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Strengthening Lithuanian-Latvian Cross-Border Cooperation in the Context of International Trade

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Abstract

The article analyses the strengthening of the competitiveness of countries based on crossborder cooperation through the prism of international trade indicators. Due to the increase in international competition, countries, especially small economies, are finding it increasingly difficult to maintain their position in the global market and remain competitive if this position is pursued individually. It is therefore necessary to review competition strategies and reassess opportunities and competitive advantages, as well as to promote coopetition between border region companies at institutional level. The article presents a new approach to regional competitiveness, which is achieved not through the development of the competitive advantages of the regions of individual countries, but through their cooperation and thus achieving common benefits. This is particularly relevant for border regions, as their uniqueness allows them to exploit cross-border region cooperation, which can generate added value by utilising the potential of cooperating regions to complement each other and become a competitive hub for economic growth. Only a strategic partnership based on regional cooperation will promote cooperation between manufacturers in different regions and ensure the achievement of co-creation and international development goals.

The article analyses the case of Lithuania and Latvia as an example of cross-border cooperation, as internationally these countries are often matched and treated as one region, but in fact they compete fiercely with each other for better positions in foreign markets. This also shows that Lithuania's and Latvia's foreign trade with the European Union (hereinafter - the EU) accounted for the largest share of their foreign trade. Secondary statistical data of the EU-28 Eurostat of 2010 - 2019 and Finger Kreinin, RCA, and Lafay indices were used for the study. After assessing the convergence of the Lithuanian and Latvian export structure according to the FKI index during the study and finding that the export structure of these countries is very similar, the relative comparative advantage of exports by individual product sectors was assessed on the basis of the RCA index and the comparative advantage on the basis of the LAFAY index. The study showed that both countries had comparative advantages in the same product groups. The identification of common points of contact has highlighted economic activities, the development of which could be given more attention through the cooperation between the countries, and which would ensure overall economic benefits. The article concludes with strategic recommendations and measures to promote cross-border cooperation and increase the region's competitiveness.

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The article contributes to the regional economic subject literature, as the concept of cross-border region competitiveness is developed by promoting not the competition of individual regions, but their cooperation by discovering common similarities in economic development. The article presents methodological logic and empirical calculations that would allow policy makers to develop cooperation strategies with those border regions with which it is expedient to cooperate for greater economic benefits.

Promoting regional development and reducing regional disparities not only between regions within the same country but also between different countries requires the patient and consistent work of governments, businesses and academia, as well as individual communities, to develop measures and initiatives to promote cross-border cooperation.

KEYWORDS: competitive advantage, regional cooperation, coopetition, Finger Kreinin index, RCA index, Lafay index.

Introduction

States in the modern world are participants in the global economy, so it would be difficult to find a state that is completely unrelated to the world economy. The involvement of countries in the political, economic and social life of the world requires the constant search for solutions to promote the growth of countries while ensuring the well-being of the population. On the one hand, countries may try to distance themselves from the influence of other states, but in that case, the consequences can be painful or even catastrophic. On the other hand, the countries can cooperate, look for common points of contact and, using each other's advantages, solve current problems and common challenges. The implementation of EU cohesion policy aims to promote balanced and sustainable territorial development and reduce disparities between individual EU regions. One part of the EU cohesion policy process is Cross-Border Cooperation (hereinafter - CBC) program to promote export development. This CBC program promotes cross-border cooperation by contributing to the growth of regions of the countries and improvement of the quality of life through cross-border co-operation (European Commission, 2012, 2017). Studies analysing regionalisation issues (Bruneckienė and Palekienė, 2012; Norvaišienė and Lakštutienė, 2012) highlights the specifics of border regions and widely emphasizes cross-border cooperation between countries and proposes to strengthen it through joint activities, information, business and population involvement, and joint project development. Research analyzing the economic issues of international development also emphasizes the strengthening of cross-border cooperation, as only the principle of competitive cooperation addresses pragmatic issues related to cross-border cooperation, such as selection of a partner country, solution of common challenges, experience exchange, and obtaining of necessary resources (Makkonen, Williams, Weidenfeld, & Kaisto, 2018). The subject literature identifies coopetition as one of the forms of national or international cooperation where competition and cooperation between two or more stakeholders take place at the same time (Cho, Moon, Yin, 2016; Luo, 2007; Grauslund and Hammershøy, 2021). In this case, the companies, by cooperating with each other and sharing resources, commit themselves to common goals in certain areas (to merge), while in other areas they may compete intensively. Coopetition, helps both sides improve internal skills and technology while protecting their competitive advantage by reducing costs, risks and uncertainties associated with innovation. This principle of cooperation is also applicable at the regional level, when regions develop relations based on mutual cooperation in order to strengthen each other and thus gain an advantage internationally (Pietrewicz, 2020).

Scientific works are usually based on subject literature, expert insights, case studies, conducting formal surveys, informal interviews with relevant specialists, and interested parties in order to find out and present proposals for closer, more effective cooperation between the parties. In order to strengthen economic cooperation between the countries, this article proposes to identify common points of contact in international trade by analysing foreign trade indicators in order to

take targeted measures to strengthen these areas and to form a competitive strategy. Thanks to the analysis of foreign trade indicators, it is possible to properly and objectively assess the position of a certain country at the international level and their competitive advantages. Lithuania and Latvia were chosen for the analysis, as they are linked by a common history, similar experience, and geographical proximity. Also, while on the one hand, Lithuania and Latvia are two different countries competing with each other for a better position in foreign markets, for higher investments, on the other hand, these countries are viewed as one region internationally.

In the last period of 2010-2020 the economies of Lithuania and Latvia developed unevenly. The influence of external forces, such as the global financial crisis and the Coronavirus pandemic, played a significant role in this. At the beginning of the period under review, the threat of their bankruptcy was even discussed in the wake of the severe downturns in both countries. In the current period of Coronavirus pandemic, it is crucial to maintain or even strengthen foreign trade, as it is important to maintain the availability of goods when countries restrict the movement of people. As foreign trade has a significant impact on both the Lithuanian and Latvian economies, and these countries internationally are considered as one region, it is necessary to determine the extent to which Lithuanian and Latvian export structures were similar and in which sectors the countries had a comparative advantage in trade with the EU. The foreign trade of Lithuania and Latvia with the EU was chosen due to the fact that according to the data provided by Eurostat, during the period of 2010-2019, foreign trade with the EU country accounted for the largest portion of international trade.

Study problems: many researchers studying international economic, political and social processes emphasize cross-border cooperation between countries and suggest strengthening it through joint activities, but the inclusion of economic analyses would help identify targeted economic activities that need to be promoted. The identification of joint economic activities in which countries have a competitive advantage over other countries can strengthen cooperation between countries by promoting sustainable regional development and growth, i.e. achieve the benefits of competitiveness through cooperation.

The novelty of the article is in the presentation of the concept of cross-border region competitiveness by promoting not the cooperation of individual regions, but their cooperation by discovering common similarities in economic development. The article presents methodological logic and empirical calculations that would allow policy makers to develop cooperation strategies with those border regions with which it is expedient to cooperate for greater economic benefits. Analysis of cross-border region competitiveness through cross-border cooperation can be used over time and during economic challenges. To this end, the article provides recommendations for strategic cooperation and the measures needed to overcome it. The study problem is formulated by asking the following questions: whether Lithuania's and Latvia's foreign trade with other EU countries followed the same trends, and whether Lithuania and Latvia had a comparative advantage in foreign trade in the same product groups and what measures, aimed at the promotion of regional growth, could be taken at the institutional level to promote economic cooperation between countries.

Research object: Competitive advantages of the Lithuanian-Latvian border region.

The aim of the study is to assess the international competitiveness of Lithuania and Latvia and to identify common points of contact in international trade by strengthening cross-border economic cooperation.

The objectives of the study:

1 describe the importance of cross-border cooperation, the benefits of coopetition and the concepts proposed at international level for assessing the comparative advantage of a given product or sector.

2 determine the level of similarity of the Lithuanian and Latvian export structure in trade with the EU.

3 determine which sectors of Lithuania and Latvia had a comparative advantage in trade with the EU.

4 Provide strategic recommendations and measures to promote cooperation between the countries.

Research methods: systematic, comparative and logical analysis of subject literature based on methods of comparison, classification, systematization and generalization; secondary data analysis; calculation of RCA, Lafay, and Finger Kreinin indices.

The article is prepared in the following order: first of all, the analysis of foreign literature presents the concept of cross-border cooperation for sustainable development of countries and the scientific concepts proposed to assess the comparative advantage at the international level. The second part defines the methodology of the study of the relative advantage of the analysed countries. The third part evaluates the obtained results of the comparative advantage and provides recommendations.

Analysis of literature

Cross-border regions have recently received increasing attention in the subject literature, and the concept of border regions is becoming significant not only at the academic but also at the political level for macroeconomic reasons (Bruneckienė, Palekienė, 2012; Makkonen, Williams, *et al.* 2018; Norvaišienė and Lakštutienė, 2012; Vulevic, Castanho, Naranjo Gomez, Loures, Cabezas, Fernández-Pozo, & Martin Gallardo, 2020). Researchers attribute the following features to the specifics of the border region: the adjacent regions are far from the main economic centers of the countries, which does not ensure rapid economic development, they have an unattractive geodemographic situation, since the age and skills of the population are not conducive to business development, not all border regions have developed sufficient economic cooperation to benefit from cooperation networks, which is partly due to insufficient industrial development in border regions. Through the implementation of regional policy the government aims to reduce disparities in economic and social development. For these reasons, it is necessary to analyse the possibilities of strengthening cross-border cooperation rather than competition in order to create more favourable conditions for investors, increase employment, generate higher added value, and accelerate the implementation of innovations (Cho, Moon, Yin, 2016).

One element of the EU policy integration process is the Cross-Border Cooperation (hereinafter - CBC) program. According to the European Commission (2012, 2017), the main objectives for the development of CBC are promote the social and economic development of the border area, improve employment opportunities, provide better services (health care, education, infrastructure, etc.), and cultural dissemination. Scientific insights regarding benefits of cross-border cooperation are provided in Table 1.

Table 1

The impact of cross-border cooperation in subject literature

Source: Author's

Author	Impact of cross-border cooperation
Sohn (2014)	Cross-border integration results from the strategic behaviour of actors in actively mobilizing borders as resources not only in social, cultural, but also economic terms.
Kurowska-Pysz and Szczepanska-Woszczyna (2017)	Cross-border cooperation allows organizations to achieve significant results internationally through active collaboration, leveraging each other's strengths, available resources, and competitive advantages.
Daume (2018),	Cross-border cooperation in the regions is the solution of common problems in the border region, when the challenges and areas of development are the same in both countries and the regions compete separately in the same fields.

Close cooperation between the countries creates a network of contacts that helps companies in different countries to develop economically and enables local communities to remove cultural and social barriers and pursue common interests across borders. In border regions, cooperation rather than competition would lead to mutual benefits in terms of territorial cohesion and the promotion of cross-border development. Then, working together based on the principle of cooperation rather than competition, sharing knowledge and experience, it is possible to achieve the desired goals in the international market.

The subject literature distinguishes the concept of coopetition in terms of collaboration (Cho, Moon, Yin, 2016; Luo, 2007; Grauslund and Hammershøy, 2021) at both national and international levels. Researchers refer to coopetition as one of the more complex forms of mutual relationships where there is competition and collaboration between two or more stakeholders. According to Cho, *et. al.* (2016) small countries lack large market sizes and adequate labour, while less developed countries have uncompetitive industries, in which case only through mutual cooperation can the gaps in resource sharing be easily overcome. The authors also point out that in order to maximize profits, instead of using all the activities of the value chain in one country, companies seek to operate internationally, thus expanding the options that become the engine of cooperation between the parties. Researchers (Luo, 2007; Grauslund and Hammershøy, 2021) identify cooperation with competitors as an effective way to achieve rapid improvements in production efficiency, quality control, and product innovation in both domestic and foreign markets. It must be emphasized that coopetition combines cooperation and competition and occurs between competitors at both national and international levels. According to authors, international companies, by cooperating with each other and sharing resources, commit themselves to common goals in certain areas (to merge), while in other areas they may compete intensively. Coopetition, according to authors, helps both sides improve internal skills and technology while protecting their competitive advantage by reducing costs, risks and uncertainties associated with innovation. Grauslund and Hammershøy (2021) agree that cooperation between competitors generates benefits for all participants in the cooperation network, e.g. improving financial results, ensuring economies of scale. This type of cooperation is not limited to the establishment of joint ventures, joint manufacturing, marketing development, but also includes joint international collective efforts, e.g. improving the industrial infrastructure of the host country, pressure of local authorities for market accessibility or fair competition, sharing global distribution channels, forming clusters for manufacturing, development or supplying resources domestically or abroad. According to Luo (2007), the elements of coopetition, cooperation, and competition are dynamic and constantly changing, so not only long-term institutional planning is important, but also continuous monitoring to create an active cooperation network between entrepreneurs and regional institutions. This approach is supported by Pietrewicz (2020), who identifies international cooperation as a strategic synergy involving competition, cooperation, and coordination. The latter suggests an analysis from the perspective of strategic management, as the choice of coordination mechanisms can affect the effectiveness of collaborative strategies and become a source of competitive advantage.

The cross-border competitiveness of regions in the international market is the result of pooling of the strengths of the cooperating regions. Danilevičienė and Lukšytė (2017) describe the competitiveness of the region as its ability to achieve high productivity and ensure the comprehensive well-being of the population. According to Žitkus and Mickevičienė (2013), competitiveness in the modern world is becoming the dominant and even mandatory type of status of entities at all levels, including regions. According to the authors, competitiveness changes from a means of functioning to a goal of functioning, therefore it is necessary to treat competitiveness as an

aspiration for regional development. In order for small economies with a small domestic market, and scarce natural resources, to remain competitive, it is necessary to analyse the international trade trends of these countries in order to identify changes in foreign trade. The structure of foreign trade is constantly changing as the needs of human consumption change over time. For this reason, there is a need to constantly look for solutions and ways to improve trade relations.

According to Kogut-Jaworska and Ociepa-Kicinska (2020), each region has specific resources that, when incorporated into global processes, become key success factors. According to the authors, given the endogenous capacity of the region, its resources, key competencies, and competitive advantages, higher growth of regional competitiveness and faster development should be ensured. Regional specialization reflects the uniqueness and originality of each region, which creates preconditions for sustainable development and strengthening of cooperation. Strengthening of the cross-border cooperation not only makes it possible to harmonize the development of areas in crossborder areas, but is also an appropriate means of utilising the competitive advantages of the regions. This requires identifying the similarities between the different regions and developing them together, thus gaining the overall competitive advantage of the border region in the international market. Charles (2018) describes the similarity of the export structure of the two countries as the correspondence of their export structure: i.e. the export structure of one country is considered to be similar to that of the other country if the goods constituting the exports of both countries belong to identical categories of goods. The index method is the most commonly used in the subject literature to assess regional similarities in international trade operations. Xu and Song (2000), Andreosso-O'Callaghan (2008), Jenkins (2008), Kaitila (2010), Dudzevičiūtė and Tamošiūnienė (2015), Wang and Liu (2015), Charles (2018), Maryam, Banday and Mittal (2018), Wang, et. al. (2020) used the Finger Kreinin Index (hereinafter - FKI) to assess the similarity of exports between two countries or groups of countries in the context of the world market. This index was proposed by Finger and Kreinin in 1979. According to Jenkins (2008), the calculation of the FKI aims to compare only the export patterns of the studied countries, i.e. relative and not the absolute indicators are used to compare the export structures of chosen countries. Assessing the similarity and trend of exports, it is possible to identify whether or not specific regions specialize in the same sectors and compete with each other. If the assessment reveals increasing competition, i.e. products and services of similar sectors are exported, then it is expedient to develop exports for both regions together and not separately, thus gaining an international advantage.

According to Kaitila (2010), if countries have similar export structures, the quality of their exported products can vary greatly. A more developed country is likely to have a higher level of productivity and produce better quality goods than a less developed country, so it is necessary to assess the level of international competitiveness and specialization of the country's goods or certain sector. For that various scientific concepts are proposed. Many scientific works can be found in Lithuanian and foreign literature, for example, Bender and Li (2002), Khan and Batra (2005), Vitunskienė and Serva (2006), Andreosso-O'Callaghan (2008), Sanidas and Shin (2009), Sabonienė (2011), Jackman, *et. al.* (2011), Beaudreau (2016), Abbas and Waheed (2017), Maryam, Banday, and Mittal (2018), which use the concept of revealed comparative advantage when assessing a country's export competitiveness. According to Wang, *et. al.* (2020) one of the oldest theories of comparative advantage is that the basis of international trade is the relative difference in production costs. Each country should produce and export its own comparative advantage products and import products with comparative disadvantages. Comparative advantages in trade are not gained in a few days, usually comparative advantages are acquired over a long period of time. The concept of revealed comparative advantage (hereinafter - RCA_1) was proposed by Balassa

(1965). The RCA_1 indicator is calculated on the basis of structural indicators of international trade. Table 2 provides the insights of scientists regarding the implementation of RCA_1 indicator.

Table 2
Implementation fields of RCA_1 indicator

Source: Author's

Author	Implementation fields of RCA_1 indicator
Abbas and Waheed (2017)	Analysis of the competitiveness of an industry or sector based on relative export performance.
Khan and Batra (2005)	Point out key factors influencing the change of RCA1: structural change, increased global demand, and trade specialization.
Sanidas and Shin (2009)	Analysis of trade performance of different countries.

According to Jackman, *et. al.* (2011) and Beaudreau (2011), currently there are two most prominent theories of comparative advantage: Ricardian theory and the theory of Heckscher-Ohlin. Ricardian theory states that a comparative advantage exists between countries due to different technologies in the industry. Theory of Hexer-Ohlin states that the state has a comparative advantage in the production of a commodity that is relatively intensive to abundant resources. According to Erokhin, the relative advantage discovered by Diao and Du (2020) is one of the most important parameters to determine the competitiveness of products in the global market. Different RCA modifications are used in the subject literature. These modifications were made in order to calculate and evaluate the data of the studied countries as accurately as possible. The article uses a modified RCA_2 model proposed by Vollrath (1991) to assess the country's foreign trade. It is used because, unlike RCA1, indicator RCA_2 also measures imports from the country under analysis.

Another indicator that analyses the contribution of a particular sector to a country's trade balance is the proposed Lafay index (Zaghini, 2003; Sanidas and Shin, 2009; Blancheton and Becuwe, 2018; Erokhin, Diao, and Du, 2020). Erokhin, Diao, and Du (2020) agree with Zaghini (2003) that in order to assess the contribution of a particular sector to the trade balance, it is important to eliminate the influence of cyclical factors and one of the best methods to do so (unlike RCA_1 and RCA_2) is calculation of the Lafay index. The Lafay index used in order to assess the benefits of international trade for the economies of border regions, takes into account not only exports but also imports, which makes it possible to estimate flows of domestic trade and re-export. In this sense, the Lafay index complements the analysis that can be provided by applying the comparative advantage measurement methods presented above.

Thus, after a scientific analysis of the literature, it has been found that many scientific works, analysing the strengthening of cross-border cooperation between countries to achieve sustainable development through foreign trade indicators, when examining the level of export similarity, can be found in both Lithuanian and foreign literature. The index shows the competitive advantages that can be focused on and combined to provide overall benefits. It is a tool for assessing the current situation in the region and formulating a competitive strategy.

The researchers are also analyse various possible scenarios to promote cross-border regional cooperation. Castanho, *et. al.* (2016), Kurowska-Pysz, *et. al.* (2018), and Vulevic, *et. al.* (2020), in their analysis of CBC projects, identified factors that could lead to greater economic benefits for cooperation network participants when developing cross-border cooperation on a coopetition basis (Table 3).

In the subject literature, the authors emphasize that the maximum benefit from cross-border cooperation is generated when the cooperation is complex and viable. For this reason, researchers

Author	Factors affecting cooperation positively	Factors affecting cooperation negatively
Castanho, *et. al.* (2016)	Consistent cooperation strategy, setting common goals and common plans; political transparency and involvement, relations between regions; community involvement; the seeking to improve the quality of life of the population in cooperation strategies, increasing the attractiveness of the border region for living.	
Kurowska-Pysz, *et. al.* (2018)	Relevant values of partners, equal involvement of partners, clear and acceptable expectations.	Inadequate communication methods between partners, unequal involvement and cooperation of partners, insufficient resources and opportunities to develop cross-border cooperation, unfavourable legal regulation, unfavourable economic and social situation.
Vulevic, *et. al.* (2020)		Governance arrangements, administrative procedures, legislative differences (e.g. custom procedures and taxation rules).

Table 3
Factors that promote and hinder cross-border cooperation

Source: *Author's*

(Kurowska-Pysz, *et al.* 2018; Castanho, 2019; Castanho, *et. al.* 2019) emphasize that international cooperation must be based on three, rather than one or two, aspects of sustainability: economic, social and environmental. Comprehensive evaluation of the goal and result of the cooperation allows to involve all stakeholders (institutions, business, researchers, community, non-governmental organizations) and allows to implement cooperation strategies on the principle of co-creation. This is stated by Castanho (2019), who proposes a smart cross-border planning process for the development of a cross-border cooperation strategy, i.e. focus not on a few problematic areas in the regions, but on a broader strategy that meets social, economic, and environmental needs.

In order to reduce the threats posed by internal barriers, Kurowska-Pysz, *et. al.* (2018) proposes that stakeholders in the cooperating regions be provided with timely expertise and information on the conditions for cross-border cooperation, its development models, and the benefits of such cooperation. According to the authors, this will encourage the involvement of stakeholders, which will determine the viability of the cooperation network.

Thus, it is necessary to emphasize that the nature of cooperation between regions is changing in order to increase the well-being of the population: neither competition, nor the competitive advantages of individual countries, are important, but cooperation. Through cooperation, regions have identified their strengths and weaknesses, identified areas where they have gained a competitive advantages, on which they can focus and combine to achieve shared global benefits.

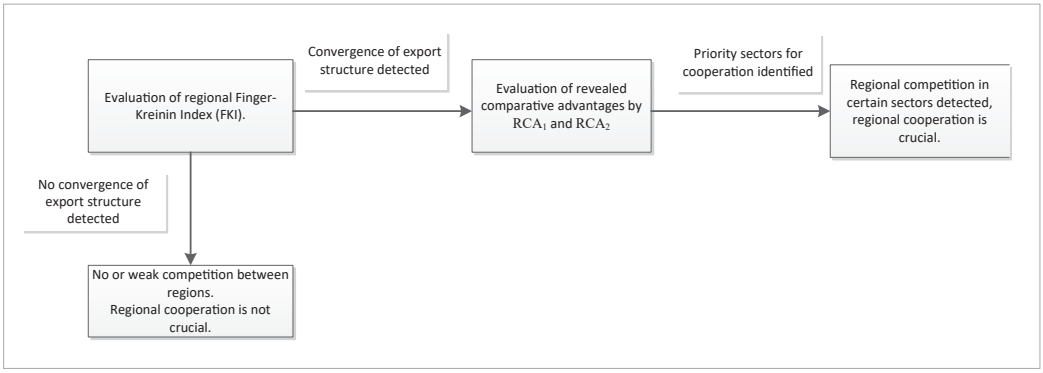
Data and methodology

After systematizing the results of the subject literature, the authors propose to increase the competitiveness of border regions based on the principle of cooperation, taking into account the assessment of different indicators of international trade of regions. The article is based on the methodological scheme presented in Figure 1.

In order to analyse, compare and evaluate the foreign trade indicators of the studied countries for comparative advantage, it is appropriate to first determine the similarity of the export structure

Figure 1
Methodological scheme of the study

Source: *Author's*



of the countries. The FKI is used to determine the similarity of the export structure. The FKI is calculated according to the formula below, which estimates the similarity of the export of the two countries '*i*' and '*j*' to the market '*k*', where '*X*' indicates the export of *1* priduct.

$$S(ij,\ k) = \left\{ \sum_{1} \min\left(X^{1}_{ik} / X_{tik} \right), \left(X^{1}_{jk} / X_{tjk} \right) \right\} \cdot 100 \qquad (1)$$

S(ij,k) – FKI index;
X^{1}_{ik} / X_{tik} - Part of the product *1* from country *i* to country *k*;
X^{1}_{jk} / X_{tjk} - Part of the product *1* from country *j* to country *k*;

The resulting index values range from 1 to 100. If the resulting FKI value is 0, it shows completely different export structures of the countries, if the resulting FKI value is 100, it shows the complete similarity of the countries' exports. Since the paper analyses a period of several years, if the value of the index increases during the study period, it indicates the convergence of the export structure of both countries with increasing competition between them. If the value of the index decreases during the period under review, it indicates a growing level of specialization between the countries and increasingly complementary trade relations.

According to Maryam, Banday, and Mittal (2018), the FKI is used to understand the comparative strengths and weaknesses of the analysed states vis-à-vis other countries. This is a certain starting point from which to determine whether competitive or complementary trade relations have developed between the countries during the period studied. To determine in which sectors the countries studied had a comparative advantage, indicators determining the level of comparative advantage are used: the standard Balassa RCA model (hereinafter - RCA_1) and the modified RCA model (hereinafter - RCA_2) proposed by Vollrath (1991).

$$RCA_1 = \frac{X_{ij} \Big/ X_{it}}{X_{wj} \Big/ X_{wt}} \qquad (2)$$

RCA_1 - standard Balassa RCA model
X_{ij} - export of product *j* of country *i*;
X_{it} - total export of the country *i*;
X_{wj} - global export of the product *j*;
X_{wt} - total global export.

If the index value obtained is greater than one, this means that a country's share of exports of a particular product is higher than its corresponding share in the group of countries in question. Then, according to Bender and Li (2002), it can be argued that a country specializes in the export of a particular product and has a comparative advantage over the study base. When the value of the indicator is equal to one, it indicates that a country has a neutral comparative advantage, which means that a country's position vis-à-vis position of the other countries is average. When the value of the indicator is less than one, the situation of a country is worse than that of other countries.

In an article by Andreosso-O'Callaghan (2008) analyzing foreign trade, he proposed the use of a modified RCA_2 model to evaluate RCA_1 outcomes. According to Vollrath (1991), positive RCA_2 values indicate that the country has a relative comparative advantage, negative that the country does not have a relative comparative advantage. The relative comparative advantage of RCA_2 is calculated using the following formula (3).

$$RCA_2 = \frac{X_{ij} \Big/ X_{it}}{X_{wj} \Big/ X_{wj}} - \frac{M_{ij} \Big/ M_{it}}{M_{wj} \Big/ M_{wj}} \tag{3}$$

RCA_2- standard Balassa RCA model
M_{ij} - export of product *j* of country *i*;
M_{it} - total export of the country *i*;
M_{wj} - global export of the product *j*;
M_{wt} - total global export.

As mentioned above, the Lafay index is used to assess the contribution of a given sector to the trade balance in order to eliminate cyclical factors According to Zaghini (2003), the Lafay index is calculated for country '*i*' in the production of the relevant product '*j*' according to the following formula:

$$LFI_j^i = 100 \left[\frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^{N} \left(x_j^i - m_j^i \right)}{\sum_{j=1}^{N} \left(x_j^i + m_j^i \right)} \right] \cdot \frac{x_j^i + m_j^i}{\sum_{j=1}^{N} \left(x_j^i + m_j^i \right)}; \tag{4}$$

x_j^i - export of product *j* of country *i*;
m_j^i - import of product *j* of country *i*;

As this index measures the contribution of each group to the total trade balance, for this reason:

$$\sum_{j=1}^{N} LFI_j^i = 0 \tag{5}$$

If the calculated value of the Lafay index is positive, then the product has a comparative advantage. The higher the value of this index, the higher the level of specialization. If the calculated indicator is negative, it means that the country does not have a comparative advantage.

In order to determine the level of similarity of the Lithuanian and Latvian export structure and to assess the countries' relative advantage in trade with the EU countries, the data on exports and imports to the 28 EU countries provided by Eurostat were used. The SITC06 classification provided by Eurostat was chosen for the study, according to which the groups of foreign trade products are divided into the following main groups: food, beverages, tobacco; raw materials; mineral fuel,

lubricants, other materials; chemical products; other manufactured goods; machinery and transport equipment; other products not classified elsewhere. Total number of observed elements: 480. Table 4 provides descriptive statistics for indicators which have the biggest share of export and import in Lithuania and Latvia.

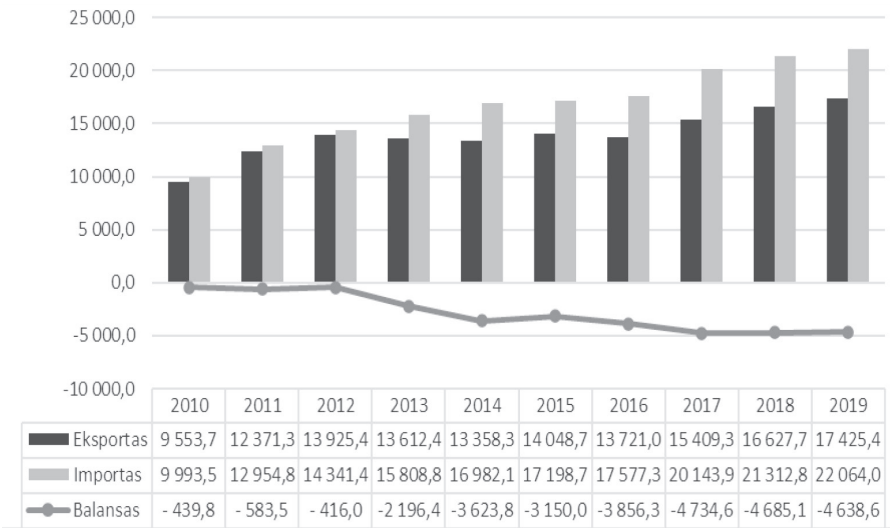
Table 4
Descriptive statistics
Source: Author's

Data descriptive statistics	Mean	Median	Maximum	Minimum	Std. Dev.
Total export LT	14005.32	13823.20	17425.40	9553.700	2203.383
Total export LV	7532.960	7675.600	9445.400	4839.100	1347.204
Total import LT	16837.73	17090.40	22064.00	9993.500	3773.887
Total import LV	10642.46	10644.85	13157.40	6713.900	1798.611
Export LT chemicals and related products	2238.56	2280.40	2791.90	1401.90	397,368
Export LT food drinks and tobacco	2392.980	2373.150	3243.500	1533.000	559,739
Export LT machinery and transport equipment	1998.750	1901.350	3079.700	1161.200	701,723
Export LT mineral fuels, lubricants and related materials	2745.930	2414.850	4560.200	1607.900	991.3006
Export LT other manufactured goods	3797.450	3688.450	5214.800	2407.400	947,104
Export LV food drinks and tobacco	1080.780	1080.450	1439.200	672.0000	238.3018
Export LV machinery and transport equipment	1623.430	1776.900	2076.300	919.1000	376.7030
Export LV other manufactured goods	2440.080	2364.050	3027.900	1650.100	410.9593
Export LV raw materials	1195.620	1151.800	1519.800	948.0000	165.9557
Import LT chemicals and related products	3027.750	3008.550	3939.300	2024.800	589.0029
Import LT food drinks and tobacco	2634.530	2771.200	3100.200	1819.000	398.0404
Import LT machinery and transport equipment	5693.930	5721.750	7914.500	2968.900	1563.139
Import LT other manufactured goods	4213.320	4381.850	5501.000	2555.900	970.1787
Import LV chemicals and related products	1360.070	1320.550	1718.900	1000.700	221.7128
Import LV food drinks and tobacco	1841.840	1807.350	2499.600	1207.700	394.9892
Import LV machinery and transport equipment	3218.680	3281.250	4055.600	1775.100	663.3830
Import LV other manufactured goods	2754.79	2778.85	3365.30	1768.80	426.84
Import LV raw materials	455,670	461.10	559.80	298.50	74,162

Lithuanian exports in the analysed period averaged 14005.32 million Euros and fluctuated from 9553.7 to 17425.40 million Euros. Latvia's export was lower, averaged 7532.96 million Euros during the period analysed and fluctuated in a similar range from 4839.1 to 9445.4 million Euros. In Lithuania, import was also higher and averaged 16837.73 million Euros, and in Latvia - 10642.4 million Euros. Other manufactured goods accounted for the largest share of export in both countries, while machinery and transport equipment accounted for the largest share of import. Thus, the structure of export and import in both countries is similar. The stationarity of the indicators was tested and the results of the unit root test confirmed that all the indicators had stationary time lines. The calculations were performed using the econometric software EViews 12.

The presented figures (see Figures 2 and 3) show the foreign trade of Lithuania and Latvia with the EU countries.

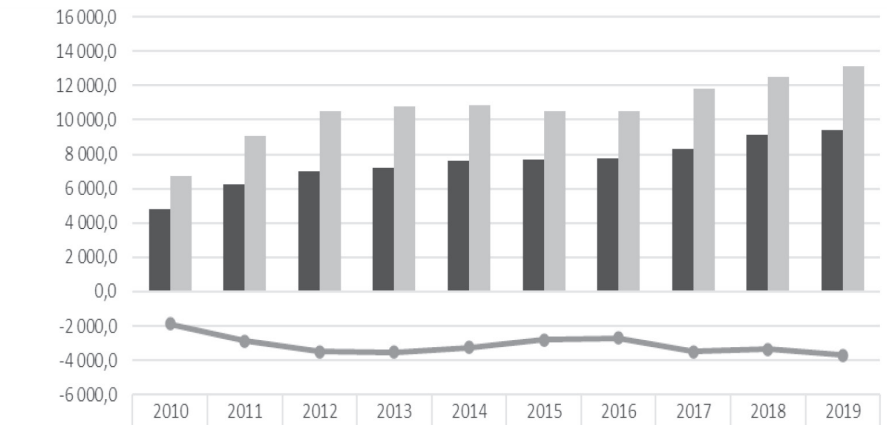
Volumes of Lithuania's foreign trade with the EU in 2010-2019 were higher than in Latvia. Both Lithuania and Latvia had a negative foreign trade balance throughout the analysed period, and this negative indicator was growing every year. At the beginning of the analysed period, Lithuania's negative foreign trade balance was not large, on average amounted to -479.77 millions Euros in 2010-2012., and Latvia's -2745.23 million Euros. In 2013 - 2019 Lithuania's negative foreign trade balance averaged -3840.69 and became higher than Latvia's -3265.61. Thus, both Lithuanian and Latvian foreign trade followed similar trends: both exports and imports grew in both countries, and both countries had a negative growing foreign trade balance.



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Eksportas	9 553,7	12 371,3	13 925,4	13 612,4	13 358,3	14 048,7	13 721,0	15 409,3	16 627,7	17 425,4
Importas	9 993,5	12 954,8	14 341,4	15 808,8	16 982,1	17 198,7	17 577,3	20 143,9	21 312,8	22 064,0
Balansas	- 439,8	- 583,5	- 416,0	-2 196,4	-3 623,8	-3 150,0	-3 856,3	-4 734,6	-4 685,1	-4 638,6

Figure 2
Lithuania 's foreign trade with the EU
2010 - 2019 million Euros

Source: Eurostat (2020)



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Eksportas	4 839,1	6 226,8	6 983,0	7 236,0	7 643,0	7 708,2	7 780,4	8 324,4	9 143,3	9 445,4
Importas	6 713,9	9 087,1	10 483,6	10 761,6	10 892,1	10 528,1	10 492,6	11 815,0	12 493,2	13 157,4
Balansas	-1 874,8	-2 860,3	-3 500,6	-3 525,6	-3 249,1	-2 819,9	-2 712,2	-3 490,6	-3 349,9	-3 712,0

Figure 3
Latvia's foreign trade with the EU
2010 - 2019 million Euros

Source: Eurostat (2020)

Results

Calculations of the FKI for 2010-2019 showed (Table 5) that the value of the index is high, which proves the convergence of Lithuanian and Latvian export structure and during the analysed period the value of this index had increasing tendency. Calculation results show the increasing competitiveness of Lithuania and Latvia for exporting the products of analysed sector.

Table 5

Lithuanian, Latvian FKI 2010-2019

Source: Author's

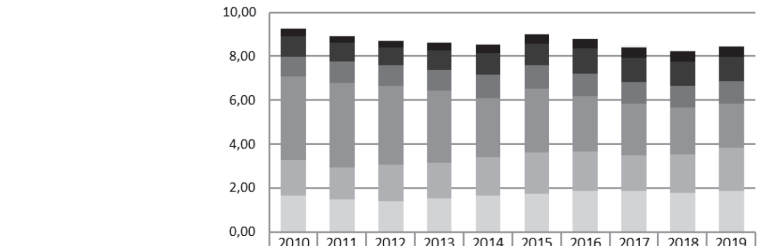
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
USA		15.5%	14.4%	15.1%	15.6%	17.5%	18.1%	19.0%	18.9%	17.7%	
China	51%	52%	51%	52%	50%	50%	49%	49%	47%	46%	46%

As the convergence of export structure was proved we continue further with the analysis in order to distinguish the export specialization by calculating RCA_1 index. Results of RCA_1 index (see Figures 4 and 5) indicate that both Lithuanian and Latvian foreign trade specialization in relation to the EU followed similar trends. Both countries mainly specialized and had a competitive

Figure 4

RCA_1 index of Lithuania for 2010 - 2019.

Source: Author's

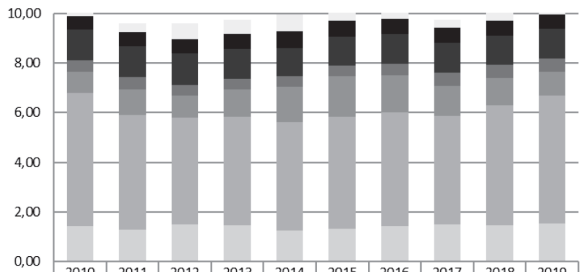


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	0,01	0,01	0,03	0,03	0,04	0,06	0,04	0,08	0,03	0,03
Machinery and transport equipment	0,35	0,31	0,30	0,32	0,37	0,41	0,43	0,47	0,47	0,47
Other manufactured goods	0,93	0,85	0,84	0,90	0,99	1,02	1,11	1,09	1,12	1,11
Chemicals and related products, n.e.s.	0,90	0,98	0,93	0,95	1,05	1,05	1,05	1,01	1,01	1,00
Mineral fuels, lubricants and related materials	3,79	3,85	3,61	3,29	2,70	2,89	2,53	2,34	2,12	2,04
Raw materials	1,63	1,46	1,63	1,65	1,77	1,90	1,78	1,62	1,75	1,96
Food, drinks and tobacco	1,66	1,49	1,41	1,50	1,64	1,72	1,87	1,86	1,78	1,85

Figure 5

RCA_1 index of Latvia for 2010 - 2019

Source: Author's



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	0,19	0,35	0,64	0,60	0,68	0,45	0,35	0,32	0,42	0,38
Machinery and transport equipment	0,54	0,56	0,58	0,60	0,66	0,64	0,63	0,59	0,60	0,59
Other manufactured goods	1,26	1,26	1,27	1,19	1,15	1,15	1,18	1,23	1,20	1,19
Chemicals and related products, n.e.s.	0,45	0,48	0,42	0,42	0,41	0,45	0,49	0,52	0,52	0,55
Mineral fuels, lubricants and related materials	0,86	1,03	0,91	1,12	1,45	1,63	1,49	1,21	1,10	0,97
Raw materials	5,37	4,62	4,29	4,36	4,36	4,52	4,59	4,37	4,83	5,17
Food, drinks and tobacco	1,43	1,29	1,51	1,47	1,24	1,32	1,41	1,49	1,47	1,51

advantage in the export of the same products: food, beverages, tobacco, raw materials, mineral fuels, and lubricants.

Based on the calculated value of the RCA_1 index Lithuania in 2010-2019, compared to other sectors, had the largest relative comparative advantage in the export of mineral fuels, lubricants, and other materials. However, a negative trend was observed, i.e. each year the value of the RCA_1 index in this group of products decreased, which means a decreasing relative comparative advantage. During the analysis of the share of mineral products' exports to the EU, it was found that in 2010-2014, exports of mineral fuels, lubricants, and other materials accounted for 27.7% of the entire export structure. However in 2015-2019 this figure shrunk twice and to 13.0%. The decrease in the indicator was due to the fact that export volumes increased throughout the period, i.e. when compared 2019 to 2010, it was found that total exports to the EU increased by 82.4%, but after comparing changes in mineral fuels, lubricants, and other materials during the respective period, it was found that it decreased by 18.4%. The other two groups of products in which Lithuania had the largest relative comparative advantage in 2010-2019, were: food, beverages, tobacco (average value of the indicator was 1.68), and raw materials (average value 1.71). During the analysis of the share of food, beverages, and tobacco exports to the EU, it was found that in 2010-2019, export of the goods from these groups accounted for an average of 16.9% and raw materials for 5.9% of the entire export structure.

Latvia based on the calculated value of the RCA_1 index in 2010-2019. compared to other sectors, had the largest relative comparative advantage in exports of raw materials. The value of the RCA_1 index of raw materials was the highest in the Baltic States. However, the calculation showed that in 2010-2019 Latvia's exports of raw materials accounted for only 16.1% of the entire export structure. The large value of the relative comparative advantage RCA_1 was due to the fact that EU raw material export to other countries averaged 3.5%. Latvia, like Lithuania, had the largest relative comparative advantage in 2010-2019 in the export of food, beverages, tobacco (average value of the indicator was 1.41), and mineral fuels (average value 1.18). During the analysis of the share of food, beverages, and tobacco exports to the EU, it was found that in 2010-2019, export of the goods from these groups accounted for an average of 14.3%, while mineral fuel and lubricants for 7.8% of the entire export structure. Latvia had also had a relative comparative advantage in exports of other manufactured goods (the average value of the indicator was 1.21).

Thus, comparing the relative comparative advantage of Lithuania and Latvia according to the RCA_1 indicator, it was established that the states had an advantage in the same groups of goods (food, beverages, tobacco; raw materials, mineral fuels, and lubricants' export). Latvia also had an advantage in the export of other manufactured goods, and Lithuania's position in relation to these groups of products was neutral. This proves once again that there is strong competition between Lithuania and Latvia for exports to EU countries.

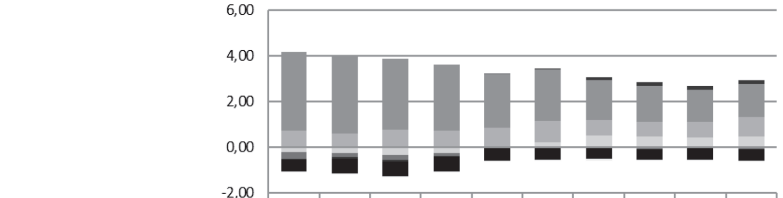
Calculations of RCA_2 index for 2010-2019 were also performed in order to evaluate the relative comparative advantage of the countries (see Figures 6 and 7 p.152).

Based on Figures 6 and 7 according to the RCA_2 index, it was found that in both Lithuania and Latvia, positive RCA_2 values were obtained in those product groups where RCA_1 values were the highest. Lithuania had the biggest relative comparative advantage in terms of RCA_2 in exports of mineral fuels, lubricants, other materials (the average value of the RCA_2 index for the period of 2010-2019 was 2.34), and raw materials (the average value of the RCA_2 index was 0.75). After evaluating the imports, it was established that in foreign trade of food, beverages, and tobacco, Lithuania has gained a relative comparative advantage RCA_2 since 2014, other manufactured goods - since 2015.

Figure 6

RCA_2 index of Lithuania for 2010 - 2019.

Source: Author's

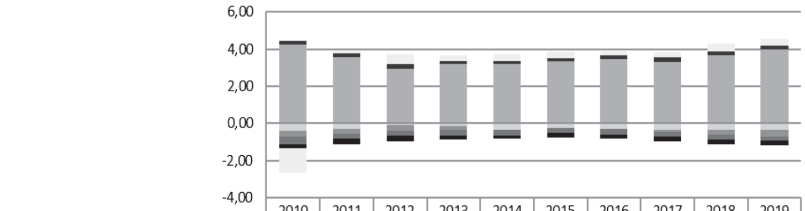


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	-0,04	-0,05	-0,01	-0,02	-0,02	-0,06	-0,07	0,00	-0,03	-0,04
Machinery and transport equipment	-0,50	-0,64	-0,65	-0,63	-0,59	-0,51	-0,49	-0,48	-0,49	-0,48
Other manufactured goods	-0,05	-0,08	-0,09	-0,05	-0,02	0,05	0,14	0,14	0,17	0,15
Chemicals and related products, n.e.s.	-0,31	-0,18	-0,19	-0,12	0,01	-0,03	-0,02	-0,06	-0,05	-0,08
Mineral fuels, lubricants and related materials	3,42	3,38	3,07	2,87	2,33	2,23	1,72	1,58	1,40	1,43
Raw materials	0,73	0,61	0,79	0,75	0,84	0,93	0,67	0,62	0,68	0,86
Food, drinks and tobacco	-0,20	-0,22	-0,35	-0,25	0,01	0,22	0,52	0,50	0,42	0,48

Figure 7

RCA_2 index of Latvia for 2010 - 2019.

Source: Author's

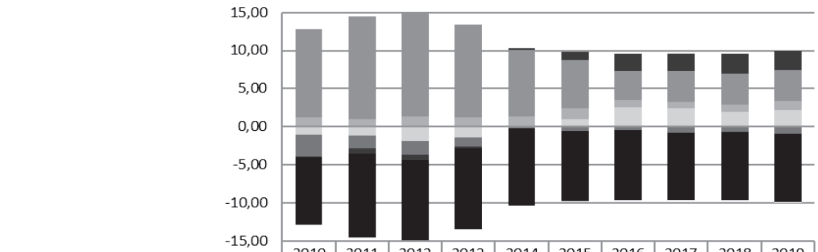


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	-1,27	0,12	0,54	0,34	0,39	0,36	0,20	0,26	0,41	0,37
Machinery and transport equipment	-0,21	-0,30	-0,30	-0,22	-0,18	-0,24	-0,23	-0,27	-0,25	-0,24
Other manufactured goods	0,25	0,22	0,25	0,15	0,13	0,17	0,20	0,28	0,24	0,21
Chemicals and related products, n.e.s.	-0,44	-0,28	-0,30	-0,32	-0,31	-0,30	-0,31	-0,28	-0,27	-0,24
Mineral fuels, lubricants and related materials	-0,30	-0,25	-0,30	-0,18	0,00	0,04	0,03	-0,10	-0,28	-0,36
Raw materials	4,23	3,56	2,94	3,20	3,22	3,31	3,46	3,28	3,66	3,99
Food, drinks and tobacco	-0,40	-0,31	-0,07	-0,15	-0,34	-0,22	-0,27	-0,32	-0,32	-0,34

Latvia, based on the calculated value of the RCA_2 index, had the largest relative advantage in raw materials 2010-2019 (the average value of the RCA_2 index during the period of 2010-2019 was 3.48) when compared to other sectors. Latvia also had a small relative comparative advantage in foreign trade in other manufactured goods (the average value of the RCA_2 index during the period of 2010-2019 was 0.21), and since 2011 Latvia had a relative comparative advantage in exports of other products not classified anywhere else (the average value of the RCA_2 index during the period of 2011-2019 was 0.33). However, RCA_2 showed that after assessing imports over the period under review, Latvia did not have a relative comparative advantage in foreign trade of food, beverages, and tobacco.

In summary, it can be stated that after assessing the volume of imports, it was found that both countries had relative comparative advantages in those product groups where RCA_1 values were the highest, Lithuania in exports of mineral fuels, lubricants, other materials, and raw materials, Latvia in exports of raw materials. This shows that the countries also compete for imported goods.

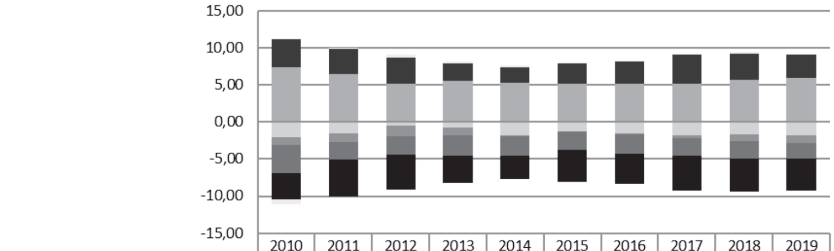
The Lafay index was used to assess the relative comparative advantage of the countries (see Figures 8 and 9).



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	-0,02	-0,02	0,00	0,00	0,00	-0,01	-0,02	0,01	-0,01	-0,01
Machinery and transport equipment	-8,77	-10,99	-10,82	-10,62	-10,14	-9,25	-9,15	-8,78	-8,92	-8,97
Other manufactured goods	-0,19	-0,61	-0,78	-0,28	0,21	1,04	2,26	2,26	2,66	2,46
Chemicals and related products, n.e.s.	-2,79	-1,72	-1,78	-1,19	-0,15	-0,52	-0,41	-0,76	-0,71	-0,90
Mineral fuels, lubricants and related materials	11,64	13,42	13,82	12,17	8,73	6,30	3,82	4,00	4,06	3,98
Raw materials	1,21	1,06	1,41	1,28	1,34	1,39	0,90	0,88	0,96	1,19
Food, drinks and tobacco	-1,08	-1,14	-1,85	-1,36	0,01	1,04	2,59	2,40	1,96	2,25

Figure 8
Lafay Index of Lithuania for 2010 - 2019

Source: Author's



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Commodities and transactions not classified elsewhere in the SITC	-0,64	0,11	0,36	0,22	0,27	0,20	0,13	0,13	0,15	0,15
Machinery and transport equipment	-3,62	-4,99	-4,73	-3,66	-3,16	-4,28	-4,14	-4,78	-4,50	-4,30
Other manufactured goods	3,77	3,42	3,56	2,39	2,05	2,70	3,03	4,05	3,62	3,15
Chemicals and related products, n.e.s.	-3,73	-2,30	-2,45	-2,65	-2,62	-2,54	-2,62	-2,38	-2,35	-2,07
Mineral fuels, lubricants and related materials	-1,15	-1,23	-1,49	-1,06	-0,13	-0,04	-0,12	-0,40	-0,92	-1,02
Raw materials	7,37	6,48	5,21	5,54	5,34	5,18	5,20	5,12	5,68	5,91
Food, drinks and tobacco	-2,00	-1,48	-0,45	-0,78	-1,75	-1,21	-1,47	-1,74	-1,69	-1,83

Figure 9
Lafay Index of Latvia for 2010 - 2019

Source: Author's

The Lafay index, same as RCA_1 and RCA_2, shows similar trends for both countries during the period under review. The calculation showed that according to the Lafay indicator, Lithuania had a comparative advantage in the export of mineral fuels, lubricants, other materials, and raw materials during the period under review. Lithuania, since 2014, has also had a comparative advantage in the foreign trade of other manufactured goods and food, beverages, and tobacco. According to the Lafay indicator, Latvia, throughout the period under review, had a comparative advantage in foreign trade of raw materials and other manufactured goods. Latvia, as of 2011, had also have a comparative advantage in the foreign trade of other products not classified elsewhere.

Thus, in summary, it can be stated that without assessing the impact of imports, the common points of contact between Lithuanian and Latvian foreign trade in the context of the EU are types of economic activities of food, drinks, tobacco; raw materials, and mineral fuels. Promoting these areas by strengthening economic cooperation between countries can help countries become more competitive in the EU context. If the volume of imports from the EU is taken into account, then the common points of contact are determined in the exports of raw materials and other

manufactured goods. This is the starting point for cross-border cooperation planning, as priority industrial sectors have been identified where cross-border cooperation is appropriate. It is important to emphasize that these results are not static and will change over time, especially after the commencement of cooperation, so the methodological logic proposed by the authors of the article allows for a timely evaluation of both countries and, based on the results of the analysis, as a measure of monitoring, should ensure a flexible adjustment of cooperation measures or a shift in priorities.

The results allow to provide strategic recommendations aimed at the development of joint common points of contact based on the principle of cooperation, so that it would strengthen the joint competitiveness of Lithuania-Latvia as a border region instead of Lithuania and Latvia competing separately.

Recommendations

The calculated results confirmed that only by promoting cross-border cooperation between Lithuania and Latvia, it is possible to ensure joint competitiveness of these countries in the international market. According to the authors, in order for cooperation to be successful and achieve its goals, it should take place in a way that ensures the cooperation of all stakeholders and seek the common good of the border region. This requires that:

- Cooperation would be understood as a long-term and focused (not chaotic) process that requires agility and smartness in making strategic decisions.
- Development of cooperation strategies would involve business, government, NGOs, and academia through networking. The cooperation strategy should be shaped by listening to the needs of the business.
- The cooperation strategy must classify measures into different levels: cross-border region, sector, country. The guidelines must be defined by local institutions working together with all groups of interest.
- The cooperation strategy should identify the specific strengths of the cross-border region (each country complementing other's competitive advantages), which would be exploited as strengths for international development, and treat weaknesses as new opportunities to promote business development.

The authors, taking into account the suggestions from the subject literature and the calculations made in the empirical part, provide strategic recommendations to the authorities of the countries on what measures are crucial in order to increase cross-border cooperation (see Table 5).

The measures identified are intended to be implemented at both governmental (cooperation) and institutional (stakeholder involvement, management of the cooperation process) levels. Proposed measures are in line with durability of Interreg Latvia-Lithuania CBC program 2014-2020 and the Interreg Border Orientation Paper Latvia-Lithuania 2021-2027, specifically with the orientation points for growth, competitiveness and connectivity. These cooperation measures will ensure the durability of results which were achieved implementing Interreg Latvia-Lithuania CBC program 2014-2020 and will be the guidelines for sustainable cooperation planning and management in next programming period – 2021-2027. The measures should be integrated in development of cross-border region strategy, and the authors for maximum results propose to follow the stages in the process of developing a cross-border cooperation strategy offered by Kurowska-Pysz et al (2018). The sequence of the planning process will assure involvement of different institutions, real time monitoring and assurance of vital network between the interest parties. Authors also emphasize that the success of the implementation of the measures will depend not only on the prepared documents and timely evaluations, but also on the institutional

Strategic directions	Measures
Smartness of cross-border region	» Identification of cross-border region specifics and development of cooperation strategies by setting joint priorities. Continuous monitoring, analysis and assessment and updating of the cross-border region's competitive advantages in individual sectors and business environment.
Networking	» Regular organization of meetings between business, academia, and the public sector institutions in various forms. » initiation of educational events for scientific and business institutions, during which the inventions created by academia and methods how to apply them in business would be introduced. » Involvement of education and science, business and public institutions in the development of joint projects for the transfer of knowledge and its practical application according to the example of business enterprises. » Promotion of cross-border centers of excellence and innovation technologies and exchange centers. » Encouraging research and study institutions to carry out research and experimental development activities with commercial potential. » Organization of forums and fairs to encourage business and science to establish initial contacts, encourage companies to be more active in innovation and take advantage of opportunities provided by cooperation. » Initiation, participation and co-financing of ideas and projects aimed at the increase of productivity.
Quality of public services	» Joint development and implementation of business acceleration, entrepreneurship and apprenticeship programmes; » Transfer of good practices, joint trainings and exchange of staff between cross-border institutions for the purpose of acquiring strategic leadership competencies in order to anticipate and manage future changes and mobilize the necessary resources in the cross-border region.

Table 5
Factors that promote and hinder cross-border cooperation

Source: Author's

and personal competencies, which are related to the ability to solve the problems without deviating from the implementation of the cooperation priorities.

Conclusions

1 The development of a cross-border cooperation strategy to strengthen economic cooperation between countries, including the analysis of countries' foreign trade indicators, identifies those economic activities in which the countries concerned have a relative comparative advantage and identifies common targeted economic activities that could be promoted. The use of indicators FKI, RCA1, RCA2, and Lafay is an appropriate tool to assess the areas of competition between the parties and to determine the directions of cross-border cooperation. The long-term trends in the trade relations of the analysed countries are determined on the basis of the FCI, and the indicators of RCA_1, RCA_2, and Lafay show sectors in which the studied countries had a relative comparative advantage.

2 The FKI has shown that there is a convergence of the structure of Lithuanian and Latvian export to EU countries with increasing competition between these countries. The results of RCA_1 and RCA_2 indicators also confirmed the competition between Lithuania and Latvia not only for export of goods, but also for imported goods. The Lafay Index confirmed strong competitive trends and allowed for the refinement of sectors, where both countries have a competitive advantages. The results of the study allowed to identify priority industrial sectors for cross-border cooperation in order to minimize losses due to competition, and the principle of cooperation combines advantages and thus increases the competitiveness of Lithuania-Latvia as a border region.

3 The methodology of the article proposed by the authors is universal for all regions and allows to perform not only initial but also timely assessment of regions over time. From an institutional point of view, this instrument kit is suitable for use as a monitoring tool, which should ensure a flexible adjustment of cooperation instruments or a shift in cooperation priorities.

4 The results of the calculations confirmed that only promotion of cross-border cooperation between Lithuania and Latvia can ensure the joint competitiveness of these countries in the international market, provided that the cooperation of all stakeholders takes place and the common prosperity of the border region is sought. Proposed cooperation measures will ensure the durability of results which were achieved implementing Interreg Latvia-Lithuania CBC program 2014-2020 and will be the guidelines for sustainable cooperation planning and management in next programming period – 2021-2027. The success of the proposed measures at governmental and institutional levels (management of the cooperation process) will largely depend on institutional and personal competencies and value priorities in terms of the ability to address emerging issues without deviating from the objectives pursued.

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