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ROAD PROJECT ASSESSMENT WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT

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ABSTRACT: Local development is a dynamic process which mainly relies on qualitative and quantitative changes, accordingly to the needs of the local communities. One of the decisive circumstances of local development is an efficient road infrastructure. The main problem, in terms of road projects, is their socio-economic evaluation. The article presents a model for assessing S16 national road construction project, on the basis of four groups of indicators. The indicators monitor the changes occurring in the districts, located along the road corridor S16, within the framework of sustainable development. Results of the research give opportunity to a more detailed analysis and evaluation of road projects, furthermore they make a strong foundation for the exploration of cause-and-effect relations between the investments in infrastructure and the quality of life in the region.

KEY WORDS: road infrastructure investments, indicators, assessment

Introduction

Road transport infrastructure is one of the most important technical systems with a direct or indirect effect on the economic growth of the state, region or district. Growth of the road infrastructure in a given territory has a positive influence on the so-called supply and demand effects. Analysis of the role of the infrastructure in most cases confirm the transport networks' impact on the general increase of the economic efficiency of the given areas (Karst, 1986; Kamińska, 1999; Ratajczyk, 1999).

Demand effects go in pace with the increase in consumption in the given territory, due to the growing interest in the infrastructure, thus with the growing number of households, enterprises which results in the increase in sales of goods and services. Supply effects are related mainly to the improvement of effectiveness of production, growth of local efficiency and productivity (Kozłowski, 2012, p. 15).

The article focuses on the issue of evaluation of infrastructural investments within the framework of sustainable development. The main challenge is the correct choice of indicators to measure specific effects. The effects can basically be divided up into three groups: economic, social, and environmental.

Main economic effects of road infrastructure investments include: GDP growth, growing number of enterprises, more jobs, more investments, growing productivity of local businesses, saving effects related to time and fuel. Main social effects include: decrease of unemployment, improvement of quality of life of residents, increase of the level of public satisfaction. Main environmental effects include: increase of air pollutant emissions (more vehicles), decrease of road traffic accidents involving wild animals, expenses related to removal of trees.

Areas with road infrastructure are more attractive as priority areas for the location of investments and businesses for prospective investors. Poor condition of the road and transport infrastructure causes marginalisation of the region. Maintenance of good infrastructure condition requires continued employment of personnel in the sectors of supervision, planning, servicing, and design, which results in reduction of unemployment which is a major bottleneck to economic growth (Domańska, 2006; Markowski, 2008).

From the economic point of view, highways and national roads are the key infrastructure, connecting main economic centres domestically and internationally. They constitute the main factor in attracting prospective investors. On the local level, the prime example of the effect of construction of a transport network is gmina Stryków, whose favourable location at the

intersection of A1 and A2 highways, increased its budgetary revenue from PLN 14 million in 2008 to PLN 58 million in 2016[1].

Road infrastructure is one of the less developed subsystems of Polish economy. It is inadequately developed in relation to the production intensification as well as to the exchange and mobility of people and goods (Rydzkowski, Wojewódzka-Król, 2008, p. 11–13).

Another considerable negative factor is the low quality of paved road network, where 82% account for municipal and county roads, only 6.9% – for national roads, 11% – for voivodeship roads and merely 0.4% – for highways and expressways[2].

Plurality and complexity of relations linked to road infrastructure investments and absence of adequate information on the regional and municipal level, requires a tailor made approach to every investment project (Spiekermann, Neubauer 2002, p. 64–75). Headline targets for the further development of road infrastructure in specific locations are the following[3]:

- provision of competitiveness for the state, region or municipality through the inclusion of the area into domestic and international road network,
- completion of the most important transport roads and development of a coherent communication network,
- putting in place additional multiplier effects depending on the scale of the project,
- taking account of social and environmental considerations in the project.

Methodology of the Study

Aim and Subject matter of the Study

The present article will address evaluations of infrastructure investments within the framework of sustainable development. The present article is aiming to evaluate investments in infrastructure within the framework of sustainable development. The subject matter of the study includes investments in S16 national road implemented in 2004–2014.

Taking into account the importance of S16 national road for development strategy of the voivodeship, the study shall address the measurement of the effects from the perspective of districts concerned. The following districts

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[1] Source: Gmina Stryków Municipality 2016.

[2] Generalna Dyrekcja Dróg Krajowych i Autostrad, *Strategia rozwoju transportu do 2020 r.*, Warszawa 2011.

[3] Instytut Geografii i Przestrzennego Zagospodarowania PAN, *Wpływ budowy autostrad i dróg ekspresowych na rozwój społeczno-gospodarczy i terytorialny Polski,* Warszawa 2013.

have been subject to the study: Iława County, Ostróda County, Ełk County, Pisz County, Mrągowo County, Olsztyn County and the City of Olsztyn.

The following test methods have been used in the article: indicative method, parametric test method based on Pearson correlation coefficient. Four groups of indicators have been identified for the study: basic indicators, economic indicators, social indicators and environmental indicators. The study covers the period 2004–2014.

The indicators have been selected on the basis of assumptions concerning cause-and-effect relations between the effects achieved and investments in S16 national road. The analysis and assessment of the effects within the framework of sustainable development will contribute to a more efficient designing and monitoring of investments during subsequent years and lead to a more comprehensive evaluation.

Description of the field and subject matter of the study

Description of the field of the study

Warmian-Masurian Voivodship is the fourth large voivodeship in the country (24.2 thousand km^2, which constitutes approximately 7.7% of the country's area). The voivodeship contains three subregions: Elbląg subregion, Ełk subregion and Olsztyn subregion – which are socially and economically diversified. Agricultural lands constitute an important part of the territory – it accounts for 54% of the whole area. Natural conditions require high level technical equipment, the unit costs of agricultural production are higher, thus the profitability is lower than in the other regions of the country.

The economic situation of the region is strongly conditioned by historical factors such as (Kozłowski 2011; Sierpiński 2010):
- peripheral location and poor communication accessibility;
- very low population density and dispersion of settlement network;
- high unemployment rate and numerous groups of people associated with formerly owned by the state agricultural holdings;
- low level of industrialisation of the region and dominance of the agriculture-related industries;
- low residents' own revenues;
- low investment attractiveness of the region;
- numerous lands formerly occupied by the army, requiring rehabilitation, development and introduction of new functions.

The main industries of the Warmian-Masurian Voivodeship are: wood processing, agri-food processing, construction and tourism. The main advantage of communicational location of the Warmian-Masurian Voivodeship is

the proximity of the eastern external border of the European Union with Kaliningrad Oblast, by A1 and Via Baltica highways.

Specification of S16 national road

The road corridor No 16, which is approx. 395 kilometres long, is located between the Lower Group in the Kuyavian-Pomeranian Voivodeship and the national border with Lithuania, in Ogrodniki in the Podlaskie Voivodeship. The national road No 16 runs through the following towns: Grudziądz, Łasin, Kisielice, Iława, Ostróda, Olsztyn, Barczewo, Biskupiec, Mrągowo, Mikołajki, Orzysz, Ełk, Augustów and constitutes the main transport route in the Warmian-Masurian Voivodeship. Within the Warmian-Masurian Voivodeship the national road No 16 is 285 km long. The current course of the national road No 16 is shown in figure 1.

Figure 1. The course of the national road No 16

Source: www.wikipedia.pl [20−11−2016].

Table 1. Total capital expenditures in S16 national road in 2004–2014 [PLN millions]

Type of expenditure	2004–2006	2007–2013	2013–2016	2016–2020 Plan	Amount
Modernisation and redevelopment	320	615	400	500	1,835
New corridors Ring roads and bypasses	-	-	800	2,800	3,300
Amount	320	615	1,200	3,000	4,135

Source: based on the data collected in 2016 from the Generalna Dyrekcja Dróg Krajowych i Auto-
           strad and Olsztyn municipality.

The total expenditure invested in S16 national road in 2004–2014 amounts to PLN million 4,135 (table 1). The total length of the road modernised in 2004–2014 accounts for 82 kilometres.

Coefficient model for evaluation of road transport infrastructure investments

This model assumes an assessment of road transport infrastructure investment based on economic, social and environmental indicators whose evaluation and mutual synergy may contribute to the assessment of the obtained results (figure 2).
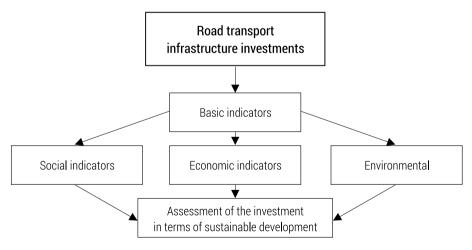

Figure 2. Coefficient model for evaluation of road transport infrastructure investments

The evaluation of S16 road investment was based on four groups of indicators (Borys 2005; Piontek 2002).

The first, basic group of indicators is mainly characterised by such parameters as: population, district area and the data associated with the analysed investment in S16 national road. The indicators have been specified as natural size.

The second, economic group of indicators addresses the evaluation of the dynamics of investment expenditure in the industry, construction and services as well as the number of businesses in the analysed counties in 2004–2014. Five indicators have been identified (table 2).

Table 2. Indicators for evaluation of the road transport infrastructure investment

Symbols Indicators	Indicator contents	Indicator parameters
	Basic indicators	
B1	Population as at 31.12.2014	[number]
B2	County area as at 31.12.2014	[km²]
B3	S16 length within the district	[km]
B4	Total capital expenditures in S16 national road	[PLN million]
B5	Total capital expenditures in S16 national road per capita	[PLN/per capita]
B6	Total capital expenditures in S16 national road per km²	[PLN/km²]
	Economic indicators	
G1	Dynamics of investment expenditure in enterprises per capita in 2004–2014	[%]
G2	Dynamics of investment expenditure in enterprises in industry and construction sectors in 2004–2014	[%]
G3	Dynamics of investment expenditure in services in 2004–2014	[%]
G4	Dynamics of investment expenditure in transport and communication sectors in 2004–2014	[%]
G5	Dynamics of the number of businesses per 1,000 residents in 2004–2014	[%]
	Social indicators	
S1	Population dynamics in 2004–2014	[%]
S2	Unemployment rate dynamics in 2004–2014	[%]
S3	Dynamics of road traffic accidents in 2004–2014	[%]
S4	Dynamics of costs arising from road traffic accidents in 2004–2014	[%]
	Economic indicators	
SR1	Dynamics of emission of carbon dioxide in 2004–2014	[%]
SR2	Dynamics of emission of dust in 2004–2014	[%]
SR3	Dynamics of expenditure in environmental protection in 2004–2014	[%]

The third, social group of indicators addresses the analysis of the dynamics of social factors such as: population, unemployment rates, road accident rate and fatalities rate in 2004–2014. Four indicators have been identified (table 2).

The fourth, environmental group of indicators addresses the analysis of the dynamics of environmental factors such as: carbon dioxide emissions, dust ratio and the expenditure in the protection of the environment in 2004–2014. Three indicators have been identified (table 2).

Selection of indicators for the study and evaluation of the road infrastructure investment has been based on three considerations:
- the indicators shall be casually linked to the analysed investment;
- the indicator data shall be available and verifiable;
- the indicators shall address the phenomena occurring in the districts covered by the analysed road corridor.

Specified formulas and markings of the indicators are shown in table 2.

Analysis of specific groups of indicators shall allow an assessment of road infrastructure investment within the framework of sustainable development, thus in the areas of activity associated with economy, society and environment. The study is aiming to find correlations between investment expenditure and the obtained results arising from this expenditure.

The data obtained in the course of the study shall contribute to the improvement of the road investment planning process. The field of the study and, at the same time, the reference point, are the districts located along S16 national road.

Analysis and assessment of road infrastructure investment

Analysis of basic indicators

The indicators determine basic data associated with investment expenditure in terms of area and population. Specified numbers are presented in table 3.

In terms of value (B4 indicator), the highest expenditure in S16 have been made in: Ostróda County PLN 1,600 million, Olsztyn County PLN 1,200 million and the City of Olsztyn PLN 1,035 million. In terms of population (B5 indicator), the highest expenditure in S16 have been made in: Ostróda County PLN/per capita 15,252 and Mrągowo County PLN/per capita 12,000 Taking account of the county area (B6 indicator), the highest expenditure in S16 have been definitely made in the City of Olsztyn 11,761,363 PLN/km^2, which was mainly due to the construction of a ring road in S16 road corridor.

Table 3.   Specification of basic indicators of the analysed counties [as at 31.12.2014]

No	County	Population [thousand] B1	County area [km²] B2	S16 length within the county B3	Capital expenditures in S16 national road in 2004−2016 [PLN million] B4	Capital expenditures in S16 national road in 2004−2016 [PLN/per capita] B5	Capital expenditures in S16 national road in 2004−2016 [PLN/km] B6
1.	Iława County	90	1,385	48	350	3,888	252,707
2.	Ostróda County	104.9	1,766	30	1,600	15,252	906,002
3.	Ełk County	89.3	1,111	48	250	2,799	225,022
4.	Pisz County	58	1,776	31	50	862	28,153
5.	Mrągowo County	50	1,065	52	600	12,000	563,380
6.	Olsztyn County	120.9	2,840	64	1,200	9,925	422,535
7.	Olsztyn City District	173.4	88	12	1,035	5,969	11,761,363

Source: based on data collected in 2015 from Główny Urząd Statystyczny and Generalna Dyrekcja Dróg Krajowych i Autostrad.

Analysis of economic indicators

It was assumed that S16 road infrastructure investments will bring to the economic area effects mainly associated with increase in business investments in such sectors as: industry, construction, transport and services, it will be accompanied by increase of fixed assets and increase of number of businesses. Detailed dynamics of specific economic indicators is presented in Table 4.

Table 4.   Dynamics of economic indicators in 2004−2014 [%]

No	County	G1	G2	G3	G4	G5
1	Iława County	**282**	157	**713**	**1,180**	21
2	Ostróda County	133	134	176	120	21
3	Ełk County	149	**208**	41	18	20
4	Pisz County	−14	−18	−8	156	7
5	Mrągowo County	**178**	**478**	−16	−86	30
6	Olsztyn County	65	118	1	294	**57**
7	The City of Olsztyn	53	59	57	**7,313**	**45**

The highest dynamics in terms of investment expenditure in enterprises per capita in 2004–2014 (G1) was observed in: Iława County 282% (from 1,324 PLN/per capita in 2004 to 5,060 PLN/per capita in 2014), and Mrągowo County 178% (from 850 PLN/per capita in 2004 to 2,363 PLN/per capita). Negative dynamics of the analysed indicator was observed in Pisz County –14% (from 646 PLN/per capita in 2004 to 556 PLN/per capita in 2014).

As for the expenditure in industry and construction (G2 indicator) the biggest expenditure growth was observed in: Mrągowo County 478 % (from PLN 17.5 million in 2004 to PLN 101 million 2014), Ełk County 208% (from PLN 72 million in 2004 to PLN 222 million in 2014). Negative dynamics of the expenditure in industry and construction was observed in Pisz County –18% (from PLN 25 million in 2004 to PLN 20.1 million in 2024).

Regarding the expenditure in other services (G3 indicator) the highest dynamics was observed in Iława County 713% (from PLN 30 million in 2004 to PLN 251 million in 2014). Negative dynamics of the analysed indicator was observed in: Mrągowo County –16% (from PLN 20 million in 2004 to PLN 16 million in 2014) and Pisz County –8% (from PLN 7.6 million in 2004 to PLN 7 million in 2014).

As for the investment expenditure in transport and logistics, similarly to the previous indicator, the highest dynamics was observed in: the City of Olsztyn 7,313 % (from PLN 1.6 million in 2014 to PLN 119 million in 2014) and Iława County 1,180% (from PLN 1.5 million in 2004 to PLN 25.1 million in 2014). The lowest dynamics was observed in Mrągowo County –86% (from PLN 0.7 million in 2004 to PLN 0.1 million in 2014).

In terms of number of businesses, the highest dynamics was observed in Olsztyn County 57% (from 87 businesses in 2004 to 127 businesses in 2014) and the City of Olsztyn 45% (form 114 businesses in 2004 to 165 businesses in 2014).

To summarise the level of economic indicators, the following conclusions can be drawn:
- in terms of investment expenditure, in the analysed segments, the leading counties are: the City of Olsztyn and Olsztyn County;
- as for the highest dynamics of the analysed indicators, the forefront counties are: Iława County and Mrągowo County.

Analysis of social indicators

It was assumed that S16 road infrastructure investments will bring to the area certain social effects associated with the growth of population, reduction of unemployment rate and the number of road traffic accidents includ-

ing fatalities. Detailed dynamics of specific social indicators is presented in table 5.

Table 5. Dynamics of social indicators [%]

No	County	S1	S2	S3	S4
1	Iława County	3.5	**−63.8**	**−52.7**	−44.3
2	Ostróda County	1.2	−39.3	−29.8	−37.1
3	Ełk County	5.6	−26.9	−21.2	**−65.2**
4	Pisz County	0.4	−28.1	−1.2	−14.8
5	Mrągowo County	1.8	−38.6	−21.5	51.0
6	Olsztyn County	**8.0**	−32.8	−2.6	**−72.7**
7	The City of Olsztyn	4.3	−37.0	−32.1	4.2

Source: own resources.

The highest dynamics of population growth S1 indicator) was observed in: Olsztyn County by 8% (12,456 people), and Ełk County by 5.6% (5,467 people). As for the unemployment rate (S2 indicator) the most important decrease was observed in: Iława County –63,8% (decreased by 6,432 people), Ostróda County –39,3% (decreased by 5,436 people) and Mrągowo County – 38,6% (decreased by 2,857 people).

Next indicators are associated with road traffic accidents. The first of them (S3 indicator) relates to the dynamics of road traffic accidents on S16 section in the given county. The most important decrease of the number of road traffic accidents was observed in Iława County by 52.7%, the City of Olsztyn by 32.1% and Ostróda County by 29.8%. As for the dynamics of the decrease of fatalities, the most important decrease was observed in Olsztyn County by 72.7% and Ełk County by 65.2%.

To summarise the level of social indicators, the following conclusions can be drawn:

• in terms of population growth, the highest dynamics was observed in Olsztyn County, which may perhaps be due to a regular migratory tendency towards the agglomeration of the City of Olsztyn;

• in terms of the indicators of decrease of unemployment rate and decrease of number of road traffic accidents, the highest dynamics was observed in Iława County;

• modernisation of the national road had a massive effect on the decrease of fatalities in Olsztyn County and Ełk County.

Analysis of environmental indicators

Evaluation of environmental indicators associated to the modernisation of S16 national road, mainly relates to the level of pollution and expenditure in environmental protection made by the counties in the analysed period. Detailed dynamics of specific environmental indicators is presented in table 6.

Table 6.   Dynamics of environmental indicators [%]

No	County	SR1	SR2	SR3
1	Iława County	3.2	−320	**329**
2	Ostróda County	21.5	229	79.3
3	Ełk County	68.4	**−455**	**411**
4	Pisz County	87.5	−198	−77.6
5	Mrągowo County	**−8.0**	**−551**	−67.5
6	Olsztyn County	81.4	200	58.4
7	The City of Olsztyn	**−20.6**	−287	85.4

Analysis of environmental indicators in the framework of road infrastructure investment assessment, mainly included an evaluation of the level of pollution due to the emissions of gases, dust and carbon dioxide as well as evaluation of the expenditure in environmental protection. The first indicator in this assessment (SR1) was the dynamics of emission of carbon dioxide in 2004–2014. The most important decrease was observed in the City of Olsztyn –20.6% (decrease from 468 thousand tons to 371 thousand tons per annum) and Mrągowo County –8% (decrease from 60 thousand tons to 55 thousand tons per annum). As for the emissions of dust, similarly to the previous indicator, the most important decrease was observed in Mrągowo County by 550% (from 182 tons in 2004 to 33 tons in 2014) and Ełk County –450% (from 192 tons in 2004 to 40 tons in 2014). The highest dynamics of investment expenditure in environmental protection was observed in: Ełk County 400% (from PLN 5 million in 2004 to PLN 22 million in 2014) and Iława County 329% (from PLN 9.9 million in 2004 to PLN 32.8 million in 2014).

To summarise the level of environmental indicators, the following conclusions can be drawn:

- in terms of reduction of the level of gas pollution, the leader is Mrągowo County,
- in terms of the highest dynamics of investment expenditure in environmental protection, the forefront counties are Iława County and Ełk County.

Analysis of correlation between the analysed indicators

In the context of the study, a parametric evaluation was conducted, using Pearson correlation coefficient at $p = 0.5$ significance level. The correlation coefficient shows correlations among the analysed indicators, which can be used for further investment planning, then for an evaluation of the obtained social and economic effects (table 7).

The analysis shows that several important correlations between the analysed indicators can be observed:

- on the level $p = 0.58$, there is a positive correlation between the level of expenditure in S16 road infrastructure (B4), and the increase of the number of businesses (G5), which shows the importance of road infrastructure in enterprise development;
- on the level $p = 0.72$, there is a positive correlation between the level of expenditure in S16 road infrastructure (B4), and the increase of the level of dust pollution (SR2), which shows the higher demand for the modernised road;
- on the level $p = 0.98$, there is a positive correlation between the level of expenditure in S16 road infrastructure calculated from the area of the county (B6), and the expenditure in transport and communications in specific counties, which may be indicative of the role of road infrastructure investments in development of the communications and logistics sector;
- on the level $p = -0.82$, there is a negative correlation between the level of expenditure in transport and communications (G4), and the decrease of the number of road traffic accidents (S3), which may demonstrate high efficiency of the expenditure in terms of the improvement of road safety;
- on the level $p = -0.82$, there is an identical correlation between the level of expenditure in services (G3), and the decrease of the number of road traffic accidents (S3).

Conclusion

Analysis and evaluation of investment in road transport infrastructure within the framework of sustainable development shall enable optimisation of planning of road infrastructure investment projects, and provide additional information regarding the impact of the investment on local conditions, in terms of economy, sociology and environmental protection at the same time.

Table 7. Parametric evaluation of the analysed indicators – Pearson correlation test at p=0.5 significance level

	B1	B2	B3	B4	B5	B6	G1	G2	G3	G4	G5	S1	S2	S3	S4	SR1	SR2	SR3
B1	X	-0.29	-0.46	0.57	0.09	0.81	-0.22	-0.44	0.01	0.82	0.65	0.50	-0.02	-0.22	-0.24	-0.29	0.34	0.18
B2		X	0.66	0.18	0.22	-0.70	-0.14	-0.16	-0.05	-0.69	0.12	0.25	0.11	0.52	-0.56	0.70	0.68	-0.17
B3			X	-0.14	0.13	-0.73	0.38	0.48	0.07	-0.71	0.21	0.48	-0.08	0.22	-0.33	0.39	0.02	0.18
B4				X	0.83	0.30	-0.08	-0.03	-0.12	0.21	0.58	0.18	-0.01	-0.06	-0.10	-0.27	0.72	-0.21
B5					X	-0.04	0.16	0.45	-0.15	-0.15	0.38	-0.06	-0.07	-0.05	0.20	-0.35	0.46	-0.35
B6						X	-0.29	-0.27	-0.14	0.98	0.44	0.12	0.03	-0.24	0.31	-0.56	-0.10	-0.09
G1							X	0.57	0.75	-0.22	-0.13	0.03	-0.78	-0.79	-0.03	-0.49	-0.33	0.58
G2								X	-0.07	-0.33	0.08	-0.04	-0.14	-0.18	0.49	-0.41	-0.50	-0.02
G3									X	0.01	-0.23	-0.06	-0.93	-0.82	-0.25	-0.35	-0.05	0.54
G4										X	0.41	0.14	-0.10	-0.82	0.25	-0.56	-0.12	0.00
G5											X	0.75	0.05	0.12	-0.09	-0.16	0.30	-0.11
S1												X	0.10	0.12	-0.59	0.24	0.16	0.44
S2													X	0.84	-0.03	0.58	0.09	-0.31
S3														X	-0.07	0.75	0.27	-0.55
S4															X	-0.61	-0.52	-0.61
SR1																X	0.34	0.01
SR2																	X	-0.21
SR3																		X

The article was focused on counties but the above analysis can be conducted on a lower level of territorial divisions, namely – on municipalities.

When analysing and evaluating a road infrastructure investment project, it should be taken into consideration that modernisation of a road section in a given county may increase the demand for the infrastructure, thus support pro-development effects in the county.

For instance, modernisation of bottlenecks results in reduction of journey time, which in turn results in productivity and effectiveness growth thus brings increase in profitability. It should be kept in mind, however, that those are indirect effects, so they will need several years from the beginning of the investment to manifest. This is why evaluations of the effects should be made in 5–10 years perspective.

Correlations between the analysed indicators point out an important role of road infrastructure investments in social and economic growth of the analysed counties at different levels. When planning road infrastructure investment, the following factors should be taken into account: levels of indicators, several years of pattern of tendencies of the indicators, and correlations between the areas analysed.

In management practices it may also be useful to look for adequate indicators which will show real cause and effect relations and allow an assessment of a road infrastructure investment taking into account the different aspects of sustainability.

Complexity and diversity of investment processes require tools that will produce a comprehensive and broad evaluation of the effectiveness of the expenditure, seen from different perspectives.

Local and regional authorities should strive towards developing their own coefficient model reflecting social and economic priorities as well as strategic goals of the local government entity. Such a model may become a very practical and universal tool.

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