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Cross-Border E-Commerce and Its Implications for Consumer Protection (2019–2024): A Systematic Literature Review

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ABSTRACT

This paper provides a systematic literature review examining the implications of cross-border e-commerce (CBEC) for consumer protection from 2019 to 2024. The study identifies key challenges, including technological vulnerabilities, regulatory discrepancies, and consumer manipulation risks in the global e-commerce landscape. Utilizing Scopus database searches, 16 articles were analyzed to explore the evolving nature of consumer vulnerabilities due to innovations such as algorithmic price discrimination, deceptive marketing practices, and deepfakes. The findings highlight the need for harmonized international regulations, enhanced digital literacy programs, and adaptive frameworks to mitigate privacy violations and promote trust in cross-border transactions. The Stimulus-Organism-Response (SOR) model, Technology Acceptance Model (TAM), and insights from behavioral studies underpin the discussion of consumer behavior and its susceptibility to manipulative tactics. Open research gaps are identified, emphasizing the need for future studies on psychological manipulation mechanisms, jurisdictional regulatory harmonization, and consumer digital literacy initiatives. The study concludes with recommendations for policymakers and businesses to prioritize transparency, consumer education, and technological safeguards to ensure a secure, fair, and trustworthy CBEC environment.

Keywords: Cross-Border E-Commerce, Consumer Protection, Digital Literacy, Algorithmic Price Discrimination, Stimulus-Organism-Response Model, Technology Acceptance Model

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1. Introduction

In recent years, the proliferation of cross-border e-commerce (CBEC) has transformed the global marketplace, enabling consumers to purchase goods and services beyond their national boundaries with unprecedented ease. However, this evolution has also raised significant concerns regarding consumer protection. Regulatory differences, technological vulnerabilities, and information asymmetries pose substantial challenges for consumers navigating cross-border transactions. Despite the rapid growth of CBEC, consumer protection frameworks have struggled to keep pace, resulting in fragmented and often inadequate safeguards.

The primary purpose of this study is to systematically examine the consumer protection landscape in the context of CBEC between 2019 and 2024, analyzing key regulatory, technological, and psychological challenges. Specifically, this review aims to: (1) identify recurring themes in the literature regarding consumer protection in CBEC; (2) explore the application of theoretical frameworks such as the Stimulus-Organism-Response (SOR) and Technology Acceptance Model (TAM) in understanding consumer behavior and risk perception; and (3) highlight gaps in the literature to guide future research. This study offers a comprehensive perspective on emerging issues such as manipulation mechanisms, regulatory harmonization, and digital literacy, contributing to both academic scholarship and practical policy discourse.

2. Methodology

This study employed a systematic literature review (SLR) methodology, focusing on peer-reviewed journal articles published between 2019 and 2024. The Scopus database was selected due to its extensive coverage of multidisciplinary academic literature. A search was conducted using a combination of keywords, including "cross-border e-commerce," "consumer protection," "regulatory framework," "digital literacy," and "consumer behavior."

Inclusion criteria were: (1) articles published between January 2019 and March 2024; (2) articles written in English; and (3) studies explicitly addressing consumer protection in CBEC. After initial screening, 16 articles were deemed relevant for in-depth analysis. The selected articles were analyzed thematically, focusing on three main dimensions: regulatory, technological, and psychological. The SOR and TAM models were used to underpin the analytical framework, guiding the classification and interpretation of findings.

3. Theoretical Framework

3.1. Stimulus-Organism-Response (SOR) Model

As postulated by Zhang et al., (2024), the SOR model posits that external stimuli (for example, website design, advertisements) influence an individual's internal state (organism), which in turn affects behavioral responses (for example, purchase decisions). In the context of CBEC, stimuli such as interface design, third-party reviews, and promotional tactics shape consumers' emotional and cognitive reactions. These reactions—trust, perceived risk, or information overload—impact the consumer's final purchasing decision. Product quality highly relates to the external stimulus passed, thus aligning with the theory of attractive quality. Product engineering is focused on customer perception, and whether the product can stimulate potential customers and convince them to make a purchase (Ho & Chuang, 2023). Concerning the research topic, the stimulus organism theory links human vulnerability, external stimuli, and the need for protection. Based on Zhang et al., (2024) findings, the failure to create mechanisms to protect the customers creates room for manipulation.

In a paper by Mainardes et al., (2023). The authors argue that the nature of e-commerce limits the physical interaction of humans with goods and services. Customers first get to experience the goods through an online environment. Thus, the presentation determines whether they will make a purchase or not. While no single theory stands out, they insinuate that wrongful presentation may equate to undeserved purchase, thus requiring consumer protection. Mainardes et al., (2023) paper can be juxtaposed to Zhang et al., (2024) article where the authors note the effect of external stimuli in purchase decisions and the need for authenticity in claims made.

3.2. Technology Acceptance Model (TAM)

The TAM framework explores how perceived ease of use and perceived usefulness influence the adoption of technology (Wisted, 2024). Applied to CBEC, TAM helps explain how consumers evaluate online platforms and make purchasing decisions across borders. Technological trust, data security, and transaction transparency are critical factors influencing consumer acceptance of foreign e-commerce platforms. Baozhuang et al., (2022) highlights the possibility of a win-win situation, whereby large e-commerce sites can share consumer data, but only with the customer's permission. The technological acceptance model exemplifies the need for this, noting that when customers accept essential changes e.g., consent to cookie usage, it becomes easier to customize products and services based on their taste (Baozhuang et al., 2022; Wisted, 2024).

4. Literature Review

4.1. Regulatory Challenges for Cross-Border E-commerce

Several studies highlighted the inconsistencies and fragmentation in global consumer protection regulations. Unlike domestic e-commerce, CBEC lacks uniform standards for dispute resolution, privacy protection, and product liability. Articles by Baozhuang et al. (2022) and Do & Wang et al., (2023)d & Lim (2021) emphasize the absence of binding international agreements, which complicates legal redress and consumer rights enforcement. This regulatory vacuum undermines consumer trust, especially in developing regions where enforcement mechanisms are weak.

Furthermore, different jurisdictions apply varied standards for labeling, warranties, and return policies. These discrepancies create confusion and erode consumer confidence. The literature suggests the need for harmonized consumer protection policies, potentially through multilateral agreements or regional frameworks such as ASEAN or the EU.

Besides data, and harmonizing rules across online platforms, rules like the data collection consent in the EU go a long way in consumer protection (Jayakumar, 2021). Furthermore, Wein (2022) suggests the need to stay ahead of the game, with measures such as working hand in hand with Internet Service Providers (ISPs) and global liaison to minimize instances of law circumnavigation (Jayakumar, 2021; Wein, 2022).

Privacy concerns have also been raised, Tao et al., (2024) explicitly notes that despite the efforts made to give consumers authority over their data, there are still many data privacy loopholes (Baozhuang et al., 2022; Tao et al., 2024). Efforts have been made to enhance privacy controls, with the main one being letting customers pick the information to share and dictate how it is to be used. While the move is ideal, are customers protected? (Ge & Chen, 2021) note otherwise. The advancement of big data, specifically algorithmic price discrimination proves to be a major loophole. “Big Data Backstabbing,” a major loophole in privacy concerns means that a customized profile can be made from a customer's browsing history, and thus accurately predict the price consumers are ready to pay before making an offer. While the privacy violation is rife, it's hard for existing regulations to fully curtail it (Ge & Chen, 2021).

4.2. Consumer Trust and Risk Perception

Trust, transparency, and the overall perceived risk influence consumer behavior in cross boarder e-commerce. Logistic quality service (LQS) in the context of border e-commerce is a major concern issue(Zhang & Huang, 2025). Consumers have to be protected from insecurity, uneconomic, unreliability, untimeliness, low information quality and low contact quality(Zhang & Huang, 2025). However, is this happening? Do et al., (2023) note that customer satisfaction is relative, with satisfaction having either full or partial mediation effects. A high level Of LSQ is linked to higher satisfaction, loyalty and brings about repeat purchase. Membership programs are directly linked to successful LSQ (Do et al., 2023; Zhang & Huang, 2025).

4.3. Technological Challenges

Ge et al. (2021) and Zhang (2025) illustrate how data breaches, payment fraud, and lack of cybersecurity standards threaten consumer safety in CBEC. The use of AI-driven recommendation systems and targeted advertising also raises ethical concerns. These technologies can exploit consumer behavior through algorithmic manipulation, creating "digital nudging" that may mislead consumers into making irrational or uninformed purchases.

Additionally, the lack of transparency in data handling practices and the opacity of cross-border payment systems were identified as significant deterrents. Blockchain and secure payment gateways were proposed as potential solutions, yet their adoption remains limited. For consumers to be protected, digital literacy is essential. Individuals with technological familiarity, policy awareness, and understanding of institutional surveillance are more likely to engage in online payments (Nguyen et al., 2024; Salminen et al., 2022). Deepfakes, a new technological advancement creates doubts about e-commerce, raising questions on whether there is enough protection to prevent customers from falling into marketing deceptions (Salminen et al., 2022). Furthermore, questions arise on what online retailers are doing to protect their clients, are they into deepfakes, or focus on repeat sales through genuine businesses? Mainardes et al., (2023b) emphasized the need for businesses to understand the effect of unethical processes, noting it is one of the main obstacles in their sales growth and credibility creation.

4.4. Psychological Challenges

The psychological dimension of consumer protection has gained prominence in recent literature. Manipulative marketing tactics, such as scarcity cues and false reviews, influence consumer behavior in CBEC. According to Fischer (2023), consumers exhibit higher susceptibility to persuasion when shopping on foreign platforms due to cultural unfamiliarity and language barriers.

The SOR model helps explain how stimuli like discount pop-ups or urgency messages affect the consumer's internal state, leading to impulsive purchases. These tactics exploit cognitive biases, raising ethical questions about informed consent (Ho et al., 2023). Psychological manipulation reduces the effectiveness of traditional consumer protection tools, necessitating new strategies such as behavioral audits and algorithmic accountability.

4.5. Digital Literacy and Consumer Awareness

Digital literacy plays a critical role in empowering consumers in CBEC. Several studies underscore the importance of educating consumers on digital rights, privacy, and online transaction protocols (Salminen et al., 2022). High levels of digital literacy are associated with reduced vulnerability to scams and manipulative practices. Digital literacy, online security behaviors, and E-payment intentions are directly linked to consumer protection, with individuals having an understanding of how to protect themselves online and how to deal with e-payments getting the best from e-commerce dealings (Nguyen et al., 2024; Salminen et al., 2022)

Moreover, cross-cultural differences in digital literacy levels further complicate consumer protection. Policymakers are encouraged to implement targeted awareness campaigns and integrate digital literacy into national education curricula. Impulse buying, is an underlying risk that ought to be addressed in consumer protection. At a time when live e-commerce is a big thing, and consumers are often under pressure due to the fear of missing out, the established consumer protection measures may go unnoticed (Zhang et al., 2024). A live sale, coupled with client manipulation techniques such as deepfakes or false reviews may bring about an unintended purchase (Salminen et al., 2022; Zhang et al., 2024). Also, few customers may not understand the psychological manipulation behind a live sale. As explained by Fischer (2022), manipulation intentionally modulates consumers' affective states by presenting certain products or actions as pleasurable. Manipulation subtly denies them the freedom to act in a manner, or not(Fischer, 2022). Thus, it is evident that consumers may not know they are being manipulated to make a decision; therefore, there is a need for protection.

4.6. The Role of Platforms and Intermediaries

E-commerce platforms serve as crucial intermediaries in cross-border transactions. Articles by Nguyen & Park (2020) and Jayakumar (2021) emphasize that platforms have a responsibility to ensure consumer protection, including transparent dispute resolution, product authenticity verification, and data protection.

Some platforms have introduced self-regulatory mechanisms such as buyer protection programs and AI-based fraud detection. However, the voluntary nature of these measures often results in inconsistent enforcement. Stronger oversight and standardized platform accountability are recommended.

5. Implications and Recommendations

5.1. Policy Implications

Policymakers should pursue regulatory harmonization through international cooperation. This could involve developing minimum global standards for data protection, refund policies, and dispute resolution. The establishment of a cross-border e-commerce ombudsman or consumer protection agency could facilitate complaint resolution and enforcement.

5.2. Technological Recommendations

Investing in secure payment infrastructures, promoting blockchain adoption, and mandating transparency in algorithmic decision-making are key technological recommendations. Platforms should also be required to disclose data usage policies clearly and allow consumers to opt out of data tracking mechanisms.

5.3. Educational Strategies

Governments and civil society organizations should launch digital literacy campaigns focusing on cross-border transaction risks. Interactive tools, mobile apps, and e-learning platforms can enhance consumer awareness and resilience.

5.4. Industry Best Practices

E-commerce platforms should adopt standardized codes of conduct and be subject to periodic audits. They must also improve customer service responsiveness and provide multilingual support to address the diverse needs of global consumers.

6. Research Gaps and Future Directions

The review identified several gaps in the current literature. First, few studies have examined the long-term psychological impacts of algorithmic manipulation on consumer trust. Second, more empirical research is needed on regulatory harmonization efforts and their effectiveness. Third, the role of cultural variables in shaping consumer behavior in CBEC remains underexplored. Future research could also explore the implications of emerging technologies such as the metaverse and Web3 on consumer protection.

7. Conclusion

Cross-border e-commerce presents immense opportunities for global trade but also introduces complex consumer protection challenges. This systematic review has identified critical regulatory, technological, and psychological vulnerabilities that need urgent attention. By applying the SOR and TAM models, the study offers a nuanced understanding of consumer behavior in the CBEC context. The findings underscore the need for collaborative policymaking, technological innovation, and consumer empowerment through education. Future research should continue to explore innovative approaches to safeguard consumers in the rapidly evolving digital marketplace.

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