

## Public-private partnerships as a way of financing in the healthcare system (based on the examples of Poland and the United Kingdom)

Marta Łakomy-Zinowik  
*University of Szczecin, Poland*  
*marta\_lakomy@wp.pl*

Zuzana Horváthová  
*Metropolitan University Prague, Czech Republic*  
*zuzana.horvathova@mup.cz*

**Abstract.** Proper operation of the healthcare sector is essentially dependant on the way of its financing. This article aims at analysing the process of implementing a public-private partnership (PPP) in the UK healthcare, because this country is the world's forerunner and leader in using this form in the execution of public tasks. Defining good practices used in the British model will enable the analysis of the PPP market in Polish healthcare, determination of its strong and weak sides, and identification of possible ways for overcoming them. The reason for comparing British and Polish models is justified by Britain's many years of experience in carrying out complex services by private subjects within public healthcare and is supported by the fact that both PPP implementation and organization of healthcare in the UK is recognized as exemplary all over the world. This thesis is based on the axiom that public-private partnership presents a chance to execute public tasks while limiting the use of funds that come from local authorities and the government.

Received:  
August, 2016  
1st Revision:  
October, 2016  
Accepted:  
December, 2016

DOI:  
10.14254/2071-  
8330.2016/9-3/12

**Keywords:** public finance, public-private partnership, own tasks of local authorities, legal regulations concerning public-private partnership.

**JEL Codes:** K23, E66, H40, H68.

### INTRODUCTION

Cooperation between public and private sectors that aims at mutual benefit has existed since the ancient times. Provision of public services offered financial benefits to private entrepreneurs and enabled state authorities meet the demands of the society. This cooperation was carried out in the sectors where private capital could be used and the expected social benefit was higher than the one obtained in the traditional way. From Roman post rides, through mercenary armies of the Middle Ages and the modern era, to constructors of railways and roads in the XIX and XX centuries, the state has opened itself to private capital and resources while managing the risk of this type of cooperation in a better or worse way. It is important to mention that

the intensity of exploiting the cooperation between private subjects and the public sector is influenced by the current global, economic and geopolitical situation.

Due to the fact that accepting private capital brought not only benefits but also threats to the country, it wasn't until the serious economic crisis in the eighties that states were forced to turn to intersectoral cooperation and seek optimal legal ramifications that minimize risks and maximize public benefits. The so-called "oil crisis" was the stimulus that caused the Anglo-Saxon countries face a drastic increase in oil prices and inflation, the factors which shook those strong, as considered at that time, economies (Borshe, 1974). Limited public funds forced countries to look for alternative ways of financing infrastructure investments. On the canvas of these events, attention was once again turned to intersectoral cooperation.

## PPP IN THE UNITED KINGDOM AND POLAND

The efficient implementation of a public-private partnership in Europe, one that in fact is understood as cooperation between public and private subjects in terms of development or creation of infrastructure and other services, required the specification of legal ramifications and institutional solutions. The UK government, having noticed benefits of this kind of partnership, introduced the so-called Ryrie Rules through NEDC (National Economic Development Council). Sir William Ryrie was an influential politician in the cabinet of Prime Minister Margaret Thatcher who had been responsible for British economy for over 20 years. „The Ryrie Rules” stated that if the execution of public services by private subjects is more efficient than execution within the nationalized model, it is necessary to implement this solution (Allen, 2003).

The introduction of Private Finance Initiative (abbreviated PFI) in 1992 was the continuation of the solution approved in the UK in the eighties of XX century. This solution enabled the establishment of the intersectoral public-private partnership within the DBFO formula (design-build-finance-operate). PFI was the answer to the limitation of public funds that were required for maintaining the current pace of economic development of the country and increasing the quality of public services. The success of the PFI formula resulted in its further development in sectors other than the development of public infrastructure. Finally in 1997, the intersectoral cooperation in terms of providing public services was given the name Public Private Partnership. Its range covered, e.g. sports infrastructure, municipal housing, hospitals, schools, revitalization and management of urban areas and others (Bejm, 2009). The implementation of a public-private partnership in Poland was an indirect result of joining the European Union in 2004. Subsequent documents issued by the European Commission such as *Guidelines for successful public-private partnerships* and *The Green Paper on public-private partnerships and Community law on public contracts and concessions* pointed out the efficiency of the PPP formula and specified the ramifications of its efficient implementation in EU countries as well as in candidate states. The first Polish law on public-private partnerships from 2005 was too restrictive and imposed too many duties on parties that were supposed to cooperate in terms of a public-private partnership. It evoked mistrust among representatives from both sectors (Antoniuk, 2009). Due to regulations being incompatible with the reality, it is only possible to observe the implementation of public-private partnerships in Poland after 2009, when the law on public-private partnerships from 2008 entered into force. The new law controlled the PPP market in Poland according to rules that enabled the estimated profit to be higher than costs and risks incurred by two cooperating parties. Along with the introduction of the new PPP law, cooperation in terms of this formula became inviting for the private sector due to the possibility of achieving long-term profits. On the other hand, it became a chance for public authorities to increase the efficiency of provided public services and develop infrastructure despite their limited financial resources (Antoniuk 2009).

## ORGANIZATION OF HEALTHCARE IN THE UNITED KINGDOM AND POLAND

Organization of health care in the United Kingdom is based on an institution called the National Health Service (NHS) that was founded in 1948. The NHS founders believed that healthcare should be available to all citizens despite their affluence. Currently, apart from several exceptions such as dental care and ophthalmology services, access to healthcare is free and egalitarian. The whole system is funded from taxes. NHS employs more than 1,5 million people, and that number places the institution in the first five of largest employers worldwide (Gorsky, 2009).

The coordinator responsible for proper functioning of the public healthcare in the United Kingdom is the secretary of state who's in charge of the department of healthcare. He is responsible for maintenance and development of the whole sector. The executive body of NHS is the ten established Strategic Departments, that is, Strategic Health Authorities (SHA). They operate in individual areas and supervise the execution of decisions made at the state level. Their competencies also include supervision over subcontractor companies - the so-called Primary Care Trusts - that manage and provide medical services in individual areas.

In terms of organizational decisions, the basic patient-healthcare contact takes place in the primary care provider's office, who refers patients for additional examinations if necessary. Work of primary care providers is based on self-employment, and contract terms are negotiated with NHS. There is one regional hospital with app. 200 beds for every 150 thousand people. Within the system, it is possible to distinguish regional and transregional specialist hospitals. As a result of financial problems in the system, creation of private departments and treatment of patients with private insurance has been allowed since the half of the 90s. Moreover, since 2003 the government has enabled the acquisition of medical services by private subjects in order to shorten queues – an initiative that aims at increasing efficiency of the whole medical services system in the United Kingdom (Kalecińska, Herbst, 2011).

There have been many changes and reforms of the Healthcare System in Poland in the period of the last thirty years. Nowadays, similarly to the United Kingdom, healthcare is the domain of the state. Just like in the case of NHS, the Republic of Poland is the guarantor of egalitarian access to healthcare services financed from public funds, what is reflected by article 68 of the Polish Constitution. The following bodies take part in the management of the system: Ministry of Health (MZ), National Health Fund (NFZ) and local government bodies.

The first mentioned healthcare coordinator in Poland (MZ) is responsible for defining the national health policy, organizing funds for the system, and providing pro-health education. The National Health Fund provides access to healthcare for people with health insurance. It is under the control of two different departments in two different categories: overall operations of the institution are controlled by the ministry of health, and the financial economy is supervised by the minister of finances. The fund is managed by a chairman appointed by the Prime Minister, with recommendation from the minister of health. The main competency of the third policymaker, i.e. a local government body, is to manage public health institutions (Kalecińska, Herbst, 2011; Aristovnik, 2012).

The main source of financing the healthcare system in Poland is the obligatory health insurance. The National Health Fund, as the only insurer, is the monopolist on the market. The amount of insurance contribution depends on the income of the insured. Through formal bidding, NHF signs contracts with healthcare providers and specifies the number of provisions that can be carried out by a given subject in terms of the signed contract. Due to the pointed out limitation of provided medical services, beneficiaries of the system are sometimes forced to use the services of private doctors that operate parallel to state solutions. Polish law permits the functioning of both public and private hospitals. The first type is established by the minister, the central administrative body of the government, the voivode, the local government body, or

by a public medical university. The second type of medical institutions can be created from the initiatives of e.g. the church, a foundation, an association, or a private investor (Kalecińska, Herbst, 2011).

Health care expenses in Poland and the United Kingdom between 2010-2014 are presented in the following table:

Table 1

Total health expenses (in % of GDP) between 2010-2014

	2010	2011	2012	2013	2014
Poland	6,9	6,7	6,6	6,4	6,4
United Kingdom	9,5	9,3	9,4	9,3	9,1
European Union	10,1	10	10,1	10,1	10

Source: own work based on the data obtained from WHO Global Health Expenditure Database..., referred on: 10.07.2016 r.

Those expenses cover both public expenses that come from the state budget as well as private expenses that include expenses of households and private insurance. The European Union's average expenses amounted to 10% of GDP in the surveyed period, the percentage that distinctly exceeds expenses dedicated to this sector in Poland. Tendencies in the European Union's countries indicate that healthcare expenses are mostly financed from public sources, similar tendencies can be observed in Poland and the United Kingdom. Healthcare systems in all European countries recently face the several challenges which are connected with increasing healthcare expenditures and frequent disproportions between the cost and the reimbursements of individual hospital diagnoses (see Popesko et al. 2015). In many countries we can observe the initiatives to improve the financial health of the hospitals by the different strategies such as horizontal integration (Papadaki et al. 2016).

Table 2

Share of health expenses according to the type of financing between 2010-2014

	2010	2011	2012	2013	2014
Poland					
Public expenses	71,2	70,3	69,2	70,8	71
Private expenses	28,8	29,7	30,8	29,2	29
United Kingdom					
Public expenses	83,5	83,2	82,9	83,3	83,1
Private expenses	16,5	16,8	17,1	16,7	16,9
European Union					
Public expenses	77,8	77,3	77,3	77,6	77,8
Private expenses	22,2	22,7	22,7	22,4	22,2

Source: own work based on the data obtained from WHO Global Health Expenditure Database..., Referred on: 10.07.2016 r.

## PPP IN THE UNITED KINGDOM'S HEALTHCARE

Both in the case of Poland, as well as the United Kingdom, a public-private partnership is practiced in the public health services sector to a varying extent. Intensity of using PPP in both countries was determined by the moment of its implementation and the time of realization that it can be the chance of increasing the efficiency of provided services on the healthcare market. Due to the fact that the United Kingdom is the forerunner in any use of public-private partnerships by state agendas and local government bodies, undertakings of this kind have also been executed in public healthcare since 1996. Having more than twenty years of experience, the United Kingdom can currently praise itself with more than 130 projects on the healthcare market that are being executed in cooperation with the private sector. Their estimated value amounts to 12 billion pounds (Ministerio de Salud Healthcare UK, 2014). Achieving this result required the development of a proper institutional system.

Within the National Health Service, the British government has created an institution responsible for proper execution of projects in the healthcare sector within the private finance unit (PFI) formula. Private Finance Unit (PFU), because that's what it is called, is to intervene in every case of delays in the assumed plan. This unit is also responsible for coordination and support in developing a schedule for the execution of public-private projects, dividing risk between partners, and plays the counselling role when it comes to financial solutions. PFU controls and approves the correctness of the formal side of the signed contract while paying attention to adhering to standards defined by the law (Kalecińska, Herbst 2011).

The analysis of data concerning the realization of public-private partnerships in the healthcare sector in the United Kingdom indicates that selecting a private partner takes approximately two years. Duration time of this stage is determined by the necessity of conducting all procedures and adhering to the rules of Directive 2004/18/WE of the European Parliament and the Council of Europe regarding coordination of procedures used to grant public commissions for construction works, deliveries, and services. The use of competitive dialogue assumes that the procedure of selecting a private partner is based on reducing the number of potential subjects stage by stage until there is only one, who meets the requirements of the public sector to the greatest extent.

The procedure of realizing an intersectoral partnership is usually initiated by a local fund or foundation that operates within the National Health Service. It is supported in formal matters by the suitable Private Finance Unit. The role of the central government is to issue the final decision about accepting the project and programs of the partnership that imply the use of PFI. In order for the partnership to bring expected benefits to the public sector, all obstacles that may stand in the way of its efficient implementation have to be removed. This way, the British government introduced two important legal solutions. The first one was to adopt the law from 1996 that obliged the secretary of state for health to fulfil unenforced obligations of the insolvent NHS or to transfer such obligation to another public healthcare institution, including other NHS fund. The second one was to pass the law in 1997 that entitled NHS funds to enter into public-private partnership contracts and contracts with subjects that finance the undertaking (Urząd Zamówień Publicznych, 2011). Both regulations guaranteed control over project for NHS units and stabilized matters of financing PFI undertakings.

Public-private partnership contracts can be used to a wide extent in the healthcare sector, from constructing a medical unit to providing wide range of services, such as laboratory analysis, management of a hospital or a network of hospitals and clinics, or providing ancillary services connected with operating a unit. The contract for constructing and operating a unit, in agreement with the standard procedure, estimates the provision of this kind of services for approximately 30 years. During this period, the private partner receives remuneration from the public sector since the moment of putting into public operation, for

instance, a hospital. The amount of remuneration is determined by the quality of execution and provided services that are specified in the contract. If they are below expectations of the public party, the remuneration can be corrected.

An important matter for each undertaking realized in the form of a public-private partnership is the division of long-term risk. Risks such as unfavourable legislation or taxation changes, inflation and construction risks, as well as those associated with financing the project can occur in the period of the partnership. Allocation of all risks is performed according to the standard procedure that divides them between the public and private party. Moreover, each party has the right to withdraw from the partnership contract, and in most cases the private partner receives compensation that is determined based on who withdraw from further cooperation. The compensation procedure takes into account costs and liabilities that the private party incurred with regard to financial institutions (Urząd Zamówień Publicznych, 2011).

## PPP IN HEALTHCARE –THE BRITISH EXPERIENCE

The use of private subjects in the execution of medical, infrastructure projects can be dated to 1996, when the first contract to design, build, finance, and operate a hospital in Norwich was signed. The use of DBFO model (design, build, finance and operate) turned out to be effective, thus paving a way for the remaining projects of this kind. Construction of the hospital with 1000 beds in Norwich was concluded in 2001, according to budget with five months ahead of deadline, and that proved the effectiveness of using the partnership to create medical infrastructure. A contract to carry out the biggest investment of this kind was signed in 2006 in a very similar way. Reconstruction of The Royal London and St. Bartholomew's hospitals that amounts to 1 billion pounds includes their reconfiguration connected with design, construction, and maintenance of the buildings. Moreover, the private party has to provide the hospitals with high quality specialist, medical equipment and manage them for the time of the granted concession, that is, to 2048 (Sharma, 2010).

Until recently, cooperation in terms of PFI was mainly limited to the execution of infrastructure projects, like in the examples described above. The private party didn't carry out any tasks associated with medical services, but limited itself to managing and operating facilities that were established in terms of acquiring the concession for their construction. However, the situation has changed since 2005. According to the presumptions of the *NHS Plan 2000* strategy, creation of private facilities was allowed – Independent Sector Treatment Centres (ISTCs), which provide medical services within the National Health Service. Facilities operating within the boundaries of ISTCs sign five-year contracts with an option to extend it by mutual agreement of both parties. An ISTC facility does not incur financial risk associated with lack of patients because it is entitled to the minimal income. In the case of extending the contract, the facility is not entitled to this financial collateral (Suchecka, 2010). In principle, launch of ISTC aims at decreasing queues by increasing the number of subjects that provide medical services on the healthcare market.

The use of the public-private partnership formula in the British healthcare sector, in its principle, was supposed to support the public party in creation, revitalization, provision of additional equipment, and management of infrastructure intended for provision of medical services. The ten-year *NHS Plan 2000* strategy developed by the cabinet of Tony Blair allowed private facilities that provide medical services to operate within the state healthcare system at the same level as public subjects. All those actions aimed at optimizing and increasing the efficiency of providing medical services in the United Kingdom.

British experiences are extremely important for the implementation of a public-private partnership in the healthcare sector not only in Europe, but also all over the world. So far, the United Kingdom has been

the model country when it comes to developing these kinds of solutions, i.e. in Canada, Portugal, and South African countries. Due to the leading role in building public-private cooperation that aims at optimizing and increasing efficiency of the healthcare system, all actions taken in this area in the United Kingdom are a kind of an indicator for the remaining countries, which draw on its experiences.

## PPP IN THE POLISH HEALTHCARE

It was not until five years after joining the European Union that Poland established the legislative framework that enabled an efficient implementation of any kind of public-private partnership. In terms of the existing legal solutions in Poland, the public party can entrust the private partner with tasks associated with the healthcare sector. Regulations allow i.e., the construction and renovation of hospital infrastructure, provision of equipment, use of the facility and provision of medical services within the system. According to the analysis of the PPP market in the Polish healthcare sector, public-private cooperation is used only in the execution of infrastructure projects. Reports indicate that this formula is still unappreciated and used on the market to a limited degree.

So far, five public-private undertakings have been completed, and their main objective is to provide construction and reconstruction services, such as: "Construction works based on designing, executing and equipping with necessary installations the hospital facility intended for a dialysis centre and nephrology clinic at the SP ZOZ Multi Speciality Hospital in Jaworzno"; "Reconstruction of the Residential Home in Kobylnica for the Care and Therapeutic Institution and execution of complementary tasks"; "Choosing a private partner for the undertaking: Construction of the District Hospital in Żywiec"; "Construction and management of the Oncology Centre at the Mazowiecki Bródnowski Hospital in Warsaw" (Korbus, 2015). This small number of realized undertakings is caused by the solutions of the system that impede the development of the PPP market in the healthcare sector.

When it comes to the efficient execution of healthcare tasks, main obstacles in the public-private partnership formula are connected with providing a stable way of financing the undertaking for its whole duration. Financial instability of the healthcare system in Poland is caused by the way of organizing finances for the provision of health services. Inability to enter into long-term contracts with NHF (instead contracts are signed for one to three years) makes it impossible to ensure long-term, stable incomes for private partners, considered collateral for banks, who use these incomes to pay off their loans taken out to finance projects. The duration of NHF contracts makes it impossible to realize long-term projects. On the other hand, local governments unwillingly assume the financial risk associated with the undertaking, because it could overload the budget. In many cases, financial instability that results from solutions of the system does not allow the use of public-private partnerships in healthcare projects. Due to the above, most offers were not realized because the proceedings were cancelled due to lack of submitted applications for signing a concession agreement. Another issue indicated by the PPP market's researchers is the fear of local government of being prosecuted for privatizing hospitals due to insufficient social awareness regarding public-private partnerships. Due to the peculiarity of the healthcare sector and its role in social life, putting management and operations of a hospital in the hands of the private party could be met with opposition from the beneficiaries of the system.

## RECOMMENDATIONS

The efficient implementation of public-private partnerships in Poland requires, first and foremost, the introduction of changes regarding the way the system is financed and greater openness of the public partner to establishing this type of cooperation. An important change that should be implemented is the extension of National Health Fund contracts duration to at least ten years. This will allow creditors to secure their interests that are pivotal for the execution of public-private partnership undertakings. The Polish government has to introduce appropriate changes in legislation on financing the healthcare system. Currently, works are being carried out in this direction. On the other hand, public subjects should express greater openness not only to construction of medical infrastructure units, but also to entrusting this kind of facilities to private subjects. Moreover, they should make recommendations for private coordinators to increase the work efficiency of medical facilities, both by proper staff management and provision of additional medical services following the example of the British Independent Sector Treatment Centres.

While the first problem requires the development of synchronized and compatible legislative solutions, in the second case it is crucial to develop models that can realize individual healthcare tasks. In the already used model, cooperation between e.g. an entrepreneur and the local government concerns only the construction of infrastructure. In the postulated and complex approach, the public subject entrusts the private partner with financing, designing, building a unit, maintaining infrastructure and managing the unit along with providing healthcare services. Its realization would have to be based on long-term concession and stable source of financing the undertaking. The private entrepreneur's incomes would come from the contract with National Health Fund for the provision of healthcare services. Due to the fact that executing this kind of an undertaking covers the competencies of the public sector, it is required to carefully analyse all aspects and possible legal consequences of establishing this type of cooperation. It is necessary to perform an analysis and revision of the current legal status according to needs.

In the second model, financing, designing, building a unit, and maintaining the created or modernized infrastructure is put in the hands of the private party. Unlike in the complex model described above, here the entrepreneur is responsible only for technical maintenance of a medical unit or he can additionally provide the so-called ancillary services such as a laundry room, canteen etc. Thus, the investor is responsible for ensuring availability of the facility, understood as the possibility to use it for medical purposes. In return for providing this service the private partner is to receive remuneration.

The third approach of establishing partnerships in the healthcare sector is based on entrusting the private party with managing the already existing medical facility. These actions are introduced as a remedy for a difficult financial situation of a hospital and in order to increase the efficiency of provided medical services. The introduction of a private manager can solve problems of many medical facilities in Poland that have to improve their functioning.

## CONSLUSIONS

A public-private partnership has been created as a remedy for insufficient funds that were intended for providing public services by the public sector and as a form of increasing the efficiency of public services. Based on the example of the United Kingdom, PPP practices has contributed to the development and modernisation of medical infrastructure as well as to the inclusion of private subjects in the provision of medical services, thus greatly contributing to the increase in availability of medical clinics. It resulted in shortening the time that patients spent waiting on medical examination. Moreover, thought out changes in



legislation stabilized the British PPP market in terms of finances, thus greatly contributing to the success of a public-private partnership in the healthcare sector of this country.

Considering that the implementation of PPP in Poland is relatively recent, the number of medical projects in this formula is small. Polish local authorities are slowly swaying in favour of transferring part of their rights to private subjects, however it is a slow process. Lack of trust in PPP formula can be caused by not adjusting the law (that is the basis for functioning of healthcare in Poland) to possibilities offered by public-private partnerships. That is why it is necessary to use such guarantees and system reforms that would attract potential investors who express willingness to invest their potential in public healthcare.

## REFERENCES

- Allen G. (2003), *Private Finance Initiative*, House of Commons Research Paper, 03/79.
- Antoniuk J.R (2009), Nowa regulacja partnerstwa publiczno-prywatnego, [in:] *Partnerstwo publiczno-prywatne jako instrument rozwoju zrównoważonego*, ed. M. Urbaniec, Częstochowa.
- Aristovnik, A. (2012). Measuring relative efficiency in health and education sector: The case of east European countries. *Actual Problems of Economics*, 136(10), 305-314.
- Brosche H., *The Arab Oil Embargo and United States Pressure against Chile: Economic and Political Coercion and the Charter of the United Nations*, //<http://scholarlycommons.law.case.edu/cgi/viewcontent.cgi?article=2138&context=jil>(referred on: 20.07.2016 r.).
- Gorsky M. (2008), *The British National Health Service 1948-2008: A Review of the Historiography*, Social History of Medicine, December 2008, Vol. 21 Issue 3.
- Rudawska I., Urbańczyk E., (2012), *Opieka zdrowotna. Zagadnienia ekonomiczne*, [in:] *Zwiększenie źródeł finansowania polskiej opieki zdrowotnej*, Diffin, Warszawa.
- Sharma M., Atri A., (2010), *Essentials of international health*, Jones and Bartlett's Publishers LLC, Chapter 11: World Health System – The four models of health care system.
- Suchecka J., (2010), *Ekonomia zdrowia i opieki zdrowotnej*, [in:] *Podstawowe modele systemów zdrowotnych*, Wolters Kluwer Polska, Warszawa.
- Kalecińska J, Herbst I. (2011) *PPP w systemach ochrony zdrowia w wybranych krajach świata*, Warszawa.
- Bejm M. P. Bogdanowicz, P. Piotrowski (2009), *Ustawa o partnerstwie publiczno-prywatnym. Komentarz*, C.H. Beck, Warszawa.
- Public Private Partnerships: UK experience in healthcare // <http://www.minsa.gob.pe/> (referred on: 20.07.2016).
- Raport Urzędu Zamówień Publicznych 2010// [https://www.uzp.gov.pl/\\_skonsolidowana2011.1.2010.pdf/](https://www.uzp.gov.pl/_skonsolidowana2011.1.2010.pdf/)(referred on: 20.07.2016).
- Healthcare UK report 2013 //[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/266818/07\\_PPP\\_28.11.13.pdf/](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/266818/07_PPP_28.11.13.pdf) (referred on: 20.07.2016).
- WHO Global Health Expenditure Database, <http://apps.who.int/nha/database/ViewData/Indicators/en>.
- WHO – World Health Report 2014 – Health systems financing: The path to universal coverage, // <http://www.who.int/whr/2014/en/>, referred on: 20.07.2016).
- The report on Polish ppp market in the healthcare sector 2013, //[http://www.ppp.parp.gov.pl/uploads/files/PPP\\_Publikacje\\_z\\_projektu/03\\_Raport\\_ochrona\\_zdrowia/03\\_Raport%20Ochrona%20zdrowia.pdf/](http://www.ppp.parp.gov.pl/uploads/files/PPP_Publikacje_z_projektu/03_Raport_ochrona_zdrowia/03_Raport%20Ochrona%20zdrowia.pdf/) (referred on: 20.07.2016).
- Popesko, B., Papadaki, Š., Novak, P., Cost and Reimbursement Analysis of Selected Hospital Diagnoses via Activity-Based Costing, *E+M Ekonomie a management*, Volume: 18 Issue: 3, 2015, ISSN 1212-3609
- Papadaki, Š., Staňková, P., Klímeck, P., (2016), The effectiveness of horizontally integrated hospitals in the Czech Republic, *International Journal of Mathematical Models and Methods in Applied Sciences*, Volume 10, 2016, Pages 110-119