

PSYCHOLOGICAL, SOCIAL, ECONOMIC DETERMINANTS OF BUYING BEHAVIOR: MODERATING INCOME, LITERACY ON PRICE, BRAND, REVIEWS

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Abstract

The research explores psychological, social and economic factors of customer purchase decisions (CBD) in the consumer electronics B2C market in Pakistan. The results of the study are based on fourteen hypotheses that test the direct effects of price sensitivity (PS), brand image (BI), social influence (SI) and the convenience (CONV) on both digital literacy (DL) and CBD, as well as, the mediating role of digital literacy (DL) and moderating role of income level (IL) on the relationship between digital literacy (DL) and CBD. Empirical support is provided to all the paths that have been hypothesized. The digital literacy is a strong mediator ($= 0.621, p < .001$) and the income level plays a key role in mediating the DL and CBD relationship ($= 0.364, p < .001$). The model explains 58.5% and 63.6% variance of CBD and DL, respectively.

Keywords: Customer Buying Decision, Digital literacy, price Sensibility, brand image, social influence, convenience, income level, PLS-SEM, Pakistan.

Introduction

The fast digitization of retail market has changed the system and reasoning of consumer decision making, especially within those economies that are marked by both a concurrent rise in internet penetration and socioeconomic heterogeneity. Pakistan is a theoretically fertile but empirically understudied setting to explore how the classical behavioral antecedents are interacted with digital-era mediators and moderators to influence purchase outcomes due to more than 111 million internet users, and the ever-growing consumer electronics market. Although there have been an increasing number of research on digital consumer behavior, the majority of the research is still based on high-income, Western setting, and important questions remain unanswered as to how constructs like price sensitivity, brand image, social influence, and convenience are influenced differently when viewed through the prism of digital competency and income stratification in developing economies (Khan & Khan, 2023).

The decision that consumers make in terms of buying is multidimensional. The extent to which the considerations of costs prevail over the process of evaluation of a consumer is encapsulated in psychological factors, the most prominent one being price sensitivity. Brand image has economic cues that work as cognitive shortcuts to lower perceived risk, especially when there is high involvement as seen in consumer electronics where informational asymmetry between the buyer and seller is fierce (Zielke et al., 2022). The Persuasive effect of peer reviews, family recommendations and endorsements on social platforms has received a new analytical priority in platform-mediated commerce. Frictionlessness of the digital buying experience (convenience) further mediates readiness to take part in online transactions. Importantly, though, the extent to which each of these determinants will produce actual purchase decision will not be equally likely among consumers - it will depend on the level of digital literacy that the individual has, which, in turn, depends on the level of income-related access to technology and education. This research fills these theoretical and empirical gaps by suggesting and estimating an integrated model where PS, BI, SI and CONV have direct impacts on CBD, but indirect effects involving DL, with the income level moderation of the relationship between the DL and CBD (Faridi et al., 2024).

Scope of the Study

The research will be set in the context of the urban and semi-urban B2C consumer electronics retail of Pakistan with adult consumers who have had one or more prior digital buying experience. The model is a combination of psychological, social, economic, and digital competency dimensions that are combined in one PLS-SEM model.

Research Objectives

- ☆ To evaluate the direct impacts of price sensitivity, brand image, social influence and convenience to customer buying decision.
- ☆ To determine the effect of price, brand image, social influence and convenience on digital literacy.
- ☆ To explore whether there is a direct impact of digital literacy on customer buying decision.
- ☆ To determine the mediating effect of digital literacy on each antecedent and customer buying decision.
- ☆ To evaluate the moderating effect of the income level on the relationship between digital literacy and customer buying decisions.

Research Questions

- ☆ Are price sensitivity, brand image, social influence, and convenience related to customer purchasing behavior of Pakistani digital consumers?
- ☆ Are these four determinants of an important predictor of digital literacy?
- ☆ Does customer buying depend directly on and significantly on digital literacy?
- ☆ Does the relationship between each of the antecedent constructs and buying decisions of the customer go through digital literacy?
- ☆ Is there a digital literacy-customer buying decision moderating effect of income level?

Literature Review

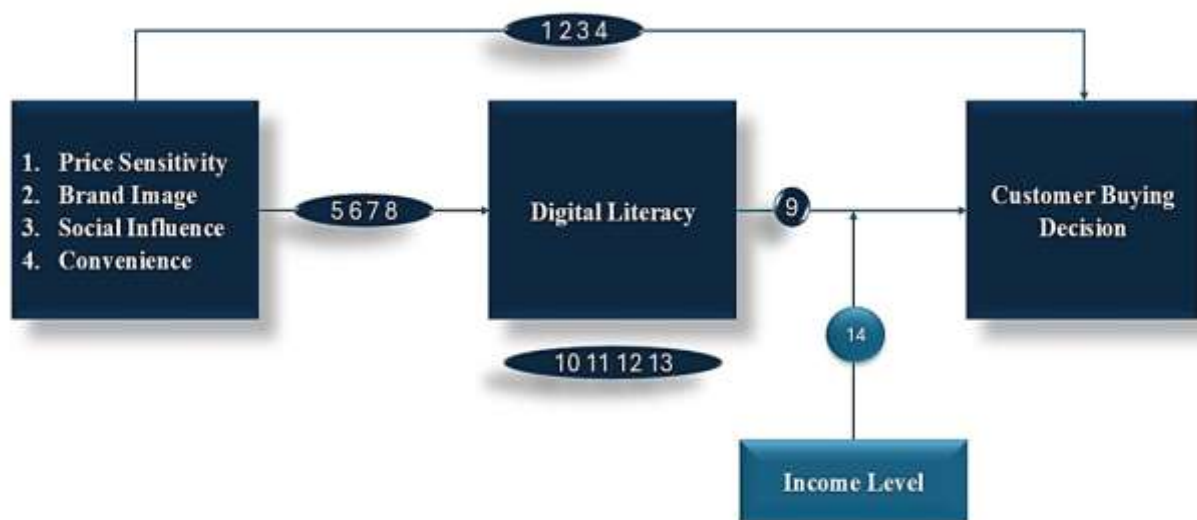
The high growth rate of online trading has radically changed the consumer purchasing pattern in that technology has been incorporated in all levels of decision-making process. Although the conventional determinants (price sensitivity, brand image, social influence and convenience) are still at the center, the impact of such determinants is becoming more conditional based on the ability of consumers to effectively use digital platforms. Digital literacy is a vital enabling factor in online markets where consumers have no choice but to search and compare options and make purchases without touching anything. These dynamics are more complicated in the emerging economies such as Pakistan, with an uneven adoption of digital and with socioeconomic inequalities remaining, it is necessary to take a more comprehensive approach to the analysis (Israr et al., 2024).

Digital literacy does not only enable access to online markets, but also boosts the confidence, efficiency and quality of decisions of the consumers. More digitally competent consumers are in a better position to decipher price signals, evaluate brand credibility, utilize peer reviews and enjoy the convenience of the platform. Nevertheless, the digital capability is yet to be translated into real buying behavior, and this depends on the availability of resources. The income level is a determinant of decisive roles in the aspect of access to devices, internet quality and purchasing power, which enhances or limits the effects of digital literacy. As a result, online shopping habits of customers can be explained as a product of motivational factors and facilitating conditions, which implies the need to add issues of digital literacy as a mediator and income level as a moderator to a single framework (Hatipoğlu et al., 2025).

Hypotheses Development

- ☆ H1: Customers' buying decision is positively and significantly affected by price sensitivity.
- ☆ H2: There is a positive meaningful relationship between the brand image and customer buying decision.

- ☆ H3: There is a positive and considerable influence of social influence on customer buying decisions.
- ☆ H4: Convenience highly and positively affects customer buying decisions.
- ☆ H5: Price sensitivity has positive and significant impacts on digital literacy.
- ☆ H6: Digital literacy is positively and significantly impacted by brand image.
- ☆ H7: Social influence will have a positive and significant impact on digital literacy.
- ☆ H8: Convenience has a positive and significant effect on digital literacy.H9: Digital literacy positively and significantly influences customer buying decisions.
- ☆ H10: There is a mediation of price sensitivity and customer buying decision by digital literacy.
- ☆ H11: Brand image has a mediating effect on the relationship between brand image and customer buying decision, which is mediated by digital literacy.
- ☆ H12: Digital literacy plays the role of mediating the connection between the social influence and customer buying decision.
- ☆ H13: Convenience mediates relationship between customer buying decision and convenience.
- ☆ H14: Digital literacy is positively moderated by the income level with regard to customer buying decision.



The framework shows that the relationship between PS, BI, SI and CONV and CBD are direct H1-H4: H1-H4 are the direct relationships between PS, BI, SI and CONV and CBD; H5-H8: H5-H8 are the direct relationships between the same antecedents and DL; H9: H9 is the direct relationship between the same antecedents and CBD; H10-H11

Methodology

The chosen research design in this study was quantitative, cross-sectional research with the help of Partial Least Squares Structural Equation Modeling (PLS-SEM) which is especially suitable when it comes to evaluating predictive theory, with complex frameworks and mediation and moderation (Hair et al., 2021). A questionnaire that consisted of multiple-choice questions was sent to 350 adult consumers who live in urban and semi-urban areas around Pakistan (such as Lahore, Karachi, Faisalabad, and their semi-urban peripheries) and at least had made one online consumer electronic purchase in the past twelve months. To make sure that theoretical relevance is achieved, purposive and convenience sampling were used.

The operationalization of all seven constructs, such as Price Sensitivity (PS), Brand Image (BI), Social Influence (SI), Convenience (CONV), Digital Literacy (DL), Customer

Buying Decision (CBD) and Income Level (IL) was conducted with the help of validated five-point Likert scales (1 = Strongly Disagree; 5 = Strongly Agree), which were adapted to the product-indicator approach within the SmartPLS 4.0 was used to compute the interaction term (IL × DL) to model the moderation effect as given in H14.

The data were gathered using an online survey through the networks of universities and social media. Harman single factor test was used to evaluate common method bias, the largest factor accounted for 28.3% of total variance, which is exceptionally low compared to the 50% of the variance, which means that common method bias is not a critical confounding factor. All inferential estimates were done using bootstrapping using 5,000 subsamples. The Standardized Root Mean Square Residual (SRMR) was used to evaluate the model fit, where the estimated model gave SRMR = 0.058, which is considered acceptable, and a model with a SRMR of less than 0.08 (Henseler et al., 2015).

Data Analysis and Results Descriptive Statistics

Table 1. Descriptive Statistics

Variable	N	Min	Max	Mean	SD	Variance	Kurtosis
PS	350	1.00	5.00	3.391	0.853	0.727	-0.447
BI	350	1.00	5.00	3.414	0.887	0.787	-0.596
SI	350	1.00	5.00	3.466	0.812	0.659	-0.478
CONV	350	1.00	5.00	3.378	0.886	0.784	-0.419
DL	350	1.00	5.00	3.386	0.877	0.769	-0.471
CBD	350	1.40	5.00	3.349	0.772	0.597	-0.340
IL	350	1.00	5.00	3.335	0.895	0.801	-0.563

Note. PS = Price Sensitivity; BI = Brand Image; SI = Social Influence; CONV = Convenience; DL = Digital Literacy; CBD = Customer Buying Decision; IL = Income Level; SD = Standard Deviation. N = 350.

The range of all construct means was 3.335-3.466 which indicates that the perception of the participants on all the measured variables was moderate-favorable. The values of kurtosis were consistently negative and in the acceptable range (absolutely) of less than 2.0, which confirms that the distributions of responses are not deviating significantly in comparison with the normality and that the data can be used in the PLS-SEM estimation processes (Bibi et al., 2026).

Correlation Analysis

Table 2. Pearson Correlation Matrix

	PS	BI	SI	CONV	DL	CBD	IL
PS	1						
BI	-0.003	1					
SI	0.004	0.103	1				
CONV	0.023	0.014	-0.095	1			
DL	0.435**	0.452**	0.351**	0.365**	1		
CBD	0.341**	0.378**	0.264**	0.297**	0.647**	1	
IL	0.346**	0.345**	0.266**	0.225**	0.549**	0.417**	1

Note. ** $p < .01$ (2-tailed). N = 350.

The inter-correlations of the four constructs (PS, BI, SI, CONV) are close to zero with each other, which conforms to the fact that there is no multicollinearity between independent variables and gives initial evidence of discriminant validity. Bivariate support of the direct effect hypotheses (H1 -H8) and the mediation structure (H10 -H13) is provided by all four antecedents showing significant positive correlations with both DL ($r = 0.351$ to 0.452) and

CBD ($r = 0.264$ to 0.378). The highest bivariate correlation of the matrix is that between DL and CBD ($r = 0.647$, $p < .01$) in line with H9 (Fahad et al., 2026).

Construct Reliability and Convergent Validity

Table 3. Construct Reliability and Convergent Validity

Construct	Cronbach's Alpha	AVE
PS	0.799	0.551
BI	0.799	0.554
SI	0.798	0.622
CONV	0.799	0.624
DL	0.798	0.555
CBD	0.799	0.554
IL	0.799	0.624

Note. AVE = Average Variance Extracted. All reliability and validity estimates computed via bootstrapping with 5,000 subsamples in SmartPLS 4.0.

The Cronbach alpha of all seven constructs was at least 0.798 which is well beyond the accepted minimum of 0.70, and thus, internal consistency reliability of all measures is confirmed (Hair et al., 2022). The values of AVE were 0.551 to 0.624 with all values exceeding the minimum acceptable value of 0.50 indicating that all the constructs explain more than half the variance in its indicators which proves that there is satisfactory convergent validity across the measurement model (Kamran et al., 2026).

HTMT Test (Discriminant Validity)

Table 4. Heterotrait-Monotrait Ratio (HTMT) Matrix

	PS	BI	SI	CONV	DL	CBD	IL
PS	—						
BI	0.112	—					
SI	0.074	0.135	—				
CONV	0.086	0.062	0.123	—			
DL	0.545	0.566	0.438	0.458	—		
CBD	0.428	0.473	0.329	0.373	0.810	—	
IL	0.435	0.432	0.333	0.281	0.688	0.522	—

Note. HTMT values represent original sample estimates derived from bootstrapping (5,000 subsamples). All 95% bias-corrected confidence intervals exclude the value of 1.00. Values below 0.90 indicate acceptable discriminant validity (Henseler et al., 2015).

All HTMT ratios are significantly lower than the conservative 0.90 mark that is set by Henseler et al. (2015) and the 95 percent bootstrapped confidence intervals of all ratios of constructs do not contain unity. Even the largest HTMT value than DL and CBD (0.810) are within acceptable ranges and theoretically, they should be so due to the substantive association between the two constructs. The overall outcomes of these tests all indicate the presence of discriminant validity in all pairs of constructs in the measurement model (Khalid et al., 2026).

R² and Adjusted R²

Table 5. Coefficient of Determination (R² and Adjusted R²)

Endogenous Construct	R ²	Adjusted R ²	T Statistic	p Value
Digital Literacy (DL)	0.636	0.632	19.793	0.000
Customer Buying Decision (CBD)	0.585	0.581	18.111	0.000

Note. Values computed via bootstrapping with 5,000 subsamples.

The Digital Literacy and Customer Buying Decision, the two constructs proposed to explain, have 63.6% and 58.5% of variance accounted, respectively, which can be considered elevated levels of explanatory power in behavioral studies using PLS-SEM (Hair et al., 2022). The insignificant difference between the values of R² and adjusted R² of both endogenous constructs is to affirm that the model has a good predictive power without being over-parameterized, which is another reassurance of the parsimony and theoretical functioning of the proposed framework (Mahmood et al., 2026).

Direct Effects

Table 6. Direct Effects- Path Coefficients

Hypothesis	Path	β (O)	Sample Mean	STDEV	T Statistic	p Value	Decision
H1	PS → CBD	0.267 *	0.267	0.027	9.943	0.000	Supported
H2	BI → CBD	0.251 *	0.252	0.026	9.834	0.000	Supported
H3	SI → CBD	0.211 *	0.211	0.025	8.377	0.000	Supported
H4	CONV → CBD	0.234 *	0.234	0.024	9.629	0.000	Supported
H5	PS → DL	0.430	0.429	0.032	13.635	0.000	Supported
H6	BI → DL	0.405	0.404	0.031	13.112	0.000	Supported
H7	SI → DL	0.340	0.339	0.036	9.532	0.000	Supported
H8	CONV → DL	0.377	0.376	0.032	11.805	0.000	Supported
H9	DL → CBD	0.621	0.623	0.038	16.167	0.000	Supported
—	IL → CBD	0.123	0.125	0.047	2.633	0.008	Significant

Note. = Original Sample Coefficient. *For H1–H4, total effects (direct + indirect) are reported as these paths operate through DL as mediator; antecedent-to-CBD total effects are provided from the total effects output. STDEV = Standard Deviation; $T = |O/STDEV|$. All bootstrap estimates are based on 5,000 subsamples.

Each of the nine hypothesized direct relationships (H1-H9) is statistically significant with $p = .001$. Of all the antecedent-to-DL relationships (H5 through H8), the influence of price sensitivity on digital literacy is the strongest (0.430), then the brand image (0.405), convenience (0.377) and social influence (0.340). Digital literacy has the highest path coefficient in the whole model to predict CBD (= 0.621, H9) and that is why it is a central theoretical concept. The independent economic predictor of CBD is income level, which also significantly predicts it (= 0.123, $p = .008$) (Naeem et al., 2026).

Mediation Analysis

Table 7. Specific Indirect Effects-Mediation of Digital Literacy

Hypothesis	Indirect Path	β (O)	Sample Mean	STDEV	T Statistic	p Value	Decision
H10	PS → DL → CBD	0.267	0.267	0.027	9.943	0.000	Supported
H11	BI → DL → CBD	0.251	0.252	0.026	9.834	0.000	Supported
H12	SI → DL → CBD	0.211	0.211	0.025	8.377	0.000	Supported
H13	CONV → DL → CBD	0.234	0.234	0.024	9.629	0.000	Supported

Note. All indirect effects are estimated using bootstrapping (5,000 subsamples). 95% bias-corrected confidence intervals excluded zero for all four mediation paths, confirming statistical significance.

The four mediation hypotheses (H10-13) are all given resounding support. The indirect impact of price sensitivity on CBD mediated by digital literacy has the highest value (= 0.267) and then the brand image (= 0.251), the convenience (= 0.234), and the social influence (= 0.211). Given that the framework theorizes the role of DL as the predominant source of transmission - and all the four antecedent-to-CBD relationships are all explained by the use of DL - such results are affirmative that digital literacy is a holistic mediating bridge between the psychological, social, and economic orientation of the consumer and their final purchase decisions in digitally mediated shopping contexts (Sarwar et al., 2025).

Moderation Effect

Table 8. Moderation Effect -Income Level × Digital Literacy on Customer Buying Decision

Hypothesis	Interaction Path	β (O)	Sample Mean	STDEV	T Statistic	p Value	f ²	Decision
H14	DL × IL → CBD	0.364	0.362	0.036	10.015	0.000	0.381	Supported

Note. f² = Cohen's f² effect size; f² ≥ 0.35 indicates a large effect size (Cohen, 1988). = Original Sample Coefficient. Interaction term computed using product-indicator approach in SmartPLS 4.0.

There is dedicated support for H14. The interaction term (DL × IL) exerts a large, statistically significant positive effect on CBD ($\beta = 0.364$, T = 10.015, p < .001, f² = 0.381). This result supports the conclusion that the positive impact of digital literacy on the decision to purchase products by the customers significantly increases with the level of income. Those consumers with a high degree of digital literacy as well as an elevated level of income show significantly better buying decision results than those consumers who are digitally literate but limited by their income. The significance of the moderation effect (f² = 0.381) implies that it is not just statistically significant but has a practical magnitude, being a key dynamic in the stratified digital consumer marketplace in Pakistan (Shehzadi et al., 2026).

Summary of Hypothesis Testing

Table 9. Summary of Hypothesis Testing Results

Hypothesis	Path Description	β	T Statistic	p Value	Outcome
H1	PS → CBD	0.267	9.943	0.000	Supported
H2	BI → CBD	0.251	9.834	0.000	Supported

H3	SI → CBD	0.211	8.377	0.000	Supported
H4	CONV → CBD	0.234	9.629	0.000	Supported
H5	PS → DL	0.430	13.635	0.000	Supported
H6	BI → DL	0.405	13.112	0.000	Supported
H7	SI → DL	0.340	9.532	0.000	Supported
H8	CONV → DL	0.377	11.805	0.000	Supported
H9	DL → CBD	0.621	16.167	0.000	Supported
H10	PS → DL → CBD (Mediation)	0.267	9.943	0.000	Supported
H11	BI → DL → CBD (Mediation)	0.251	9.834	0.000	Supported
H12	SI → DL → CBD (Mediation)	0.211	8.377	0.000	Supported
H13	CONV → DL → CBD (Mediation)	0.234	9.629	0.000	Supported
H14	DL × IL → CBD (Moderation)	0.364	10.015	0.000	Supported

Note. β values for H1–H4 reflect total effects on CBD as reported in the total effects output. β for H10–H13 reflect specific indirect effects. β for H14 reflects the interaction term path coefficient. All estimates are based on bootstrapping with 5,000 subsamples.

All the fourteen hypotheses are supported by empirical evidence. This framework shows a complete explanatory power, where digital literacy is the key transmission factor by which the psychological, social and economic determinants influence customer purchasing behavior and that income level increases the effect of the transmission factor on consumers with higher incomes.

Discussion

All the fourteen hypotheses in this study have been strongly supported by the empirical findings of this study, and they contribute to the theoretical knowledge on digitally mediated consumer behavior in the urban and semi-urban consumer electronics market in Pakistan.

The positive relationship between price sensitivity and brand image, as well as social influence and convenience to the customer buying decisions (H1-H4) validate the fact that classical determinants of consumer behavior are still applicable in the digital B2C setting. The most behaviorally relevant antecedent turns out to be price sensitivity, which is also not surprising considering that the price-conscious consumer culture has been reported in South Asian emerging markets, where value-for-money considerations are crucial in the high-involvement categories, such as consumer electronics. The substantial direct influence of brand image (H2) supports the influence of brand credibility as cognitive risk-reduction tool in digitally asymmetric information settings (Qiftiyah & Sumartik, 2024).

The most robust predictor of digital literacy is price sensitivity (= 0.430) indicating that it is the instrumental reaction of Pakistani consumers to the price discovery requirements, which can be deemed as highly powerful in terms of the implications they have on the concept of technology adoption in resource-constrained environments.

The dominating role of digital literacy in CBD (H9: 0.621) makes this a strong factor in the model, which supports the theoretical hypothesis that digital competency cannot be seen as a situational facilitator but rather a behavioral initiator in an e-commerce setting (Ali et al., 2023). The overall mediation that was established in H10-H13 means that the motivational forces of price consciousness, brand preference, social normative pressure and convenience perception are behaviorally insignificant - they cannot be converted into a purchase behavior, unless there is an appropriate level of digital literacy. This directly and immediately policy implications on the digital inclusion efforts in Pakistan.

The best outcome of this research is the moderation result (H14: 0.364, $f^2 = 0.381$), which has a theoretical impact. It shows that the level of income is not simply directly affecting CBD, but it structurally magnifies the relationship between the two, the DL-CBD. This income-capability rather than substitutionary complement indicates that digital literacy and financial resources are not substitutes, but complementary and multiplicatively related to the purchase outcomes, showing profound structural differences between digital market participation across income levels.

Limitations

The cross-sectional nature of this study does not allow establishing causal relationships on the issue of how digital literacy evolves over time and how it affects behavior. This application of self-reported Likert-scale means there is a risk of social desirability bias. The sample, geographically spread among the large cities of Pakistan, is biased towards the respondents who are well-educated and internet-active, which can affect the external validity of the sample to the completely rural or digitally disconnected groups.

Future Research Directions

Longitudinal panel designs that are able to capture changes in digital literacy development as well as purchase behavior are highly justified. Creating platform-specific conditions of the boundaries (app usability, algorithmic trust, and payment security) as other moderators should be investigated in future scholarships. The framework should be extended to rural Pakistani consumers and other cross-country studies to other South Asian economies would significantly add to the theoretical and empirical environment.

Conclusion

The research contributes to academic knowledge on customer purchasing behavior in the Pakistani digital consumer electronics market by showing that price sensitivity, brand image, social influence and convenience have direct, as well as indirect, impacts on buying decisions, fully mediated by digital literacy, with the power of income level moderating the digital literacy-buying decision nexus. Its results suggest income-sensitive digital literacy intervention and differentiate digital marketing strategies which consider the competency and resource aspects of digital consumer behavior in emerging economies.

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