Romanian Infrastructure: Road To European Integration

Mihaela Cristina Drăgoi,
Irina Gabriela Rădulescu

Introduction

ONE OF the current challenges which the world is facing is the need to develop infrastructure, in particular to find a more effective approach to some key issues such as water and food shortages, climate change, mass urbanization and economic and social development. The experience and creativity of the infrastructure community could respond effectively to these needs.

According to Chan et al. (2009), the concept of infrastructure includes several physical components that are used by most economic branches as inputs for goods and services production and can be divided into *social infrastructure* (schools, hospitals) and *economic infrastructure* (energy, transport, water, digital communications). It is demonstrated that infrastructure development influences positively the income of an economy and the long-term production (Futagami et al. 1993; Calderón et al. 2011) and is an indispensable element of poverty reduction (Lokshin & Yemtsov 2005). Infrastructure is a complementary element of economic growth and influences global output directly through the sector's contribution to GDP formation and indirectly by increasing productivity due to lower transaction costs. Infrastructure investments are considered to be complementary to other investments: if they are insufficient then they obstruct other investments, and if they are in excess they have no added value (Newbery 2012).

According to the World Economic Forum, infrastructure is also a key element of competitiveness being defined as "*the set of institutions, policies and factors that determine the level of productivity of a country*" (Schwab 2016). The quality of the infrastructure is directly correlated with the proportion of highways, the reliability of the electrical system and the modernization of the railways. Poor road quality can cause a reduction in transport network performance in terms of safety, reliability and ultimately maintenance costs.

The incentive role that transport has in every economy determines the fact that this is a derived demand, responding to the forces generated by the production and consumption sectors (Figure 1).

Figure 1. Infrastructure and development
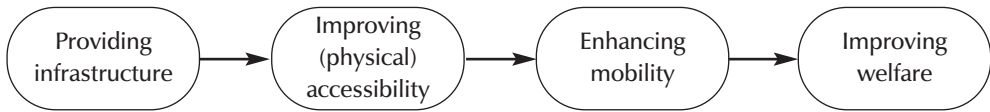
SOURCE: Ministry of Transport of New Zealand (2014)

Current transport problems are related to the inappropriate diversion of resources, to under-maintenance, and to the growing population within the road and air sector. The most important components of the transport network (urban and interurban corridors) are currently characterized by a lack of reliability, overcrowding and increased congestion (Crafts 2009). In Europe, congestion is one of the most serious problems and denotes the lack of previous investments. As a longer-term solution, it was proposed to introduce road tolls to solve the problem of road maintenance and financing (Glaister 2010).

Regional development is based to a certain extent on the transport infrastructure through which goods and passengers can move and which, at the same time, helps connect markets. The density of the road network depends on the population density and the degree of urbanization of a country (European Commission 2014b). In recent years, the density of the road network has expanded in the new Member States largely due to the implementation of the Cohesion Policy, while the EU15 has seen a slight decrease. In Croatia and Romania there are the weakest road networks compared to the other new Member States. However, the EU15 shows a much higher density of the motorway network than the New Member States despite the heterogeneity of each group. In addition to population dimension and urbanization, another determinant of the highway network is the centrality of its geographical location (Eurostat 2010). Overall, road quality has improved over the last decade and the share of highways in the total road network has increased in most EU Member States.

On the medium term, in Europe, infrastructure needs will be constantly high, given that transport remains an important part of the process of completing the internal market. Cross-border infrastructure has beneficial effects on economic growth, both by increasing trade flows and by developing competition. It is estimated that by 2020 the costs of completing the TEN-T network will be about €550 billion, and by 2030 total costs will reach €1.5 trillion (European Commission 2011). The EU has set itself the priority of the transition to a low carbon economy, establishing a policy agenda focusing on reducing greenhouse gas emissions, 20% energy efficiency improvements and a 20% share of renewable energy in total energy consumed. All these targets require investments of approximately €205 billion a year to replace old infrastructure and meet climate goals (European Commission 2014a).

1. Literature Review and Theoretical Framework Regarding the Economic and Social Importance of Infrastructure

ROAD INFRASTRUCTURE is a major factor for growth and economic development according to Queiroz and Gautam (1992), who have empirically approached the relationship between the two elements in a study conducted within the World Bank. They performed various regression analyses taking the Gross Domestic Product (GDP) per capita as dependent variable, and as independent variables the spatial road density of paved and unpaved roads and road density or per capita length (km/million population). The results of the survey showed that per capita the stock of road infrastructure in developed countries is much higher than in developing or very poor countries. Also, the authors show that there is a relationship between economic development and road condition, in the sense that the average density of paved roads (km/million inhabitants) ranges from 40 in low income countries to 470 in middle income countries and 8,550 in developed countries.

The relationship between infrastructure and economic growth has been approached empirically by Aschauer (1989a; 1989b), who found a positive correlation between public capital and GDP growth. Although Aschauer's analysis enjoyed special interest among specialists, there was reluctance on the economic and econometric approach. These were based on the difficulty of clarifying the effects of infrastructure on economic growth, the lack of statistical data on infrastructure or possible reverse causality effects, from GDP to infrastructure (Shanks & Barnes 2008).
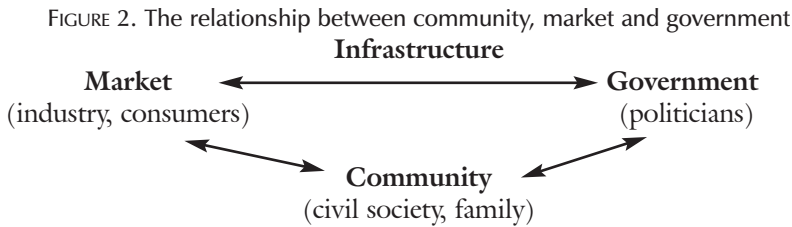
Baldwin and Dixon (2008) have shown that an efficient infrastructure network can enhance the quality of life and also support economic growth. Nijkamp (1986) considers that infrastructure creates the necessary conditions for achieving regional development objectives, and Snieaka & Bruneckien (2009) state that infrastructure is one of the indicators of regional competitiveness of a country. Siyan et al. (2015) have estimated a pattern that has clearly established that there is a strong and positive relationship between road transport and economic growth even in countries such as Nigeria, and a developed transport network can lead to increased productivity and long-term efficient distribution.

Also, there are studies showing the link between infrastructure and education and health, in which it is demonstrated that infrastructure is essential to the quality and availability of the two fields (Agénor & Moreno-Dodson 2006). Furthermore, the sustainable and socio-economic development of a country is also ensured by the quality of the infrastructure in that country (Grundey 2008). In his study, Boopen (2006) analyzed the impact of capital transport on economic growth on a sample of 38 Sub-Saharan African countries demonstrating that there was an important contribution to economic progress in those countries. Similar results have been obtained by Seethepalli et al. (2008) showing that infrastructure is important for economic development in East Asia.

Apart from the results emphasized by these analyses conducted in diverse parts of the world, further studies allow for an initial conclusion regarding the importance of infrastructure on improving various aspects of economic and social life. Subsequently, Kabiru (2016) argues that transport is an indispensable infrastructure for economic, social

and political development in any country, and has to be reasonably coordinated to move people and goods economically, quickly and safely. Carlsson et al. (2013) are trying to show how infrastructure influences economic growth by representing its mechanisms in macroeconomic growth theories. Thus, the authors argue that due to the non-spatial character, some economic functions of the infrastructure can be configured in macroeconomic models. Due to a spatial approach, transport infrastructure can be represented within the new economic geography.

Some authors analyze the spillover effects of infrastructure using the "black box" approach to determine which is the role of infrastructure in society (Hayami 2009). Sawada (2015) highlights the role of the market in resource allocation and the problems arising from externalities, the availability of public goods and, implicitly, of infrastructure. The state intervenes in providing infrastructure when market failures are found and therefore government intervention is considered imperative to ensure resource efficiency. According to Sawada, there is a close relationship between the market, the state and the community to facilitate the provision of public goods (Figure 2).

FIGURE 2. The relationship between community, market and government

Infrastructure

Market ⟷ **Government**
(industry, consumers)   (politicians)

Community
(civil society, family)

SOURCE: Sawada (2015)

As stated before, the importance of motorways is significant for both passengers and freight transport. According to the European Commission, approximately three quarters of the total inland freight within the European Union is transported over roads (Eurostat 2016a) and more than 90% of the passengers use the same mode of transport for reaching their inland destinations (Eurostat 2016b). Road infrastructure in general and motorways network in particular determine the reduction of time in delivering goods or services and arriving at various destinations. As the existent literature reveals, a well-developed motorway infrastructure determines increases in economic and social turnovers in all fields of activity, generating regional and national well-being.

The Romanian road infrastructure, even though it has slightly improved over the past years, is still far from what an EU integrated country should provide. Even in more subjective terms, Romania's road infrastructure ranks last among European Union's Member States; the European Commission has calculated the score of 2.6/7 for the Romanian road infrastructure, for the period 2015–2016, ranking the country 28/28 within the EU. The rating was based on a survey by the World Economic Forum, using a scale from 1: *extremely underdeveloped* to 7: *extensive and efficient* (European Commission 2016).

The value of our study derives from the lack of similar researches for all development regions of Romania, and from pointing out the effects that a denser motorway net-

work at national level would have on several economic, touristic, educational, health and safety indicators, all meant to ensure deeper integration within the European Union.

2. Research Methodology

As PREVIOUSLY affirmed, the main purpose of this paper is to emphasize the impact that road infrastructure has on national development and on the well-being of citizens. As a starting point of this analysis, this section presents the past and current circumstances regarding motorways in Romania, compared to other EU countries. Since the importance of a solid road infrastructure which could thoroughly connect all Member States from the West of the Union to the East is already marked as a development goal in the EU agenda and for an easier integration of Romania in the Schengen Area, this preliminary comparison provides clear incentives for additional analyses of the Romanian infrastructure sector. As the further description shows, Romania, either at national level or at Nomenclature of Territorial Units for Statistics (NUTS) 2 level, ranks among the last places in the European Union in terms of road infrastructure.

Subsequently, several indicators have been chosen to draw attention to the pressing need of rethinking and reallocating investments towards infrastructure, as an important factor for determining advances and progress on the economic and social aspects of the Romanian citizens' lives. Therefore, the number of kilometers of motorways has been used as an independent variable against several dependent variables, and linear regression models were run. The dependent variables were chosen from various key domains determining human well-being: economic—GDP per capita, tourism—incoming national and foreign tourists, education—early leavers from the educational system, and health—persons killed or injured in road accidents. For the ease of testing, each variable was attributed a shortened notation, as presented in Table 1. The data used comprises all NUTS 2 regions of Romania, covers the time period ranging from 2000 to 2015, and was extracted from the National Institute of Statistics (Incoming national and foreign tourists—National Institute of Statistics 2017) and Eurostat databases (GDP per capita, Early leavers from education, Victims in road accidents—Eurostat 2017b; Eurostat 2017a; Eurostat 2017d).

Table 2 shows all the initial hypotheses of our research, and the results for each NUTS 2 region of Romania are presented in the Results and Discussions section of the paper. Mainly, we expect that better motorway infrastructure would determine an increase in per capita GDP and in the number of tourists, while helping reduce school dropout rates and the number of road accidents victims.

TABLE 1. Explanatory variables used in the regression models

Independent variable		
Indicator	Notation	Definition/Short explanation
Motorways (freeways)	Km	Roads which do not provide access to bordering properties and which have no crossings at the same level with any road, railway, tramway track or footpath. It is consistent with high speed traffic, thus reducing considerably the travel time among regions or countries.
Dependent variables		
Indicator	Notation	Definition/Short explanation
GDP per capita	GDPc	GDP calculated through the expenditure approach, expressed in Purchasing Power Standards (PPS).
Incoming national and foreign tourists	Tourist	Persons from Romania or from abroad who spend at least one night accommodated outside their residence localities for touristic purposes.
Early leavers from education	ELEduc	% of the region's population which abandon their current level of education.
Victims killed in road accidents	VicKill	Number of persons killed in road accidents, irrespective of the type of public road.
Victims injured in road accidents	VicInj	Number of persons injured in road accidents, irrespective of the type of public road.

TABLE 2. Research hypotheses

	Expected impact on				
Notation	GDPc	Tourist	ELEduc	VicKill	VicInj
Km	↑	↑	↓	↓	↓

3. Results and Discussions

A T NATIONAL level, although the Romanian motorway infrastructure has developed over the past decade, it still remains among the least extensive among the European Union's Member States. In 2005, when Romania signed the Treaty of Accession to the European Union, there were only 228 km of motorways nationwide (Eurostat 2017e). Only three other countries registered less in motorways length (Latvia—0 km, Estonia—99 km and Luxembourg—147 km), but all three are relatively small compared to Romania, therefore in less urgent need of high speed roads.

Ten years later, in 2015, the number of motorway kilometers has risen up to 747 in Romania, but still the country ranked last among the larger Member States, with only a few small countries having fewer kilometers of motorways (Latvia—0 km, Estonia—147 km, Luxembourg—161 km, Cyprus—272, Lithuania—309 and Slovakia—463.1 km) (Eurostat 2017e).

Based on available data from Eurostat, a comparison among several Member States which reported their motorway infrastructure, in 2004 and 2014, shows major gaps in infrastructure and small progress for the less infrastructure-endowed countries (Figure 3).

However, since the dimension of the countries' territories and populations is different among Member States, a more valid comparison is the one taking into account the actual density of high speed roads within a certain country. For this purpose, a more descriptive indicator is the one providing information about the number of persons served by a kilometer of the existing highways.

Hence, regarding motorway density and availability to a country's population, Romania actually ranks last among other European Member States, since 1 kilometer corresponds to 26601 citizens (Figure 4), thus emphasizing the need for more high speed roads relative to the country's demographical and physical dimensions: Romania is the seventh largest country of the EU in terms of population and the ninth largest country by surface.

FIGURE 3. TOTAL LENGTH OF MOTORWAYS BY COUNTRY
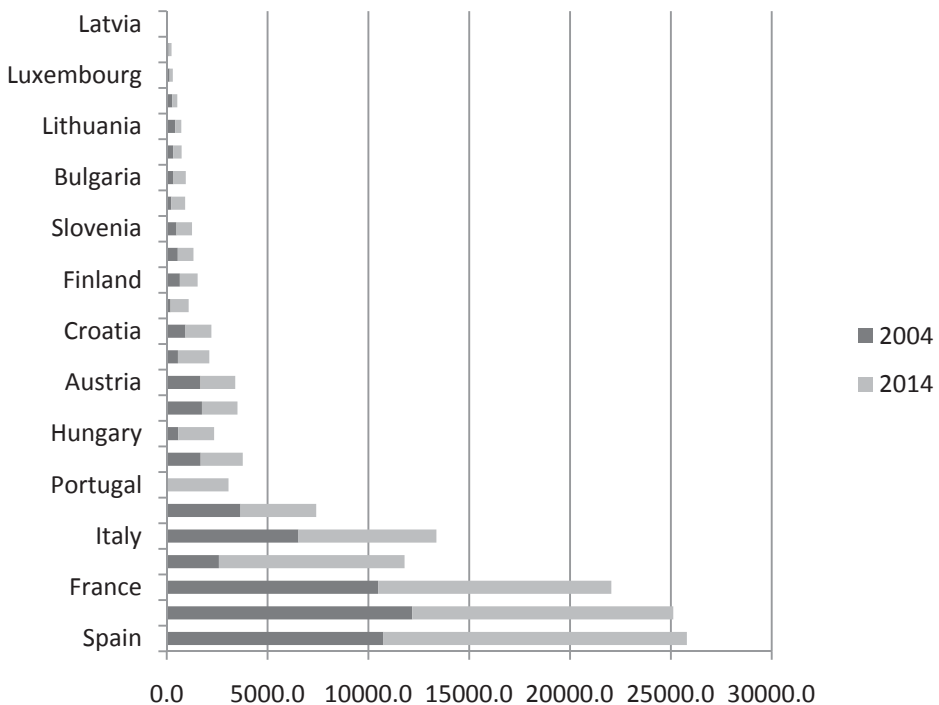
SOURCE: AUTHORS' COMPILATION BASED ON EUROSTAT DATA

Figure 4. Population/motorways km ratio by country
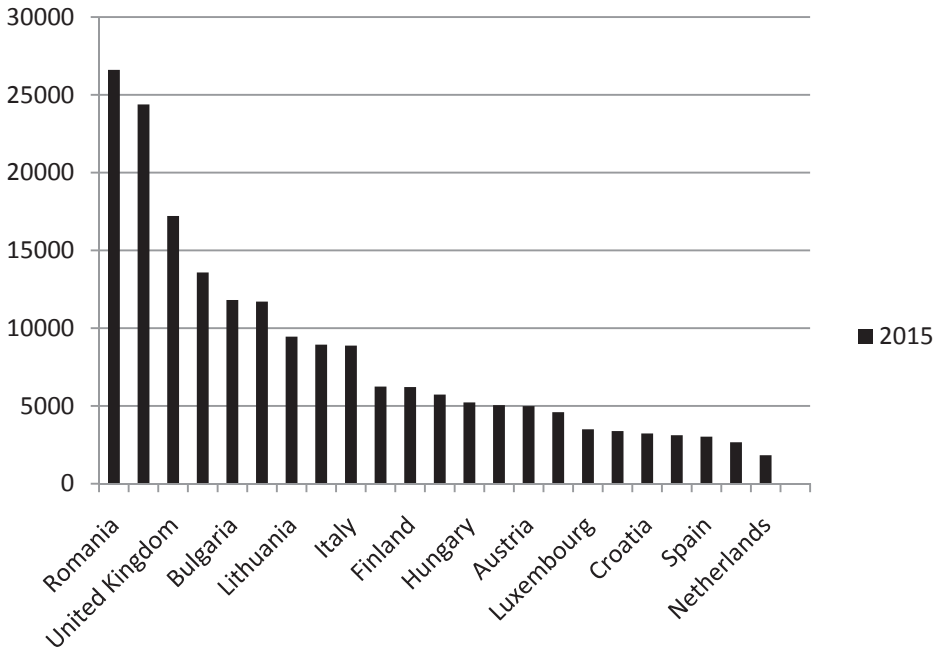
SOURCE: Authors' compilation based on Eurostat data

At regional level, according to the NUTS classification, Romania is divided into four macro-regions and eight development regions, as presented in Table 3. All eight regions are eligible for funding from the Cohesion Fund of the European Union (European Commission 2017), since they rank well below the EU average in many economic and social sectors. Even though some progress has been made over the past decade, there are two Romanian development regions which still do not have a motorway infrastructure (Table 4); the regions Nord-Est and Sud-Vest Oltenia do not have access to high speed road infrastructure, even though this issue has been raised over the years. In comparison, only few other NUTS 2 regions are in this situation, but they are situated in overseas territories (mainly islands), such as French Martinique, Guyana and Reunion or Spanish Ceuta and Melilla.

TABLE 3. Development regions of Romania

NUTS 1	Macroregion 1		Macroregion 2		Macroregion 3		Macroregion 4	
NUTS 2	Nord-Vest	Centru	Nord-Est	Sud-Est	Sud Muntenia	Bucharest Ilfov	Sud-Vest Oltenia	Vest
NUTS 3	6 counties	6 counties	6 counties	6 counties	7 counties	1 city (capital) 1 county	5 counties	4 counties

SOURCE: Ministry of Regional Development Public Administration and European Funds (2017)

TABLE 4. Number of motorway kilometers by development regions in Romania

Development regions	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Nord-Vest	-	-	-	-	-	-	41	52	52	52	52	52	52
Centru	-	-	-	-	-	-	-	-	17	18	55	93	93
Nord-Est	-	-	-	-	-	-	-	-	-	-	-	-	-
Sud-Est	1	1	1	1	1	1	1	1	1	74	74	74	74
Sud Muntenia	101	101	176	176	229	229	228	228	229	260	258	258	258
Bucharest Ilfov	11	11	51	51	51	51	51	51	51	77	75	75	75
Sud-Vest Oltenia	-	-	-	-	-	-	-	-	-	-	-	-	-
Vest	-	-	-	-	-	-	-	-	-	69	130	131	195
Total (km)	113	113	228	228	281	281	321	332	350	550	644	683	747

SOURCE: National Institute of Statistics (2017)

As the literature review section has already emphasized, regional development and the improvement in the quality of life are highly influenced by access to quality infrastruc-

ture. Our dependent variables show that the majority of our hypotheses were confirmed, even at regional level. However, since two of the Romanian development regions (Nord-Est and Sud-Vest Oltenia) have no highway infrastructure, the regression models could not be conducted in their cases and they were excluded from the analysis. The results derived from the models conducted on the remaining six development regions indicate the considerable effect that motorway network expansion has on developing regional tourism, on increasing regional welfare or on diminishing the unwanted effects of highly congested traffic on local roads, such as overtime spent commuting or accidents resulting in injuries or fatalities.

The results of the simple linear regression models for all variables related to all six remaining development regions are presented in Table 5.

The analyses of the six regions previously presented show to a certain extent the importance of road infrastructure for the two regions for which the regression models could not be conducted. Most of the initial hypotheses were confirmed; the infirmed hypotheses and the statistically insignificant values are pointed out in marked cells within Table 5. In the Centru and Sud-Est regions the assumption that a more developed highway network would lead to a decrease in early school abandonment was not confirmed, therefore other factors should be taken into consideration when analyzing this indicator. However, especially in the poorest regions of the country, Nord-Est and Sud-Vest Oltenia respectively, which are not yet correlated with the national highway network, distance to school is one of the main reasons invoked by early leavers.

In all six regions, as opposed to the expected assumption, building extra kilometers of motorways does not imply reduction in the number of victims injured in road accidents.

In the South-Eastern part of the continent, fatalities and injuries data related to road traffic may be attributed to the quality of the road network, the safety standards of the vehicle fleet (Eurostat 2017d; Chiriţescu 2015, p. 385) and to the prevention campaigns (not) carried out. For example, in Romania's case, there are numerous old vehicles which are still in circulation, with technical and mechanical problems, endangering the safety of other participants to the road traffic. Additionally, even though wearing a seatbelt or having a child-seat is mandatory by law, these regulations are often violated, and traffic agents overlook these violations, without giving traffic fines.

The refuted hypothesis regarding injuries from road accidents actually confirms Eurostat findings: fatality rates are high in regions with a low motorway density, such as most regions in Romania, Hungary and the Czech Republic, except their capital regions, all Bulgarian and Polish regions, the Baltic Member States, and many rural areas in France and Spain (Eurostat 2017d). By taking into consideration all the European Union's NUTS 2 regions, the Eurostat examination proved that the high proportion of road traffic using motorways is an important factor behind the low number of road fatalities in many regions, thus corroborating our findings as well.

All other initial hypotheses were confirmed for all regions; therefore the role of infrastructure on economic growth or better living conditions is indisputable. This assertion confirms the findings and conclusions of previous studies: according to Banerjee

TABLE 5. Regression results

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	7554.93	1E-08	0.65	712050.56	2E-10	0.29	19.84	3E-09	0.15
Km	98.64	1E-04	↑	3228.99	3E-02	↑	-0.07	1E-01	↓
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Nord-Vest	
Intercept	310.95	3E-15	0.56	1756.29	1E-04	0.56			
Km	-1.10	8E-04	↓	41.08	9E-04	↑			

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	9274.44	5E-09	0.43	1072517	6E-11	0.80	18.18	4.2E-12	0.10
Km	65.61	6E-03	↑	12371.68	3E-06	↑	0.03	0.23	↑
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Centru	
Intercept	324.24	4E-14	0.61	2368.82	2E-06	0.61			
Km	-1.39	4E-04	↓	21.27	3E-02	↑			

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	7739.50	4E-09	0.61	1096006	2E-15	0.30	22.49	1E-14	0.01
Km	77.17	3E-04	↑	1931.66	0.027	↑	0.01	0.71	↑
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Sud-Est	
Intercept	352.96	1.8E-13	0.38	2901.73	1E-05	0.17			
Km	-1.05	0.01	↓	20.19	0.12	↑			

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	-215.52	0.80	0.90	435168.7	1E-06	0.52	26.12	6E-12	0.39
Km	46.53	2E-08	↑	1036.9	2E-03	↑	-0.02	0.01	↓
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Sud Muntenia	
Intercept	481.0	2E-06	0.13	-1517.4	0.04	0.83			
Km	-0.4	0.17	↓	26.3	1E-06	↑			

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	8437.1	0.01	0.75	529316.3	5E-08	0.69	14.0	1E-10	0.55
Km	357.8	1E-05	↑	5389.4	6E-05	↑	-0.1	9E-04	↓
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Bucharest Ilfov	
Intercept	189.43	7E-06	0.04	772.2	0.42	0.54			
Km	-0.12	0.82	↓	71.5	0.001	↑			

	GDPc			Tourist			ELEduc		
	Coefficients	P-value	R^2	Coefficients	P-value	R^2	Coefficients	P-value	R^2
Intercept	10454.7	2E-08	0.34	574656.1	5E-15	0.68	16.7	6E-09	0.23
Km	36.2	0.02	↑	1300.6	8E-05	↑	-0.04	0.06	↓
	VicKill			VicInj					
	Coefficients	P-value	R^2	Coefficients	P-value	R^2		Vest	
Intercept	269.6	2E-12	0.35	1896.2	1E-05	0.19			
Km	-0.5	0.02	↓	7.47	0.09	↑			

et al. (2012) and Andrei et al. (2014) there are several reasons why good transportation infrastructure can be advantageous for economic development, from reducing trade costs, generating markets integration and prices convergence to easier access to healthcare, education, investment opportunities or tourist facilities.

Figure 5. Map of Romania: motorways network and main hospital placement
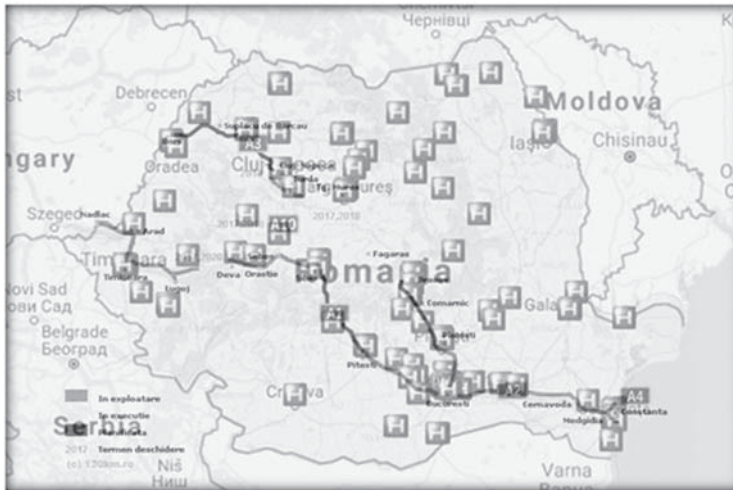
In terms of easier access to healthcare, the Eurostat findings (Eurostat 2016c) regarding unmet healthcare needs provided sufficient motivation for deepening our analysis. In comparison with other European countries, Romania features of the highest proportions of the population assessed as having unmet healthcare needs. The reasons for such assessments are *Too expensive*, *Too far to travel*, *Waiting list*, *No time*, *Fear of doctor, hospital, examination or treatment*, *No doctor or specialist*. For the past years, Romania has had the highest proportion of population admitting that it was too far to travel to a medical unit; as a consequence, apart from the previously stated reasons, developing road infrastructure becomes even more stringent. Statistical data is not available at regional level, but for the purpose of illustrating the previous assertion, we have created a map of Romania featuring the motorway network and the location of major hospitals nationwide (Figure 5), by overlaying the map of existing and under construction motorway infrastructure (Economica.net 2017) and the map of major hospitals in the country (Insurance Assistance 2017). The location of some of the most specialized hospitals follows to some extent the most developed regions in terms of road infrastructure, accentuating the difficulty in seeking medical care for the citizens of the regions that have no access to motorways. Under these circumstances, as figure 5 shows, the population of these regions must travel longer distances on less safe national roads for medical assistance. Furthermore, if road accidents occur in these areas, it is more difficult to attend to injured victims and to transport them to an emergency hospital. Usually, in such cases, urgent transporta-

tion of victims is carried out by helicopter, hence increasing governmental health expenditure. On the other hand, better road infrastructure would translate into easier access to healthcare services and into lower health expenditure determined by untreated diseases or by easier transportation of victims by road. In these areas, there is an existing network of national, European and county roads, but they do not compensate for the lack of motorways, as the distances between the various points of the country are considerable and translate into long periods of time, which in some cases may be fatal.

Additionally, this study can be extended to even more explanatory variables, provided there is reported data available at national or international level. It is not meant to be an exhaustive analysis, but a stepping stone for further investigations in the field. Moreover, it stresses the high impact of infrastructure on various domains related to human economic and social activity and well-being. For Romania's case in particular, it is more relevant since there are no similar analyses available and the situation is improving at such a small pace, compared to other new Member States.

Conclusions

THE MAIN focus of this analysis is to provide sufficient information for drawing, on the one hand, a general conclusion based on previous studies regarding the need of further improvement of road infrastructure and, on the other hand, a set of incentives for speedier investments in infrastructure for Romania's particular case.

Given these two approaches, the main findings of the paper allow the assertion that the development of the road network leads to improved performance and better access of certain underdeveloped areas to basic activities, thus bringing more emphasis on some of the key elements of the EU's Cohesion Policy. The available literature on the subject points out that qualitative road infrastructure has a positive impact on the health and education of the population, leading on the long term to economic growth. The location of new businesses and households takes into account the existing and potential transport infrastructure, and, as a consequence, regional modernization accordingly depends on this attribute.

As part of the European Union's Single Market characteristics, infrastructure links national and international communities and markets, health and education institutions, provides access to clean water, sanitation and power, improves livelihoods and generates jobs, creating conditions for sustainable well-being on the long run.

As a full EU Member State, Romania must strive to align its regions to the European average in terms of economic growth, GDP per capita, social welfare, population's standard of living etc.; the country must also address the alarm signals highlighted by this study and other available analyses in order to improve the citizens' quality of life. As detailed in the previous sections, Romanian road infrastructure is one of the main reasons and possible explanations for the under-potential economic growth over the past decade, for less access to education and medical care, and for occupying one of the first places in Europe for road accidents resulting in casualties.

Even though in relative terms, as the European Commission points out, the most significant motorway expansion between 2005 and 2014 took place in the Romanian region of Sud-Est, followed by the Bulgarian region of Yugoiztochen and Lódzkie in Poland (Eurostat 2017c), as our study confirms, these impressive growth rates were explained by the very limited motorway networks available in the 2000s and do not respond, not even by far, to the economic and social needs of these regions.

Nevertheless, the number of registered vehicles has risen over the past years, thus generating more traffic on national roads; motorways would relieve this burden and would substantially reduce the time needed to pass from one region to another. This would translate into more national and international tourists and investors, more jobs for locals, ease of access to medical and educational services, more goods crossing the Romanian territory etc.

For the time being, Romania is still avoided by tourists and carriers, although a good multimodal connection with the Constanţa port could be made for freight transport. Also, unfortunately, the railway network is outdated, meaning that while covering the whole country, the average speed of the trains is approx. 82 km/h (the existent railway infrastructure allows maximal speeds of 160 km/h on limited sectors). Thus, the train is not a viable alternative to road transport, generating even more road traffic.

Therefore, a decade after Romania's accession to the EU, the need to accelerate and implement structural reforms remains as stringent in order to reduce disparities among regions and to ensure the success of the integration process, while generating economic and social growth and stability at national level.

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Abstract
Romanian Infrastructure: Road To European Integration

This paper's objective is to highlight in Romania's case several reasons for worry regarding the current context after a decade of EU membership. The paper analyses the determining influence of the current Romanian road infrastructure on the country's economic growth, touristic development, on the access to community resources such as education and medical services, on human health and well-being. The research conducted and the resulting correlations also distinguish Romania from the other Member States and show to which extent the regions of Romania are on the right path towards European integration in terms of infrastructure, economic and social development and the citizens' quality of life. The utility of this study stems from the lack of similar researches on the development regions of Romania, with significant findings regarding the effects of a dense qualitative infrastructure on a number of economic and social indicators.