

Empirical Analysis of Cross-Border E-Commerce Sales for Beauty Products

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Abstract: Globalization and Internet technology are propelling the rapid growth of cross-border e-commerce. Beauty and personal care products have emerged as a major category within this domain. Nevertheless, disparities in culture, economy, and consumption habits across countries exert a substantial influence on product sales and marketing strategies. This study utilizes data from the Thai and UK markets. The objective is to explore the impact of cultural differences on the sales of beauty and personal care products, with a particular focus on the role of live-streaming videos. Initially, descriptive analysis is conducted to discern the basic data distribution and trends. Subsequently, regression analysis is performed using Stata to establish relationships among variables. The results indicate that cultural differences significantly moderate the effects of factors such as video views, content types, and duration on sales. In the Thai market, short live-streaming videos prove more effective in product promotion, while in the UK, consumers exhibit a preference for more detailed videos. In conclusion, cross-border e-commerce enterprises ought to adapt their live-streaming video strategies in accordance with cultural differences. The findings provide practical evidence for cross-border e-commerce firms to refine their marketing strategies, highlighting the significance of precise marketing.

1 INTRODUCTION

In 2023, the global cross-border e-commerce market surpassed 2.5 trillion yuan, with China contributing approximately 40% of the total market share and experiencing a year-on-year growth rate of 13.6%. Among various product categories, beauty and personal care products have demonstrated exceptional performance, emerging as a leading sector in cross-border e-commerce expansion. On platforms such as Douyin and TikTok, beauty and personal care products rank among the best-selling and fastest-growing categories.

With the rapid development of globalization and Internet technology, cross-border e-commerce has become an important part of international trade. In recent years, its transaction volume has been rising continuously. Beauty and personal care products are chosen for this research due to their unique characteristics. They are highly influenced by cultural factors in terms of consumer preferences. For instance, different cultures have diverse standards of beauty, which directly affect the demand for various product functions, like the preference for whitening products

in some Asian cultures. Also, the beauty and personal care market is highly competitive and dynamic, making it a prime area to study cross-border e-commerce sales mechanisms.

The emergence of e-commerce platforms such as TikTok has injected new vitality into the development of cross-border e-commerce. However, significant differences in culture, economy, and consumption habits among different countries and regions have a profound impact on the cross-border e-commerce sales of beauty and personal care products. Taking Thailand and the UK as examples, Thailand, with its strong collectivist culture, sees consumers being more influenced by social norms and group opinions when purchasing beauty products. In contrast, the UK, a highly individualistic society, has consumers who prioritize personal preferences and product uniqueness.

This study aims to address two key research questions: (1) What differences exist in the sales of beauty and personal care products across various export regions? (2) What are the primary factors influencing these disparities, with a particular emphasis on the role of live-streaming videos

(including video duration, views, and content)? The ultimate objective is to provide theoretical insights and practical guidance for cross-border e-commerce enterprises in formulating targeted and effective sales strategies.

2 LITERATURE REVIEW

Current research on the sales of beauty and personal care products predominantly concentrates on single markets, leaving the cross-border e-commerce domain under-explored. Most studies merely take into account common factors such as product features and prices, overlooking the crucial role of culture in diverse markets. Additionally, research on the impact of live-streaming videos on the sales of beauty and personal care products is scarce, with the relationships among video duration, views, content, and sales volume remaining largely unexamined.

Yang et al. (2014) employed factor analysis to develop an evaluation index system for cross-border e-commerce, providing a framework for assessing industry development. However, their study did not specifically address beauty and personal care products. Similarly, Ma et al. (2018) analyzed the expansion of China's cross-border e-commerce exports, highlighting macro-level influences such as market environment and policy support but failing to examine how differences between international markets affect product sales. Xu and Song (2018) explored the factors driving cross-border e-commerce adoption among small and medium-sized enterprises in Gansu but focused on business-level dynamics rather than product-specific and cultural considerations. While Hoque and Bashaw (2021) acknowledged cross-border e-commerce as a growing business model, their study lacked an in-depth analysis of product sales mechanisms. Chen and Wang (2025) further explored how B2B platform diversity influences corporate export strategies, emphasizing the need for enterprises to adapt to platform-specific market demands. This complements prior research by linking platform characteristics to strategic decisions in cross-border sales.

Regarding the sales of beauty and personal care products, existing research is mostly confined to single-market scenarios. Smith (2022) investigated how cultural differences affect consumer behavior in the beauty industry, revealing that different cultural backgrounds result in diverse views on product efficacy and brands. However, this research had no connection to cross-border e-commerce sales. Currently, most studies analyze sales from factors

such as product characteristics and prices. For example, Zhang et al. (2017) studied the purchase intention of cross-border e-commerce retail products and their influencing factors, neglecting the impact of culture on the sales of beauty and personal care products in different markets.

Research on the impact of live-streaming videos on beauty and personal care product sales is extremely limited. Huang and Wu (2020) discussed the development, problems, and improvement measures of live-streaming e-commerce in China but did not study its specific impact on beauty and personal care product sales. Liu and Shi (2020) explored how the live-streaming e-commerce marketing model affects consumers' purchase decisions, yet they did not conduct research specifically on beauty and personal care products. Gu et al. (2023) studied influencer mix strategies in live-stream commerce and their impact on product sales. Although related to live-streaming, they did not explore how details such as video duration and content affect the sales of beauty and personal care products.

Recent research has begun to address some of these gaps. Wang et al. (2024) explored the effects of cross-border e-commerce platform interface design on consumer experiences within the beauty product category but did not incorporate cultural or live-streaming-related variables. Lee et al. (2024) analyzed the impact of social media influencers' credibility on the sales of beauty products in a domestic context, without extending the research to cross-border e-commerce and the influence of video content. Yan and Hu (2024) detailed the overseas expansion story of cross-border e-commerce platform Temu, which, though not directly related to beauty product sales, provides insights into successful cross-border platform strategies that could potentially be applied or contrasted in the beauty sector.

This study posits that multiple factors including price, cultural dynamics, and marketing strategies. Jointly influence beauty and personal care product sales. Furthermore, cultural factors moderate the effects of price and marketing on sales performance. Live-streaming videos, as a pivotal marketing tool, impact sales through variables such as video duration, views, and content. Consumer acceptance and engagement with live-streaming content vary across cultures, thereby modifying the effectiveness of video-based marketing strategies. This research seeks to bridge existing gaps by comprehensively analyzing the interplay between cultural differences, live-streaming videos, and other determinants of cross-border e-commerce sales performance in the beauty and personal care sector.

3 RESEARCH METHODS

3.1 Data Sources

This study's data are sourced from a sales platform and a short-video live-streaming platform. As of February 21, 2025, 3000 pieces of product data with good sales in Thailand and the UK were selected. These data cover a wide range of information, including product cover links, names, selling prices, countries/regions, affiliated store names, total store sales, product categories, commission ratios, 7-day sales volume, 7-day sales amount, total sales volume, total sales amount, the number of associated influencers, the number of associated live-streaming sessions, and the number of associated videos. Additionally, 500 pieces of live-streaming video data for a popular product in Thailand and the UK were respectively collected, along with ten representative live-streaming videos, providing abundant data support for in-depth exploration of the impact of live-streaming videos on sales.

3.2 Sample Particularity and Data Validity and Reliability

Thailand and the UK were selected for this study due to their distinct market characteristics and representativeness. Thailand, a key player in Southeast Asia's rapidly expanding e-commerce landscape, exhibits unique consumer preferences in the beauty and personal care sector. The country's tropical climate and cultural emphasis on aesthetic ideals have contributed to a strong demand for whitening and oil-control products, making it an exemplary market for analyzing regional beauty consumption patterns in tropical Asian economies.

Conversely, the UK represents a developed Western market with a sophisticated e-commerce infrastructure. British consumers place a strong emphasis on product quality, brand heritage, and personalized beauty solutions. Their purchasing behavior is shaped by Western cultural values, including individualism and self-expression. By examining the UK market, this study provides insights into consumer behavior within mature Western e-commerce ecosystems.

3.3 Data Validity and Reliability

To ensure data validity, the following steps were taken. First, data were collected from multiple reliable sources. The sales platform selected is a well-known international e-commerce platform with a

large user base and strict product review mechanisms, ensuring that the product information is accurate and up-to-date. The short-video live-streaming platform is also a leading platform in the industry, providing comprehensive and real-time video-related data.

Second, in the process of data collection, strict screening criteria were applied. Only products with complete information and a certain sales volume were included in the sample, eliminating data with missing values or outliers that could affect the analysis results.

To enhance reliability, a random sampling approach was used for both product and live-streaming video data to ensure representativeness. Additionally, data collection was repeated at multiple intervals to verify consistency. Further, data cleaning procedures were conducted to identify and rectify errors, thereby enhancing the robustness of the dataset for subsequent empirical analysis.

4 RESEARCH RESULTS

4.1 Descriptive Analysis

4.1.1 Sales Distribution in the Thai and British Markets

Through data analysis, it shows that there are obvious differences in the sales distribution of beauty and personal care products in the Thai and British markets. As shown in Table 1 and Table 2, the UK market exhibits a mean total sales volume of 5,208.58 units with high variability (std. dev. = 10,016.6), while Thailand's mean sales are nearly double (10,319.55 units), reflecting stronger demand for beauty products in this Southeast Asian market. The skewed distribution in Thailand (max. = 580,359) suggests the presence of blockbuster products, possibly driven by cultural preferences for specific functions like whitening. In the Thai market, products with certain specific functions (such as whitening and oil control) have relatively high sales; in the British market, products with other functions (such as moisturizing and anti-wrinkle) perform better.

Table 1: UK total sales figures for the beauty and personal care category.

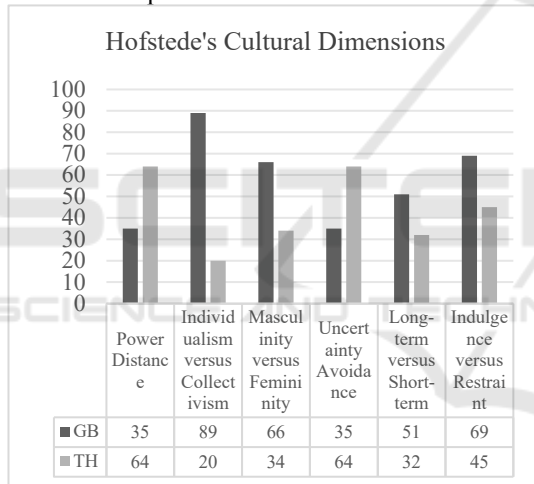
Variable	Obs	Mean	Std. dev.	Min	Max
Total sales	3,000	5208.576	10016.6	895	145963

Table 2: Thailand's total sales figures in the beauty and personal care category.

Variable	Obs	Mean	Std. dev.	Min	Max
Totalsales	3,000	10319.55	25234.7	1739	580359

4.1.2 Hofstede's Dimensional Scores

Thailand and the UK have significant differences in Hofstede's cultural dimension scores, especially in the dimension of individualism and collectivism. Figure 1 illustrates stark cultural differences between Thailand and the UK on Hofstede's individualism dimension: Thailand scores low (collectivist), while the UK ranks among the highest (individualist). This divergence correlates with sales patterns, as discussed in Section 5.2. This cultural difference has a close connection with product sales.



Picture credit: Original

Figure 1: Cultural differences demonstrated by Hofstede's dimensional scores.

4.2 Regression Analysis

Based on the regression analysis results, we can gain a deeper understanding of the impact of various variables on sales. Table 3 reveals that the commission ratio negatively impacts sales (-18,822.35, $p < 0.001$), while the number of associated influencers (30.10, $p < 0.001$) and videos (13.48, $p < 0.001$) show strong positive effects. The individualism factor interacts significantly with influencer and video metrics, highlighting cultural moderation effects. Table 3 shows the regression results including the cultural score data of

commodities. Tables 4 and 5 respectively present the regression analysis results of video variables at the commodity level in the UK and Thailand.

In Table 3, the Commission Ratio is negatively correlated with the total sales volume, indicating that an increase in the commission ratio may reduce the total sales volume. The Number of Associated Influencers and the Number of Associated Videos have a positive impact on the total sales volume, meaning that more influencers and videos are helpful for increasing sales. The Individualism Factor is negatively correlated with the total sales volume, but the interaction terms between it and the Commission Ratio, the Number of Associated Influencers, etc. have different effects.

The regression results of the UK market in Table 4 show that Video Duration, the Number of Followers of Influencers, and the Number of Views have a positive impact on the sales volume of the commodity. However, the Number of Likes is negatively correlated with the sales volume, and the Interaction Rate has no significant impact on the sales volume.

The regression results of the Thai market in Table 5 indicate that the Number of Followers of Influencers, the Number of Views, and the Number of Likes have a positive impact on the sales volume of the commodity, while the Video Duration and the Interaction Rate have no significant impact on the sales volume.

Table 3: Results of regression analyses (introduction of merchandise data on cultural scores).

Total Sales Volume	Coefficient	Std. err.	t	P>t
Commission Ratio	-18822.35	5081.224	-3.70	0.000
Number of Associated Influencers	30.0963	1.334329	22.56	0.000
Number of Associated Livestream	-4.386267	.497384	-8.82	0.000
Number of Associated Videos	13.47867	1.82789	7.37	0.000
Individualism Factor	-27.44785	9.166367	-2.99	0.003
Comm Ratio_Indiv	14.93829	108.7781	0.14	0.891
Assoc Infl_Indiv	-.1108234	.0355601	-3.12	0.002
Assoc Live_Indiv	.0566456	.0092467	6.13	0.000
Assoc Videos_Indiv	-.0866095	.052329	-1.66	0.098
_cons	6257.528	576.8373	10.85	0.000

Table 4: Video-variable regression analysis at the commodity level in the UK.

Sales Volume of This Product	Coeff.	Std. err.	t	P>t
Video Duration	.0561	.0258	2.18	0.030
Number of Followers of Influencers	.0003	.0000	13.81	0.000
Number of Views	.0004	.0000	17.37	0.000
Number of Likes	-.0337	.0055	-6.13	0.000
Interaction Rate	-2.903	22.7348	-0.13	0.898
_cons	-6.018	2.5556	-2.35	0.019

Table 5: Video Variable Regression Analysis at the Commodity Level in Thailand.

Sales Volume of This Product	Coeff	Std. err.	t	P>t
Video Duration	.0206	.0612	0.34	0.737
Number of Followers of Influencers	.0000	.0000	4.68	0.000
Number of Views	.0001	.0000	8.85	0.000
Number of Likes	.0072	.0010	6.88	0.000
Interaction Rate	-135.4	103.68	-1.31	0.192
_cons	4.70	4.550	1.03	0.302

5 DISCUSSION

5.1 Research Findings

This study has successfully revealed significant differences in the sales of beauty and personal care

products in different export regions. The main factors influencing sales include culture, marketing, and live-streaming video-related factors.

Regression analysis results indicate that the factors influencing sales volume differ depending on cultural backgrounds. In the UK market, Video

Duration, Number of Followers of Influencers, and Number of Views exhibit a significant positive impact on sales. Conversely, in the Thai market, Number of Followers of Influencers, Number of Views, and Number of Likes play a decisive role in driving sales. Furthermore, cultural differences moderate the impact of live-streaming video characteristics on sales, as consumer preferences for video content vary across cultures. This cultural divergence ultimately affects how live-streaming videos influence sales performance.

5.2 Discussion

Cultural differences play a crucial role in sales. Hofstede's cultural dimension theory helps us understand the differences between Thailand and the UK. In terms of individualism and collectivism, Thailand has a strong collectivist culture. According to Triandis' collectivist theory, in-group harmony is of great importance. The opinions of family, friends, and the community influence Thai consumers. They are likely to accept products that conform to local culture. For example, products containing natural ingredients from Thai traditional medicine are popular. These consumers also pay attention to product efficacy and price and often consider the interests of the group when making purchases.

By contrast, the UK exhibits a highly individualistic culture. According to Markus and Kitayama's self-concept theory, British consumers emphasize self-expression and personal identity. Their purchasing choices are influenced by product quality, brand heritage, and the ability to meet individualized needs. Established brand reputation and customized product options are particularly attractive to them.

From the regression results, in the Thai market, the collectivist culture makes consumers more reliant on information dissemination within the group. The Number of Followers of Influencers, the Number of Views, and the Number of Likes have a significant positive impact on the sales volume of commodities. This is because Thai consumers tend to follow the recommendations of influencers within the group. High numbers of views and likes mean that the product has a high degree of recognition within the group, which is in line with the importance that collectivist consumers attach to group opinions. According to Bandura's social learning theory, Thai consumers will imitate the product choices demonstrated by influencers within the group, so these factors can effectively promote sales. The Video Duration has no significant impact on the sales

volume, possibly because consumers in a collectivist culture pay more attention to the core information conveyed by the video. As long as the information can reflect the value of the product to the group, the video duration is not a key factor.

In contrast, British consumers' strong individualistic orientation makes them more interested in personalized and in-depth product information. Video Duration exerts a significant positive effect on sales, likely because British consumers prefer detailed content that allows for thorough product evaluation. Longer videos cater to their need for extensive product understanding, enabling them to determine whether a product aligns with their identity. The Number of Followers of Influencers and Number of Views also positively influence sales, as British consumers rely on influencers to provide unique insights. High view counts increase product exposure, enhancing the likelihood of discovery by consumers seeking distinctive products. Interestingly, the Number of Likes has a negative correlation with sales. This may be attributed to British consumers' preference for independent decision-making—while a high number of likes may indicate mass appeal, it does not necessarily align with their pursuit of uniqueness, thereby diminishing its impact on purchase behavior.

TikTok also has different impacts on these two markets. In Thailand, TikTok spreads collectivist values. Content that conforms to local cultural norms can quickly become popular. For example, beauty tutorials following Thai beauty standards can quickly gain popularity and boost sales. In the UK, TikTok is used for individual expression. Brands can showcase unique product features and stories. The platform's algorithm recommends content according to users' interests, which helps to provide personalized product suggestions for British consumers.

For live-streaming videos, a higher number of views means greater product exposure. Videos showing the real use effect of products can reduce consumers' perception of purchase risk, which is in line with the risk reduction theory in consumer behavior. The video duration should be adjusted according to the patience and information needs of consumers with different cultural backgrounds. As collectivists, Thai consumers may prefer short and interesting videos that showcase the key product advantages for the group. Due to individualism, British consumers may prefer longer videos that contain detailed product information and customization options.

5.3 Further Explanation

This study shows that cross-border e-commerce companies must consider cultural differences when formulating sales strategies for beauty and personal care products.

For the Thai market, leveraging partnerships with local influencers is an effective strategy. Emphasizing natural ingredients, cost-effectiveness, and cultural compatibility can enhance product appeal. Since Thai consumers prioritize collective opinions and core product value, concise live-streaming videos focusing on product efficacy should be deployed to align with collectivist consumer preferences.

For the UK market, attention should be paid to brand building. Highlight product quality and personalization, and use live-streaming videos to showcase the unique value and brand stories of the products. According to the British consumers' pursuit of detailed information and personalization, videos with appropriate duration and rich content can be produced, and cooperation with influential influencers can be carried out to increase the exposure and sales volume of the products.

Through these strategies, cross-border e-commerce companies can meet the needs of consumers with different cultural backgrounds and make their brands more attractive in the international market..

6 CONCLUSIONS

6.1 Summary of Research Results

This study has successfully revealed the differential performance of beauty and personal care products in different export regions and clarified the main factors influencing the cross-border e-commerce sales differences of beauty and personal care products, including price, culture, marketing, and live-streaming videos. Among them, cultural differences and live-streaming videos play a key role in the formulation and implementation of sales strategies. Consumers with different cultural backgrounds have different demands and preferences for products and different acceptance and preferences for live-streaming videos.

6.2 Emphasis on Research Contributions

This research addresses critical gaps in the existing literature on cross-border e-commerce sales of beauty and personal care products, particularly concerning cultural influences and the role of live-streaming videos. By offering a nuanced analysis of market-specific characteristics and video-based marketing mechanisms, this study provides a robust theoretical foundation and practical insights for cross-border e-commerce enterprises. These findings serve as a valuable reference for businesses seeking to optimize product positioning and improve sales performance in diverse international markets.

6.3 Research Limitations and Future Prospects

Although this study has achieved certain results, there are still limitations. For example, the data only selected two countries, Thailand and the UK, which may not fully reflect the global market situation; only some influencing factors were considered, and other potential factors have not been deeply explored. Future research can further expand the data scope to cover more countries and regions, and at the same time incorporate more influencing factors, such as policies and regulations, market competition, etc. In addition, more advanced video analysis technologies, such as natural language processing and image recognition, can be used to deeply explore the content characteristics and emotional tendencies of live-streaming videos, providing a more comprehensive and in-depth research for the cross-border e-commerce sales of beauty and personal care products.

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