

PRIVATE FINANCE INITIATIVES AS AN ALTERNATIVE FOR PROCURING PUBLIC ROAD INFRASTRUCTURE PROJECTS

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Abstract

Recent financial crisis has created incentives for finding alternative methods of public road infrastructure development. This paper is assessing the economical feasibility of using different private initiatives for public infrastructure projects, precisely roads in the Czech republic. The rise of PPP (public private partnership) projects is not a new phenomenon, however the Czech market has not experienced many PPP projects so far, and therefore the basis of this research is created by assessment of four road projects procured and operated by private sector in the United Kingdom and Australia. All projects had been selected according to their functional diversity: highway, trunk road, bridge and a tunnel project. Each project was examined from different points of view. The used research method is based on quantitative data and compares toll prices of each toll project with GDP (gross domestic product) and annual average income in order to compare all data together. Subsequent findings highlight and investigate successful and unsuccessful factors of each scheme. Furthermore, this examination focuses on risk distribution as well. Final findings are used as a basis for designing a specific procurement path, which leads to financing public road infrastructure by toll roads, where private sector finances project design, construction and also maintenance. The end-user payment mechanism is structured to meet the government policy objectives for the trunk road network and PPP requirements, and incorporates payment based on usage/demand availability of service and performance. Finally, proposed key factors of PPP projects implementation can not only help the public sector to find alternative ways of public projects implementation, but can also help to minimize potential risks during setting up the long term public-private relationship.

Keywords

PPP; private sector; public sector; toll roads

Economic Crisis and its Impact on Public Expenditures

Seeking an alternative source of financing the public road infrastructure projects has become critical especially during recent financial crisis. The main reason is that fiscal expenditures must focus on funding the fundamental public services, such as housing, health care or security. Therefore, alternatives must be found and especially within the public infrastructure which brings in a possibility to reduce public funding by bringing private finance in. This relationship between public sector and private companies is in general called Public-Private Partnership (PPP), but the concept can differ and can have different variations. PPP projects have been used across the world in different countries. However, PPP methodology is very complex and challenging. There is a wide variety of diverse factors which can affect a project and lead to its successfulness or complete destruction.

This study focuses on possible application of PPP models within the Czech Republic road projects. Even though PPP projects are well known across the Europe and world, the Czech industry has limited knowledge and experiences. This fact is explicitly supported by lack of technical researches, studies and literature focused on this topic.

The Concept of Public Private Partnership

The rise of PPP is not a new phenomenon. This concept has been used for building hospitals, prisons and motorways by many countries. For example, in France, the private financing was introduced in the late 1960s and early 1970s [1].

Combination of the stagflation of the 1970s and early 1980s with budget cutbacks and their impacts on local, regional and national economies in the major OECD (Organisation for Economic Co-operation and Development) countries caused a search for new or revived options to deal with these issues, including partnerships with business and voluntary groups [2].

However, in 1970s and 1980s the traditional command and control under which all services were delivered and controlled had been gradually modified by the introduction of such concepts as “best value” and to use the private sector to provide some public services.

The mid-1980s represents a significant change in the context of delivering public services. The public sector faced strong criticism in his ability to effectively deliver public services and was coming under increasing pressure to seek more effective, transparent and efficient procurement systems. During this time the provision of private finance for public projects was governed by the Ryrie Rules (Ryrie was a Treasury official) which set two main criteria for the use of private finance in the procurement of public sector capital projects. These are:

- The use of private sector finance must be more cost effective than a comparable publicly funded project.
- The investment or asset must be part of the planned public sector schemes and not in addition to.

The second rule was abolished because many authors and politicians have commented that these rules have been a huge obstacle to encourage public authorities to seek private funding.

During 1980s a number of more specific factors had increasingly come into play:

- Development of policy was becoming a much more complicated process. It could no longer be presumed that government had the monopoly of wisdom.
- The arrival of the Internet and electronic mail revolutionized policy making.
- The growth of pressure groups in the community who wanted to participate more fully in the policy making and implementation process.

- Genuine desire amongst politicians to decentralize the political process.
- Increasing recognition that service delivery could benefit from more radical approach than hitherto, based on partnership between different agencies.
- There was recognition that the public sector could not continue to finance everything up front, nor did it have a monopoly of the necessary management skills – private money and expertise had to play a full part in the process.

Thus, by the mid – 1990s, there was an increasing willingness to recognize the benefits of sharing risks, rewards and benefits between the various sectors [3]. Furthermore, in the near the beginning 1990s, the UK economy suffered a significant slowdown. This reflected on the ability of the government to raise sufficient tax revenue in order to improve the public sector's services.

The partnering process, which was strongly supported by the UK central government, led to the creation of formal public private partnerships, which was supposed to deliver modern, high-quality public services and to promote the UK's competitiveness [1].

However, the UK was not the only place where partnering processes started to be popular. Partnership philosophy has received widespread support from across the political spectrum, including officials, local authorities, local communities or policy makers. At the supra-national level the European Union (EU) promotes partnerships as it operates with and through member states and more local agencies to achieve its policy aims, taking account of national rules and practices [4].

Much of this widespread is because it can allow governments to secure much-needed infrastructure without immediate raising public borrowing or taxes. Furthermore, governments view this approach as a win-win option for meeting their investment and strategic plans. These views are based on number of rationalities, which were listed, by [5].

Government's financial position

It is believed that PPP projects create budgetary room without prejudice to the sustainability of the government's financial sustainability [6]. In simple terms, government will be able to secure public services without raising taxes or borrowings. However, the cost of the services will have to be paid by taxpayers sooner or later. Furthermore, politicians have always been willing to associate themselves with concept of working with others. However, the reality is different because politicians are very reluctant to share power with anyone else and prefer obfuscation to the clarity which true partnership working requires [3].

Boost medium-term growth

There is a presumption that realization much needed infrastructure by PPP projects creates fiscal space, which boost medium-term growth and thereby generate fiscal revenue in the future (the World Bank, 2005).

Reducing government's risk exposure

Transferring risks to the private sector will reduce government's risk exposure [7]. Moreover, the private sector can better and more effectively manage these risks and therefore reduce the final value for money.

Increasing of accountability and transparency

There is an assumption that involving the private sector in financing of the projects (infrastructure and services) can reduce corruption and increase total accountability, transparency and create incentives for the prudent management of public expenditures.

Economic Situation in the Czech Republic and the United Kingdom

Around the world, PPP have become an increasingly popular means for procuring public service and infrastructure [5]. However, a few years back the situation was very different. It would be theoretically possible to compare the UK until the 1990s and Czech Republic now. In the early 1990s, the UK suffered by:

- Public sector financing was the only way of procuring road infrastructure (with few exceptions).
- Very little tolling of roads.
- Economic recession.
- The strong pound policy leading to withdrawal from the exchange rate mechanism.
- Extreme reluctance to increase taxes.
- Slow planning procedures.
- Increased opposition from environmental interests.
- Loss of confidence in the economic case for some schemes.
- Public expenditure budget for roads fell by third.

Most of the mentioned factors would be possible to apply at the Czech economy and the built environment industry. Therefore the situation is very similar.

Accordingly, the UK government started to seek another procurement methods and sources of finance. Accordingly, there was a need to finance some project privately. A multi sector initiative was designed to support this need. That initiative was PFI [8]. Exactly like in the UK in the 1990s, the Czech Republic is considering PPP projects. Although it is supported by government (like in the UK), there is a strong opposition as well. Many people see a lot of dangers and consider the PPP projects as a 'dead end'.

Even though there was a strong opposition against the PFI in the UK PFI contracts has become used very often. As of October 2007 the total capital value of PFI contracts signed throughout the UK was £68bn. However, this figure pales into insignificance compared with the commitment of central and local government to pay a further £215bn. Annual payments to the private owners of the PFI schemes are due to peak at £10bn in 2017 (Timmins and Nicholas February 24, 2009). This era's agenda is also dominated by risk transfer and value for money concerns [1].

So the most important question is not IF we should implement PPP scheme within the Czech built environment but the question is HOW to implement them.

Achieving Value for Money

Value for money (VFM) is often underrated or overlooked in the Czech built environment. Usually, the winner of a bidding process is the cheapest contractor. However, the project should not be assessed just according its price, but according its value for money.

The UK's Office of Government Commerce (OGC) defines VFM as the optimum combination of whole-life costs and quality, to meet the user requirements, whereas, Pollock [10] says that value for

money is based on a purely economic appraisal that compares the cost and benefits of alternative investment decision.

In simple terms, value for money represents obtaining the maximum benefit with the resources available. The best VFM is about finding the optimum balance between 3e (efficiency, economy and effectiveness), which is depicted in Figure 1. We use the best value assessment every day in terms of shopping, time management and so on.

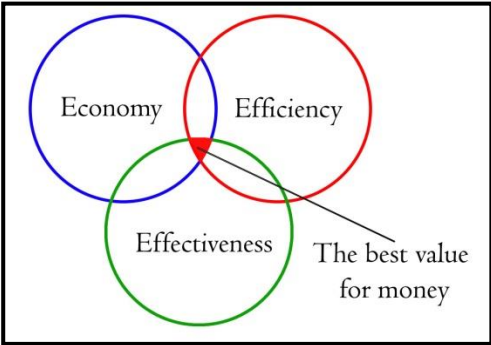


Figure 1 The best Value for Money

The Treasury Taskforce [9] emphasizes very important fact, which is often missed out:

The PPP is not about borrowing money from the private sector... It is all about creating a structure in which improved value for money is achieved through private sector innovation and management skills delivering significant performance improvement and efficiency savings.

Therefore assumption “PPP is just a government’s option how to deliver needed infrastructure if the Government lacks money” is not just wrong but furthermore very dangerous for all taxpayers.

A comparison between traditional procurements and PPP procurements is shown in Figure 2 and Figure 3. The figures illustrate that operational expenditures are based on a uniform unitary payment, which helps to reduce the fluctuation of operational costs. These issues have been cited as an indication that PPP projects are far better at keeping to time and budget than other forms of procurement. Thus, PPP projects generate savings to the public sector during the construction stage [1]. This observation is supported by the case studies which are studied in following chapters.

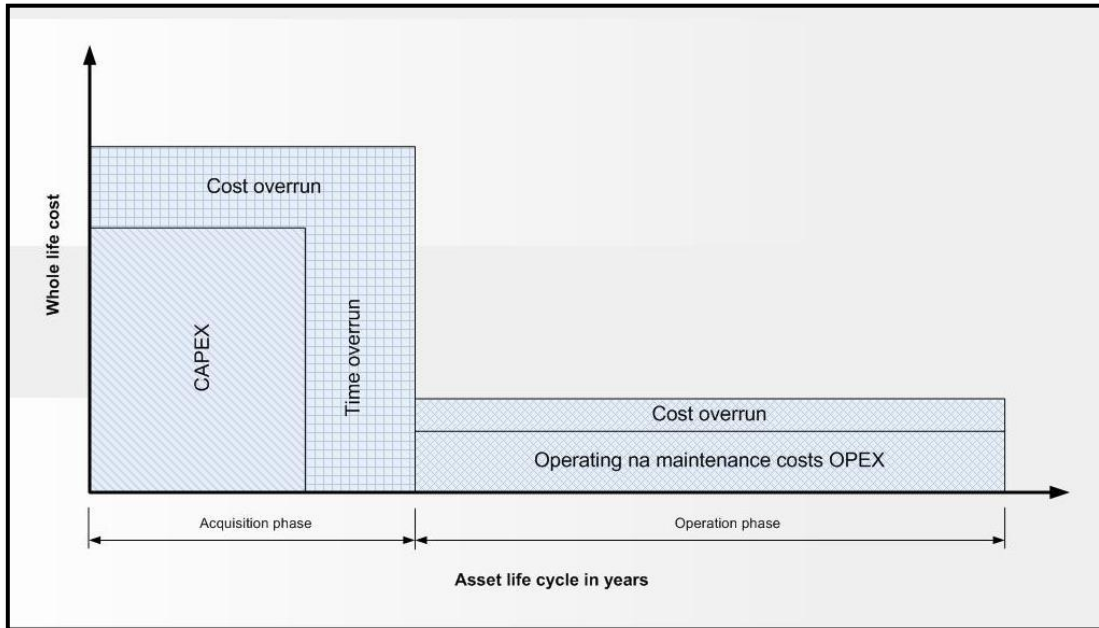


Figure 2 Traditional public procurement of building assets [1]

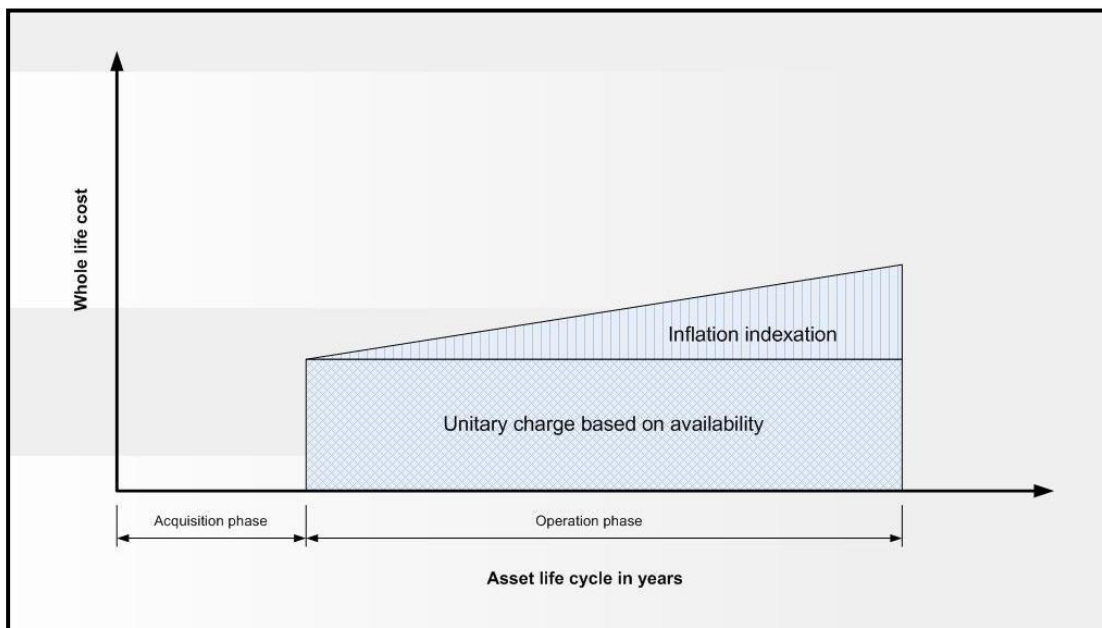


Figure 3 PFI/PPP procurement of building assets [1]

Tolls as an Alternative

The real unique payment from PPP infrastructure projects is the payment of tolls and tariffs by the entities that use the infrastructure, i.e. the public or public services. There are two general types of tolls and tariffs:

- Direct payment by the user (in the form of a toll) – it is used in Europe, specifically: Austria, France, Denmark, Spain, Greece, Italy, Norway and Portugal.
- Payment by the public authority (under the name “shadow toll” or DBFO). It is used in Europe especially in the United Kingdom, Finland and the Netherlands.

Lessons learned from different PPP projects across the world since 1990 highlight several issues to be considered for appropriate designing of a project's tolls and tariffs. These are:

- Tariffs for infrastructure services that have been provided by government are always significantly lower than those required to achieve sustainability of financing to the project [11]. Therefore, if the private sector is involved, there are inevitable substantial tariffs to ensure at least financial recovery whereas public sector toll provision causes loss-making infrastructure because of its social reasons.
- To avoid public dissatisfaction the toll levels must be need to be very well justified and relatively close to those existent prior to the PPP.
- The fact, that in many cases infrastructure provides basic living needs is not a reason for excessively high tolls. In a long run, public satisfaction and agreement is the principal objective.
- Another important issue is the provision for revision of tariffs on a regular basis.

Guash [12] points out that 'tariff revision should normally occur at 5-year intervals and must follow a formula that applies to the average tariff that is billed by concessionaire, but the circumstances under which an extraordinary tariff revision is permitted should be narrowly defined'. However, only a small number of countries (Australia, UK, Mexico) have provisions to support this kind of process. Therefore, a large implementation of this tool should be introduced into the PPP model to foster investors to commit for the long run.

Methodology of Identifying Critical Drivers for Successful Partnership

Seldom, we can indicate all factors, which will ultimately lead to a successful public-private relationship. Nevertheless, we can learn from past projects, which help us to differentiate the positives or negatives of what PPP offers.

This paper took into account a several different projects built by the PPP concept. All projects were examined and assessed according following scales:

- Value for money
- Delivery in time
- Delivery on budget
- Technical solution
- Level of established partnership
- Social aspects
- Project operation
- Value for Money

The outcome is a consistent list of critical factors, which affected all examined project, the most.

Examined Projects

Four PPP projects from in Australia and the United Kingdom have been chosen according their functional diversity. Therefore the projects' types are:

- Highway,
- Trunk road,
- Bridge,
- Tunnel.




Logo	Project name	Country	Cost	Concession period	Type of contract	Type of toll	Opened since
	Cross city tunnel	Australia	A\$680 million (490 million Euros)	25-30 years	DBO	real toll	2005
	M6 toll road	UK	£900 million (1.052 billion Euros)	53 years	DBFO	real toll	2003
	M4 Second severn crossing	UK	£330 million (385 million Euros)	30 years	DBFO	real toll	1996
	M1-A1 Link	UK	£293 million (342 million Euros)	30 years	DBFO	shadow toll	1999

Figure 4 Four transport case studies.

Each project was examined from different points of view. This study is trying to highlight and investigate the most critical successful and unsuccessful factors of the researched projects.

This research method is based on qualitative data. Qualitative method is collecting data, which are concerned with describing meaning, rather than with drawing statistical inferences.

Critical Factors of PPP

The four case studies have identified an array of different factors which influence project successfulness.

Important factor is a toll level which is basically a toll price. Table 1 compare toll price (the same currency) of each toll project with GDP (Gross Domestic Product) and Annual Total Personal Average Income in order to compare all data together.

Table 1: Project comparison based on GDP and average income

		Toll					
		Present toll level	Toll (Euro) Vehicle Category 1 (Up to 9 seats)	GDP (millions of Euros)	(Tollx10 ⁶)/GDP	Annual Total Personal Average Income in Constant 2005 International Dollars	(Tollx10)/Average income
A	Cross city tunnel	\$ 4,41	€ 3,20	€ 676 450	4,73	14,185	2,256
B	M6 toll road	£5.00	€ 3,63	€ 1 590 498	2,28	16,710	2,172
C	M4 Second severn crossing	£5.50	€ 4,00	€ 1 590 498	2,51	16,710	2,394
D	M1-A1 Link	-	-	€ 1 590 498	-	16,710	-

Figure 5 depicts results in form of a graph. The Cross City Tunnel project indicates the highest level of "Toll/GDP" and second highest level of "Toll/Average income". This comparison support contention that toll level was too high which led to the significant public opposition. Another project, which suffers by low traffic, is the M6 toll road even though the toll level is the lowest. That can emphasize a fact that roads should be considered differently than special road elements (bridges and tunnels) because there are still a wide number of different roads, which can be used instead of the M6 toll road.

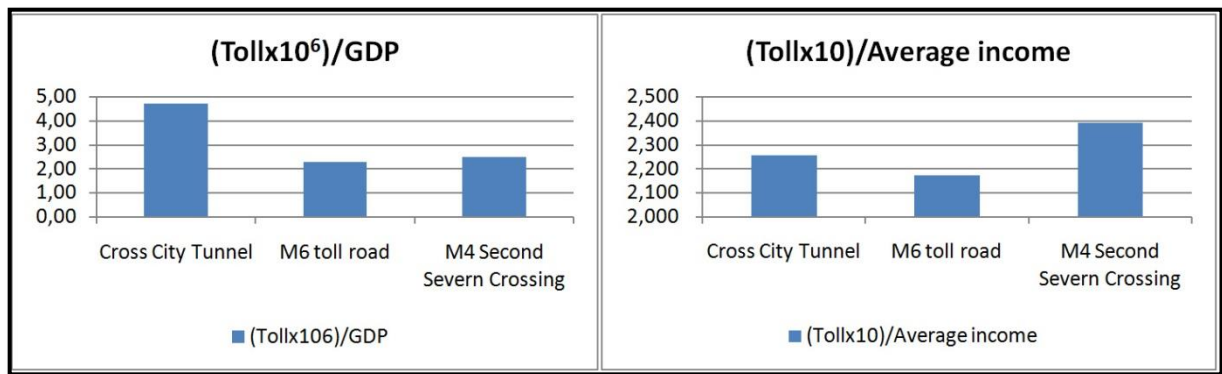


Figure 5 Toll/GDP and Toll/Average income.

M4 Second Severn Crossing toll level is lower in terms of “Toll/GDP” but the toll level is the highest in terms of “Toll/Average income”. In this case the situation is absolutely opposite than the M6 toll road because the end users just do not have another option than to cross this particular bridge.

Therefore as a partial result of this comparison focused on toll level can be a piece of evidence that PPP projects with collecting tolls are very sensitive on the project type because some projects did not prove to obtain competitive advantages (e.g. M6 toll road) whereas projects such as solitary bridges will attract stable and attractive revenues. However, this advantage is rather available in bigger countries than is the Czech Republic because of existence specific terrain conditions (seas, channels, rivers, etc.).

Each case study was significant by a number of important factors which affected the project final outcome. Those factors were divided into two groups; successful and unsuccessful factors.

Successful Factors

- Provision of necessary road capacity
- True public-private partnership
- Delivery on time
- Delivery on budget
- Modern design
- Better coordinated maintenance
- Innovative technology
- Short construction time
- Effective design in order to minimize the operational cost
- Bringing in equity and recover the cost of design and construction via the tolls collected
- High standard service

Unsuccessful Factors

- Public is not keep informed (public can believe, that the cost has been paid off and that they are paying the tolls “just for nothing”)
- Unclear concession period
- Efforts to abolish the tolls by different agencies
- High toll level
- Government forcing the end users to use the procured asset (CCT)
- Flawed concession agreement
- The public client and the private consortium arguing openly in public

- No toll subsidy and/or compensation from the government
- The toll level or the possibility of a Government contribution was not open to negotiation
- End users did not like the price
- End users did not want to use the tunnel when opened
- Community developed negative views about PPPs in general and perceived them as a secret deal
- The Cross City Tunnel was a catalyst for a number of PPP related inquiries
- Incorrect traffic forecasts
- Prudent increase of the toll level
- Toll is collected only in cash or by credit card
- Goods vehicles overwhelmingly reject the toll road

PPP projects still widely take place across the world. This is stimulated by Government's lack of sufficient public resources. Simple fact is that the government is not able to deliver all needed public services and infrastructure especially during the economic depression. Therefore it is crucial to find a different way of financing.

Conclusion

Private infrastructure provision is not a new idea. Infrastructure concessions were first granted in France in the mid-seventeenth century [13]. The concept of toll roads becomes very common in the USA in the late 1700s. Since then private financing has become part of the public funding strategy. This concept is actually an innovation over the traditional procurement types. Eaton and Akbiyikli [14] state that PPP in itself is an innovation in public procurement, but the public sector must decide on the route which gives the best scope for the private sector to add value and in all cases adhere to key principles such as whole-life cycle and optimum risk allocation.

However, over past years a lot of PPP projects indicated different outcomes and not all projects fulfilled assumptions in terms of innovation and effectiveness. Therefore it is crucial to maintain the investigation process, research several case studies and try to highlight important successful factors which can be subsequently managed during next projects.

Some studies point out that toll roads (and PPP itself) are not the solution for lack of public sources. Those opinions support traditional approach and procurement methods.

Different point of view (mostly government's point of view) is that toll represents a bold move to use alternative financing arrangements to the traditional shadow tolling approach to augment funding resources for highway development and minimize the project risk to the sponsoring Highways Agency.

Nevertheless, the analyzed projects clearly defined drawbacks, small victories and major accomplishments. It has been indicated that the PPP project, if well planned in regards to the successful and unsuccessful factors, can deliver a final asset capable of achieving high value for money while reducing the fiscal public budget and leaving the project lead and financing to the experienced private sector.

References

- [1] BOUSSABAIN, H., A. *Cost planning of PFI and PPP building projects*. New York: Taylor, 2007, xx, 316 p. ISBN 02-030-1884-2.
- [2] WALZER, N., JACOBS, B. *Public-private partnerships for local economic development*. Westport, Conn.: Praeger, 1998, viii, 251 p. ISBN 02-759-6153-2.
- [3] GEDDES, M. *Making public private partnerships work: building relationships and understanding cultures*. Burlington, VT, USA: Gower, c2005, vi, 137 p. ISBN 05-660-8645-X.
- [4] OSBORNE, S. *Public private partnerships: theory and practice in international perspective*. London: Routledge, 2002, xviii, 348 p. Routledge advances in management and business studies, 19. ISBN 0-203-20711-4.
- [5] BECK, edited by AKINTOYE, A. *Policy, finance*. Oxford: Wiley-Blackwell, 2009. ISBN 14-443-0143-8.
- [6] HELLER, P.S. *Understanding Fiscal Space*. IMF Policy Discussion Paper, March. Available online at <http://www.imf.org/external/pubs/ft/pdp/2005/040105a/pdf>
- [7] The World Bank. Part III. *Special Topic: PPP-Fiscal Risks and Institutions*. Available online at: <http://sitesources.worldbank.org/INTECA/Resources/eu8-jul05-part3.pdf>
- [8] MACKIE, P., SMITH, N. *Financing Roads in Great Britain*. Workshop on Highways: Cost and Regulation in Europe, Bergamo, November 2004.
- [9] HM TREASURY. *How to Account for PFI Transaction, Technical Note 1*. London: Treasury Taskforce.
- [10] POLLOCK, A., SHAOUL, J. and VICKERS, N. Private finance and 'value for money in NHS hospitals: a policy in search of a rationale? *British Medical Journal*, 324, 1205-1208.
- [11] GÓMEZ-IBANEZ, J., A. *The Future of Private Infrastructure*. Discussion Paper, Taubman Center for State and Local Government, April 2004.
- [12] GUASCH, J. *Granting and renegotiating infrastructure concessions: doing it right*. Washington, D.C.: World Bank, c2004, xiii, 194 p. ISBN 08-213-5792-1.
- [13] WINCH, G. *Managing construction projects: an information processing approach*. 2nd ed. Ames, Iowa: Blackwell Pub., 2010, xviii, 522 p. ISBN 14-051-8457-4.
- [14] AKBLYIKLI, R., EATON, D. Sustainable Construction: Private Finance Initiative Road Cases in the UK - The Reality. *Construction in 21st Century: Collaboration and Integration in Engineering, Management and Technology*. Istanbul hotel. May 2009.