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Determinants of Cross-Border Food Purchases on the European Union Market: Research Results from the Lithuanian–Polish Border

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Abstract: Cross-border trade is one of the possible ways to promote sustainable development by facilitating the exchange of knowledge, technology, and resources and fostering transnational cooperation and innovation towards more environmentally and socially responsible practices. Considering this, the aim of this study was to identify the determinants of food purchases in the EU market in the complex context of factors influencing cross-border purchasing behavior. The novelty of this research lies in its focus on analyzing the determinants of food purchases by inhabitants of border regions in the EU market, specifically within the context of cross-border shopping behavior, using face-to-face self-report interviews conducted in 2022 among Lithuanian consumers purchasing food from the Polish border market. Employing multivariate analysis and scoring methods, a model of the market behavior of inhabitants of the border regions inside the European Union was built and statistically verified. The identification of key determinants, i.e., economic factors ($p = 0.013$), marketing factors ($p = 0.003$), risk related to economic factors ($p = 0.036$), material status ($p = 0.009$), professional activity ($p = 0.044$), and age of respondents ($p = 0.020$), offers valuable insights to scholars investigating consumer cross-border shopping behavior and empowers trade organizers and managers in making informed corporate strategy decisions.

Keywords: border market; consumer behavior; cross-border trade; food purchases



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Citation: Batyk, I.M.; Žukovskis, J.; Pilelienė, L. Determinants of Cross-Border Food Purchases on the European Union Market: Research Results from the Lithuanian–Polish Border. *Sustainability* **2023**, *15*, 10288. <https://doi.org/10.3390/su151310288>

Academic Editors: Junchen Shang, Rui Shi and Hao Wang

Received: 28 May 2023

Revised: 21 June 2023

Accepted: 27 June 2023

Published: 29 June 2023



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1. Introduction

Country borders, as reflections of international differences [1], are understood as barriers to human, sociocultural, and economic exchanges and movements [2]. To minimize the negative impact of borders on the economic development of the region, the EU introduces instruments facilitating cross-border activities and regional economic integration [3] and focuses on diminishing barriers for the smooth international mobility of goods, services, people, and capital [1]. European integration has enabled the overcoming of the traditional purposes of country borders between the member states, encouraging cross-border interaction, movement, and trade, and forming a single European market [4]. A study provided by Brook and Pioch [5] revealed a marginal role for the retail sector in the European single market. Cross-border trade is attracting growing interest from researchers and marketers for having a significant impact on the companies on both sides of the border [6]. Moreover, the literature [3] suggests the necessity of studying cross-border regions as specific cases of networked regional development.

There are many models of consumer behavior provided in the literature [4,7,8]. Different typologies of determinants of consumer shopping behavior on the cross-border markets in the European Union can be found [1,9–11]. Scholars [12] indicate that the phenomenon

of cross-border shopping has been widely recognized and analyzed in the literature since at least the 1930s. However, each border and border area is a unique and individual phenomenon [13]; every case might be the subject of different determinants. Therefore, there is a need to examine the determinants of cross-border shopping behavior in different border areas [14]. Despite the existing studies of cross-border shopping at several borders [10], Żęgota [15] emphasizes a lack of commonly used research instruments to examine local border traffic, indicating a gap in the existing literature. This suggests a need for the development and utilization of standardized research tools and methodologies to study consumer behavior in cross-border markets more effectively. Moreover, no research specifically addressing Lithuanian consumers' shopping behavior in the cross-border market in Poland was found in the existing literature, indicating a gap in understanding the unique factors influencing consumer choices in this specific context. This research was carried out with the problem faced by many scientists: a lack of statistical data on the border regions' inhabitants' behavior in the EU food market and a lack of publications on this subject.

The aim of the research was to build a model for the shopping behavior of residents of the border regions of the EU and to verify it statistically. To reach the aim, three objectives were set:

- To theoretically analyze consumer behavior in a cross-border shopping context by identifying its determinants;
- To identify barriers and risks possibly affecting consumer behavior in a cross-border shopping context;
- To elaborate a hypothetical model encompassing the identified determinants and risks;
- To empirically validate the composed model based on the case of Lithuanian consumers shopping in the Polish border food market.

Accordingly, this study aims to identify the determinants of food purchases in the EU market in the complex context of factors influencing cross-border purchasing behavior. Through a field survey among residents of Lithuanian border regions purchasing food in Poland, the impact of demographic, economic, marketing, sociocultural, psychological, regional, and risk-related factors on the purchase of food from the EU border market was examined.

The case of the shopping behavior of Lithuanian consumers in the cross-border food market in Poland was analyzed. Based on the determinants specified in the literature, a model of the shopping behavior of the residents of the border regions within the European Union was developed and statistically verified. The empirical model was elaborated using the results of our own study and a literature analysis and included consumer sociodemographic characteristics, shopping behavior determining factors, and the possible risks of shopping cross-border. The determinants of cross-border shopping behavior included: sociodemographic [9,16], economic [11,13], sociocultural [17], psychological [18], regional, and marketing [19] factors and the risks [5,10,11,13] related to purchasing decisions. This research contributes to the field by providing a perspective on the cross-border shopping behavior of Lithuanian consumers, offering valuable insights into the multifaceted determinants that shape their choices in the context of the Polish food market. The findings and the model developed in this study hold applicability beyond the specific case of Lithuanian consumers shopping in the cross-border food market in Poland. Although the research focused on this particular context, the identified determinants of cross-border shopping behavior can serve as a foundation for understanding consumer behavior in other border regions as well. Analyzing consumer behavior in border markets is crucial for designing conditions that promote sustainable cross-border cooperation. By understanding the factors influencing consumer choices, policymakers can develop strategies that encourage sustainable practices, reduce environmental impacts, and foster responsible consumption across EU borders.

There are many studies on purchasing determinants in the context of the impact of various factors but no numerical data on the exact determination of their impact on the purchasing decision in the eastern markets of the EU. This study has two theoretical implica-

tions. Firstly, this research enriches the literature on the determinants of shopping behavior in EU markets by specifying sociodemographic, economic, marketing, psychological, and regional factors and their effects. Secondly, this study provides a research framework for the EU's institutional structure (by using the determinants of food purchases identified in the article for future research) and its linkage to the development of cross-border cooperation. The results provide practical insights for organizers and managers of trade in terms of corporate strategy decisions. Since each border and border area has its unique characteristics and dynamics [13], it is essential to consider the specific context of each region when applying the model. The broad categories of determinants identified in this study can guide future research and provide insights for scholars and practitioners examining cross-border shopping behavior in various border regions within the European Union or even in other global contexts. Therefore, the elaborated model can serve as the basis for other scholars examining consumer cross-border shopping behavior and for practitioners aiming to attract consumers from cross-border regions.

The internationalization and globalization of markets confirm the need to study consumer behavior in EU border markets. During the emerging economic crisis, the war in Ukraine, the dynamically changing exchange rates, and the increasing inflation, the need to study bordering markets within the EU becomes relevant, and profiling these markets and determining the rules of functioning is necessary. This analysis can be used to design the conditions for sustainable cross-border cooperation and its implementation, e.g., through uniform VAT rates for food, as well as for the European Parliament to set the rules for transporting food between EU countries.

2. Literature Review

2.1. Consumer Behavior and Its Determinants in a Cross-Border Shopping Context

The phenomenon of consumer behavior is complicated; it depends on the influence of the social and institutional environment and also the type of purchased goods [12,20]. Numerous scientific publications have been presented to explain consumer behavior related to purchasing and shopping [16,21] and to indicate its determinants [10,19,22]. Complex consumer behaviors result from the impact of many unique needs and purchase motives, as well as endogenous and exogenous determinants.

As one of the basic elements of consumer behavior scholars [23] identify is making purchasing choices. The main choices are related to the problems of what, where, how much, and when to buy [21]. Other scholars [9], as an option of purchasing choice, analyze "out-shopping" (a situation when a consumer goes outside the local shopping area to purchase goods), emphasizing that cross-border shopping is its sub-category. The result is the convergence and penetration of shopping and consumption patterns on a supranational scale [24,25]. In this paper, the authors will analyze consumer shopping behavior manifesting in their choice of cross-border shopping.

Decision making while shopping is a complex process influenced by factors emerging outside of the moment of purchase [20]. The extent of previous research in consumer behavior enables determining the most prominent factors affecting it by determining consumer choices. Many determinants of shopping behavior can be found in the literature. The four most prominent groups of factors can be identified [19] as personal, psychological, cultural, and situational factors. According to scholars [22,23], changes in shopping behavior may be influenced by social, demographic, cultural, and situational factors. Functional, sociocultural, and physical dissimilarities between the two countries could have a positive impact on cross-border shopping [26]. Researchers [22] provide the following typology of the factors affecting shopping behavior:

- Marketing factors (product design, price, incentive, packaging, positioning, distribution);
- Consumer characteristics (age, gender, income level, educational background, location);
- Psychological factors (purchase motive, product perception, attitude towards a product);
- Situational factors (physical conditions at the time of making a purchase, social environment, timing);

- Social factors (social status, reference groups);
- Cultural factors (religion, social class, local preferences);
- Other factors (crisis periods, pandemics, economic factors).

2.1.1. Consumer Characteristics and Sociocultural Factors

In the framework of cross-border shopping, researchers [11] emphasize sociocultural differences in consumer behavior causing new customer experiences. The results indicate that consumers' personal or sociodemographic characteristics (i.e., age, gender, profession, educational background, location, and trust in non-domestic suppliers) affect their decisions to choose a cross-border purchasing option [17]. Scholars [9] indicate several relationships regarding cross-border shopping behavior: positive links with consumer income and education; negative links with respondent age; mixed evidence regarding family lifecycle stages, the age of children, and household size.

However, demographic characteristics only describe what consumers are and do not indicate their needs or interests [16]. In a study [27] analyzing shopping as a main tourist activity accounting for a significant share of tourism expenditure, the authors emphasize that shopping familiarizes consumers with the distinct features and unique culture of the visited country.

On a cultural basis, cross-border shopping enables the adoption of consumption patterns from the neighboring country's people. Therefore, differences between countries could promote cross-border shopping [26]. The globalization of consumption resulting from the increasing consumer mobility manifests in learning from other cultures and adopting new consumption patterns. Global corporations target diverse cultural groups with a unified proposition, shaping their experiences and preferences [28,29].

Considering the scientific discussion and structural differences of determinants of cross-border shopping behavior, two categories can be named:

- Sociodemographic factors, encompassing such consumer characteristics as age, gender, place of residence, professional activity, material status, and number of people in the household;
- Sociocultural factors more related to reflecting one's own culture and acquiring the behavior of residents of other countries.

2.1.2. Psychological Factors

Psychosocial characteristics have a large impact on changing consumer behavior [18]. Factors such as the consumer's views, values, and belonging to a social group determine his/her behavior in the market [30]. To go shopping cross-border, people may be inspired by a desire to visit the neighboring country that is caused by the charm of novelty and "overfamiliarity" with the local shopping environment [10]. Differences between cross-border cities are often larger than between cities within the country, thus having an inviting and exciting impact on consumers [26]. Scholars [9] also provide such shopping stimulating variables: enjoyment in shopping, self-confidence, and innovativeness.

The category of psychological determinants of cross-border shopping behavior is mainly related to the novelty and uniqueness found abroad but also the innovativeness and prestige.

2.1.3. Marketing Factors

As a result of the omnipresence of the internet and marketing through it, contemporary consumers know about products, their availability, attributes, and prices in the marketplaces [31]. Endeavoring to affect consumer behavior regarding a particular product, it is necessary to provide adequate information that is a matter of the organization's marketing activities: creating associations between the stimulus and the reaction to it or encouraging product-related rational activities [19]. Researchers [26] also stress the dissimilarities in consumer service between countries, which can serve as an attractive feature of a foreign country and evoke consumer interest.

2.1.4. Situational Factors

The group of situational factors consists of the social environment, the physical environment of the place where the purchase occurs, time extension and previous experiences with the product [19], reason for purchasing, and emotional and financial status [22]. The scientific literature indicates that all models of shopping behavior include the distance from the store to the shopper's home [16]. Situational factors refer to the changes in the environment where the purchasing decision is taken [22]. Scholars [9] argue that consumers' dissatisfaction with local retail environments may stimulate the choice of cross-border shopping. Factors essential for cross-border shopping include proximity between destinations and a well-developed travel infrastructure [11].

2.1.5. Economic Factors

The main driver of cross-border shopping indicated in the literature is price [11]. Scholars [21] emphasize the existence of product price variation across brands, stores, and sizes and over time, leading consumers to make choices, i.e., what and where to buy, and later: how much and when to buy. Consumers seek the best assortment, lowest prices, and most convenient location; however, balancing the triad might lead to the search for shopping options across a national border [10]. Additionally, scholars [9] emphasize such cross-border shopping motivating factors as the financial advantages of an area, the broader choice of product variants, and the perceived product and service quality.

Scholars [12,26] emphasize that differences in the taxation of the same good or service between neighboring countries may encourage consumers to choose the jurisdiction where taxation is lower to search for cheaper products.

The country-specific socioeconomic determinants enable assessment of the cross-border market and stimulate cross-border selling in order to integrate consumer markets in the European Economic Area [17]. Cross-border interaction is subject to the free and secure [13] mobility of persons, goods, services, labor, and capital [4], whereas globalization processes have accelerated free borderless movement [32]. The existing trade barriers and the degree of economic integration between countries determine the differences in product prices [11].

2.1.6. Regional Factors

Consumption on a global scale has a significant effect on consumer behavior [33]. The dynamic process of consumption unification results in changes in imitation in production and consumption patterns [34]. Consumption globalization contributes to the globalization of markets, especially border markets. In a globalized world, the development of economic systems depends on factors affecting consumer optimism and stimulating desires for new product acquisitions. This is of great importance in the context of the existing situation in the world caused by the recent COVID-19 pandemic [35] and the war in Ukraine.

The literature [10] emphasizes that "the fall of the Iron Curtain, the enlargement of the European Union (EU), and the development of EU's single market have all contributed to the elimination of formal border barriers between European countries". The concept of a "borderless Europe", meaning the elimination of the physical barriers to the border crossing and the freedom of travel [13], has been coined. The Common Market of the EU is mostly organized without major trade barriers, notably import tariffs on traded goods [11]. Therefore, in a framework of cross-border consumer shopping behavior, regional factors may also have an impact on shopping behavior.

Summarizing the provided analysis of the scientific literature, Table 1 presents the most prominent determinants of cross-border shopping.

Table 1. Summary of the determinants of cross-border shopping.

Authors	Sociodemographic Factors	Economic Factors	Marketing Factors	Situational Factors	Sociocultural Factors	Psychological Factors	Regional Factors
Dmitrovic and Vida [9]	*	*		*	*	*	
Bygvrå [10]						*	*
Leick, Schewe and Karlsen Kivedal [11]	*	*			*		*
Spierings and van der Velde [26]	*	*	*			*	
Griffith, Leibtag, Leicester, and Nevo [21]	*	*	*				
This study	*	*	*		*	*	*

Note: *—analyzed determinant.

Situational factors were excluded from further analysis for several reasons. Firstly, the proximity factor was treated as a constant in this study. Secondly, it was observed that many aspects of situational factors overlapped with other factors, particularly those related to marketing. Therefore, to avoid redundancy and ensure a focused analysis, the decision was made to exclude situational factors from the scope of this study. Considering the theoretical insights analyzed in the study, we hypothesize that:

H1. *Sociodemographic factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H2. *Economic factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H3. *Marketing factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H4. *Sociocultural factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H5. *Psychological factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H6. *Regional factors influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

2.2. Barriers and Risks in a Cross-Border Shopping Context

Acting on a global scale, consumers also face the risk associated with their decisions. Foreign cross-border consumers demonstrate relatively more risky behavior patterns [32]. The European single market is not always able to provide the necessary level of consumer protection when it relates to cross-border shopping [5]. Moreover, consumers assess the product-related risk being biased by irrelevant aspects, i.e., the design of packaging, and even being aware of the possible risk they do not think of it [36].

Another category of cross-border shopping-related risks can be called “economic”, e.g., overpaying for goods because of limited information: a national border may lower the level of information about the market opportunities [10].

The existence of border-crossing obstacles such as border checks, differences in cultural and social environments, linguistic and mental barriers, and different currencies can be found in the literature [13]. Language- and mentality-related barriers are discussed [11]. However, different languages can serve as a trigger causing exciting and stimulating situations for consumers shopping outside their country border [1]. Additionally, the existence of sociocultural barriers such as consumer ethnocentrism and the perceived quality of domestic vs. foreign goods may affect cross-border shopping patterns [9].

Table 2 presents the most prominent barriers and risks for cross-border shopping identified from the studied literature.

Table 2. Summary of the barriers and risks for cross-border shopping.

Authors	Physical and Functional	Economic	Sociocultural	Regional
Dmitrovic and Vida [9]	*		*	
Bygvrå [10]	*	*		*
Leick, Schewe, and Karlsen Kivedal [11]			*	
Hardi [13]	*			*
This study	*	*	*	*

Note: *—analyzed risk.

The current study aims to comprehensively analyze all the risks identified in the existing scientific literature to determine their potential impact on cross-border shopping behavior. Considering the theoretical insights analyzed in the study, we hypothesize that:

H7. *Physical and functional risks associated with a product influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H8. *Perceived economic risks influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H9. *Perceived sociocultural risks influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

H10. *Perceived regional risks influence Lithuanian consumers' choice of cross-border food shopping in Poland.*

2.3. A Case from the Lithuania–Poland Border Market

Borders and border areas are unique and individual phenomena and special areas due to their proximity to the state border [13]. Researchers [12] discuss the trend of cross-border shopping from small countries towards larger ones caused by the higher valuation of goods by the citizens of the smaller if compared with the citizens of the larger country. The primary comparison of the analyzed countries is provided in Table 3.

Table 3. Comparison of Lithuania and Poland.

Variable	Lithuania	Poland
Area, km ²	65,286	312,680
Population, total (2021)	2,800,839	37,747,124
Inflation, consumer prices (annual %; 2022)	19.7	14.4

Source: self-elaboration based on the sources [37,38].

Poland is like a supermarket in Europe, to which residents of surrounding countries flock to buy cheaper goods and services. Poland's cheapness is determined by the extremely competitive domestic market and the weak exchange rate of the Polish zloty (PLN), which has weakened by another five percent during the current crisis. Accordingly, the price level difference between Lithuania and Poland, calculated in EUR, has grown by around 20 percent, i.e., consumer goods and services in Poland are on average one-fifth cheaper than in Lithuania [39]. Whereas Latvians and Estonians spend less than EUR 50 when shopping abroad, during one trip to Poland Lithuanians spend EUR 50–100 (24 percent), EUR 100–200 (24 percent), and 13 percent claimed to spend EUR 200–500 [40].

As an explanation of the latter situation, Jerzy Straatmeijer states [40]: “Lithuanians stand out in terms of the amount they spend. If Estonians and Latvians spend tens of euros abroad, Lithuanians spend hundreds.” Such a situation is determined by the tax policy of Lithuania’s neighbors: in Poland, due to lower excise duties and value-added tax, the prices of many goods are lower.

Even if Lithuanians do not go for Polish goods, Polish goods come to Lithuanians: Lithuania’s foreign trade deficit with Poland reached a record EUR 1.7 billion in 2019, and was three times higher than with China—EUR 570 million [39]. A lower VAT rate for food products will not help Lithuania here because in the cost structure of border trade with Poland, food products account for only about a quarter of the total costs. The remaining amount is spent on non-food goods, which are subject to the standard VAT rate, which is even higher in Poland than in Lithuania: 23 percent vs. 21 percent.

Therefore, the only hope for Lithuania (and Poland’s other neighbors, as they all have a border trade deficit with Poland) is a stronger Polish zloty exchange rate, which can be strengthened by two factors:

- Stabilization of the world economy: the exchange rate of the Polish zloty weakens during economic crises (e.g., in 2009 or 2020) and strengthens during economic booms;
- Stabilization of the political situation in Poland: the Polish zloty exchange rate was prevented from strengthening during the recent period of economic growth by the aggressive and open confrontation with EU policy, which increased geopolitical uncertainty and negatively affected the zloty exchange rate.

In previous years (2012–2021), the current influx of foreigners has been mostly fueled by the decision to allow visa-free entry for Ukrainians and Belarusians living within 30 km of the Polish border. Central Statistical Board (CSB) of Poland regularly conducts an anonymous survey of such arrivals at the border to find out what products they buy and how much money they spend: foreigners spend most on building materials, car parts, clothes, shoes, electrical equipment, household items, furniture, and food.

Analyzing cross-border trips in the European Union, researchers [26] emphasize quite large differences between the member states of the EU-25 (i.e., data of 2006) regarding the level of cross-border trips with the specific purpose of shopping; moreover, the authors indicated that only less than five percent of Lithuanian inhabitants were crossing country borders intending to shop. However, during the past 15 years the situation has changed.

In 2021, Poland received PLN 18 billion from cross-border trade. Even PLN 13 billion were left here by Germans, Czechs, Slovaks, and Lithuanians [39]. The Department of Statistics of Lithuania announced that in 2022, October’s annual inflation amounted to 23.6 percent. The prices of consumer goods increased by 27.9 percent during the year and services by 13.1 percent. The main service import partner for Lithuania was Poland. Imports from this country increased by 75.4 percent during the year. Transport and travel services accounted for the largest share of service imports from Poland—77.6 and 8.5 percent, respectively [41].

Considering the situational factors, travel distances and good travel infrastructure must be mentioned. The length of the border between the countries is 104 km. There are two major motorways (and several smaller ones) enabling travel between the countries. Therefore, it can be concluded that reaching Poland from major Lithuanian cities is easy. Before deciding to buy abroad, Lithuanian residents first evaluate the prices of food products (68 percent), household goods (54 percent), and alcoholic beverages (beer: 27 percent; other alcoholic beverages: 28 percent) [40].

Considering the latter, Lithuanian consumers are becoming an important market segment for Polish border businesses and locals living in the area [42]; on the other hand, identification of the main drivers of cross-border shopping enables stimulating its intensity and strengthening the development of the cross-border region [14]. Therefore, understanding the determinants of their cross-border shopping behavior is important to serve them even more profitably.

3. Materials and Methods

Methodology

The author's model of food shopping behavior by Lithuanians on the Polish border market is a simplified representation of behavior and aims to demonstrate the relationship between the elements composing the process. The model provided in Figure 1 was developed based on the analyzed theory. The arrows in the model represent the hypothesized influences.

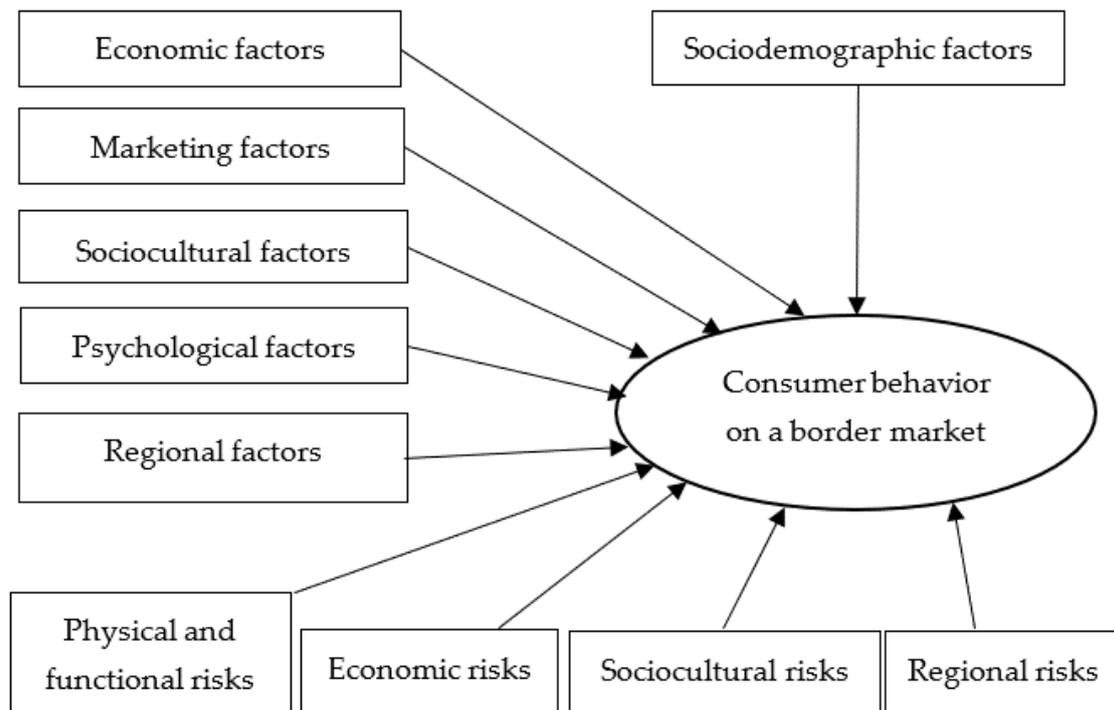


Figure 1. Hypothetical model of Lithuanian consumer behavior in the Polish border food market.

To solve the final objective of the study—to empirically validate the composed model based on the case of Lithuanian consumers' shopping in the Polish border food market—a survey applying face-to-face self-report interviews was planned. Before the interviews, a pilot survey was provided to ensure the questionnaire's suitability and clarity for the Lithuanians purchasing food in Poland in July 2022. This procedure enabled ensuring the quality of the survey by collecting insights from respondents, and the collected data was used to conduct a reliability analysis. For this purpose, 50 respondents were interviewed and Cronbach's alpha coefficients for each scale, all in the range of 0.8–0.9, were calculated. According to the results, all elements were retained during this stage and subsequently applied in the major dataset.

The authors' research was used to verify the assumed model. For its verification, face-to-face interviews conducted by the authors with 220 Lithuanians purchasing food on the Polish border market between August and October 2022 were used. Sample size calculation guidelines propose that the minimum required sample size can be based on the rule of event per variable (EPV); an EPV of 10 [43] to 20 [44] is acceptable for logistic regression. However, the small number of observations does not entitle us to formulate representative conclusions. The research was conducted in Lithuania, among people who bought food in Poland. The selection of respondents was purposeful and included Lithuanian residents who had shopped at least once in the Polish market. In addition, all respondents were residents of border regions.

The research period coincided with several very important determinants of border market operation: the economic crisis in the world, the geopolitical situation, and the war

in Ukraine, as well as a dynamic increase in inflation and large fluctuations in the exchange rate. These factors increase the purchasing activity of Lithuanian consumers in the Polish border market.

The study took into account the consumer sociodemographic characteristics of age, gender, place of residence, professional activity, material status, and number of people in the household. The study examined what functional relationships exist between the determinants of purchasing decisions and the declared decision for food purchase. For each factor, the set of characteristics (independent variables) was determined. In the presented model, 19 characteristics attached to 5 groups of determinants were provided:

- Economic (7 features): perceived quality based on physical features, price, external appearance, health values, functional features, quality of life, certificates and approvals;
- Marketing (4 features): product selection, commercial promotions, advertising, product brand;
- Sociocultural (2 features): recommendation obtained from family/friends, following the other countries' residents' behavior;
- Psychological (5 features): novelty, uniqueness, fashion, prestige and reflection of wealth, habits;
- Regional (1 feature): the possibility of transporting food across the border.

The following risks were analyzed:

- Related to the physical and functional characteristics of the product (5 features): low quality, no possibility of return, no guarantee of taste, damage during transportation, the occurrence of allergies after consumption;
- Related to economic factors (3 features): overpaying for goods, no buyers in Lithuania if resale wished, unnecessary spending of money;
- Related to sociocultural factors (2 features): criticism of family and friends for the choice made, arrogance and a negative attitude towards Lithuanians by shop service;
- Related to regional factors (2 features): no possibility of transport across the border, a problem with understanding the Polish language.

In the first step of the statistical analysis, factor analysis was used to reduce the number of variables and to establish a structure of relationships between variables, i.e., variable classification was performed. In the second step of the analysis, logistic regression was provided as the classification method used when the dependent variable was dichotomous, i.e., it assumes only two states. Logistic regression was performed to determine the relationship between the dependent variable and multiple independent variables [45]. In this study, it was the occurrence of a purchase or no purchase of food.

Logistic regression is one of the popular methods of building scoring models. On the basis of this method, the direction and strength of the influence of individual features on the model were assessed. A very important stage in the construction of the scoring model was the preparation of data, i.e., the identification and elimination of variables that were excessively correlated with each other, and then the elimination of variables that did not significantly affect the modeled phenomenon—such variables could destabilize the model without contributing any relevant information to it. The methodology of building the scoring cards required that each analyzed variable was subject to discretization, i.e., the division of the values of the analyzed variables into homogeneous intervals due to the intensity of the occurrence of the analyzed phenomenon in them. Discretization enables a better understanding of the relationship between the feature and the analyzed phenomenon and allows us to capture errors and mistakes in the data. Discretization solves the problem of outliers and allows the modeling of non-monotonic changes in the influence of individual features on the phenomenon [46].

Scoring methods were used to analyze the behavior of Lithuanian consumers in the Polish food market. Scoring methods are used in many research areas, especially where one of two possible outcomes of an event is predicted. These methods are widely used in

economics for consumer behavior research in markets [47], to study the effects of market activities [48], and to study risk in the management process [49].

The scoring model includes features of the so-called predictors for which the probability of event occurrence is determined. Based on the obtained results, it is possible to determine the occurrence of an event at the individual and population levels [50].

The model was constructed based on logistic regression analysis, indicating the probability of purchase ($Y = 1$). Variable Y has a dummy value, which indicates that the surveyed consumers belong to two groups: those purchasing food in Poland and non-purchasers. The model is based on the basis of the cumulative logistic probability function [51]:

$$\ln (PP_{ii}/1 - PP_{ii}) = Z_i = a + b_i X_i + \dots + b_n X_n + E_r \quad (1)$$

here: \ln —log of the odds ratio;

P_i —the probability that the dependent variable indicating the purchase of food will take the value of 1;

Z_i —linear combination of independent variables;

a —constant in the model;

b_i —coefficients (weights) to be estimated;

$(X_i \dots X_n)$ —assessment of the impact of factors;

E_r —rest of the model.

The vector $(X_i \dots X_n)$ contains the theoretically established elements: the sociodemographic characteristics of consumers and the factors determining the purchase. In individual logistic regression models, a decision was made to present the results of the analysis of complete models in order to present the influence of all explanatory variables on the dependent variables. Finally, the model can be expressed as follows:

$$Z_i = f[SD + (E, M, SC, P, R) + (RPF, RE, RSC, RR)] \quad (2)$$

here: Z_i —linear combination of independent variables;

SD —sociodemographic variables;

E —impact of economic factors;

M —impact of marketing factors;

SC —impact of sociocultural factors;

P —impact of psychological factors;

R —impact of regional factors;

RPF —risk related to functional features;

RE —risk related to economic factors;

RSC —risk related to sociocultural factors;

RR —risk related to regional factors.

The first stage was devoted to the evaluation of the data set in terms of controlling the phenomenon of collinearity; then, the estimation of the model parameters was performed. To obtain the most objective research results, an assumption was made that each variable and respondent evaluation was equally important and had an effect on the decision to purchase to the same extent. Important factors that explain the phenomenon were identified based on the obtained results. When constructing scoring models, it is not essential to take into account the specific nature of the relationship between these factors and the phenomenon being explained. In the model, all explanatory variables underwent discretization, which involved distinguishing different variants of variables that influence purchasing decisions. The analyzed variables were classified into the factor categories based on the measure maximization criterion (Kulback–Leibler divergence), indicating the predictive power of a given variable. Multiple scoring models were obtained that contained different sets of predictors. Due to the multiplicity of models, there was no appropriate basis for presenting all models. The final logit model determines the probability of cross-border food purchases by Lithuanians in Poland.

Scoring methods assign numerical values (in points) for individual features, and the sum of the points indicates the probability of the occurrence of the examined phenomenon, in the case of this study—the food purchases by Lithuanian consumers in the Polish border market. After performing logistic regression, the explanatory variables were transformed into point values. The directional coefficients, which determine the impact of the individual characteristics on the purchase probability, have positive and negative values. A higher point value means a higher purchase probability. Then, the estimated odds ratios were transformed into points. The scoring table includes all possible variants of the explanatory variables along with their corresponding calculated scoring points. Numerical values that determine the importance of the individual factors determining the decision to purchase were calculated. After adding these values, an overall score was obtained that provided an indication of the probability of food purchase by Lithuanian consumers from the Polish border market.

4. Results

To establish the variables determining the Lithuanian consumers' purchasing behavior in the Polish border market, the assessment of the relationship between the declared probability of purchasing and the impact of sociodemographic characteristics, theoretically established determinants, and purchase-related risks was provided. As a result of the discretization of the explanatory variables, 5 groups of representatives were distinguished, with different strengths of influence on the purchasing decisions of Lithuanian consumers. For each individual variable in the subsequent groups, factor loadings were determined, indicating the level of significance of their impact on purchasing decisions (Table 4). The most significant factor loadings (>0.700) were obtained for these variables:

- Group 1—risk related to economic factors (0.831);
- Group 2—professional activity (0.821), material status (0.838), and marketing factors (−0.760);
- Group 3—geopolitical factors (0.821);
- Group 4—economic factors (−0.909);
- Group 5—there was no factor with loading greater than 0.700 but the factor loading for the age of the respondents was high (−0.626).

Table 4. Matrix of representatives.

Variable	Factor Loadings of Representative Groups (Varimax Normalized)				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Gender	0.091390	−0.231037	0.049538	−0.017058	0.431928
Age	0.348390	−0.027095	−0.047687	−0.312356	−0.625943
Education	−0.150547	0.327527	0.009073	0.171531	0.074715
Place of residence	−0.042087	0.033957	0.059164	0.063666	−0.157383
Number of people in the household	−0.038225	0.052596	0.093421	0.032839	−0.134813
Professional activity	−0.076170	−0.821932	−0.105992	0.120007	0.140435
Material status	−0.087372	0.838109	0.060538	0.066446	−0.011812
Economic factors	−0.084154	0.204891	0.224102	−0.908658	0.125700
Marketing factors	0.429003	−0.760216	0.087379	−0.019200	−0.198150
Psychological factors	−0.210621	0.397292	0.227085	0.142855	0.235900
Sociocultural factors	−0.136264	−0.042146	0.130059	0.219455	−0.271112
Regional factors	0.083651	−0.256532	−0.821162	0.058142	−0.138548
Risk related to the physical and functional characteristics of the product	0.515448	−0.353773	−0.034232	−0.115169	0.065626
Risk related to economic factors	0.831419	−0.125166	0.074504	0.052047	−0.025615
Risk related to sociocultural factors	0.067978	0.024997	0.063401	0.049732	−0.071028
Risk related to regional factors	0.235310	0.485624	0.199484	0.074013	0.133623

Table 5 presents the parameters of factor groups, including eigenvalues, cumulative values, and the percentage of total variance. The first group of factors explains 18.3% of the variance, the second group—10.4%, the third—8.4%, the fourth—7.6%, and the fifth—7.1%.

Table 5. Parameters of factor groups.

Group of Factors	Eigenvalues	Main Components		
		Percentage of the Total Variance	Cumulative Values	Cumulative % of the Variance
1	3.104532	18.26195	3.10453	18.26195
2	1.762771	10.36924	4.86730	28.63119
3	1.422545	8.36791	6.28985	36.99910
4	1.298451	7.63795	7.58830	44.63705
5	1.201229	7.06605	8.78953	51.70310

At the stage of categorizing the variables, the predictive power was calculated for each group of factors. The information value (IV) coefficient was used to evaluate the predictive power of individual variables. The following variables had a very weak predictive power: gender, education, place of residence, and the number of people in the household. The highest predictive power was found for economic factors (IV = 0.909), material status (IV = 0.838 each), risk related to economic factors (IV = 0.831 each), professional activity (coefficient IV = −0.822), regional factors (IV = −0.821), and marketing factors (IV = −0.760). After calculating the factor loadings and correlations in a given model, the following variables were eliminated: gender, education, place of residence, and the number of people in the household.

The provided scoring analysis indicates the sociodemographic determinants of food purchasing (Table 6). A statistically significant influence ($p < 0.05$) was found for material status ($p = 0.00928$), age ($p = 0.02013$), and professional activity ($p = 0.04394$). The highest positive values for the sociodemographic characteristics of Lithuanians purchasing food in Poland were assigned to professional activity: unemployed (102 points), student (100 points), pensioner (99 points), own business (87 points), and teacher (85 points). Government company employees (14 points) and administration employees (36 points) showed a low probability of buying food. All the features of material status had a high value (89 points). In the case of age, the range of points was from 34 (15–24 years) to 27 (45–54 years and 55–64 years).

Table 6. Scoring table for sociodemographic characteristics of Lithuanians buying food on the Polish border market.

Variable	WoE	Rating	s. Walda	Level p	Scoring	Rounded Scoring
Age						
15–24 years	158.102	0.00124	0.59762	0.02013	34.368	34
25–34 years	17.391	0.00124	0.59762	0.02013	29.334	29
35–44 years	−18.548	0.00124	0.59762	0.02013	28.048	28
45–54 years	−49.97	0.00124	0.59762	0.02013	26.924	27
55–64 years	−53.466	0.00124	0.59762	0.02013	26.799	27
>64 years	16.991	0.00124	0.59762	0.02013	29.215	29
Neutral value	-	-			32.091	32

Table 6. Cont.

Variable	WoE	Rating	s. Walda	Level p	Scoring	Rounded Scoring
Professional activity						
Own business	−8.964	0.00888	10.2377	0.04394	86.699	87
Government company employee	−61.59	0.00888	10.2377	0.04394	14.361	14
Administration employee	−208.5	0.00888	10.2377	0.04394	35.574	36
Teacher	−17.018	0.00888	10.2377	0.04394	84.636	85
Unemployed	49.704	0.00888	10.2377	0.04394	101.731	102
Student	42.223	0.00888	10.2377	0.04394	99.814	100
Pensioner	39.892	0.00888	10.2377	0.04394	99.217	99
Neutral value	-	-			83.842	84
Material status						
Definitely below the national average	−49.51	−0.00032	0.0081	0.00928	89.453	89
Slightly below the national average	52.65	−0.00032	0.0081	0.00928	88.51	89
National average	2.814	−0.00032	0.0081	0.00928	88.97	89
Slightly above the national average	51.349	−0.00032	0.0081	0.00928	88.522	89
Definitely above the national average	−53.888	−0.00032	0.0081	0.00928	89.493	89
Neutral value	-	-			89.037	89

The provided scoring analysis indicates the determinants of food purchases on the Polish border market by Lithuanian consumers (Table 7). Due to the multitude of research results, the interpretation focused on the factors with the greatest impact on the decision to buy food. A statistically significant influence ($p < 0.05$) was found for marketing factors ($p = 0.00327$), economic factors ($p = 0.01311$), and the risk related to economic factors ($p = 0.03585$). As they lacked a significant impact, logistic regression analysis confirmed the regional factors ($p = 0.33866$), sociocultural factors ($p = 0.54363$), psychological factors ($p = 0.68518$), and the physical and functional characteristics of the product-related risk ($p = 0.10162$), sociocultural risks ($p = 0.08440$), and regional-factor-related risks ($p = 0.07701$).

Table 7. Scoring table for determinants of food purchase decisions.

Variable	WoE	Rating	s. Walda	Level p	Scoring	Rounded Scoring
Economic factors						
1 factor	6.491	0.24414	4.61278	0.01311	44.165	44
2–3 factors	6.586	0.24414	4.61278	0.01311	47.955	48
>3 factors	34.727	0.24414	4.61278	0.01311	246.193	246
Neutral value	-	-			195.830	196
Marketing factors						
1 factor	2.945	0.08572	0.005	0.00327	5.723	6
2–3 factors	14.945	0.08572	0.005	0.00327	18.723	19
>3 factors	61.590	0.08572	0.005	0.00327	153.897	154
Neutral value	-	-			160.435	160

Table 7. Cont.

Variable	WoE	Rating	s. Walda	Level <i>p</i>	Scoring	Rounded Scoring
Psychological factors						
1 factor	−13.538	0.14207	1.94594	0.68518	−57.059	−57
2–3 factors	5.315	0.14207	1.94594	0.68518	20.224	20
>3 factors	8.032	0.14207	1.94594	0.68518	31.365	31
Neutral value	-	-			−0.344	0
Sociocultural factors						
1 factor	3.566	0.01337	0.38816	0.54363	5.601	6
>1 factor	37.351	0.01337	0.38816	0.54363	15.971	16
Neutral value	-	-			21.07	21
Regional factors						
1 factor	11.359	0.06088	4.27592	0.33866	21.515	22
Neutral value	-	-			21.515	22
Risk related to the physical and functional characteristics of the product						
1 factor	−19.507	0.02296	0.49518	0.10162	−5.344	−5
2–3 factors	8.032	0.02296	0.49518	0.10162	3.76	4
>3 factors	18.26	0.02296	0.49518	0.10162	10.535	11
Neutral value	-	-			8.036	8
Risk related to economic factors						
1 factor	−111.04	0.02501	2.97803	0.03585	−78.937	−79
2 factor	−40.233	0.02501	2.97803	0.03585	−30.595	−31
>2 factor	−39.739	0.02501	2.97803	0.03585	−30.239	−30
Neutral value	-	-			−88.109	−88
Risk related to sociocultural factors						
1 factor	0	−0.17346	1.45652	0.08440	−1.562	−2
>1 factor	−1.907	−0.17346	1.45652	0.08440	7.981	8
Neutral value	-	-			3.716	4
Risk related to regional factors						
1 factor	31.435	0.02362	4.89011	0.07701	19.862	20
>1 factor	−17.978	0.02362	4.89011	0.07701	−18.452	−18
Neutral value	-	-			−2.675	−3

The provided analysis indicated that Lithuanian consumer shopping behavior in the Polish border food market was positively affected by economic and marketing factors. Additionally, sociodemographic factors such as age, professional activity, and material status are important. Considering the perceived risks, only the economic risk was found to influence Lithuanian consumer behavior in the Polish border food market. The hypotheses testing results are provided in Table 8.

Table 8. Results of hypotheses testing.

Hypothesis	Supported	Result
H1: Sociodemographic factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Supported	material status ($p = 0.00928$) * age ($p = 0.02013$) * professional activity ($p = 0.04394$) *
H2: Economic factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Supported	$p = 0.01311$ *
H3: Marketing factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Supported	$p = 0.00327$ *
H4: Sociocultural factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.54363$
H5: Psychological factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.68518$
H6: Regional factors influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.33866$
H7: Physical and functional risks associated with a product influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.10162$
H8: Perceived economic risks influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Supported	$p = 0.03585$ *
H9: Perceived sociocultural risks influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.08440$
H10: Perceived regional risks influence Lithuanian consumers’ choice of cross-border food shopping in Poland	Rejected	$p = 0.07701$

Note: * $p < 0.05$.

The obtained results induced changes in the proposed model (Figure 2).

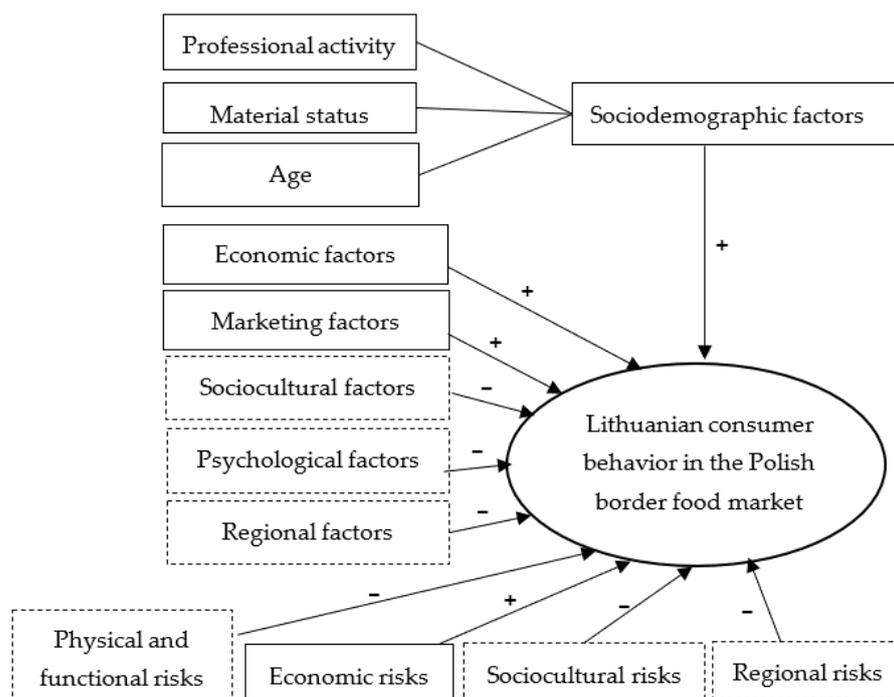


Figure 2. The model of Lithuanian consumer behavior in the Polish border food market based on statistical verification of the obtained research results. Note: “+” statistically significant impact; “-” no statistically significant impact.

5. Discussion

The research results prove that globalization and border-free regions encourage consumers to cross the country's borders for shopping [32]. The results support the idea of the European single market, where cross-border interaction, movement, and trade overcome the country's border [4]. The purchasing process for consumers making decisions in other countries' markets does not end with paying for a product. There are still uncertainties, e.g., whether it will be possible to transport the product across borders and when consumers confirm the rightness of their choice and can consume the purchased product in the country of their residence. Moreover, the COVID-19 pandemic has had an impact on consumer shopping behavior [23], and the changes that have occurred in the economy and business world have also affected social life [22]. The purchasing decisions of EU consumers within the EU border markets are not as risky as those of third-country consumers; however, there is always a risk when importing or exporting goods from abroad. The lack of controls at the EU's borders must not reduce the importance of the possibility of transporting food across the border.

The research results indicate that only three factors of in the sociodemographic category can be held as determinants of Lithuanian consumers' cross-border shopping behavior: age, personal activity, and material status. Household income was also found to be a significant out-shopping predictor in Serbia [9].

Other sociodemographic factors (gender, education, place of residence, and the number of people in the household) were not significant in a framework of Lithuanian shopping behavior across the Polish border. Scholars [9] indicate that despite the existence of studies that negatively associated out-shopping with household size, other studies have found no significant relationships between these variables. Despite the fact that respondent education was found to be a significant cross-border shopping determinant in Serbia [9], our research denied its role for Lithuanian consumers shopping in Poland.

Sociocultural factors were found to be insignificant in the framework of Lithuanian food shopping in Poland. Despite the assumption that cross-border shopping might be induced by perceived differences between countries [26], the analyzed case did not prove it. The research results contradict the findings reported by Dmitrovic and Vida [9], who suggested that consumer ethnocentrism and local helping are significant predictors of cross-border shopping behavior. Shopping enables people to become familiar with the distinct features and unique culture of the visited country [27]; an assumption might be made that Lithuanians constantly shopping in Poland do not pay attention to social and cultural differences.

Economic and marketing factors were found to have a statistically significant influence on Lithuanian consumer shopping behavior across the Polish border. Apparently, Lithuanian consumers are sufficiently informed about the product assortment, quality, promotions, and features that could be found in Poland; the latter information works as a positive motivation for cross-border shopping. The research results confirm the proposition in the literature [10] that, when shopping, consumers seek the best assortment and lowest prices.

The research did not confirm the existence of psychological determinants influencing the Lithuanians' cross-border food shopping behavior. Although several authors emphasize the effects of the "charm of novelty" [10] or innovativeness [9], the latter's effects were not confirmed for Lithuanians shopping in Poland. Based on the scientific literature [52], there is a strong relationship between the purchase of goods and the need for uniqueness: possessions increase social status. Such dependence may apply to the purchase of luxury goods; however, in the case of food, it was not confirmed by this research. In post-communist societies, the possession of luxury goods is often a means of communicating social status and showing wealth. Some people often see themselves in a special and privileged way, using different experience management strategies, e.g., excessive consumerism. The obtained results might be explained by the study provided in Lithuania [53], which reported that almost 63 percent of Lithuanians prefer food products produced in Lithuania, whereas

Poland as a food producer has a negative image among Lithuanians. Purchasing food products on the Polish border market does not evoke psychological content. Such results would confirm the results obtained in Southeastern Europe [9], which argued that the perceived quality of domestic goods can serve as a significant predictor of cross-border shopping behavior.

The results of the research indicate that regional factors did not significantly affect consumer behavior. Consumers are aware that there is no border control on the Lithuanian–Polish border, so this factor had no impact on the purchasing of food in Poland. It can be assumed that in the opinion of the respondents, membership of the European Union gives the possibility of the free transport of goods across the border and that there is no risk associated with the ability to transport goods across the border. The surveyed inhabitants of Lithuania did not indicate a risk associated with the problem of understanding the Polish language. Many inhabitants of the border regions, both on the Lithuanian and Polish sides, know Russian, which is used for communication cross-border.

According to the conducted research, all types of risks of buying food in border markets were not the most important criterion for purchasing decisions. Such results contradict the previous finding that cross-border activities result in more risk-taking behavior [32]. The undervaluation of the risk related to the functionality of the food might be explained by the results emphasizing that, even knowing the possibility of the risk, the consumers do not think about it [36]. The risk related to sociocultural characteristics and regional conditions did not affect the purchasing decisions of Lithuanians in the Polish food market. These latter results deny the existence of language- and mentality-related barriers [11,13]. Shopping preferences did not depend on the opinions of relatives. The factor defined as arrogance and the presentation of a negative attitude towards Lithuanians by the shop staff was of small importance. Globalization and euro-integration processes might be regarded as explanations of the latter results, as the EU applies instruments facilitating cross-border activities [3].

The risk related to economic factors (overpaying for food, no buyers in Lithuania if consumers wish to resale, unnecessary spending of money), obtained negative point values in the scoring analysis. Thus, it contradicts the risk reported in the literature [10]: the risk of overpaying for goods. Lithuania belongs to the group of European economies that were extremely eager to join the eurozone [54]. On the contrary, the Polish government implemented policies stimulating investment and supporting domestic demand by adjusting the exchange rate of local currency (PLN) to balance foreign trade, increase public spending, and offset the fall in private investment and external demand [55]. Exchange rate differences and rising inflation cause food prices in Poland to be attractive to Lithuanians, and the increasing purchasing power of the euro affects the possibility of buying food in Poland at a lower price than in Lithuania.

Decisions to purchase food were related to individual selection criteria and preferences. These criteria were the result of the influence of various incentives—both economic and non-economic. The number and degree of influence of the factors depended on the type of goods purchased. The importance of the motives was also determined by the economic and social situation, geopolitical conditions, an increase in the value of the euro, and a higher level of inflation in Lithuania than in Poland. Concerns caused by the instability of the currency market could lead to impulsive and spontaneous decisions.

The verified model of Lithuanian consumer shopping behavior in the Polish border food market implies that in endeavoring to encourage Lithuanian consumer purchases on the Polish border food market, most attention must be paid to the management of economic and marketing factors as well as the economic risks. Marketing activities must be provided keeping in mind consumer sociodemographic characteristics, i.e., age, professional activity, and material status.

6. Conclusions and Recommendations

The proposed model is different from the previously presented models in the literature because of the assignment of factor loading values to the analyzed factors having an impact on purchase decisions.

The identified factor groups were part of the conscious control of the contextual conditions in making shopping decisions by inhabitants of border regions on the EU food markets. It is important not to underestimate the significance of consumers' individual characteristics, emotional experiences, and willingness to take risks. Objective situations were interpreted by the consumer, and the variants of the actions taken were subject to evaluation in relation to the goals pursued by the inhabitants of border regions.

Models of the consumer's reaction to the analyzed stimuli may shape the consumer preferences and strategies for the choices depending on the regional and geopolitical conditions.

In the context of Poland and Lithuania's membership of the EU, it is difficult to overestimate the experience of cooperation. The justification of the shopping decisions of the inhabitants of the border regions on the EU markets is the most changed under the influence of geopolitical conditions. Research of the impact of economic, social, and regional conditions on the formation of consumer behavior on border markets, especially at a lower level of aggregation, may be an important background for proposing solutions in subsequent programs financed from European Union sources. It is therefore obvious that the problem of objective assessment of the market behavior of the inhabitants of border regions and cross-border exchange in the face of changing geopolitics and conditions is still valid. Research on this topic should be continued even in the case of constraints, which mainly include external factors, such as unpredictable political decisions, economic situations, and social relations.

7. Limitations and Further Research Directions

Several limitations exist in this study. The research was carried out in a short time (3 months) on both sides of the border. It was a period of unrest caused by the war in Ukraine, in the area of the so-called Suwałki Gap, where there was huge inflation and the ongoing economic crisis. In addition, the respondents did not express much interest in the study, which might have influenced the results.

First, the results may only be applicable to the study of determinants of food purchases covering eastern EU countries. The research considered the Polish market, which has unique regulations compared with other EU countries (0 percent VAT on food), which means that although it may be regarded as a determinant in this study, in other countries it might be irrelevant. Therefore, other empirical studies on the determinants of food purchases in other cross-border markets are expected.

Second, other situational and legal factors, e.g., visa-free travel and limits on the carriage of goods across borders, that influence purchasing decisions on cross-border markets might extend beyond those considered herein. The structure of cross-border markets, the law system, EU and national regulations, and the elements of local cultures could be considered in future studies. Finally, the field survey of this study was conducted during the COVID-19 pandemic situation and the economic crisis, which may have influenced the research results, as traveling abroad has been reduced and food prices have increased in all markets. It is recommended to conduct a comparative study of the determinants of food purchases in other EU cross-border markets and their impact on the purchasing behavior of residents of border regions in order to consider the theoretical model in more detail.

In order to further develop the model, the research should be repeated in different sociodemographic segments, identifying segment-specific factors and realized benefits. In addition, the study can be replicated in other neighboring countries within and outside of the European Union, and the results obtained in different border markets can be compared to obtain more information and relationships between factors influencing the purchasing behavior of residents of border regions.

Author Contributions: Conceptualization, I.M.B. and L.P.; Data curation, I.M.B., J.Ž. and L.P.; Formal analysis, I.M.B., J.Ž. and L.P.; Funding acquisition, I.M.B., J.Ž. and L.P.; Investigation, I.M.B. and L.P.; Methodology, I.M.B.; Project administration, I.M.B., J.Ž. and L.P.; Resources, I.M.B., J.Ž. and L.P.; Software, I.M.B., J.Ž. and L.P.; Supervision, I.M.B., J.Ž. and L.P.; Validation, I.M.B., J.Ž. and L.P.; Visualization, I.M.B. and L.P.; Writing—original draft, I.M.B.; Writing—review and editing, J.Ž. and L.P. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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