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Determinants of Customer Loyalty in E-Commerce in Cameroon: An Analysis of Key Success Factors and the Moderating Effect of the Payment Experience

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Abstract

Objective : Identifying key success factors (KSFs) in e-commerce is crucial for the sustainability of businesses, particularly in emerging economies such as Cameroon. This research aims to empirically validate a conceptual model of KSFs influencing Cameroonian consumer loyalty, going beyond linear approaches to explore the interaction effects between these factors.

Methodology : A questionnaire survey was conducted among 161 online consumers, covering their profiles, motivations, and barriers to online shopping. After validating the measurement scales using Cronbach's alpha, bivariate analyses, multiple linear regression, and interaction tests were performed using R software.

Results : The final model is globally significant and explains 18.8% of the variance in customer loyalty (adjusted R^2 = 0.188). The analysis reveals a novel moderating effect: the impact of logistical barriers on loyalty depends significantly on the level of satisfaction with the payment method (p = 0.041). The FCS hierarchy shows that age (standardized β = -0.799 for age group 4) and professional activity are powerful but unchangeable predictors, while the impact of payment method (β = +0.292, p < 0.001) is the only major positive lever for managerial action.

Originality : This study contributes to the literature on e-commerce in the African context by demonstrating the conditional nature of the relationships between the determinants of loyalty, thereby enriching recent work conducted on the continent. It proposes a segmented and prioritized framework for action for practitioners, emphasizing that logistics management must be adapted to the level of satisfaction with payment.

Keywords – E-commerce, customer loyalty, key success factors, moderating effect, Sub-Saharan Africa, Cameroon, e-commerce project.

I. INTRODUCTION

1.1. Context and Issues

In Cameroon, as in most sub-Saharan African countries, the e-commerce sector is experiencing sustained growth, driven by increasing Internet penetration and changing consumer habits [1]. More and more consumers are turning to online platforms for their purchases, attracted by convenience, product diversity, and the ability to compare prices. However, this rapid expansion

comes with major challenges, particularly in terms of customer loyalty, which is central to the profitability and sustainability of businesses in the sector. Cameroon, with its specific logistical challenges (road conditions, “last mile”), its diversity of payment methods (mobile money, card, cash on delivery), and a residual mistrust of online transactions, offers a particularly rich field of study.

Despite the rise of e-commerce, little is known about how factors interact to determine consumer loyalty in Cameroon. Existing studies often focus on technological or logistical aspects in isolation, without always prioritizing the impact of different dimensions of the shopping experience or exploring their combined effects. The heterogeneity of consumer profiles and the specificities of the local context make understanding the mechanisms of loyalty complex.

Admittedly, e-commerce's contribution to economic activity is increasingly visible, but there is debate about the most effective levers for converting occasional buyers into loyal customers. The question we are asking is not simply “which” factors influence loyalty, but “how” they interact with each other. For example, does a customer who is very satisfied with payment flexibility react in the same way to delivery delays as a customer who is dissatisfied with the same payment method?

These questions will motivate us to identify, measure, and prioritize the determinants of loyalty, but also to test the potential interactions between them. The impact of these factors on the sector's economy is clear: a better understanding of the drivers of loyalty would enable players to optimize their investments and improve their competitiveness. Conversely, ignoring these dynamics could lead to ineffective strategies and wasted resources, depriving companies of important sources of recurring revenue.

It is therefore the responsibility of researchers and economic actors to organize knowledge on this subject due to its importance for the country's digital economic structure.

1.2. Geographic and Theoretical Framework

1.2.1. Geographic Overview of the Study Area

This study was conducted in Cameroon, a country in Central Africa often referred to as “Africa in miniature” due to its geographic and cultural diversity. The survey was conducted among consumers living in the country's main cities, reflecting the diversity of economic contexts and access to technology, particularly Yaoundé and Douala (the two largest cities), but also smaller cities.

1.2.2. Theoretical approach to online loyalty and the African context

The concept of loyalty has evolved considerably with the advent of e-commerce. Initially focused on website quality and transactional satisfaction, early models have given way to a multidimensional conception of loyalty, combining behavioral (repeat purchases) and attitudinal (preference, recommendation) dimensions, notably thanks to the seminal work of [2]. The literature on key success factors (KSFs) in e-commerce has since identified a wide range of determinants of this loyalty.

Among these determinants, product-related attributes such as authenticity and warranty are often cited as major factors influencing trust. In developing countries, where perceived risk is higher, uncertainty about product quality is a significant barrier. [3] confirms, in the South African context, that satisfaction with the product offering positively influences attitudes toward online stores. Similarly, [4] identify product risk as a factor that directly influences attitudes and, consequently, the intention to purchase online.

Logistical quality is another pillar of customer loyalty. Fast delivery and flexible options are crucial for reducing uncertainty. In Africa, poor infrastructure, particularly for the “last mile,” is a major challenge. [5] show, through a case study of an e-tailer operating in several African countries, that control of the supply chain and delivery reliability are essential for building trust and compensating for perceived failures. This logistical fragility, combined with persistent technological barriers such as the high cost of the internet and payment security issues, hinders the institutionalization of e-commerce, as highlighted by [6] in South Africa.

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In this context, the relationship between perceived service quality, satisfaction, and loyalty has been examined from a new angle. While the traditional paradigm establishes a linear causal chain (quality → satisfaction → loyalty), recent African studies have nuanced its scope. In the Moroccan online banking sector, [7] observes that perceived quality directly influences customer engagement, without satisfaction playing a mediating role, suggesting that customers can remain engaged as long as the service is of high quality, even in the absence of total satisfaction. Conversely, [8] demonstrate, in the Cameroonian context of mobile internet services, that the relationship between perceived quality and loyalty is entirely and solely mediated by satisfaction. Quality has no direct effect; it acts through the customer's satisfactory judgment. These contrasting results highlight the need to test these models in specific national and sectoral contexts.

Furthermore, the impact of these factors is not uniform across the population. [9] highlights the moderating role of generation in the relationship between service quality (specifically the place of delivery) and the intention to purchase online in Côte d'Ivoire. While this attribute has no direct effect on the sample as a whole, it becomes a determining factor for Generations Y and Z, demonstrating that the effect of perceived sacrifices can be conditioned by sociodemographic variables such as age. This finding is consistent with that of [10] , who, at a macroeconomic level, show that the widespread adoption of mobile telephony in West Africa has not yet had a significant impact on inclusive growth, due to factors such as the cost of acquisition and the non-productive use of technologies. The adoption of e-commerce is therefore not only conditioned by individual variables, but also by the ability of actors to use these tools to generate tangible economic value.

Our research follows this line of thinking by adopting a hypothetical-deductive approach aimed at testing an integrative model of these different categories of factors. We postulate, in light of field observations and the theory of perceived value [11], , that the effect of sacrifices (logistical barriers) on loyalty can be moderated by the level of perceived utility of another attribute, in this case the payment method. This hypothesis is reinforced by observations in Cameroon, where the flexibility of mobile money could compensate, in the minds of consumers, for other perceived shortcomings. We therefore formulate the following hypotheses

- **H1** : Sociodemographic characteristics (age, professional activity) have a significant effect on customer loyalty.
- **H2** : A positive perception of the payment method has a positive and significant effect on customer loyalty.
- **H3** : The effect of logistical barriers on customer loyalty is moderated by the level of satisfaction with the payment method.

II. MATERIALS AND METHODS

2.1. Methodological approach

The survey was conducted in Cameroon between January and September 2025, allowing us to capture a diverse range of respondents. We used a self-administered online questionnaire (using Google Forms) to collect data from a sample of consumers.

2.1.1. Questionnaire survey

This is a quantitative research technique aimed at collecting structured information from a sample group. The survey was conducted using a questionnaire distributed via social media (LinkedIn, WhatsApp). Its objective was to obtain statistical data on the profile of respondents, their perceptions, and their online purchasing behavior in order to measure the impact of various factors on their loyalty.

2.1.2. Questionnaire structure

The questionnaire was divided into four sections:

1. Respondent profile: age (converted into a categorical variable tranche_age_f with four categories), level of education, professional activity (activite_pro_f), purchasing habits.
2. Connectivity and technology: type of connection, problems encountered.

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3. Barriers to purchase: assessed on 5-point Likert scales via 8 items, covering logistics, product, and website. Sub-scales were created: logistics_barriers (3 items), product_barriers (3 items), website_barriers (2 items). Satisfaction with the payment method (payment_method_impact) was measured by a single item assessing the overall perception of the flexibility and reliability of payment options.
4. Loyalty (dependent variable): composite score based on the intention to repeat the purchase according to various criteria ($\alpha = 0.868$).

2.1.3. Population and sampling

Given the practical impossibility of reaching all Cameroonian online consumers, sampling was essential.

- Definition of the target population: The target population consisted of all Cameroonian internet users aged 18 or over who had already made or were likely to make an online purchase. A total of 161 complete and valid responses were obtained, which constitutes a satisfactory sample size in terms of methodological recommendations for multivariate analyses [12]; (Tabachnick & Fidell , 2007). According to (Tabachnick & Fidell , 2007), the formula $N > 50 + 8m$ (where m represents the number of independent variables) establishes the minimum threshold required. With 9 independent variables in our initial model, the threshold was 122 respondents; our 161 observations therefore exceed this minimum and provide an adequate basis for regression analyses [12]; (Tabachnick & Fidell , 2007).
- Sampling: The sampling method used is non-probabilistic convenience sampling. Although it does not allow for absolute statistical generalization, this method is common in exploratory research [12] and provides valuable data for testing theoretical relationships [13]; [14]. Table 1 shows the distribution of respondents.

Table 1: Demographic characteristics of the sample (N=161)

Characteristic	Modality	Number (n)	Percentage (%)
Age group	18-25 years old	66	41,0
	26-35 years old	53	32,9
	36-45 years old	34	21,1
	46 years old and over	8	5,0
Level of education	High school diploma	15	9,3
	Bachelor's degree	38	23,6
	Master's degree	99	61,5
	Doctorate	9	5,6

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Characteristic	Modality	Number (n)	Percentage (%)
Online shopping	Yes	127	78,9
	No	34	21,1

Source: Field survey, 2025..

2.1.4. Analysis method

The analysis strategy followed a rigorous multi-step protocol using R software:

1. Scale validation: Calculation of Cronbach's alpha (α) to verify the internal consistency of the constructs [15].
2. Exploratory analysis: Bivariate correlations and ANOVAs to select candidate predictors (threshold $p < 0.20$).
3. Multiple linear regression modeling: Construction of an initial model including all relevant variables, then stepwise (backward) selection based on AIC to obtain a parsimonious model.
4. Interaction test: Introduction of an interaction term between logistics_barriers and payment_method_impact to test H3. The variables involved in the interaction were centered on their mean before the product term was created in order to reduce multicollinearity.
5. Model validation: Residual normality tests (Shapiro-Wilk), influential point detection (Cook's distance), and cross-validation (k-fold) to assess the stability of the prediction error.
6. FCS ranking: Calculation of standardized coefficients (β) to compare the relative importance of significant predictors.

III. RESULTS

3.1. Validation of measurement scales

Before testing the hypotheses, we verified the reliability of our constructs. Table 2 summarizes these results.

Table 2: Reliability of measurement scales (Cronbach's alpha)

Scale	Number of items	Cronbach's alpha (α)	Interpretation
Fidelity	5	0,868	Excellent
Barriers to purchase (complete)	8	0,806	Good
Logistical barriers	3	0,78	Good

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Scale	Number of items	Cronbach's alpha (α)	Interpretation
Product barriers	3	0,79	Good
Site barriers	2	0,70	Acceptable

Source: Analysis of collected data

All α values exceed the minimum threshold of 0.70 recommended by [15], , confirming the metrological robustness of our instruments.

3.2. Descriptive analyses

The sample is predominantly young (74% are under 35) and highly educated (61.5% have a master's degree). The dependent variable score_fidelite has an average of 3.96 (out of 5), indicating a relatively high propensity for loyalty.

3.3. Model selection and regression analysis

The stepwise selection procedure converged on a model including age group, professional activity, and the impact of payment method. The direct addition of the sub-dimensions of barriers did not significantly improve the model. However, the test of an interaction between logistical_barriers and impact_payment_method proved conclusive. Table 3 presents the results of this final model.

Table 3: Regression results with interaction (Dependent variable: Loyalty)

Variable	Coefficient (β)	Standard Error	t-value	p-value	Signif.
(Intercept)	1.288	0.964	1.336	0.184	
logistical_barriers	0.707	0.357	1.984	0.049	*
impact_payment_method	0.751	0.236	3.187	0.002	**
age_bracket_f2	-0.329	0.189	-1.737	0.084	.
age_bracket_f4	-0.641	0.358	-1.790	0.076	.
professional_activity_f5	-0.391	0.278	-1.407	0.162	
logical_barriers:payment_impact	-0.171	0.083	-2.063	0.041	*
Adjusted R^2	0.188				

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Variable	Coefficient (β)	Standard Error	t-value	p-value	Signif.
F statistic	3.649 ($p < 0.001$)				

* Note: Only relevant variables are presented. The reference categories are modality 1 for age and activity. . $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.*

Source: Analysis of collected data.

The model is globally significant ($F(14,146) = 3.649$, $p < 0.001$). Hypothesis H1 is partially validated (significant effect of age at the 10% threshold), H2 is strongly validated (payment impact, $p < 0.01$), and H3 is validated by the presence of a significant interaction effect ($p = 0.041$).

3.4. Breaking down the interaction

To interpret the interaction, we segmented respondents into three groups based on their impact_payment_mode score (Low, Medium, High) and calculated the effect of logistical barriers on loyalty for each group.

The figure reveals a clear and consistent trend:

- For the "High" payment impact group (score=5), logistical barriers have a negative effect ($\beta \approx -0.15$)
- For the "Low" payment impact group (score 1-2), the effect is positive ($\beta \approx +0.32$).
- The "Medium" group (score 3-4) is in a neutral zone ($\beta \approx +0.14$).

This interaction shows that tolerance for logistical problems is strongly influenced by the payment experience. In other words, the higher the satisfaction with the payment method, the more negative the effect of logistical barriers on loyalty becomes.

3.5. Ranking of identified Key Success Factors (KSFs

Based on the standardized coefficients of the final model, we ranked the factors that have a significant impact ($p < 0.10$) on loyalty. Table 4 presents this ranking, which constitutes the list of Key Success Factors identified by this study.

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Table 4: Summary of Key Success Factors (KSFs) for Customer Loyalty Identified

Rank	Key Success Factor (KSF)	Standardized β	p-value	Impact	Nature of leverage
1	Age (4-46 years old and above)	-0.799	0.034	STRONGLY NEGATIVE	Structural (Segment)
2	Professional activity (type 5)	-0.500	0.086	STRONGLY NEGATIVE	Structural (Segment)
3	Age (26-35 age group)	-0.393	0.046	MODERATELY NEGATIVE	Structural (Segment)
4	Impact of payment method	+0.292	<0.001	MODERATELY POSITIVE	Actionable (Leverage)

Source: Analysis of collected data.

This ranking is crucial. It highlights that demographic factors are the most powerful predictors, but they are difficult for companies to influence; they define customer segments at risk. On the other hand, the impact of payment method is the most important lever for managerial action, as it is the only significant positive factor that companies can directly influence to build customer loyalty within an e-commerce project.

IV. DISCUSSIONS

This research aimed to identify the key success factors for e-commerce in Cameroon by explaining customer loyalty, going beyond the scope of additive models. The results obtained offer several levels of interpretation, in line with recent African literature used in our theoretical framework.

4.1. Theoretical contributions: Confirmation of a moderating effect and dialogue with African literature

First, our study confirms that Cameroonian consumer loyalty is the result of a complex combination of factors, in which interactions play a key role. The validation of hypothesis H3 (moderating effect) is the major theoretical contribution of this work. It demonstrates that the impact of logistical barriers is not absolute, but relative to the payment experience. This result is consistent with the work of [11] on value creation, perceived as a conditional balance between benefits and sacrifices. For customers who are very satisfied with the payment (the "benefit" is high), logistical barriers become a critical "sacrifice." For those who are dissatisfied with the payment, additional logistical problems do not seem to exacerbate an already negative perception; they may be integrated into a higher overall "entry cost".

This finding enriches and nuances the existing literature on FCS in Africa. While [3] and [4] emphasized the importance of product attributes and perceived risk, and [5] highlighted the logistical challenge, our research shows that these dimensions do not operate in silos. Logistics, often cited as a key factor, is modulated in importance by another equally crucial factor: payment reliability and flexibility. This result echoes the importance of mobile money highlighted by [16] in Cameroon. Furthermore, our demonstration of a moderating effect is in line with the work of [9] in Côte d'Ivoire, which showed the moderating role of

generation, and enriches the debate on the nature of the quality-loyalty relationship opened by [7] and [8] by proposing a third way: that of the conditionality of effects.

4.2. The weight of structural variables: age and professional activity

Secondly, the study validates the importance of sociodemographic variables (H1), which are often relegated to the background in standard models [2]. The strength of the age effect (β = -0.799 for group 4) indicates that digital "democratization" has not yet bridged the generational divide. Older consumers (group 4) have a significantly lower loyalty score, suggesting mistrust or a mismatch between the offering and their needs. This finding is consistent with the macroeconomic observations of [10] on the limited impact of technology in the absence of productive use tailored to different segments of the population. Similarly, certain professional categories (type 5) appear to be structurally less loyal. These results remind us that technology adoption is a socially situated process and that loyalty strategies cannot ignore a detailed knowledge of the target audience, as suggested by [6].

4.3. Managerial implications: towards a segmented and conditional strategy

Thirdly, these results enable us to formulate highly precise managerial recommendations that are in line with the complexity of the Cameroonian market.

- Segment logistics management according to payment satisfaction levels. The interaction highlighted is a powerful guide for action.
    - For customers who are highly satisfied with payment (high impact): They represent the core target audience. For them, logistics is a critical factor, echoing the concerns of [5] about the "last mile." Any investment in improving delivery times, package tracking, or returns management will have a direct and positive impact on their loyalty. Failure in this area, on the other hand, will cause them to switch.
    - For customers who are dissatisfied with the payment process (low impact): They represent a source of growth. The top priority is to improve their payment experience (simplify the process, offer more options such as mobile money, secure transactions). Only once this issue has been resolved will investments in logistics bear fruit. As long as the payment experience is perceived as negative, improving logistics is ineffective, even counterproductive, given the positive slope of the coefficient.
- Prioritize actions on actionable levers. Table 4 is a resource allocation matrix. Age and professional activity are segmentation variables, not action variables. Marketing and operational efforts must focus on the only significant and modifiable lever: the impact of the payment method. This involves diversifying options (extensive integration of mobile money, making cash on delivery more reliable), simplifying the payment process, and communicating transparently and reassuringly about transaction security, a crucial point in overcoming the institutional and trust barriers identified by [6].
- Adapt communication to at-risk demographic segments. For age groups 2 and 4, and occupational category 5, a specific marketing approach is required. Qualitative studies could reveal specific expectations (need for advice, preference for certain types of products, sensitivity to after-sales service) that would enable the offer and tone of communication to be adapted in order to strengthen trust and, ultimately, loyalty, taking into account the socio-cultural specificities highlighted by [9].

4.4. Limitations and avenues for future research

This study has limitations that open up avenues for further research. The sample size (N=161) and its non-probabilistic nature limit the generalizability of the results. A larger survey with a representative sample would confirm the robustness of our conclusions. Furthermore, the study is cross-sectional and captures a snapshot at a given moment in time; a longitudinal approach would validate the causality of the relationships and observe the evolution of these dynamics over time.

Future research could explore other potential interactions, such as between age and the type of products purchased, or between professional activity and average basket size. It would also be relevant to test a more comprehensive structural model (structural

equations) including mediating variables such as trust or satisfaction, in order to map the entire loyalty process and contribute to the debate opened by [7] and [8] on the nature of mediation. Finally, a comparative extension to other Central African countries (Gabon, Congo) would make it possible to validate the contextual specificity of our results or, on the contrary, to reveal their more universal nature, following the example of the regional comparisons suggested by [10].

V. CONCLUSION

The digital economy, and more specifically e-commerce, is an essential growth driver for developing countries such as Cameroon. This research has shed light on the determinants of customer loyalty in this sector, providing robust empirical validation of an integrative conceptual model that goes beyond the simple addition of factors and contributes to the growing body of African research on e-commerce.

The first major contribution is the identification of a novel moderating effect: the impact of logistical barriers on loyalty is conditioned by the level of satisfaction with the payment method. This objectification of the relationship, which echoes the work of [9] on generation and [8] on mediation, will have a number of beneficial consequences for players in the sector. It allows us to move away from uniform strategies and adopt a segmented and conditional approach, where investments are allocated according to customer profile.

The second area of focus concerns the identification and prioritization of Key Success Factors. Our research has formally identified four KSFs that influence customer loyalty in e-commerce in Cameroon:

1. Consumer age (particularly older age groups), which acts as a powerful structural barrier, confirming the macroeconomic observations of [10].
2. Professional activity, which defines customer segments with varying propensities for loyalty.
3. The impact of payment method, which is the only positive and managerially actionable lever, highlighting the importance of mobile money in Cameroon [16].
4. The interaction between logistical constraints and payment method, which reveals the conditional nature of the customer experience and enriches the understanding of the logistical challenges identified by [5] et [6].

Our results demonstrate with statistical clarity that while demographic variables are the most powerful predictors of loyalty, they constitute risk segments rather than levers for action. Formalizing this finding encourages e-merchants, as part of their e-commerce projects, to focus their efforts on the only positive and actionable lever: the impact of payment method.

Finally, in terms of managerial recommendations, it becomes more legitimate for e-commerce platforms to design their offering around a dual strategy: improving the payment experience for everyone and making it the gateway to flawless logistics for the most satisfied customers. In any case, even the smallest effort in the above directions has the potential to generate significant progress in terms of customer loyalty, because until now, the strategies of many platforms have often been too diluted or blind to the conditional nature of the customer experience.

In conclusion, in response to the initial fundamental question, we can affirm that loyalty in e-commerce in Cameroon is built on a dynamic balance between payment reliability and logistical efficiency, a balance whose outcome varies according to the initial level of satisfaction. This sector, which is vital for a young and connected population, represents both a challenge and an opportunity for national entrepreneurs. Future research could further explore the dynamics of recommendation, which seems to obey potentially different drivers, or compare these results with those from other national contexts in Africa, drawing on the comparative framework outlined by [10].

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