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## Conference Paper

# Egnatia Motorway: Analysing the impacts on the economic and social sustainability of urban areas in Greece

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**Title of Paper: Egnatia Motorway: Analysing the impacts on the economic and social sustainability of urban areas in Greece**

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**1. Introduction**

Egnatia Motorway is the part of the E90 European route that is located in Greek territory. This project is a part of the Trans-European Transport Networks programme (TENs) and it was funded by the European Commission. It extends from the north-western port of Igoumenitsa, crosses three greek regions (region of Epirus, Macedonia and Thrace) and ends to the north - eastern Greek-Turkish border at Kipoi. The total length of the motorway is 670km, and is aimed to connect Greece with Turkey, Albania, FYROM and Bulgaria. In addition, it crosses from nine big Greek cities, four ports and six airports (Polyzos, 2009).

On the one hand, on a national level, this Motorway is aimed to have a prominent role as a development axis in Northern Greece, as it is expected to increase investments in economic sectors such as transport, industry and tourism (Gavanas, 2011). On the other hand, on a European level, Egnatia links the major industrial zones in Greece. Another significant element that makes this motorway a great source for development in Greece is that it will operate as a collector route for the Balkan and South-eastern European transport system (Kourkourides, 2009). Moreover, when it comes to territorial cohesion, the motorway is of significant importance, as it improves accessibility amongst regions, even with the most remote ones and prohibits isolation. As a result, the trend of the depopulation of rural areas might be reversed, medical and education services will be improved (Egnatia Motoway, 2011).

For all the above reasons this project is of great importance for not only Northern Greece, but for the whole country as well. The choice of this topic was based at the lack of literature regarding the impacts of this mega infrastructure project on social and economic sustainability (Ta nea, 2007).

The aim of this paper is to evaluate the impacts of the project in terms of sustainability. In particular, it will focus on whether the local economy of the cities Egnatia crosses has suffered or not, in comparison to social sustainability. This choice was based at the fact that there is lack of

literature on social sustainability, whilst there is more concerning regional development on this particular topic. Moreover, in terms of economic sustainability, another key issue is the impacts of the motorway on urban and rural settlements, and how the mobility of the citizens and the flows are changed. The former motorway crossed a vast amount of small scale towns and villages, therefore, there is need to examine the contribution of the new one to regional and urban development.

Sustainability is a multidimensional term, as according to the report of the Brundtland Commission which was the first to introduce that sustainability can be possible when combined with economic prosperity and social cohesion (Williams, 1996). Finally, when it comes to the third element that consists the term, social cohesion, this project will focus on the population's quality of life, chances of accessibility and last but not least, the identity of the landscape and how it s transformed.

## **2. Literature Review**

### ***2.1 Transport and development***

#### **2.1.1 Economic development**

Growth means “to increase naturally in size by the addition of material through assimilation or accretion”. On the other hand, to develop means “to expand or realize the potentialities of bring gradually to a fuller, greater, or better state” (Daly, 1990). More specifically, growth is clearly a quantitative augmentation that is related with physical scale, whilst development is qualitative amelioration or revealing the potentialities. Both concepts can be related with economy, as there can be growth without development, development without growth, both, or neither of them in some cases. On the contrary, the relation between those terms and sustainability differentiates, as the economic growth cannot be compatible with sustainability, but economic development is more likely to coexist with the latter (Daly, 1990).

With regards to economic growth, there is a controversy in the literature between growth and prosperity and on the other side, how growth is interrelated with economic stability, political and social issues. Most scholars and economic analysts argue that growth is considered to be a causality for the benefit of society, as it is a driving force for economic thrive and social stability (Muraca, 2010).

In addition, some other benefits of economic growth are the amelioration of life quality and the standard of living, which is achieved by the satisfaction of the needs of people in the society. Furthermore, at a social level, it helps shaping the independency of people and increases their freedom. Above all, the most important social benefit is that government has more financial funds to spend in public and social welfare services. If the government applies these measures, the result will be positive, as social degradation and distinction will be eliminated to a certain extend (Max- Neef, 1995). Last but not least, one of the most important benefits of growth in a socio-economic level associated with life quality is the increase of employment and the creation of new job opportunities (Cerveto, 2001).

Friedman (2005), examined the relation between economic growth and morality and the results of his research showed that the former does not always have a positive impact on society in terms of justice distribution. However, it can promote democratic procedures, opportunities for the citizens, and social mobility (Friedman, 2005).

Last but not least, there is an attempt to prevent the misunderstanding that growth is not always synonymous with wealth increase. Some scholars support the view that only with increasing growth and wealth societies would be able to cope with the necessary costs to protect the environment (Daly, 1990 ; Pearce and Atkinson, 1993).

### **2.1.2 Regional Development**

Transport infrastructure has undoubtedly a significant impact on an area. The construction of these infrastructures and the improvement of the already existing ones are internationally considered as an instrument of regional policy, as mentioned before, but their exact contribution to reducing regional disparities is not yet determined in the literature (Polyzos, 1998).

Strasheim (1972) questions the construction of transport infrastructure as an instrument of regional policy and considers their contribution to reducing regional disparities not significant. He also pointed out that analysts give great emphasis than they should on the role of transport infrastructures and he estimates that this is due to the great influence of the classical theory of location. Furthermore, he argues that the relationship between regional development and transportation infrastructure is both subtle and complex, and the degree of complexity is continuously increasing, fact that complicates the analysis and modelling (Polyzos, 1998).

Giannopoulos (1979) and Drew (1990), argue that a high quality transport system is not sufficient by itself for the development of regions, but it assists in bypassing obstacles and creates the

conditions for their development. They also state that the development of transport infrastructure firstly affects urban areas and the areas around them are following. This is because urban areas are the source of human resources and economic structures that allow direct operation of transport infrastructure. Furthermore, the development of transport infrastructure affects the location choices of firms as the accessibility in markets and supply sources of raw materials varies is of great importance. Finally, they recognize that the development of such infrastructure improves productivity and thus the level of development, as it is an obvious link between productivity and economic growth (Polyzos, 2003).

Plassard (1992) considers that the views upon the positive correlation between the development of transport infrastructure and regional development lack scientific validity. Of course, he recognises that such views are maintained over time, which is interpreted as an effort for the political decision to build transport infrastructure to be legalised. Finally he argues that transport infrastructure does not create significant long-term regional changes (Polyzos, 2003).

On the other hand, Rephan and Isserman (1994) indicate that the relationship between these two terms is complex and for that reason there is difficulty in developing theories. The complexities of this relationship based upon the fact that transport infrastructure have both economic and spatial effects (Mimi, 2009).

Vickerman (1989, 1995), estimates that when investigating the effects of transport infrastructure, other factors should be taken into account besides the change in the overall accessibility of the area and the transportation costs to the industries of the region. He argues that the possibility of creating "corridors" should be examined, when a region is not affected by the passage of a transport infrastructure. Therefore, the region does not exploit the advantages, these passages create. Areas that have benefited from this phenomenon are Kent, of Great Britain and Nord Pas de Calais, of France, that are located at the entrance of the Channel Tunnel, known as the "tunnel effect" (Kafkalas and Andrikopoulou, 2000).

Petrakos (1997), by summarizing and codifying studies conducted in Europe on this relationship, points out three main characteristics:

- Transport infrastructure is one of the four determinants of the development of a region (the other three are the position in space, the existing economies of scale and the composition of local production and employment).

- Transport infrastructure cannot significantly influence the hierarchy of regions, while reducing the travel time of the region from the central regions, they benefit more due to the comparative advantages they have.
- The benefits of a region by the development of transport infrastructure are dependent on the production base and the resistance to the driving force, received from the central regions (Petraikos and Psycharis, 2007).

Moreover, Kafkalas and Andrikopoulou (2000) argue that transport infrastructure, particularly trans-European networks; create different polarization and inequalities between regions. In intra-regional level, transport infrastructure creates inequalities that are depending on the distance and terrain, as some areas have greater access to the network and other less. On the other hand, in trans-regional level, transport infrastructure contributes in reducing regional disparities, and ensures communication between different areas (Kafkalas and Andrikopoulou 2000).

## ***2.2 Transport and Sustainability***

At this point, it would be of great importance to define two significant concepts for this paper, the concept of transport, and the one of transport infrastructure. Transport covers the needs of people that derive from the geographic dispersion of sites of production and consumption sites, places of residence and places of Labour, as well as the for 'mobility' and 'communication' (Aggelakis, 2007). On the other hand, transport infrastructure is more related to the economic development of isolated areas. Although there is no direct empirical evidence that the increase in transport infrastructure in one area can lead to an increase in Gross Regional Product and employment, however, has observed that lack of transport infrastructure can be the cause for underdevelopment of an area. This is because problems related with transport infrastructure in a region lead to suboptimal use of resources in the region and the inefficient use of economic potential (Aggelakis, 2007).

The role of transport infrastructure on regional development is related to a modern road system, which leads to lower transportation costs and improves the accessibility of and within the region. This improvement makes the region's production system competitive and boosts its economy (Mimi, 2009). The European transport policy refers to a wide range of strategies and has particularly stressed the importance of trans-European networks for the economic consolidation. As mentioned before, Egnatia Motorway is part of these networks. The objectives of EU

transport policy include sustainable development, the strengthening of the economy, social cohesion, promotion of security, internal market integration and interoperability of transport systems (Kourkourides, 2009).

Consequently, it is obvious that transport has a major role as far as economic activities are concerned. The fact that in most European countries, the vast amount of the population inhabits in urban areas, reveals that most of the transportations takes place in them. As a result there is increase in numerous problems such as environmental, public transportation management, and its services quality and last but not least the development of these urban areas (Quinet and Vickerman, 2004).

According to Cervero, (2001), most times there is a difficulty to distinguish urban from rural areas, especially as far as densely populated areas are concerned. Moreover, more economically efficient regions have to develop an also efficient transport infrastructure system in order to enhance the accessibility to the employers that are occupied in local businesses. Consequently, travelling and commuting is not time-consuming, as speed is increased and as a result these regions develop economies of scale (Banister et al, 1997). Less time for travel may be needed for workers in high density populated areas, but also, higher land space is needed for these activities. Therefore, the car ownership levels in these areas are significantly higher and as a consequence, they reflect the income levels of this group, as the more affluent social groups have the ability to own an automobile and travel in high frequency, but this is not always true (Banister et al, 1997). On the contrary, in the cases where people have to cover long distances and the demand is high, the problematic of public transportation and arises in local scale (Hunter et al., 1998).

At this point, there is an attempt to define the relation between transport infrastructure and regional development. To conclusion is that the improvement of road transportation networks results in transport costs reduction and enhancement of accessibility through and within regions. As a consequence of the foregoing, the accessibility of raw materials and markets to industries has significantly increased, including even the most remote markets and there is a tendency of creating industrial clusters (external economies of scale). Accessibility has a key role in regional development as it facilitates trade flows from different areas and enables businesses to promote their products to more remote and isolated markets that it would be merely impossible without transport infrastructure (Petraikos and Psyharis, 2007, Vickerman et al., 1999).

In this way businesses benefit from the coexistence with other businesses that produce similar products and offer similar services, thus expanding the variety of choices, or marketing better their products and as a result their business are more productive. From the former arguments we can conclude that the improvement of transport networks reinforces economic relations between regions, even if they were absent in the past. However, when it comes to enhancing the connectivity of an economically strong area and a less developed one, then the companies of the former are expected to take over the businesses of the latter. This results in the underdeveloped area's economic weakness (Polyzos, 2001).

According to Nijkamp et al. (1993), a sustainable regional development is more related with the combination of balanced flows in the region and has to attain a certain amount of population which will be able to reach a certain level of welfare, and to have balanced flows for the land that covers, in the present as well as in the future, and also these two factors will have a dynamic protective relationship with the environment, in order to be able to meet the global standards of sustainable development. Consequently regional sustainable development has to achieve two goals: “(1) it should ensure for the regional population an acceptable level of welfare, which can be sustained in the future; (2) it should not be in contrast with SD at a supra-regional level” (Nijkamp et al., 1993).

Nijkamp et al., (1993) also argues that it is possible to achieve global sustainable development, without achieving regional sustainable development due to the special nature of trade, transport systems, the environment (including the diversification of species) and other social and economic related reasons. In some cases, regional sustainability has to be sacrificed for the sake of the global one. By sacrifices the author implies that the regional population might have to decrease the level of welfare mentioned before. This can happen in regions with specific natural features like areas that not only have high environmental value and have to be protected and preserved, but also have significant industrial activity, or are suitable for dump-waste sites (Nijkamp et al., 1993).

### **3. Data collection – Main Findings**

To begin with, all three of case study cities are of different scale. For that purpose, the metropolis city chosen is Thessaloniki, the medium scale city is Kavala and the smaller scale is a rural city, Grevena. The analysis of their profile is helpful to conduct the results of the interviews, which



were held in each of them. The primary data collection will be based on semi - structured questionnaires. The questionnaire consists of four questions:

- ✓ Question 1: Had the Egnatia Motorway an impact on local economy? In which way? Why do you think so?
- ✓ Question 2: What are the social impacts of Egnatia Motorway on your town/ city?
- ✓ Question 3: Has Egnatia Motorway affected the accessibility, the mobility and the flows in the city? How?
- ✓ Question 4: Do you think that the current economic climate has had an impact on these issues?

In order to have realistic data, three key actors were chosen in these cities to answer the questionnaires, from different backgrounds. The first is a local authority representative, the second is a business manager and the third is a community representative. The purpose of these interviews was to understand if the Motorway had an impact on the local economy, on each city's society, how the mobility and the flows have changed and if the current economic climate of the country has affected these issues.

**Figure 1: Location of the cities on the Motorway**



**Source: Egnatia Motorway, 2011, own elaboration**

### ***3.1 Case study 1: Metropolis of Thessaloniki***

#### **3.1.1 City Profile**

Thessaloniki is the capital of the regional unit of Thessaloniki, and is the largest city in Northern Greece and the second largest on a national level after Athens. It is located on the central-west part of the region of Thessaloniki, by the Thermaikos gulf (Mpessa, 2010). To begin with,

Thessaloniki is part of the central axis of development. Furthermore, it is a significant transportation hub, as there is railway connection, road infrastructures, a port and an airport, that enhance the connectivity with other parts in Greece and internationally with the Balkans. On an economic level, there are new governmental policies that address to the metropolis in order to give directions towards new development opportunities in a regional, national and international level. Moreover, it has multiple roles, as it is considered to be an international “gate” that connects Greece with the other Eastern European centres, a cultural capital, as it has significant history and consists a touristic attraction and last but not least, a European business centre (Mpessa, 2010)

According to the data of the Hellenic statistical authority, as the following table presents, the population of Thessaloniki in 2001 was 1,084,001 people and this number has increased significantly, in the last 10 years. Moreover, the number of the population is high in comparison to the total amount of the country’s population, as it reaches almost the 11 per cent of the total population.

**Table 1: Population of Thessaloniki**

	Permanent Population		Real population	
	2001	1991	2001	1991
Thessaloniki	1,084,001	971,067	1,057,825	944,426
Greece	10,934,097	10,223,392	10,964,020	10,259,900

**Source: Hellenic statistical authority, 2011**

As far as employment distribution in the city is concerned, we can conclude that the vast majority of the population is occupied in the tertiary sector, with a percentage that reaches 63 per cent of the population. This is a natural outcome as the city is an administrative centre. The secondary sector is following with a big discrepancy from the first one with a much smaller number (27%). The second largest industrial centre is located in Thessaloniki. Consequently, the field of activity that is the least popular is the primary with a number that hardly reaches 5 per cent (Isotimia, 2011).

**Table 2: Employment of Thessaloniki, categorized by production sector**

	Economic ally active							Economical ly inactive
	Total	Employed					Unempl oyed	
		Total	Primary Sector	Secondary Sector	Tertiary Sector	Undeclared		
Thessaloniki	469,609	416,342	20,998	111,024	261,332	22,988	53,267	614,392

Source: Hellenic statistical authority, 2011

### 3.1.2 City Findings

Discussing with the key actors in Thessaloniki, the economic impacts of Egnatia Motorway can be categorised in the following points:

- Increased accessibility with neighbour cities and the Balkans
- Boost in local economy - Increased industrial flows
- Flourishing tourism
- Enhanced role as a metropolis
- Higher population diversity

The first key actor asked in this city is a representative of the local authorities. Regarding the first question about the impacts of the motorway on the local economy and the third question about the flows in the city, he argued that: “So far the impacts of Egnatia Motorway are positive for the city in multiple levels. To begin with, it has not only increased the accessibility with the neighbour cities of northern Greece, but also with others that are located in central and south Greece. Consequently, the industrial flows towards our city have increased significantly, as well as the exports and as a result there is a boost in the local economy. Furthermore, the connectivity with cities from the Balkans and Eastern Europe has ameliorated too due to the vertical axis, so the international exports have increased as well. Another sector that has benefited from the same factor is tourism” (Local authority representative, Thessaloniki).

Regarding the fourth question about the current economic climate, he stated that: “this period is a very hard period for the country. The credit crunch has affected every domain of productive activity. Nevertheless, Egnatia Motorway had only positive impacts on local economy”.

The second key actor interviewed was a business manager. “Thessaloniki has augmented its role as a metropolis and the flows of consumers have increased sharply during the last years and so have the sales. Unfortunately, the motorway was constructed in a dreadful economic climate, so I

cannot have a realistic opinion yet about its contribution to it. So far, I believe that it is an advantage for the city and in the future businesses are going to be more benefited” (Business manager, Thessaloniki).

As for social impacts, a representative from a social organisation replied that: “Thessaloniki’s role as an international metropolis is continuously increasing. There are many successful festivals and exhibition organised each year in the city, and people’s response to them is positive. There is more diversity in the population, as many people across Greece choose to visit the city and benefit from the cultural activities that are available” (Social Organisation Representative, Thessaloniki).

### 3.2 Case study 2: City of Kavala

#### 3.2.1 City Profile

The city of Kavala is part of the prefecture of Kavala and of the region of East Macedonia and is located near the Mount Symbol. This average medium scale Greek city is now considered as one of the most dynamic cities in the country and as a major Greek commercial and industrial centre, due to economic cooperation that has been developed amongst neighbour cities. In addition, the port and airport that are in the city meet the needs of a large area and combined with the cultural and commercial character of the city, it is considered as a significant centre of recreation and tourism (Savvides, 2002, Municipality of Kavala, 2009).

Kavala’s population in 2001 according to the Hellenic statistical authority reached 63,572 people. As we can observe from the table 3, there was a slight increase of the population from 1991 to 2001.

**Table 3: Population of Kavala**

	Permanent Population		Real population	
	2001	1991	2001	1991
Kavala	63,572	60,784	63,293	60,187
Greece	10,934,097	10,223,392	10,964,020	10,259,900

**Source: Hellenic statistical authority, 2011**

In the following table are included data that concern the city’s employment, categorized by productive sector. The tertiary sector is dominant in this case as well, as it has developed tourism. The following sector is the secondary and there is a significant discrepancy between them. Last

but not least follows the primary sector. This result is realistic if we consider that we examine cities and not the whole prefecture.

**Table 4: Employment in Kavala, categorized by production sector**

	Economically active							Economically inactive
	Total	Employed					Unemployed	
		Total	Primary Sector	Secondary Sector	Tertiary Sector	Undeclared	Total	
Kavala	25,509	22,419	703	5,385	15,705	626	3,090	38,063

**Source: Hellenic statistical authority, 2011**

### 3.2.2 City Findings

Discussing with the key actors in Kavala, the economic impacts of Egnatia Motorway can be categorised in the following points:

- Benefited tourism and industrial sector
- Young workforce abandons the city for better job opportunities in larger cities
- Collaboration with other cities

The combination of the first and the third question about the impacts of the motorway on local economy and the impacts on accessibility was asked to a representative of the local authorities and a hotel owner. The first one argues that: “In my opinion, Egnatia Motorway has positive impacts on the city of Kavala thus far, especially in the industrial sector and in the sector of tourism. It has enhanced the accessibility with other urban and rural areas, which constitutes easier the transfer of raw materials and products. As far as tourism is concerned, there is a slight increase in the last years, as now the city is more approachable to visitors. A negative aspect of the accessibility is that young people prefer to work in larger cities such as Thessaloniki and now with the construction of Egnatia motorway it is easier to commute as they save plenty of time, but the city loses its workforce” (Local authority representative, Kavala).

The hotel owner stated that: “the impacts of the motorway had a positive impact on the local businesses, as the distance has decreased and there are more tourists in the area. The only negative aspect is that they have decreased the time of their vacation, but I suppose this is due to the current economic climate and that they cannot afford to spend as many days as the previous years” (Hotel manager, Kavala).

Finally, a member of a cultural organization was interviewed and stated that: “there have been established collaborations with other cities, and there is a successful cultural festival each year. According to me, this result is due to the decrease of the time-distance. There are more flows to our city and the most encouraging fact is that most of the visitors are young people and especially students from neighbour cities” (Cultural Organisation Representative, Kavala).

### 3.3 Case study 3: City of Grevena

#### 3.3.1 City Profile

Grevena is part of the prefecture of Grevena and of the West Macedonia region. It is considered as a rather underdeveloped part in Greece, due to its remote location and mountainous terrain. This situation is considered to have changed with Egnatia Motorway that is aimed to integrate the city better and enhance the accessibility (Kourkourides, 2010). The city of Grevena is a small scale city in comparison to the country’s population, despite the fact that it is the capital of the prefecture. It hardly reaches 16,500 citizens according to the last population census in 2001.

**Table 5: Population in Grevena**

	Permanent Population		Real population	
	2001	1991	2001	1991
Grevena	16,421	15,656	15,481	14,956
Greece	10,934,097	10,223,392	10,964,020	10,259,900

**Source: Hellenic Statistical authority, 2001**

The following table (6) presents the diversification of the employment categorised by field of productive activity. The dominant sector with the most employers is the tertiary, followed by the secondary and the least dominant is the primary sector. The only difference in this case is that the primary sector presents a slight difference from the secondary. This shows that this is a rural area. The large percentage of tertiary can easily be explained, as the area has developed alternative forms of tourism.

**Table 6: Employment in Grevena, categorized by production sector**

	Economically active						Economically inactive
	Total	Employed				Unemployed	
		Total	Primary Sector	Secondary Sector	Tertiary Sector	Undeclared	Total

Grevena	6,579	5,646	923	1,203	3,329	191	933	9,842
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Source: Hellenic Statistical authority, 2001

### 3.3.2 City Findings

The main economic impacts from the Motorway in the city of Grevena can be categorised as:

- Increased commercial and trade flows
- Citizens' preference in working in larger cities
- Businesses and industries closing down- change their location to larger urban centres
- Citizens' preference to shop in larger cities
- Tourism unaffected
- Emigration wave of young people

This case study presents differences in comparison to the other two. In terms of economy, the representative of the local authorities argued that: "With regards to the positive impacts, it has increased commercial and trade flows. This happens because the city has a developed primary sector, and the producers can transfer their products easier and also expand their field of activity. On the other hand, this has affected the city in a negative way because there is a continuously increasing number of people that prefer to work in larger cities, especially younger people and scientists, as the city cannot provide them particular positions" (Local authority representative, Grevena).

The business manager interviewed, claimed that the motorway has affected the city in a negative way, as due to the decrease of the time distances, the competitions amongst neighbour cities has dramatically increased. Unfortunately, our city cannot compete larger urban centres and as a result there is a large number of businesses and industries that are closing down, or they change their location to larger cities, in order to be benefited from the economies of scale that are created there. Another disadvantage is that local residents prefer to shop in larger urban cities and especially Thessaloniki because the variety is larger and the trip to the metropolis is very short by Egnatia Motorway. There is no doubt that the fiscal crisis has affected this climate to a considerable extend, but even if it was the opposite way, I can hardly say that the situation would be different. The only businesses that have not been affected to a great extend are the hotels", (Business manager, Grevena).

To begin with, regarding the social sustainability, the positive aspect is that the connectivity with neighbor cities has increased access to services that are not available in the area, as the city now is not remote and isolated. The most urgent problem the city faces is the difficulty in preventing the local residents and young people in particular from abandoning the city and move into larger cities. There is an augmenting emigration wave of young people” (High School Professor, Grevena).

### ***3.4 Winners and Losers***

The main conclusion from the conducted interviews is that the local economy in large urban areas and cities has thrived, whilst it has deteriorated in the smaller ones and rural areas. On the other hand, as far as social sustainability the hypothesis is that that smaller scale cities and rural areas are not benefited as much as the larger scale ones. This statement is also the hypothesis of this paper. The theories that apply to all the examined cases are:

According to Petrakos (1997), transport infrastructure is one of the four determinants of the development of a region. A well supported transport network can reduce the travel time of the region from the central regions. The other common element is that a region can be benefited from the development of transport infrastructure as the production base is usually deriving from the central regions. Moreover the region’s effects depend on the geographic location and the economic dynamic of it. This can relate to all three case studies, as the industrial sector has been benefited because of these reasons.

As far as the metropolis of Thessaloniki is concerned, the general conclusion is that the construction of the motorway has contributed in a positive way in the development of the city. Firstly, the improvement of the connections amongst other cities has contributed in the boost of the economy by increasing the export flows and the consumer flows into the city. Another positive impact was the strengthening of the city’s role as an international metropolitan centre. Furthermore, on a social level, the city has gained, as the population is more diversified. The increased mobility has encouraged people to visit the city in an everyday basis.

The European transport policies include sustainable development, the strengthening of the economy, social cohesion, promotion of security, internal market integration and interoperability of transport systems (Kourkourides, 2009). This is related to the case of the metropolitan centre of Thessaloniki.



Kavala's analysis indicated that the overall impacts from the motorway are encouraging for the city. To begin with, it has achieved a better spatial integration in the country. Therefore, the touristic industry is developing in a high rate. What is more, there is an economic development in the area as well, as the transport infrastructure amelioration has played a key role in that. As far as social sustainability is concerned, the general idea is that the motorway affected social issues positively, as there is an increasing tension of young people coming in the city.

Grevena is the city that suffered the most from the crossing of the motorway according to the findings. The only positive aspect is that the city is now better integrated spatially, but this can sometimes act against the city. As a consequence, there are businesses that are moving from their initial location to another in a neighbour larger city, so that they can benefited from the economies of scale that are developed among other businesses by lowering the transportation costs of goods and raw materials. Moreover, there are shops that are closing down, as they cannot confront the competition with larger cities and especially the metropolis' shops. On a social level, there is now a better life quality, as the access to services that are not available in the small city, as it is not remote and isolated in the present. On the other hand, the most crucial disadvantage is the difficulty in keeping the local population and the young in particular, from emigrating to larger urban centres with more job opportunities available.

The fact that transport infrastructure has both economic and spatial effects, (Rephan and Isserman, 1994), is clear in all of the case studies. Without doubt, transport infrastructure is a significant instrument of regional policy, mentioned before, but their exact contribution to reducing regional disparities is depending on many factors (Polyzos, 2009). This theory reflects on the examined case studies. We can conclude that the one factor is the size of the city. The larger the city is, the lower the regional disparities become.

The fact that transport infrastructure does not create significant long-term regional changes, that Plassard (1992) stated is not clear from the results, as the motorway is a new infrastructure. In the future there will be more realistic results.

Vickerman's statement about the "corridors" is confirmed, as we can see the "tunnel effect" has benefited the larger scale cities, but not the rural area, as it is not located strategically in a major passage of the motorway (Vickerman, 1989, Vickerman, 1995).

Kafkalas and Andrikopoulou (2000) focused on trans-European networks. According to them, they create different polarization and inequalities between regions. In intra-regional level,

transport infrastructure creates inequalities that are depending on the distance and terrain, as some areas have greater access to the network and other less. On the other hand, in trans-regional level, transport infrastructure contributes in reducing regional disparities, and ensures communication between different areas. The latter is in agreement with the findings of the two first cities, but not also with the last one.

The statement of Aggelakis, (2007), that transport infrastructure can help the economic development of isolated areas, is partly true according to the examined case of Grevena. It has both advantages and disadvantages.

Both concepts can be related with economy, as there can be growth without development, development without growth, both, or neither of them in some cases. On the contrary, the relation between those terms and sustainability differentiates, as the economic growth cannot be compatible with sustainability, but economic development is more likely to coexist with the latter

#### **4. Conclusions**

This paper's aim is to examine whether the Egnatia Motorway had an impact on economic and social sustainability at the cities that are located on the motorway. For this reason there was a choice of three case study cities of different scale to help in the conduction of the conclusion. The hypothesis was that in terms of economic sustainability, the larger scale cities have positives impacts, although the situation is the exact opposite for the smaller scale one. Regarding social sustainability, the hypothesis is the same. This means that the small city loses out in comparison to the other two urban areas that are larger in size. In this case the hypothesis verifies the findings and answers the research question.

Summarizing the theoretical approaches and empirical studies analysed, we concluded that increased accessibility is positively associated with regional development, but this is not the only factor that determines that. To contribute to regional convergence, two conditions must be met.

A) The relative accessibility of the more remote areas is about to increase more than the region that was already accessible.

B) It is essential that the capacity of the regions that are affected the most, are able to cope with the increased competition among the other regions. Finally the "tunnel effect" should be avoided, so that economically weak and isolated areas will not become weaker.

The main advantages and benefits from the construction of the motorway according to the findings are listed below:

- Traveling and mobility throughout northern Greece has been ameliorated to a great extent, either by the increase of demand, but also because of the better quality of the existing transport network.
- There is a clear improvement of accessibility, particularly at the most remote areas, in our case for the city of Grevena.
- Egnatia Motorway has enhanced the geopolitical role of Thessaloniki and its role as a European metropolitan area and consequently Greece's in Europe, the Balkans, the Mediterranean Sea and the countries of the Black Sea. As a result there is reduction in spatial disparities.
- There was a remarkable boost in local economy and an increase in industrial flows.
- Egnatia Motorway has played a key role in the flourish of tourism in all three case studies, which is also apparent with the greater population diversity.
- There is a better collaboration amongst cities due to increased accessibility and mobility.

Unfortunately the motorway had also negative impacts, especially in the smaller scale city, Grevena. The summary of these arguments is following:

- Citizens prefer to shop and work in larger cities, as the market there is larger.
- The emigration wave of young people in particular is a fact for Grevena and Kavala in smaller degree, as young workforce abandons the city for better job opportunities in larger cities.
- Businesses and industries are closing down in Grevena, or they change their location to larger urban centres so that they can benefit of the economies of scale created there.

Based on the current form and function of the TENs the most important part of development continues to be absorbed by the larger and most dynamic areas of the EU, that are already greater in growth than the others. As a result, there is further strengthening of the position and role and it is not clear yet to what extent social and economic cohesion is promoted. So the weaker regional areas, in order to stand in a highly competitive environment and develop accordingly, should use the relative opportunities and exploit adequately the existence and operation of the single transport network.

The government should take advantage of the enhanced connectivity with the Balkans and even with central Europe and should consider expanding the exports to the cities that are connected

with the vertical corridors. This would help boosting the economy, especially in this crucial economic climate of the country.

As far as planning decisions are considered, planning should not be only strategic, but it should focus more on local scale in order to minimise the disparities. Some policies regarding this matter are:

- Motivation from the government in order to create more opportunities in small cities in order to prevent people from abandoning them.
- Economic motives for businesses to locate in small towns to support the local economy.
- Policies for prolonging the tourist season and promote alternative tourism all year long.

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