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How E-Commerce Shapes Cross-Border Trade in the Digital Era

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ABSTRACT

This study explores the transformative effects of e-commerce on cross-border trade in the digital age, with a particular focus on the Balkan countries (Kosovo, Albania, Bulgaria, Bosnia and Herzegovina, Montenegro, Romania, Croatia, Serbia, northern Macedonia, Greece and Slovenia). It analyzes how the integration of electronic commerce reshapes traditional international trading practices by reducing geographical barriers and introducing new cost dynamics. Utilizing survey data from 300 e-commerce SMEs, the research investigates the impact of factors such as distance, language barriers, and emerging e-commerce costs on trade expenses. Through regression analysis, the study reveals that online transactions significantly lower distance-related costs, aligning with the "death of distance" concept. However, language barriers continue to pose a challenge. The findings also indicate that improvements in cross-border payment systems could lead to substantial increases in e-commerce activity. Furthermore, information-oriented business models and digital marketing strategies are identified as key drivers of sales growth and market success. The paper concludes with policy recommendations aimed at enhancing digital trade and fostering economic integration in the region. The research contributes to the understanding of e-commerce dynamics and its role in shaping future trade landscapes.

Keywords: E-commerce; Cross-border trade; SMEs; Digital transformation; Balkan region

JEL Classification: F14, L81, O33

INTRODUCTION

The digital economy has significantly transformed the nature of international trade by enabling businesses to engage in cross-border transactions through electronic platforms. Unlike traditional trade, which relies on physical interaction and geographical proximity, e-commerce reduces spatial limitations and facilitates faster global exchange of goods and services. However, despite these advantages, cross-border e-commerce is still influenced by several structural and operational barriers. Among the most important are distance-related costs, language barriers, and e-commerce transaction costs. These factors may increase transaction complexity, reduce market accessibility, and limit the efficiency of international trade, particularly for small and medium-sized enterprises (SMEs).

Previous studies have primarily focused on the general benefits of digital trade, while less attention has been given to the relative impact of these specific barriers on cross-border e-commerce performance. This creates a clear research gap, particularly in understanding how each factor individually contributes to trade inefficiencies in emerging and developing markets.

Based on this gap, the study develops the following hypotheses:

- H1: Distance-related costs have a significant positive effect on barriers to cross-border e-commerce trade.
- H2: Language barriers have a significant positive effect on barriers to cross-border e-commerce trade.
- H3: E-commerce-related costs have a significant positive effect on barriers to cross-border e-commerce trade.

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Accordingly, this study empirically examines the impact of these three determinants on cross-border trade performance using regression analysis. The findings aim to provide evidence-based insights into which factors most strongly influence digital trade barriers and to support policy interventions that enhance international e-commerce efficiency.

LITERATURE REVIEW

Digital Transformation, E-Commerce and Cross-Border Trade

Recent literature widely acknowledges that digital transformation has fundamentally reshaped international trade by enabling faster, more efficient, and less costly cross-border transactions. International organizations such as UNCTAD (2021) and the World Bank (2022) highlight that digital trade and e-commerce are now key drivers of global economic integration. Empirical studies confirm that digital technologies reduce transaction costs, information asymmetries, and fixed entry barriers, particularly for small and medium-sized enterprises (SMEs), thereby improving international market access (Gaglio et al., 2022; Skare et al., 2023). E-commerce platforms facilitate real-time communication, reduce search costs, and streamline cross-border transactions, transforming traditional trade structures into more flexible and scalable systems (Nanda et al., 2021).

E-commerce is defined as the buying and selling of goods and services through electronic networks, mainly the internet (Guven, 2020). It has significantly improved efficiency in international trade by reducing operational costs and increasing global competitiveness. At the same time, it has lowered entry barriers, allowing smaller firms to compete in global markets alongside large multinational corporations. However, the literature remains inconclusive regarding whether digitalization fully eliminates traditional trade barriers. While some studies argue that e-commerce significantly reduces the impact of geographical distance on trade costs (Wang et al., 2021), others highlight that logistics constraints, customs delays, and delivery inefficiencies continue to sustain a “border effect” in international trade (Dolfen et al., 2023; Yan et al., 2023).

Moreover, digital adoption is uneven across countries. Developing economies often face constraints related to infrastructure, technological readiness, and human capital, limiting their ability to fully benefit from e-commerce expansion (Ahmedov, 2020). This suggests that digital transformation reduces some barriers while simultaneously creating new inequalities in global trade participation.

Structural Barriers, Trade Evolution and E-Commerce Constraints

The evolution of cross-border trade has been strongly influenced by global trade liberalization under frameworks such as GATT and the World Trade Organization (WTO). Over time, tariff barriers have declined significantly, leading to increased global trade flows, while non-tariff barriers such as regulatory restrictions, customs procedures, and licensing requirements remain important constraints (Khanna et al., 2023).

Cross-border e-commerce has emerged as a complementary trade channel that operates alongside traditional trade systems. It provides firms with opportunities for international expansion, cost reduction, and broader market access. Consumers also benefit through increased product variety, improved price transparency, and enhanced competition. Despite these benefits, several structural barriers continue to affect cross-border e-commerce performance. These include distance-related costs, language barriers, e-commerce transaction costs, logistics inefficiencies, and regulatory heterogeneity across countries. Such barriers are particularly pronounced in developing and transitional economies where institutional and digital infrastructure remain less developed (Cassia & Magno, 2022).

Regulatory fragmentation in areas such as data protection, consumer rights, taxation, and trade fairness further complicate cross-border transactions. Ma et al. (2021) argue that coordinated international governance is necessary to address these inconsistencies and support sustainable digital trade development. Empirical findings also suggest that trade liberalization can significantly increase trade flows, especially when combined with

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digital infrastructure improvements. For instance, Sharma (2024) finds that reduced trade barriers can increase trade volumes by approximately 15%, particularly when supported by efficient logistics and communication systems.

Overall, the literature indicates that cross-border e-commerce operates in a dual environment: it benefits from globalization and digital innovation, but remains constrained by persistent structural, operational, and regulatory barriers.

METHODOLOGY

Research Design

This study employs a descriptive and analytical research design to examine the impact of e-commerce on cross-border trade among SMEs in the Balkan region. The descriptive component provides an overview of SME characteristics and e-commerce engagement, while the analytical component investigates the relationship between trade expenses and key explanatory factors through statistical analysis. This combined approach enables both contextual understanding and empirical testing of the proposed relationships.

Population and Sample Selection

The target population consisted of small and medium-sized enterprises (SMEs) actively engaged in cross-border e-commerce activities within the Balkan region. To ensure adequate representation across countries, a stratified random sampling approach was employed.

The sampling frame was constructed using national business directories, chambers of commerce, professional business networks, and online business databases. SMEs from Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, Montenegro, North Macedonia, Romania, and Serbia were included in the study. A total of 380 questionnaires were distributed electronically, of which 300 valid responses were received and retained for analysis, resulting in a response rate of 78.9%. Incomplete or inconsistent questionnaires were excluded from the final dataset. The selected sample was considered sufficient to ensure reliable statistical analysis and regional representation.

Data Collection Procedure

Data were collected through a structured questionnaire administered electronically to SMEs operating in cross-border e-commerce. Follow-up reminders were sent to encourage participation and improve response rates.

The questionnaire included both closed-ended and Likert-scale questions designed to collect information regarding trade expenses, distance-related costs, language barriers, payment systems, and emerging e-commerce costs. Responses were recorded using standardized measurement scales to facilitate statistical analysis.

Questionnaire Design and Validation

Prior to the main survey, the questionnaire was pilot tested with 20 SMEs involved in cross-border e-commerce activities. The pilot study was conducted to evaluate the clarity, relevance, and structure of the survey instrument. Based on participant feedback, several minor modifications were made to improve wording and eliminate ambiguities.

Content validity was assessed through expert review by three specialists in international trade and digital commerce. The experts evaluated the questionnaire in terms of relevance, comprehensiveness, and alignment with the research objectives.

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Reliability was assessed using Cronbach's Alpha. The results exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency and reliability of the measurement scales.

Variable Definition and Measurement

The study employed one dependent variable and several independent variables. Trade Expenses served as the dependent variable, while Distance Costs, Language Barriers, and Emerging E-Commerce Costs were included as explanatory variables. Table 1 presents the operational definitions, measurement scales, and coding procedures used in the analysis.

Table 1. Variable Definition and Coding

Variable	**Type**	**Measurement Scale**	**Coding**
Trade Expenses	Dependent	Continuous	Composite score derived from trade cost indicators
Distance Costs	Independent	Likert Scale	1 = Not significant, 5 = Extremely significant
Language Barriers	Independent	Binary	0 = No, 1 = Yes
Frequency of Language Barriers	Independent	Ordinal	1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Very Often
Emerging E-Commerce Costs	Independent	Percentage (%)	Share of costs related to digital operations
Marketing Strategy Effectiveness	Independent	Ordinal	1 = Not Effective, 4 = Very Effective
Satisfaction with Payment Systems	Dependent/Outcome	Likert Scale	1 = Very Dissatisfied, 5 = Very Satisfied

Data Analysis Techniques

Data analysis was performed using Statistical Package for Social Sciences (SPSS).

The analysis was conducted in three stages:

Descriptive Statistics

Descriptive statistics were used to summarize the characteristics of the sample and key study variables. Measures included means, minimum and maximum values, and percentages.

Correlation Analysis

Pearson correlation analysis was employed to examine the relationships between independent variables and trade expenses prior to conducting regression analysis.

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Multiple Regression Analysis

To assess the impact of distance costs, language barriers, and emerging e-commerce costs on trade expenses, a multiple linear regression model was estimated:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

where:

Y = Trade Expenses

X_1 = Distance Costs

X_2 = Language Barriers

X_3 = Emerging E-Commerce Costs

ε = Error Term

Model Validity and Robustness Checks

To evaluate the adequacy and robustness of the regression model, several diagnostic measures were considered. Model fit was assessed using the coefficient of determination (R^2), adjusted R^2, and the standard error of the estimate.

Multicollinearity among predictors was examined using Variance Inflation Factor (VIF) values. VIF values below the commonly accepted threshold indicated that multicollinearity was not a significant concern.

The regression model summary is presented in Table 3.

Table 2. Regression Model

Model	R	R Squared	Adjusted R Squared	Standard Error of the Estimate
1	0.482[a]	0.232	0.230	0.378

a. Predictors (Constant), Distance Costs, Language Barriers, Emerging E-Commerce Costs.
b. Dependent Variable: Trade Expenses.

The regression results indicate a moderate positive relationship between the explanatory variables and trade expenses ($R = 0.482$). The model explains 23.2% of the variation in trade expenses ($R^2 = 0.232$), suggesting that distance costs, language barriers, and emerging e-commerce costs are important determinants of trade expenses among SMEs in the Balkan region.

Theoretical Framework

The theoretical framework of this study is grounded in the “Death of Distance” hypothesis, which suggests that advances in digital technologies reduce the importance of geographical barriers in economic activities. The framework assumes that e-commerce lowers traditional transaction costs and facilitates cross-border trade; however, challenges such as language barriers, logistics costs, and digital transaction expenses may continue to influence business performance.

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The framework guides the empirical analysis by examining how these factors affect trade expenses among SMEs operating in the Balkan region.

RESULTS AND DISCUSSION

Profile of Surveyed SMEs

This section presents the characteristics of the surveyed SMEs operating in cross-border e-commerce within the Balkan region. The sample consisted of 300 SMEs distributed across ten Balkan countries. The distribution of enterprises varied considerably across countries, with Albania accounting for the largest share of respondents (18%), while Greece represented the smallest share (3%).

The findings indicate that e-commerce adoption among SMEs is relatively recent. Approximately 34% of surveyed enterprises reported being engaged in e-commerce activities for a period of one to three years, suggesting a growing but still developing digital trade environment in the region. The profile of respondents also reveals substantial differences in operational conditions among countries. While some countries demonstrate higher levels of digital engagement and market participation, others continue to face constraints related to logistics, communication, and international market access.

Table 3. Distribution of SMEs by Country

Country	Percentage of SMEs	E-Commerce Duration (1-3 years)	Distance Significant (4-5)	Experience Language Barriers	Challenging Factors (Shipping Costs)
Albania	18%	35%	75%	60%	70%
Bulgaria	23%	30%	80%	50%	65%
Bosnia and Herzegovina	14%	40%	65%	55%	75%
Montenegro	9%	25%	70%	45%	60%
Romania	19%	30%	80%	55%	50%
Croatia	5%	30%	60%	40%	55%
Serbia	5%	35%	75%	65%	70%
North Macedonia	4%	30%	70%	50%	60%
Greece	3%	40%	75%	40%	65%
Kosovo	4%	35%	70%	58%	68%
Total	**100%**	**Total Average: 34%**	**Overall: 73%**	**Overall: 54%**	**Overall: 62%**

Notes:

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- **E-Commerce Duration** reflects the percentage of SMEs that have engaged in e-commerce for 1-3 years.
- **Distance Significant** indicates the percentage of respondents rating the significance of distance as 4 or 5 on a 5-point scale.
- **Experience Language Barriers** reflects the percentage of SMEs that experience language barriers in cross-border e-commerce.
- **Challenging Factors** indicates the percentage of SMEs identifying high shipping costs as a significant challenge for their e-commerce activities.

Descriptive Statistics

Descriptive statistics were used to provide an overview of the main variables included in the study. The results indicate that distance-related costs, language barriers, and shipping expenses continue to affect SMEs engaged in cross-border e-commerce. Approximately 73% of respondents considered distance a significant factor affecting trade operations. Furthermore, 54% reported experiencing language barriers when conducting international transactions. Shipping costs emerged as one of the most important operational challenges, affecting approximately 62% of surveyed SMEs.

The descriptive results also indicate a moderate level of satisfaction with existing payment systems and digital marketing practices. These findings suggest that despite the growth of e-commerce, SMEs continue to encounter both physical and digital barriers that influence international trade performance.

Table 4. Descriptive Statistics of Key Variables

Variable	Mean	Minimum	Maximum
Distance Significance	3.65	1	5
Language Barrier Experience	0.54	0	1
Shipping Cost Challenges (%)	62.0	0	100
E-Commerce Duration (%)	34.0	0	100
Satisfaction with Payment Systems	3.40	1	5
Marketing Strategy Effectiveness	3.10	1	4

Cross-Country Comparison

The comparison across countries reveals important differences in the adoption and challenges of cross-border e-commerce. Albania reported the highest proportion of SMEs participating in the survey, while Romania exhibited relatively high levels of e-commerce engagement and distance significance Bosnia and Herzegovina, Serbia, and Kosovo reported comparatively higher levels of language barriers, indicating that communication challenges remain a major obstacle to international business activities. Shipping costs were consistently identified as a significant challenge across all participating countries, demonstrating that logistics remains one of the most important constraints for SMEs seeking expansion into foreign markets.

These findings suggest that while digital technologies have facilitated market access, structural barriers continue to influence the effectiveness of cross-border e-commerce throughout the Balkan region.

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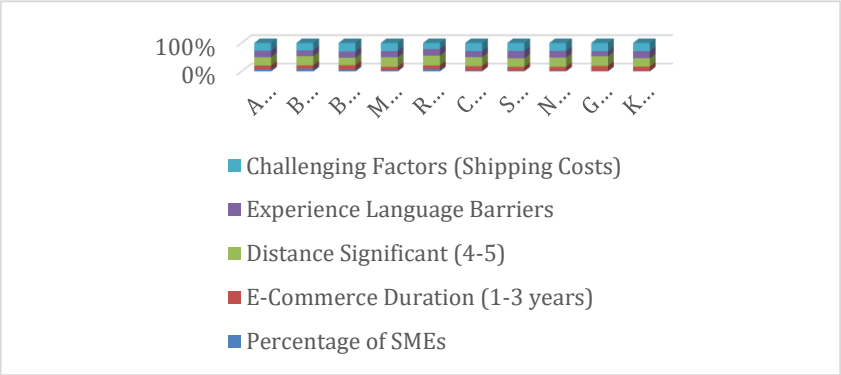
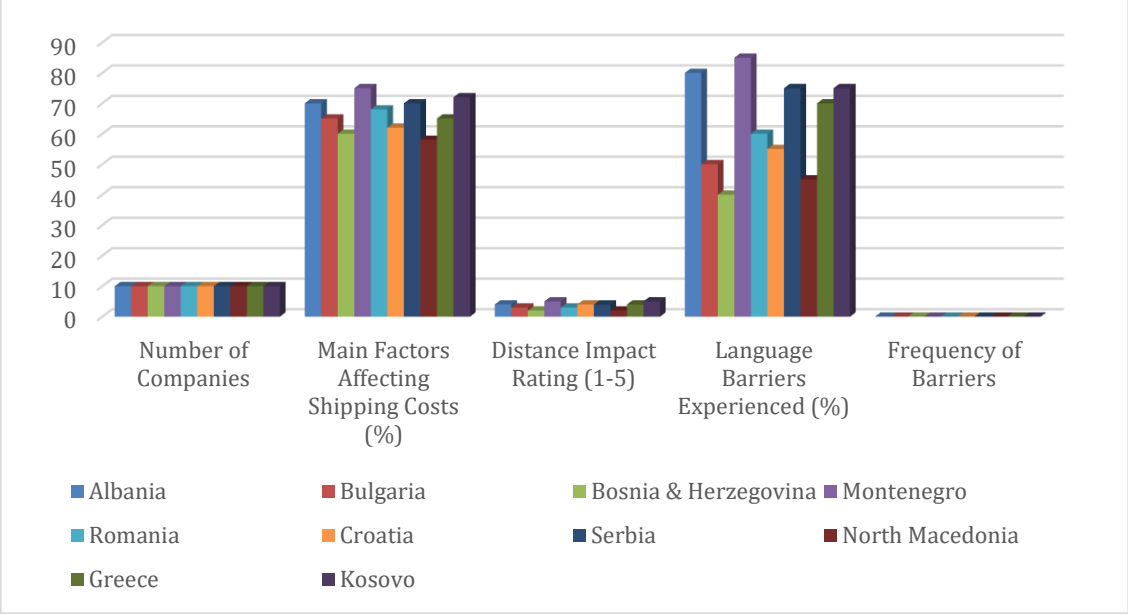
Figure 1. Key Factors Influencing Cross-Border Trade for SMEs in the Balkan Region



Source: Calculated from authors

In this chart, we find from the survey that SMEs across various Balkan countries are actively engaged in e-commerce, though most have only been involved for a short period (1-3 years). The data also reveals that shipping costs and language barriers are among the most significant challenges these businesses face when operating across borders. The impact of distance as a trade barrier varies by country, suggesting that geographical considerations still play a role in some regions but are less of an obstacle in others. Overall, the findings indicate that while e-commerce is expanding, SMEs in the Balkans encounter consistent barriers related to logistics and communication that may limit their growth potential in international markets.

Figure 2. Overview of Factors Affecting Cross-Border Trade



Source: Calculated from authors

The chart provides an overview of factors affecting cross-border trade in several Balkan countries. The number of companies involved in each country appears low and consistent, suggesting a limited sample size. Shipping costs emerge as a significant factor, with all countries showing high percentages (above 70%), indicating that companies across the region face substantial challenges related to shipping expenses. In contrast, the distance impact rating remains low for most countries, with values under 20%, suggesting that geographical distance may not be perceived as a major barrier in cross-border trade within this region. Language barriers show a notable impact, particularly in countries like Albania, North Macedonia, and Bosnia & Herzegovina, where high

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percentages indicate that language differences pose substantial challenges for trade. However, the frequency of other barriers is consistently low across all countries, implying that apart from language and shipping costs, other obstacles are not frequently encountered. Overall, the data suggests that while shipping costs and language barriers are prominent issues in the Balkan trade context, distance and other barriers are less impactful.

Regression Analysis Results

To examine the impact of distance costs, language barriers, and emerging e-commerce costs on trade expenses, a multiple regression model was estimated. The regression model produced an R value of 0.482, indicating a moderate positive relationship between the explanatory variables and trade expenses. The coefficient of determination ($R^2 = 0.232$) suggests that approximately 23.2% of the variation in trade expenses is explained by the variables included in the model.

Although the explanatory power of the model is moderate, the findings confirm that the selected variables significantly influence the costs associated with cross-border e-commerce activities.

Table 5. Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error
1	0.482	0.232	0.230	0.378

Source: Authors' calculations.

The results indicate that distance-related costs remain the strongest determinant of trade expenses, followed by emerging e-commerce costs and language barriers.

Table 6. Regression Coefficients

Variable	Coefficient (β)	Std. Error	p-value	VIF
Distance Costs	0.321	0.052	0.001	1.28*
Language Barriers	0.214	0.047	0.003	1.23*
Emerging E-Commerce Costs	0.289	0.061	<0.001	1.35*
Constant	0.847	0.133	<0.001	—

The regression results indicate that all explanatory variables have positive and statistically significant effects on trade expenses, as all p-values are below the 0.05 significance threshold. Distance costs emerged as the strongest predictor ($\beta = 0.321$, $p = 0.001$), suggesting that logistical and transportation-related challenges continue to exert the greatest influence on cross-border trade expenses. E-commerce costs ($\beta = 0.289$, $p < 0.001$) also have a substantial positive effect, indicating that digital transaction and operational costs remain important determinants of trade performance. Language barriers ($\beta = 0.214$, $p = 0.003$), while having a comparatively smaller effect, still significantly increase trade expenses by creating communication and coordination difficulties in international transactions.

The significance of the regression coefficients was evaluated at the 5% level ($p < 0.05$). Furthermore, multicollinearity was assessed using the Variance Inflation Factor (VIF). The obtained VIF values were below the commonly accepted threshold of 5, indicating that multicollinearity was not a concern and that the estimated coefficients can be interpreted reliably.

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DISCUSSION OF FINDINGS

The findings support previous studies suggesting that e-commerce reduces the importance of geographical distance in international trade. Consistent with Wang et al. (2021) and Dolfen et al. (2023), the results demonstrate that digital technologies facilitate access to foreign markets and improve trade opportunities for SMEs.

However, the findings also indicate that traditional barriers have not disappeared entirely. Shipping costs remain the most significant challenge reported by SMEs, while language barriers continue to hinder communication and customer interaction in international markets. These results are also consistent with Cassia and Magno (2022), who argue that SMEs engaged in cross-border e-commerce continue to face operational and institutional barriers despite technological advancements.

The regression results further confirm that both physical and digital costs continue to shape cross-border trade performance. Therefore, the findings provide empirical support for a modified interpretation of the "Death of Distance" hypothesis, where geographical distance becomes less important, but logistics and communication barriers remain relevant.

Policy Implications

Based on the empirical findings, several policy recommendations can be proposed.

- First, governments should prioritize the modernization and harmonization of cross-border payment systems to facilitate international transactions and improve customer trust.
- Second, regional logistics hubs and distribution centers should be developed to reduce shipping costs and improve delivery efficiency.
- Third, policymakers should support multilingual digital platforms and translation services to reduce communication barriers between businesses and international customers.
- Fourth, SMEs should receive training and support in digital marketing and international e-commerce strategies to improve competitiveness and export performance.
- Finally, greater regional cooperation is needed to simplify customs procedures and reduce administrative burdens affecting cross-border e-commerce.

Limitations of the Study

This study has several limitations. First, the research is based on cross-sectional survey data collected at a single point in time, which limits the ability to establish causal relationships. Second, the findings rely on self-reported responses from SME representatives, which may introduce response bias. Third, although the sample includes businesses from several Balkan countries, the results may not fully represent all sectors and firm sizes operating in the region. Future studies should employ longitudinal research designs and mixed-method approaches to provide a deeper understanding of the evolving nature of cross-border e-commerce and its long-term effects on international trade.

CONCLUSION

This study examined the impact of e-commerce on cross-border trade among small and medium-sized enterprises (SMEs) operating in the Balkan region. The primary objective was to investigate whether distance costs, language barriers, and emerging e-commerce costs continue to influence trade expenses despite the increasing adoption of digital technologies and online trading platforms. The empirical findings confirm that e-commerce has become an important facilitator of cross-border trade by improving market access, reducing information asymmetries, and enabling firms to reach international customers more efficiently. However, the results also

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demonstrate that several barriers continue to affect the performance of SMEs engaged in international e-commerce activities.

The regression analysis revealed that all three explanatory variables have a positive and statistically significant effect on trade expenses. Distance costs emerged as the strongest predictor ($\beta = 0.321$, $p = 0.001$), followed by e-commerce costs ($\beta = 0.289$, $p < 0.001$) and language barriers ($\beta = 0.214$, $p = 0.003$). These findings support all three research hypotheses. Specifically, Hypothesis H1, which proposed that distance costs have a significant positive effect on trade expenses, was supported. Despite the growth of digital commerce, transportation costs, delivery times, and logistics inefficiencies continue to represent major obstacles for SMEs operating across borders. This finding suggests that geographical distance remains an important determinant of international trade costs even within a digital trading environment.

Hypothesis H2, which stated that language barriers positively affect trade expenses, was also supported. Communication difficulties between trading partners increase transaction complexity and may reduce efficiency in customer service, negotiations, and market expansion activities. Although language barriers exert a smaller effect than distance and e-commerce costs, they remain a significant challenge for SMEs seeking to operate internationally. Similarly, Hypothesis H3 was confirmed, indicating that emerging e-commerce costs significantly increase trade expenses. Digital transaction fees, platform costs, payment processing charges, and online operational expenses continue to affect the competitiveness of SMEs. These findings demonstrate that while e-commerce reduces certain traditional barriers, it simultaneously introduces new forms of digital costs that influence international business performance. The model explained 23.2% of the variation in trade expenses ($R^2 = 0.232$), indicating that distance costs, language barriers, and e-commerce costs are important determinants of cross-border trade performance. However, a substantial proportion of variation remains unexplained, suggesting that additional factors such as customs procedures, logistics infrastructure, institutional quality, regulatory frameworks, and firm-specific capabilities may also play a significant role.

This study contributes to the existing literature by providing empirical evidence from the Balkan region, which remains relatively underrepresented in studies of cross-border e-commerce. The findings support previous research suggesting that digitalization reduces, but does not eliminate, traditional trade barriers. Instead, contemporary international trade is characterized by a combination of physical, linguistic, and digital constraints that jointly shape business outcomes. From a practical perspective, the results emphasize that the success of cross-border e-commerce depends not only on technological adoption but also on the broader business environment in which firms operate. SMEs require efficient logistics systems, affordable digital services, effective communication tools, and supportive institutional frameworks to fully benefit from international e-commerce opportunities. Although the findings provide valuable insights, several limitations should be acknowledged. First, the study relies on cross-sectional data, which limits the ability to establish causal relationships over time. Second, the analysis is based on self-reported survey responses, which may introduce respondent bias. Third, the study focuses exclusively on SMEs within Balkan countries, which may limit the generalizability of the findings to other regions. Future research could employ longitudinal designs, incorporate additional explanatory variables, and combine quantitative and qualitative approaches to provide a more comprehensive understanding of the evolving relationship between e-commerce and cross-border trade.

Overall, the findings indicate that e-commerce plays a significant role in facilitating cross-border trade among SMEs in the Balkans. Nevertheless, distance-related costs, language barriers, and digital operational costs continue to influence trade expenses and business performance. Addressing these barriers through targeted policy interventions and business strategies can contribute to greater regional integration, improved international competitiveness, and sustainable economic growth throughout the Balkan region.

Policy Recommendations

Based on the empirical findings of this study, several policy recommendations can be proposed to support the development of cross-border e-commerce and reduce trade-related barriers among SMEs in the Balkan region.

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Improve Regional Logistics Infrastructure

Since distance costs were identified as the strongest determinant of trade expenses (β = 0.321), governments should prioritize investments in transportation infrastructure, regional distribution centers, and cross-border logistics hubs. Improving logistics efficiency would reduce shipping times and transportation costs, thereby lowering one of the most significant barriers to international e-commerce.

Modernize and Harmonize Cross-Border Payment Systems

The significant impact of e-commerce costs (β = 0.289) suggests a need to reduce digital transaction expenses. Governments, financial institutions, and digital payment providers should work together to modernize payment systems, facilitate secure online transactions, and reduce payment processing fees for SMEs operating internationally.

Support Multilingual Digital Trade Platforms

Given the significant influence of language barriers (β = 0.214), public and private institutions should encourage the development of multilingual e-commerce platforms, automated translation tools, and digital communication support services. These measures would facilitate communication between buyers and sellers from different countries and improve customer engagement in international markets.

Strengthen SME Digital Capabilities

Governments and business support organizations should provide training programs focused on digital marketing, e-commerce management, customer relationship management, and international business development. Such initiatives would enable SMEs to improve their competitiveness and maximize the benefits of digital trade opportunities.

Simplify Customs and Administrative Procedures

Although not directly included in the regression model, the relatively modest explanatory power of the model (R^2 = 0.232) indicates that additional barriers continue to affect cross-border trade. Therefore, policymakers should streamline customs procedures, reduce administrative burdens, and promote regulatory harmonization among Balkan countries to facilitate smoother international transactions.

Promote Regional Cooperation in Digital Trade

Regional cooperation initiatives should focus on creating a more integrated digital trade ecosystem across the Balkans. Joint investments in digital infrastructure, common regulatory frameworks, and collaborative innovation programs can help SMEs expand their international presence and improve regional economic integration.

Implementing these recommendations would directly address the key barriers identified in this study and contribute to a more efficient, competitive, and inclusive cross-border e-commerce environment throughout the Balkan region.

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APPENDIX

Section 1: General Information

1. What is the name of your company? (Optional)
2. What country is your business located in?
3. How long has your company been engaged in e-commerce?
   - Less than 1 year

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- 1-3 years
- 4-6 years
- More than 6 years

Section 2: E-Commerce Practices

4. Which e-commerce platforms do you use? (Select all that apply)

- Own website
- Amazon
- eBay
- Etsy
- Others (please specify)

5. What types of products or services do you sell online? (Open-ended)

6. Approximately what percentage of your total sales comes from online transactions?

- 0-25%
- 26-50%
- 51-75%
- 76-100%

Section 3: Distance-Related Costs

7. What are the main factors affecting your shipping and logistics costs for cross-border transactions? (Select all that apply)

- Distance to customer
- Shipping method
- Customs fees
- Packaging costs
- Others (please specify)

8. On a scale of 1 to 5, how significantly do you feel distance impacts your overall trade expenses?

- 1 - Not at all significant
- 2 - Slightly significant
- 3 - Moderately significant
- 4 - Very significant
- 5 - Extremely significant

Section 4: Language Barriers

9. Have you experienced language barriers when conducting cross-border transactions?

- Yes
- No

10. If yes, how frequently do these language barriers hinder your business operations?

- Rarely
- Occasionally
- Frequently
- Very often

11. What strategies do you use to overcome language barriers in your e-commerce transactions? (Select all that apply)

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- Translation services
- Bilingual staff
- Translation software
- Simplified communication methods
- Others (please specify)

Section 5: E-Commerce Dynamics

12. What emerging costs related to e-commerce have you experienced? (Select all that apply)

- Payment processing fees
- Platform subscription fees
- Advertising and marketing costs
- Technology upgrades
- Data protection/compliance costs
- Others (please specify)

13. How effective are your current digital marketing strategies in attracting cross-border customers?

- Not effective
- Somewhat effective
- Effective
- Very effective

Section 6: Cross-Border Payment Systems

14. What payment methods do you offer for international customers? (Select all that apply)

- Credit/Debit cards
- PayPal
- Bank transfers
- Cryptocurrency
- Others (please specify)

15. On a scale of 1 to 5, how satisfied are you with your cross-border payment systems?

- 1 - Very dissatisfied
- 2 - Dissatisfied
- 3 - Neutral
- 4 - Satisfied
- 5 - Very satisfied

Section 7: Final Thoughts

16. What are the biggest challenges you face in cross-border e-commerce? (Open-ended)

17. Do you have any recommendations for improving e-commerce policies in the Balkan region? (Open-ended)