

# РЕКРЕАЦИОННАЯ ГЕОГРАФИЯ И ТУРИЗМ

UDK 379:85

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## THE IMPACT OF DEVELOPMENT OF TOURISM INFRASTRUCTURE ON THE ECONOMY OF BORDER REGION (LITHUANIAN CASE)

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*The main focus of the paper is on the impact and it's evaluation of the development of tourism infrastructure on the economic development and regional integration of the border region less attractive from the tourism perspective. The concept of the border region, the methodological suggestions about the analysis of cross-border economy, the theoretical analysis of the impact of physical infrastructure development on attractiveness of a region for tourists are presented in the article. The empirical analysis was done by analyzing the alternatives of setting up the 2<sup>nd</sup> class camping or 4<sup>th</sup> class camping in Lithuanian border region, which has borders with Poland. The financial and economic-social analyses of the alternatives are also provided and conclusions are done.*

**Introduction.** A modern state border is a relatively new phenomenon. Several decades ago, when Lithuania was part of Soviet Union, the state border with Poland was exclusively of an isolated and barrier nature and satisfied the needs of the former Soviet Union, but not Lithuania's needs. With Lithuania's regaining independence and establishment of the real state borders with their regulating and barrier functions, the socio-economic structure and links of the border regions have essentially changed, thus changing many border regions, previously existing as peculiar sub-regions among centers of attraction, functioning in different republics, into peripheral regions. After Lithuania and Poland becoming the European Union member-states in 2004, the traditional functions of separating the states diminished, thus establishing opportunities for the development of cross-border economy and border cooperation.

The regional policy of the European Union is aimed at reducing economic and social inequalities of the European Union regions and ensuring a balanced development of the whole territory. Significant regional economic, social, infrastructural differences as well as differences in natural conditions, affecting the general economic and social development of the states, are characteristic to both Lithuania and Poland. In both countries major poles of economic attraction have formed, with concentration of inhabitants, science, culture as well as a rapidly developed technical and engineering infrastructure within the regions. Aiming to ensure a sustainable development of the whole country, the attention should also be focused on the regions remote from the poles of economic attraction and solution of their problems. Some of them include border regions, which are commonly not attractive from the tourism perspective, and which, due to the existing geographic, natural, historic and economic conditions, play the role of transit areas.

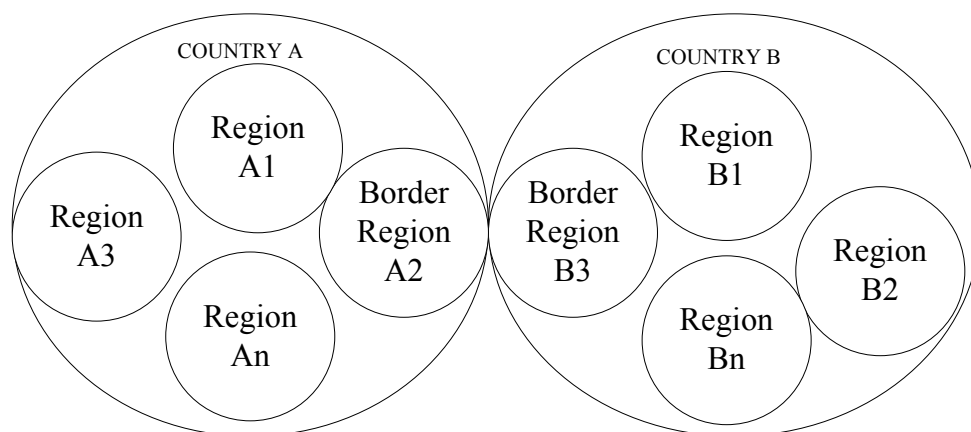
Instruments of regional policy of the European Union are aimed at both a sustainable development of all regions and further integration of the European Union. One of the ways,

financed by the European Union, promoting the social and economic development of border regions involves the development of the border region infrastructure, establishing conditions for regional cooperation in the spheres of tourism, sport, and business, solution of social and environmental problems as well as other spheres.

*The objective of the article* – to evaluate the impact of the development of tourism infrastructure on the economic development and regional integration of the border region less attractive from the tourism perspective.

*Methods of analysis:* Systematic, comparative and logic review of scientific literature, empirical analysis conducted by applying a systematic secondary data analysis.

**The concept of the border region.** The research done by the authors /1/ shows, that there are many definitions of a region in scientific literature. The concept of a region is used in a different context: geographic, cultural, political, economic, social etc. spheres. A wide interpretation of the concept emphasizes the specification of regional definition, used in an analysis of various problematic. The authors of the article define a region as a composite part of a larger economic social space, which differs from other surrounding territories in economic, social, demographic, cultural, natural, and infrastructure systems connected by material and informational relations. In this article a region is understood as a part of the country. A particular number ( $n$ ) of regions compose the country. The border region is the region or  $n$  regions of the country, which have the border with another country and abut on the other regions from the other country (Fig. 1).



*Figure 1. Border region in the system of regions within the country*

In recent years the attention among economists to the concept of border regions increased. This was influenced by the fact, that the European Union by various programs (for instance Cross border cooperation programme Latvia-Lithuania-Belarus or Lithuania-Poland-Russia, etc.) supports financially the development and cohesion between the border regions.

Usually the economists analyze the problematic of asymmetrical relationships, effects of price differences and border arbitrage. Coats /2/ estimated the effect of state cigarette taxes on the cross-border sales of cigarettes. Garrett and Marsh /3/, Di Matteo and Di Matteo /4/ analysed the cross-border shopping behaviour. The cross-border effects of gasoline price differentials between European countries have been analysed by Rietveld et al. /5/, the problematic of fuel tourism in border regions was analyzed by Banfi, et al /6/. Krätke /7/ analyzed the problems of regional economic integration in the German- Polish border area, focusing on the nature and intensity of cross-border inter-firm linkages. The other authors /8–10/ the problem of border region analyzed indirectly - by investigate the spatial impact of integration, focusing usually on the development of regional disparities. Niebuhr, Stiller /11/ identified three groups of studies on the economics of borders and border regions: (1) which deals with the significance of border effects and their evolution in the course of integration; (2) which evaluates the spatial effects of economic

integration by investigating changes in regional accessibility; (3) where due to considerable integration efforts significant effects of economic adjustment can be expected. The authors of the article summaries, that the problematic of border region can be analyzed by 3 approaches: economic relations or flow; cross-border cooperation (social relations) and human relations and behavior.

The research done by the authors proved, that it is not enough to analyze the border region from the perspective of the national economy, as border region is a part of a transnational spatial fabric with a changing position in the system of regional economies. This proves that the concept of regional economic integration should be involved through all the process of economic analysis. The region integration of border regions can be observed, if the regions from both sides of the border are connected to each other. In terms of the regional economic it means that the inter-firm and inter-institution linkages and inter-investment activities are developed, products and services, human capital are exchanged (interregional trade and tourism is developed), technological and industrial competence, know-how are transferred, regulation on both sides of the border are adjusted and various activities are jointly coordinated (Fig. 2).

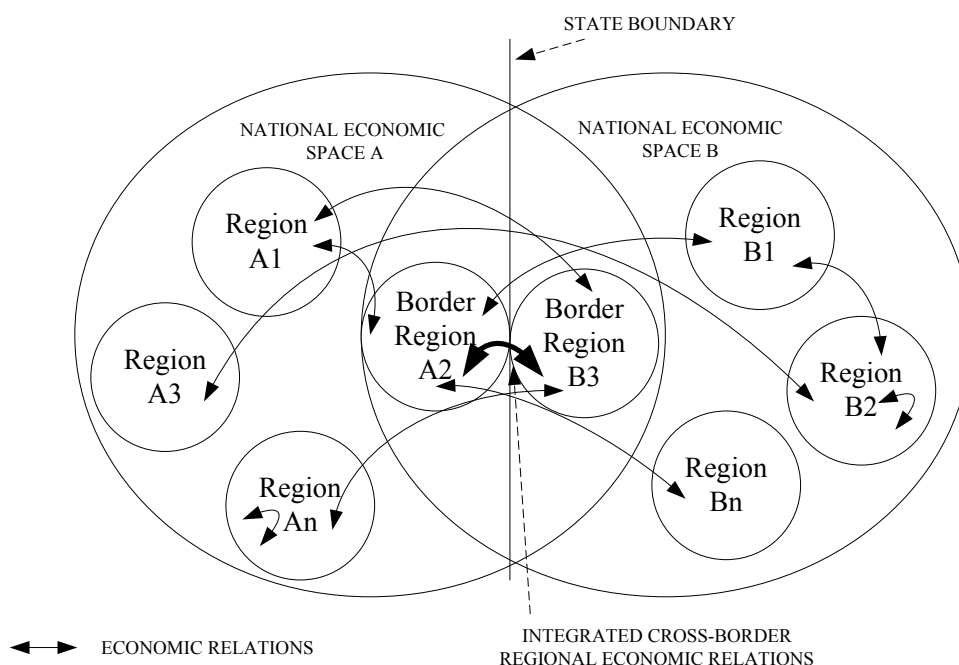


Figure 2. Border regions economic relations in the national economic space

The development of integrated cross-border economy could be promoted by integrated cross-border regional economic relations. These relations present the economic connection and cooperation between border regions on both sides of the border. In order to develop the economic relations, the conditions should be created, which stimulate the economic connection of border region. The scientists identify various economic, political, institutional, social, geographic, nature, cultural etc. conditions and factors, which stimulate economic development, cooperation and integration. One of the most tangible factors – physical infrastructure, – directly forming the attractiveness and accessibility of a region.

**The impact of physical infrastructure on integrated cross-border economy.** Recent scientific works focus on the issue of infrastructure in order to analyze the impact of investments to physical infrastructure on socio-economic development of a country or region. According to Gu and Macdonald /12/ public infrastructure enables geographic concentration of economic resources and provides wider and deeper markets for output and employment. Macdonald (2008) argues that public infrastructure can be generally understood as the foundation upon which the economy is built: if the public capital was removed from the economy, it would rapidly collapse. Many studies

proved positive correlation between socio-economic growth and infrastructure development /13–17/ although many authors contradict these conclusions because of the spillover effect of this interconnection.

There is no agreed single concept in scientific literature for determining the notion of infrastructure. The most common trends of infrastructure description formulation are based on its functions /18/: 1) Describing characteristics of infrastructure features; 2) Listing the structure (components) of infrastructure; 3) Distinguishing the types of ownership. Authors usually provide a broad definition of infrastructure essential functions which define its role and Torrisi /18/ calls this approach «functional». Fourie (2006) argues that infrastructure consists of two main elements – «capitalness» and «publicness». According to this specification, infrastructure would include goods that have capital character, but are not necessarily public. Author also suggests that infrastructure can be defined by the list of infrastructure goods such as: transport, energy supply, water, communications infrastructure and etc. /14/. Prud'Homme /19/ describes infrastructure as capital goods that provide services to both households and enterprises instead of being directly consumed, are lumpy, not incremental, have a long lifespan, are space specific and associated with market failures. These features make infrastructure different from other sectors. Torrisi /18/ distinguishes material and immaterial infrastructure which creates different value for households and enterprises. Material is understood as infrastructure which satisfies the needs and requirements of society: waterways, pipes, sewerage systems, roads, etc. Immaterial infrastructure is referred to innovation, development and education infrastructure (research centres, innovation networks, etc.). Economists and urban planners distinguish economic infrastructure and social infrastructure. Economic infrastructure is defined as the infrastructure that promotes economic activity, such as roads, highways, railroads, airports, sea and river ports, electricity, telecommunications, water supply and sanitation. According Cibinskiene /20/ economic infrastructure encounters business companies, services they provide, buildings and equipment which are used for service provision. Social infrastructure (such as schools, libraries, universities, clinics, hospitals, courts, museums, theatres, playgrounds, parks, fountains and statues) is defined as the infrastructure that promotes the health, education and cultural standards of the population – activities that have both direct and indirect impact on the welfare /14/. Academic scholars analysing the issue of infrastructure impact to great extent evaluate the direct impact of economic infrastructure. Due to statistical data limitation it is hard to evaluate indirect effect of social infrastructure and this issue is not popular in scientific literature.

Scientists do not use a single agreed set of infrastructure variables. Snieska and Simkunaite /14/ argue that authors of recent scientific literature operate a detailed understanding of infrastructure and they estimate the effect of different infrastructure sub-sectors and try to find the dependence between several variables. Authors mostly analyse these sectors of infrastructure: telecommunications, energy, transport and sanitation sectors. Researchers mostly operate with physical indicators of infrastructure because there is tendency in scientific literature that these indicators are more specular than monetary ones.

Public infrastructure and level of its development is crucial factor for regional attractiveness formation. Academic scholars usually analyse the issue of regional attractiveness from the perspective of three target groups: residents, investors and tourists. Definition of regional attractiveness can't be found in recent scientific literature and authors of this paper state, that regional attractiveness encounters resources of a region and its capability to sustain them, also regions ability to attract new resources. Attractive region gains competitive advantage in comparison with other regions which ensures regional development. This definition allows understanding attractiveness as cyclical process because attractive region draws new residents, investors and tourists, which mean that the result of attractiveness becomes input which causes result afterwards. Academic scholars, stating that infrastructure has crucial impact on region accessibility and attractiveness, mean that «infrastructure» is physical infrastructure which satisfies physiological and social needs of society (safety, mobility, education, information).

Authors of the article concluded that public physical infrastructure plays the main role forming image of a region to every group mentioned above. Authors provide theoretical model, which shows how development of infrastructure increases attractiveness of a region for tourists (Fig. 3).

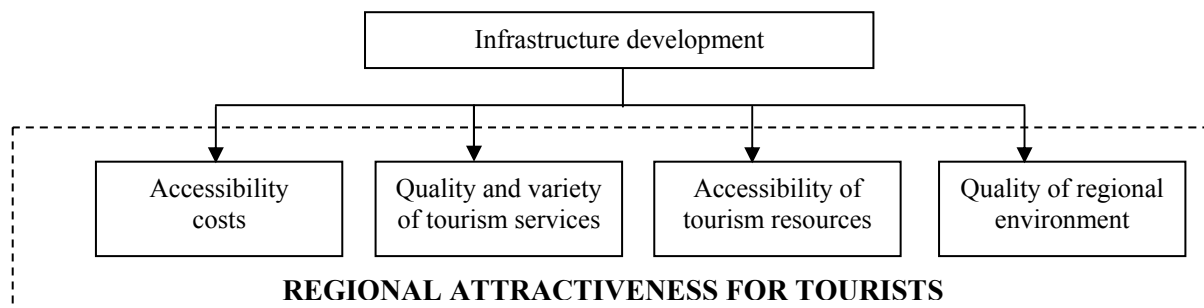


Figure 3. Impact of infrastructure development on attractiveness of a region for tourists

Authors of the article state, that investment in transport infrastructure and its development improve accessibility of a region and it leads to lower costs for potential tourists to reach certain tourism destination. Improved roads, new routes of airlines, railways or water transport allow visitors to reach a region with less effort and costs and makes region more attractive.

Improved local infrastructure (engineering networks: electricity, water, gas supply, sanitation and waste infrastructure) effects the main segment of tourism services: accommodation (hotels, hostels, self-catering, bed and breakfast, camping, etc.); nourishment (restaurants, cafes, bars, etc.); leisure and entertainment (clubs, theatres, concert halls, etc.). Quality of main tourism services depends on qualification of labour force, too. It is directly related with development of social infrastructure. Social infrastructure (schools, social and health care institutions, hospitals, parks, etc.) provides opportunity to gain education, professional skills, qualification which can be implemented working in business entities. Social infrastructure in this way affects the increase of regional economical level.

Accessibility of tourism resources is crucial for every tourism destination. Variety of natural, historical and cultural resources is one of the most important criteria for tourists choosing their destinations. Accessibility infrastructure, special routes and heritage of these resources form competitive advantage for a region.

Authors argue, that quality of regional environment is important for attracting tourists, too. Effective safety infrastructure ensures improved safety in the region. Development of information technologies in a region forms supply of innovative financial services ensures that visitors will be able to use internet and other information and telecommunication technologies. Easily accessible region with developed engineering infrastructure which ensures quality of main tourism services, rich in nature and culture resources with wide set of tourism services will attract tourists who will stimulate regions' socio-economical development and ensure satisfaction of social needs.

**The empirical analysis of the impact of development of tourism infrastructure on the economy and integration of Lithuanian border region.** The analysis involves Marijampole region (Lithuania), which has borders with Poland. This region has been chosen due to its assignment to recreational areas of rather small and small potential; however, this is exactly the region of the biggest transit tourists flows. Besides, this region has a convenient geographic location, the distance from the center of Marijampole region to the Poland's border is 38 km, to the capital of Lithuania – 139 km.

Though the traffic intensity in the region is high and by demand campings occupy the third place, following the economic class hotels and rural tourism cottages, there is none camping set up in Marijampole region. This explains the relevance of the problems analyzed - i.e. setting up the camping in this region and the economic evaluation of the impact of establishment of this tourism

infrastructure. Besides, about 80 percent of European tourists are motor tourists, and the biggest number of foreign tourists – potential consumers of services provided by Lithuanian campings arrive via Marijampole border posts. Besides, at present the nearest camping is 56 km far from the Via Baltica highway. This creates favorable conditions for the increase in the camping's popularity from the foreign tourist's perspective.

Aiming to evaluate the impact of development of tourism infrastructure on the border region economy, the following initial conditions are established:

- setting up a camping in the area of 5,7 ha, 5 km away from the highway Via Baltica;
- the camping is set up on the site owned by the municipality by the ownership right;
- the camping is set up by the Marijampole municipality administration's financial means, and its management is transferred to a private enterprise/person, by leasing the camping, including its established technical infrastructure, on concession basis, by paying a regular rental payment;
- the camping is set up till the end of the year 2012;
- the assessment period of the financial and economic analysis – 15 years.

Following provisions of the Lithuanian Law on Tourism campings are classified under the provisions of Director General of the State Department of Tourism under the Ministry of Economy 'On Approval of Requirements to Camping Classification'. The analysis of requirements to different classes revealed that the higher is the camping class, the higher are the requirements it has to meet. Aiming to model the impact of the tourism infrastructure development on regional economy two alternatives are analyzed: Alternative A – 'Setting up a 2<sup>nd</sup> class camping', Alternative B – 'Setting up a 4<sup>th</sup> class camping'. The basic difference between the alternatives includes the sum of investments and the rentals planned to be received from the established infrastructure. In the case of Alternative A – the investment for setting up the 2<sup>nd</sup> class camping amounts to 1.176.471 Lt (340.730 Euro); in the case of Alternative B – 6.964.523 Lt (2.017.065 Euro). Alternative A includes installation of the basic camping infrastructure (electricity, water supply and biological waste water treatment facilities), fencing in the area, installation of 15 car parkings and clean up the area (suitable for setting up the tents). Alternative B includes the same installations as in Alternative A; however, the number of car parkings is 20, including 6 parking places for auto caravans; also installation of 6 cabins with full sleeping and resting facilities, a security post.

Financial and economic rates of alternatives based on presumptions are provided in Table 1.

*Table 1*

**Financial and economic assessment of alternatives**

Criterion	Assessment	
	Alternative A	Alternative B
Financial Net Present Value (FNPV) for 15 years period after alternative implementation, Lt.	-932,911	-5.047.564
Financial benefit-cost ratio (B/C) (financial cash flows)	0,0619	0,0918
Economic Net Present Value (ENPV) for 15 years period after alternative implementation, Lt.	1.102.435	-2.597.137
Economic Internal rate of return (EIRR) for 15 years period after alternative implementation, per cent.	19,14	-0,91
Economic benefit-cost ratio (B/C) (economic cash flows)	1,66	0,41

The assessment of financial vitality of the project on the establishment of tourism infrastructure is based on the following preconditions of economic modelling:

- During the first year of the 2<sup>nd</sup> class camping functioning (2013) the rental payment for the camping amounts to 0,1 percent, in 2014–2016 – 0,25 percent, and since 2017 – 0,5 percent of the land value. During the first year of the 4<sup>th</sup> class camping employment (2013) the rental payment for the camping amounts to 0,5 percent, in 2014–2016 – 1 percent, and since 2017 – 4 percent of the total land value. At the beginning of the project implementation the land value amounts to 1058105 Lt (306.448 Euro.).

– According to the fixed assets depreciation rates, additional re-investments are not forecasted.

– Financial discount rate – 5 per cent.

In both alternatives the FNVP is negative, which means that this project is unlikely to generate financial benefit, and motivates the need of the camping financing. The ratio of B/C confirms it.

The analysis of economic-social benefit of the project is very significant with regard to projects which do not generate financial benefit and are financially unprofitable for the implementing organization /21/. Such analysis helps to reveal spheres of special significance for the project implementation, and which the implementing organization has to focus on in its pursue to ensure the maximum benefit of the project.

The economic and social analysis (unlike the financial analysis which indicates benefit of the project to the organization) indicates the effect of the Project impact on environment or the expected economic welfare established by the infrastructure analyzed.

The analysis of economic benefit of the tourism infrastructure involves the following basic factors of economic benefit, contributing to the increase in regional income from tourism:

1. promotion of local tourism;
2. promotion of incoming tourism.

When analyzing the financial vitality of the project on the tourism infrastructure establishment the following preconditions of economic modeling are considered:

– in Lithuania one camping provides averagely 7094 tourists accommodation per year. Referring to this information, the forecasted average annual occupation level and tourist flow are likely to be similar. However, such level of occupation will be reached only during the third year after the project implementation. The forecasted occupation of the camping during the first year after the project implementation – 25 percent, during the second year – 50 percent, and since the third year - 100 percent of the average capacity level in Lithuania;

– 7094 accommodations in one camping include: 5019 local tourists accommodations (at 100 percent occupation level), 2075 foreign tourists accommodations;

– the local tourists expenditures in the region would amount to the statistical level calculated in 2009 – 57,75 Lt (16,73 Euro) (referring to the data of Statistics Department of the Republic of Lithuania) (the present actual prices will be referred to in the economic analysis). In calculations of the economic analysis one night of accommodation is equal to one day;

– referring to the data of Statistics Department of the Republic of Lithuania in 2009 foreign tourists' expenditures/per day amounted to 227,3 Lt (65,83 Euro);

– the assessment of Alternatives A and B allows presume that the economic – social benefit established by the camping is analogous in both the alternatives. The difference lies in investment and the value of revenue from the established camping infrastructure;

– the applied 5,5 percent social discount rate (with reference to Guide to cost - benefit analysis of investment projects (2008));

– tourists service-related costs (expenditure necessary for provision of services), calculated by considering the general profitability results of enterprises providing recreation organization services of the year 2009 (the average general profitability in this sphere of activities was 35,93 percent, thus, for the assessment of expenditure on provision of services 64,04 percent value of the income received from tourists flows is applied).

The calculated economic rates show that economic benefit established by the project within the period of 15 years would exceed the infrastructure maintenance-related investment and costs. In Alternative A – by the present value of almost 1,1 mln. Lt. (0,319 mln. Euro). The EIRR reaching 19,14 percent, in comparison with the recommended social discount rate (5,5 per cent), also proves the effectiveness of the project, and B/C rate shows that the invested Litas would create the economic benefit that exceeds economic costs by 1,66 Lt. Whereas in Alternative B values of the economic - social efficiency assessment rate are negative: the EIRR amounts to – 2,6 mln. Lt.

(0,753 Euro), ENPV rate – -0,91, the B/C rate is only 0,41. Taking into account the results, due to big investments Alternative B is economically unprofitable, if assessed within the period of 15 years.

The general overview of the economic analysis results suggests that Alternative A is significantly beneficial from the economic perspective, and though financially unprofitable from the general perspective, it is purposeful for implementation to promote the regional economic welfare. Such a choice of alternatives is also relevant during the economic crisis, when the financial resources are limited with regard to both the investment into infrastructure and maintenance of the established infrastructure.

The analysis of financial and economic benefit shows that the establishment of the 2<sup>nd</sup> class camping will produce a long-term benefit to Marijampole region – a directly established new infrastructure will promote the incoming and local tourism and create more favourable conditions for the development of active recreation. The establishment of tourism infrastructure is forecasted both to attract investment and contribute to the increase in the number of tourists staying in the region, prolonging the average duration of the incoming tourists' stay in the region, increase in income from the incoming tourism, public satisfaction with tourism conditions, promotion of the border regions cooperation and visibility of Marijampole region at the international level.

#### **Conclusion.**

1. A wide interpretation of the concept of the region emphasizes the specification of a regional definition, used in the analysis of various problematic issues.

2. It is not enough to analyze the border region from the national economy perspective, as the border region is part of a transnational spatial fabric with a changing position in the system of regional economies. The concept of the regional economic integration should be involved through the whole process of economic analysis of the border region economy.

3. Authors of this paper proved that public physical infrastructure plays the main role forming image of a region to the visitors. Only well accessible region with developed engineering and tourism infrastructure can be attractive to both – local and foreign tourists.

4. Frequently projects, solving problems of the public sector (which is also characteristic to the development of public tourism infrastructure), are not financially attractive to investors who seek the financial return of investments.

5. When evaluating the impact of the development of tourism infrastructure on regional economy a mere financial analysis is not sufficient enough. The development of public infrastructure should be analyzed complexly – by joining the financial and economic analyses, distinguishing benefit of the project to the enterprise and the whole region.

6. A positive impact of the development of tourism infrastructure on economic development of the border region through attracting investments, increasing flows of the incoming and staying tourists, prolonging the average duration of the incoming tourists' stay in the region, increasing income from incoming tourism, public satisfaction with tourism conditions, promotion of the border regions cooperation and publicity of the border region at the international level is beyond doubt.

7. The empirical analysis revealed that the establishment of a high-class tourism infrastructure in from the tourism perspective unattractive border regions provides less economic and financial benefit than the middle-class infrastructure.

The authors of the paper will continue the analysis of the problem by creating a model for the evaluation of development of tourism infrastructure impact on the economy of border region.

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**Ю. Брунецкиене, Р. Крушинскас, И. Зикиене**

### **Влияние развития инфраструктуры туризма на экономику пограничного региона (на примере Литвы)**

*Основная цель статьи состоит в определении оценки развития инфраструктуры туризма и ее влияния на экономическое развитие и региональную интеграцию менее привлекательного пограничного региона с точки зрения туризма. В статье представлены: концепция пограничного региона, методологические предложения для оценки трансграничной экономики, теоретический анализ влияния развития физической инфраструктуры на привлекательность региона для туристов. Анализируя альтернативы для установления кемпингов 2-ого или 4-ого класса в пограничном регионе Литвы, имеющем границу с Польшей, был проведен эмпирический анализ. В статье предоставлены финансовая и экономически-социальная оценка альтернатив, заключены выводы.*