structural model and its suitability for theoretical and practical application.

Table III: Structural Model: Path Analysis

| Hypothesis	Exogenous Variable	Endogenous Variable	Path Coefficient	SE	T Stat	P Value	R2	Q2	Remark
ATT -> PI	ATT	PI	0.455	0.095	4.729	0.000	47.60%	94.60%	Supported
ATT -> PB	ATT	PB	0.303	0.105	2.848	0.004	60.80%	93.30%	Supported
SN -> PI	SN	PI	0.226	0.069	0.069	0.001			Supported
SN -> PB	SN	PB	0.102	0.076	0.076	0.194			Not Supported
PBC -> PI	PBC	PI	0.184	0.08	0.08	0.022			Supported
PBC -> PB	PBC	PB	0.073	0.074	0.074	0.314			Not Supported
PI -> PB	PI	PB	0.508	0.078	0.078	0.000			Supported
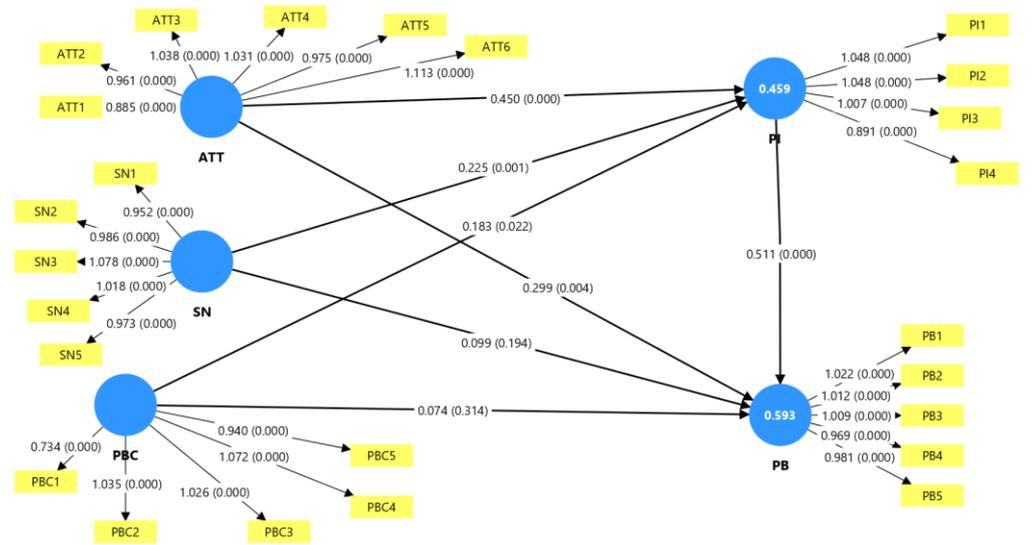
Figure I: Structural Equation Model

Source: Author Created

Mediation Analysis

We applied mediation to check the indirect effect of constructs through bootstrapping procedure in PLS-SEM (Hair et al., 2022). Table IV, represent the result of meditation, explaining the indirect effect, direct effect and total of the exogenous variables namely attitude, subjective norms and perceived behavioral control on purchase behavior. The analysis revealed that while all three variables were significant in the overall model, the direct effects of subjective norms and perceived behavioral control on purchase behavior were found to be insignificant. This suggests that attitude serves as a partial mediator, while subjective norms and perceived behavioral control act as full mediators between purchase intention and purchase behavior.

Additionally, the study computed the Variance Accounted For (VAF) for the mediating effects of attitude, subjective norms, and perceived behavioral control. VAF was calculated by dividing the indirect effect by the total effect. The values of VAF for attitude is 43% (0.232/ 0.535) exhibiting moderate variance. SN and PBC has VAF of 52% (0.113/ 0.215) and 53% (0.096/ 0.184) respectively, indicating high variance. Therefore, these results tend supports H1a, H2a, H3a.

Table IV: **Mediation Summary**

Hypothesis	Path	Indirect Effect			Direct Effect			Total Effect		
		Beta	T stats	p - value	Beta	t-value	p-value	Beta	t - stats	p-value
H5A	ATT-->PI-->PB	0.232	3.761	0.000	vv 0.303 0.303	2.844	0.004	0.535	4.978	0.00
H5B	SN-->PI-->PB	0.113	3.425	0.001	0.102	1.300	0.194	0.215	2.568	0.01
H5C	PBC-->PI-->PB	0.096	1.96	0.05	0.073	1.007	0.314	0.184	0.184	0.022

Necessary Condition Analysis

The current study employs Necessary Condition Analysis (NCA) (Richer et al., 2020) to identify the essential predictor variables required for explaining purchase behaviour (PB)related to counterfeit products. NCA is regarded as one of the latest frameworks to assess the size of "necessary but not sufficient condition effects for the predictor variables (IDV) on outcome variables (DV)"

(Dul et al., 2020). In Necessary Condition Analysis (NCA), the upper corner points between the independent variable (IDV) and the dependent variable (DV) are referred to as the "Ceiling Envelopment – Free Disposal Hull (CE-FDH)". This boundary reflects the maximum level of DV achievable given a specific level of IDV. The best-fit line generated through CE-FDH indicates the accuracy of prediction, measured as the percentage of observations correctly identified, as suggested by Vis and Dul (2018). Additionally, the total area encompassing all

observed data points is referred to as the scope (S), whereas the ceiling zone (C) represents the necessary conditions of IDV on DV. The effect size(d) pertains to the effect size (d = C/S) of the accuracy levels of necessary requirements of IDV on DV (Dul et al., 2020).

Table V: Necessary Condition Analysis Effect Size (CR FDH)

Construct	Effect Size	Accuracy	Condition Inefficiency	Outcome Inefficiency
ATT	0.126	98.907	40.36	57.738
SN	0.106	99.454	35.033	67.458
PBC	0.231	98.361	37.236	26.302
PI	0.203	97.814	41.475	30.737

The findings of the NCA, reveal that all four constructs exhibit non-trivial necessity effects for the outcome variable. Among them, Perceived Behavioural Control (PBC) shows the highest effect size ($d = 0.231$) (refer table 5), indicating a medium to large necessary effect according to established benchmarks. This implies that that PBC is must even at the lowest level to achieve high outcome. Purchase Intention (PI) also demonstrates a strong necessity effect ($d = 0.203$), followed by Attitude (ATT) ($d = 0.126$) and Subjective Norm (SN) ($d = 0.106$), both reflecting medium-level necessary effects (refer table 5) (Dul et al.,2020).

The accuracy values for all constructs exceed 97%, with SN reaching the highest accuracy (99.454%), which confirms that the ceiling lines closely approximate the data boundaries(refer to table 6). This strengthens the validity of the identified necessary conditions. In terms of condition inefficiency, PI (41.475%) and ATT (40.36%) show the highest inefficiencies, suggesting a larger gap between the actual and ideal levels of these conditions. Meanwhile, PBC shows relatively low outcome inefficiency (26.302%), indicating that fulfilling PBC is more directly linked to achieving the desired outcome, compared to constructs like SN, which exhibits a higher outcome inefficiency (67.458%) (refer table VI).

Table VI: NCA BOTTLENECKS

	LV scores – PB	LV scores - ATT	LV scores - PBC	LV scores – PI	LV scores - SN
0.00%	1	NN	NN	NN	NN
10.00%	1.4	NN	NN	NN	NN
20.00%	1.8	NN	NN	NN	NN
30.00%	2.2	NN	1.126	NN	NN
40.00%	2.6	NN	1.467	1.313	NN
50.00%	3	NN	1.807	1.651	NN
60.00%	3.4	1.128	2.148	1.989	NN
70.00%	3.8	1.692	2.489	2.327	1.203
80.00%	4.2	2.257	2.829	2.665	2.002
90.00%	4.6	2.821	3.17	3.003	2.8
100.00%	5	3.386	3.511	3.341	3.599

NCA bottleneck table reveals the minimum necessary levels of each construct to achieve various levels of Purchase Behaviour(PB). At lower PB levels (0%–20%), no specific thresholds are required for the latent variables (ATT, PBC, PI, SN), suggesting that minimal levels of these constructs are sufficient to attain these lower levels

of PB. However, as the PB level increases, the required levels of the constructs also rise. Starting at 30% PB, Perceived Behavioural Control (PBC) becomes a necessary condition, with a minimum value of 1.126 needed to achieve this level. From 40% PB onward, both PBC (≥ 1.467) and Purchase Intention (PI) (≥ 1.313) become necessary, indicating that higher levels of PB

require stronger influences from these constructs (refer table 6). Attitude (ATT) starts to become a necessary condition at 60% PB, with the required threshold increasing steadily to 3.386 at 100% PB, highlighting its growing importance for higher PB outcomes (refer table 6). Subjective Norm (SN) only becomes a necessary condition at 70% PB, with a minimum value of 1.203 needed, and continues to increase to 3.599 at 100% PB (refer table 6). This suggests that SN plays a critical role in reaching the highest levels of PB, but its influence is low in relation to ither variables of the study. Overall, the analysis shows that PBC and PI are critical for achieving moderate levels of PB (≥30%), while ATT and SN become increasingly important for reaching higher levels of PB. This implies that improving PBC and PI should be prioritized, followed by enhancing ATT and SN as the target outcomes become more ambitious.

Findings:

The current study has applied Theory of planned behaviour and necessary condition analysis (NCA) to study the consumer behaviour towards counterfeit products among service class of Punjab. In SEM analysis, it was found that out of total seven hypothesis five were accepted (refer table 3).

Drawing on attitude (Ajzen, 1991), it was revealed that attitude was found to have favourable and positive influence on both purchase intention (β = 0.455, p < 0.005) and purchase behaviour (β = 0.303, p < 0.005). Giving proof to accept hypothesis 1 and 1a. The findings of this study are consistent with previous research conducted by Singh et al. (2018), Bhatia (2018), Ang et al. (2001), and Swami et al. (2009). This suggest that consumers have a desirable and positive attitude for counterfeit product and are more inclined towards these products.

Subjective norms were also found to significantly affect the purchase intention (β = 0.226, p < 0.005) but was insignificant towards purchase behaviour (β = 0.102, p > 0.005). Hence, accepting H2 and rejecting the hypothesis 2a. Our findings were in line with Singh et al., 2020; Ting et sl., 2016; Hamelin et al., 2013. Further PBC also had same results as of variable SN, leading to acceptance of hypothesis 3 (β = 0. 184, p < 0.005and rejecting 3a (β = 0.073, p > 0.005). Lastly, PI the central element of TPB, was found to be significant in our study towards purchase behaviour (β = 0.508, p < 0.005), further reinforcing its mediating role. Hence accepting the hypothesis 4.

The mediation analysis of the study demonstrated that attitude had strong partial mediation impact on PB whereas, other two variables SN and PBC both exhibited full medication on PB (refer table 4).

Further, the model's assessment results demonstrated strong explanatory power with R^2 value 60. 8 % and 47.80% of PI and PNB respectively (hair et al., 2022). The Q^2 values were more than 93 % for both endogenous variables, thus suggesting high predictive relevance (refer table 3) (hair et al., 2022).

Additionally, we also employed NCA (Necessary condition analysis) to understand the necessary variable leading to purchase behaviour toward counterfeit products. Among the all four constructs (ATT, SN, PBC, PI), PBC exhibited the highest necessity effect size (d= 0.203), suggesting medium to large effect. Further PI depicted a strong effect (d= 0.203), followed by ATT (d= 0.126) and SN (d= 0.106). The NCA bottleneck analysis further clarified that PBC becomes a necessary condition for achieving Purchase Behaviour starting at 30% PB, and both PBC and PI are crucial at initial level, while Attitude (ATT) and Subjective Norm (SN) only become necessary at higher levels of PB. This implies that PBC and PI are crucial for achieving moderate levels of PB (≥30%), while ATT and SN are increasingly important for higher levels of PB(table no 5 & 6).

Managerial Implications:

The findings provide crucial insights for stakeholders aiming to counter the pervasive global issue of counterfeiting, which harms the economy, brand integrity, innovation, and consumer safety. Recognizing that consumer demand is a central driver intervention should target the factors influencing purchase intention and behaviour identified in the study. Since Perceived Behavioural Control (PBC) and Purchase Intention (PI) are necessary for even moderate levels of purchase behaviour, strategies should focus on making it more difficult for consumers to acquire counterfeits and directly reducing their intent to purchase. This could involve highlighting the inherent risks of counterfeits, such as inferior quality and safety issues. As proved by the result, attitude had strong impact on intention and also necessary for higher purchase behaviour levels, efforts should shape consumer attitudes negatively, perhaps by emphasizing the value of genuine products or the ethical costs of supporting illegal trade. Therefore, luxury brands, policymakers, and regulators should focus on reshaping these attitudes through consumer education campaigns. While Subjective Norms (SN) become necessary at higher levels of behaviour, they significantly influence intention and should be addressed by shifting social perceptions to make counterfeit consumption less acceptable.

Furthermore, enhancing risk perception and perceived behavioural control is essential. This can be achieved by promoting awareness of the legal consequences and personal risks involved in purchasing fake products. Anti-counterfeit technologies, such as QR code verification or blockchain-based authentication, can help consumers feel more confident in identifying and avoiding counterfeit items.

As many consumers intentionally buy counterfeits to signal status, strategies should acknowledge this motivation and potentially counter it by promoting the long-term benefits of genuine products or the ethical implications. The rise of digital platforms facilitating counterfeiting necessitates adapting enforcement strategies to make online acquisition harder. Finally, the fact that many respondents could not differentiate between real and fake products indicates the need for better brand communication and consumer-facing authentication systems. Brands should invest in tools that make it easier for consumers to verify the authenticity of products during purchase.

Future Scope:

The results of the current study provide direction for new avenues and diverse paths in exploring counterfeit products industry. The current study's sample was limited working class in a specific region of India using non-probability sampling, which may not represent the b roader consumer base. Future research could replicate this study with a larger and more diverse sample across different demographics (age, income, profession) and geographic regions, both within India and internationally, so that the results could more generalized on wider population.

The current study focused only on luxury goods like fashion items and accessories. Future research could investigate consumer behaviour towards counterfeits in other critical sectors like pharmaceuticals, electronics, and automotive industries, which also pose significant safety risks. Additionally, there is scope to incorporate new variables a such as ethical orientation, materialism, personal values, product involvement and brand attachment, could provide a more nuanced insights into why consumer purchase counterfeit products. Integrating perspectives beyond the consumer domain, such as those of supply chain actors, enforcement agencies, and brand owners may provide a more comprehensive and multidimensional understanding of the counterfeiting phenomenon.

Future research could adopt a longitudinal design to examine how consumer behaviour evoles over time, particularly in response to changes in economic conditions, branding strategies, counterfeiting regulations. This would help in understanding whether the impact of factors like attitude and social norms remains stable or evolves.

Lastly, conducting comparative studies across different countries or cultures could reveal how cultural norms, legal systems, and market maturity influence consumer behaviour toward counterfeits. Such insights would be valuable for multinational brands formulating region-specific strategies.

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