

## **ANALYSIS OF THE MEGAPROJECTS EFFECTIVENESS IMPACT ON ECONOMIC REGIONAL DEVELOPMENT**

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### **Abstract**

This paper is focus on the large - scale government investments in physical capital facilities – mega projects and their impact into economic growth of regions in the Czech Republic. Mega - projects are projects with estimated costs of more than 500 million EUR. This is because megaprojects are generally characterised by huge construction cost, unique and complicated design, high risk, multiple project interfaces with complex contractual arrangements, strong economic and social impacts. Projects of this characteristic are directed especially in transport infrastructure, energetic or cross more sectors (for example hospitals or research centres). In the past environmental quality and equity became important societal goals and these objectives subsequently found their way into the national policy agenda in general and thus also to the transportation policy agenda. The political dimension of these projects entails more risks when the decision to implement can be under the influence of different set of national or regional priorities, limitations of public resources or liabilities arising out international contracts. There can be identified four risk areas as significant to long - term value creation from megaprojects: government relations; host community relations; contract management and procurement; and the influence of multi-location execution in region. The paper aims to analyze one type of megaprojects, transport infrastructure projects. There will be examined the influence and impact of these projects on the regional development of the area.

### **Key words**

Development; economic growth; megaproject; region; transport infrastructure

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## **1 INTRODUCTION**

Megaprojects are large investments into the physical capital and facilities. They represent programmes which strategically integrate individual projects into one big project. [1] Projects considered as megaprojects are those which extend 500 million EURO in estimated costs. They attract the attention of public due to their size and importance. Megaprojects are characterised by the enormous construction costs, unique and complicated design, high risk, more project interfaces with complex contractual arrangements and strong economic and social impacts. [2] They are mainly used in transport infrastructure as well as in energetics and other fields. The political dimension of these projects entails a lot of risks, when the decision of the implementation can be effected by the influence of differently set national and regional priorities and limitations of public funds and liabilities resulting from international agreements. Megaprojects usually do not leave apart a socio-economic life of the society influenced by their realization. Financial and social contributions are so enormous that they can threaten the very survival of the society as well as the economic stability of the country.

This article deals with one of the types of megaprojects – megaprojects of transport infrastructure and the impact of their realization on the economic development of regions.

## **2 MEGAPROJECTS AND THEIR IMPACT ON THE ECONOMIC DEVELOPMENT**

Megaprojects are really complicated, mostly ambitious, extensive and long-term projects. Usually several decades pass between the original proposal, decision of the implementation and handover of the finished and completed project. [3, 4] These are projects in billions of crowns which are characterised as uncertain, complex, politically sensitive and usually comprise a big number of partners. There were identified four important risk areas for the long-term creation of megaprojects: government relations, relations of the host society, management and public procurement, contracting and the influence on the realization of multi-location. [1] Megaprojects are accompanied by the certain level of technological advancement, fear of funding as well as the political uncertainty. Complexity is the essential and indispensable part of the megaprojects. As the globalization trends gradually grow stronger, it is not possible to overestimate the importance of management complexity. For example funding can be ensured by the partnership of private and public investors. As a consequence such big projects can bring high risks which require a systematic approach. Without a suitable management strategy these megaprojects would be doomed to fail. [5] Recently their importance in the current global environment, which is interconnected with the business, has been growing. [5, 6, 7]

Important engineering and construction projects become more and more important as a lot of countries renew and expand their already existing infrastructure especially because of their growth. [8] One of the important benefits of transport infrastructure are social and economic aspects. The transport infrastructure determines the space and mobility which influences especially the trade flows and industry but also the location of the residential areas of the population. The construction and maintenance of the transport infrastructure is highly demanding on the resources and brings along high risks and fears especially in connection to the influence on the environment. The decisions about infrastructure are long-term ones and they may last for decades or even centuries. Transport, infrastructure planning and its funding represent a controversial political topic on the national and more and more on the international level. [9] Projects become politically acceptable with certainty the very moment they offer the positive impact on the regional development. One of the arguments to support

the deposit of funds into the projects of infrastructure is that it will generate the economic growth. [7]

## **2.1 Investments into the infrastructure in the Czech Republic**

Investments into infrastructure as the impulse to start up the economy are a serious topic in the number of European countries, not only in the Czech Republic. Currently the extended constructions are discussed carefully in the Czech Republic even if the main challenge should be the improvement of the quality of not only transport infrastructure but also the social one. In fact the Czech Republic gets behind the western neighbours as well as the countries with the comparable gross domestic product (GDP) per one inhabitant for example Slovenia or Portugal. [10]

## **3 DEVELOPMENT OF THE REGIONS FROM THE POINT OF VIEW OF THE TRANSPORT INFRASTRUCTURE**

Generally the construction of the transport infrastructure is seen as the important part of the regional development. Motorways and speedways themselves are the essential condition for the development of the region. This is also acknowledged by the findings collected after the construction of new motorways and speedways in the Czech Republic. They enabled a significant acceleration and increase in quality of the road connection of the particular region with the important economic centres of the republic as well as with abroad and this came hand in hand with the increased interest of the investors in the realization of new and reconstruction or extension of already existing buildings near these motorways. Every territorial unit has its own specifics and therefore its development can continue in different directions. Currently the main interest of most regions is to invest in its area and by a number of investment incentives attract especially the well-established foreign investors. The result should be to ensure job opportunities for their citizens in connection with the decrease in the unemployment rate as well as improvement of the economic situation of the region. The first and foremost condition of the investors is always the best transport accessibility. [11]

Another important impact of the construction of transport infrastructure can be the development of the tourism and recreation. Fast accessibility of the places interesting for tourists and recreational areas is one of the conditions for the increased number of visitors and in connection with this for the increase of the economic strength of the region. A considerable importance for the regional development is also represented by the exclusion of the transit transport from the towns and villages by construction of the parallel motorways and speedways. This considerably improves the transport situation of these towns and villages, improvement of their environment, well-being of the population but also for creating conditions for the new residential areas and amenities. Last but not least important function of the transport infrastructure for the regional development is the interconnection of the residential areas and their centres which enables their fast accessibility also in connection to neighbouring countries. Differences in the possibilities to use speedways for the interconnection of the residential areas and regional capitals with the economically important centres in the Czech Republic and abroad usually reflect in the development of the particular region. Necessity of the construction of transport infrastructure for the development of the regions can be testified by the „Transport policy of CR for the period 2014-2020 with the prospect to 2050“ which was authorized by the government of the Czech Republic on 12 June 2013. [11] Regions crossed by the motorways and speedways definitely profit from this situation. Good connection to economic centres is one of the conditions of the development of business and job force. The backbone transport infrastructure has its irreplaceable significance for the increase of competitiveness. [12]

#### 4 PART OF THE D1 MOTORWAY AND MORAVIAN-SILESIA REGION

D 47 project is a project of ex-motorway which was originally proposed in the direction Brno-state border with Poland. Project was changed several times, shortened and gradually moved under the project of D1 motorway which now represents the whole corridor Prague-Brno-Ostrava. Created continuous motorway corridor is connected in Poland to the motorway A1 and reaches the length 377 km. D 47 project remained just on the paper and in the number coding system of the constructions. Part of the D1 motorway starts at Lipník nad Bečvou and continues to the border with Poland. The motorway can be seen in the national scale from the Fig. 1. [13, 14, 15]



*Fig. 1: Location of described part of the D1 motorway in the Czech Republic [13]*

Table 1 shows the division of the motorway into eight individual sections and also the timetable of the construction. In December 2007, first part of the D 47 motorway connecting Ostrava and Bohumín was opened, in May 2008 followed by another part south of Ostrava and in November 2008 the section between Lipník nad Bečvou and Běltoín was put into operation. In 2009 these sections were interconnected. The transit of the frontier section between Bohumín and state frontier with Poland started in November 2012.

*Tab. 1: Subdivision of described part of the D1 motorway into individual constructions*  
*Source: Road and Motorway Directorate [13]*

Section	Region	Length in km	Zoning decision	Building construct. permit	Start of construction	Commissioning	Construction cost in thousands CZK without VAT
Lipník nad Bečvou - Běloutín	OLK	15,387	12/2000	06/2004	12/2004	11/2008	7 010 557
Běloutín - Hladké Životice	OLK a MSK	18,097	08/2005	03/2006	05/2006	11/2009	3 640 151
Hladké Životice - Bílovec	MSK	11,682	04/2005	06/2006	03/2006	11/2009	2 798 490
Bílovec - Ostrava, Rudná	MSK	11,677	08/2001	03/2004	05/2004	05/2008	6 041 000
Ostrava Rudná - Hrušov	MSK	8,540	05/1997	05/2002	10/2003	12/2007	5 940 187
Section	Region	Length in km	Zoning decision	Building construct. permit	Start of construction	Commissioning	Construction cost in thousands CZK without VAT
Hrušov - Bohumín, 1.stavba	MSK	4,460	05/1997	10/2003	04/2004	12/2007	2 622 255
Hrušov - Bohumín, 2.stavba	MSK	4,200	02/1999	12/2004	08/2004	12/2007	3 065 614
Bohumín - st.hranice Česko/Polsko	MSK	6,113	02/2006	11/2007	03/2008	11/2012	2 675 881

There are several reasons why this part of the D1 motorway is convenient

- This part of the D1 motorway will better connect the north and south of Europe.
- Ostrava region and the whole Moravian-Silesian region will strongly integrate into other Czech Republic regions.
- Transport situation will improve inside the Ostrava-Karviná agglomeration and the rest of the region.
- The load will be taken off the local roads, the distances will shorten, and time and costs will be saved. [13]

Moravian-Silesian region belonged and still belongs to the most important industrial regions not only in the Czech Republic but also in the whole Middle Europe. Its current economic targeting nowadays brings considerable problems connected with the regional restructuring hand in hand with the solution of the social problems especially in relation to unemployment. The big problem is a proportion of the long-term unemployed people related to the total number of unemployed which is higher in this region compared to nationwide average. [16]

Road transport coverage of the region is considerable, perhaps excessive. Due to part of the D1 motorway an area for improvement of transport infrastructure and its participation in multimodal forms of transport such as logistics centres, reloading, etc. arose.

#### 4.1 Share of construction industry in the economic development of the Moravian-Silesian Region

Construction industry in general has a very strong interconnection with other sectors. Construction investments in transport infrastructure and industrial zones show strong acceleration effect on the future development of regional economies. Construction industry has also a strong impact on employment in both direct and derived activities. There is a strong need for the acquisition of important investments, primarily in the area of transport infrastructure, as well as energy and ecology, for the development of economic performance.

Transport and especially transport infrastructure is an important condition for the development of a series of business activities. The quality and transport infrastructure coverage of region is one of the most important parameters for decisions on new investments. The quality of infrastructure represents a significant competitive factor in both inter-regional, and international context.

Transport infrastructure is certainly one of business accelerators. The existence of appropriate transport infrastructure is one of the basic conditions for the investor's decision about the location of the investment and to provide return on investment.

Expected benefits associated with the construction of the highway can be observed not only in the construction work and employment output, but also in the effect of the influx of new investment to the region. This statement is proved by the indicator "Gross fixed capital formation" (GFCF). At the beginning the motorway construction represented a deciding factor for crucial investment decisions in the region. The impact of improving transport infrastructure in Moravian-Silesian Region on the decisions of investors is linked to GDP growth, but also GFCF. Gradually since 2004, when construction began on the part of D1 motorway, this indicator has achieved almost double values, from which it is clear that the construction of the part of the D1 on macroeconomic data is contributed significantly.

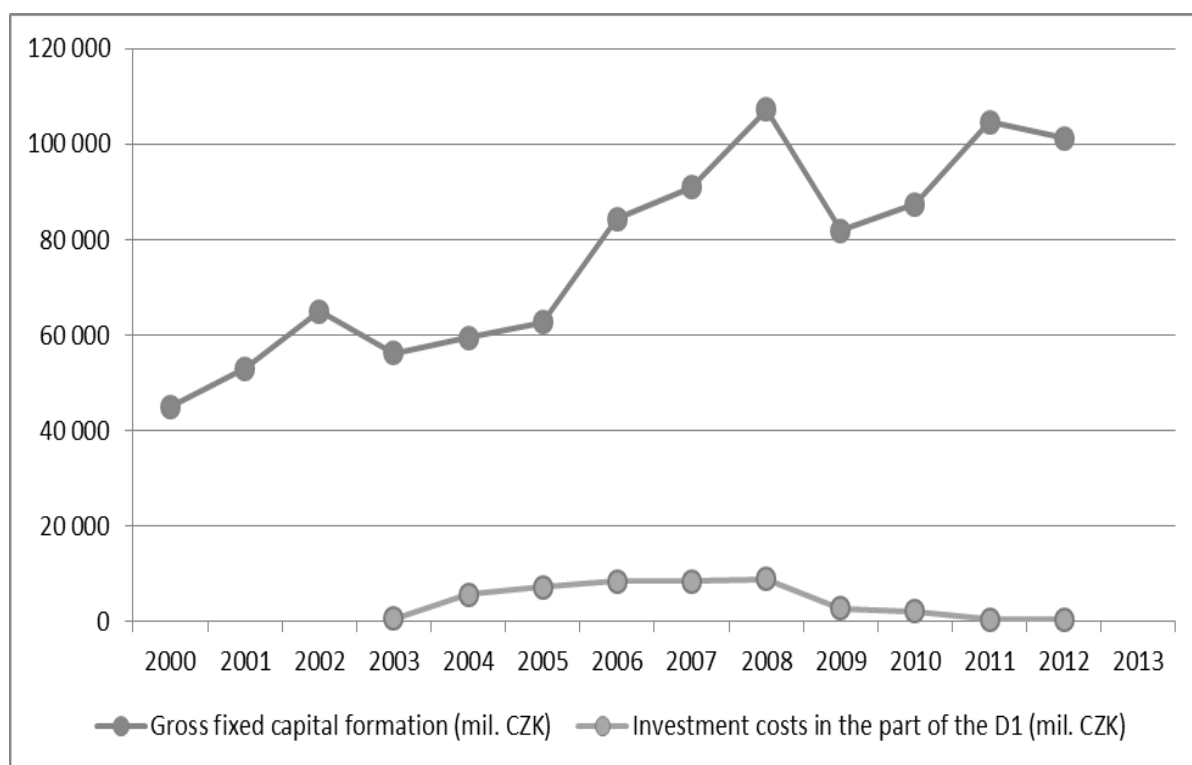
In the following table no. 2 shows a structured productivity of the Moravian-Silesian Region in items as gross domestic product, gross value added, gross fixed capital formation and size of the investment costs of monitoring large scale investment in the part the D1.

*Tab. 2: Selected macroeconomic indicators in the Moravian-Silesian region in the years 2000 – 2013*

*Source: Road and Motorway Directorate [13]*

	2000	2001	2002	2003	2004	2005	2006
<b>Gross domestic product (mil.CZK)</b>	227 614	245 742	254 431	264 877	303 794	334 202	350 131
<b>Gross vale added (mil. CZK)</b>	207 979	224 761	233 179	242 775	275 498	302 555	318 612
<b>of which construction</b>	12 900	14 369	15 224	16 441	18 072	18 829	19 494
<b>Gross fixed capital formation (mil. CZK)</b>	45 058	53 026	64 950	56 290	59 552	62 708	84 308
<b>Investment costs in the part of the D1 (mil. CZK)</b>				743	5 777	7 235	8 535

	2007	2008	2009	2010	2011	2012	2013
<b>Gross domestic product (mil.CZK)</b>	382 825	402 777	378 993	387 858	405 476	408 612	398 954
<b>Gross vale added (mil. CZK)</b>	347 023	365 840	343 367	351 484	366 587	367 874	357 798
<b>of which construction</b>	22 826	22 003	22 434	23 451	21 282	20 524	19 156
<b>Gross fixed capital formation (mil. CZK)</b>	90 967	107 187	81 819	87 389	104 681	101 284	
<b>Investment costs in the part of the D1 (mil. CZK)</b>	8 535	8 998	2 816	2 169	554	554	



*Fig. 2: Addition GFCF on an investment costs (mil. CZK)*

The comparison of the last two indicators is shown in the graph (Fig. 1). The graph shows the slight influence of the concerned investment to total gross fixed capital. However due to the large volumes of financial resources it is not possible clearly determine the size of the contribution of investment to total gross domestic product of the region. However, it is very probable that the significant investments contributed to the development of the region as well as in other related sectors.

## 5 CONCLUSIONS AND DISCUSSION

As megaprojects, e.g. projects with the value over 12.5 billion CZK, can be in the Czech Republic considered especially the investments into the transport infrastructure. One of the important investments in this field was the part of D1 motorway construction project connecting Lipník nad Bečvou and the state border crossing with Poland which has been widely discussed in recent years. This part of motorway with the length of 80 km solves the transport services and especially the economic revival of the Moravian-Silesian region. Moravian-Silesian region is below nationwide average in the economic area but the continuously growing value of GDP gives preconditions for the improvement in the position of this region among the other regions of the Czech Republic. A new transport infrastructure in the form of part of D1 motorway takes its share in this positive development. This construction not only enables better connection of the region to the main economic centres of the Czech Republic but also connects this region with abroad and thus enables foreign investors to enter the Czech market. The slight influence of the concerned investment on gross fixed capital formation is evident from the analysis results. The investment is financially significant (total about 37 mil. CZK), it makes up 10 % of GFCF in the strongest investment period. It is probable that this investment has created conditions for further development of the region. However, the investment is relatively new and to trace demonstrable impact on

economic growth is difficult. The authors are nevertheless convinced that investment has a positive influence on the local economy and the development trend is definitely set correctly.

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