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THE ECONOMICS OF COMBINING SUBSIDY
WITH PUBLIC-PRIVATE PARTNERSHIP

Guided by the principle of good management, particularly in terms of restrictions of budget costs, public bodies in the process of granting subsidies for public investments seek to minimize the amount of subsidies in order to achieve equal amounts of the effects of public services. To achieve this goal, public authorities consider the economic effects of subsidization for public investment project, depending on the model of delivery of public project.

World practice imposes two basic models of delivery of public buildings: the traditional delivery and the model of public-private partnership (PPP). Certain characteristics of these two basic models have different effects on the specific interests of the entities involved in the public investment project, and consequently on the economic effects of subsidies.

This paper will identify specific entities in the public investment project and their interest to participate in all phases of project preparation and implementation through the whole lifecycle of a project along with their relationships, interactions and instruments through which they generate specific interests. Furthermore, qualitative method for comparison of efficiency of these two models and determinants for management of subsidize allocation on economical way depending on the model of delivery of public project will be determined.

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The paper shows that for the same effect of public service, smaller amount of the subsidy needs to be submitted through PPP then through traditional model.

Key words: Public-private partnership (PPP), economics of subsidies, subsidies, combining funds and PPPs

1. Introduction

One of the basic features of a large number of public projects is their prevailing financial unsustainability and economic justification. Financial unsustainability implies lack of direct revenues to cover life cycle costs (LCC)[1]. However, although financially unsustainable, public investment can create more general social benefits (and costs) for which reason it will still be socially and economically justified. Economic justification implies sufficiency of collected revenue of direct services sale plus positive externalities[2] and covering of the life cycle costs plus unproductive costs or non-construction costs (financial costs, manipulation of land, management costs, taxes, etc.).

Thus, indirect benefits in the form of positive externalities represent the benefit of the wider community for which it is socially justified to deliver specific public building which will enable delivery of public services (for example, urban and interurban road and rail transport, systems for disposal of waste water and solid waste, systems for distribution of drinking water and the like). One of the factors for decision about the delivery model of public infrastructure project in the event of its economic justification is the ability of client or end user to pay for the delivered public services. Common case in the practice is that the users of public services delivered by specific public infrastructure don't have sufficient financial capacity (fiscal capacity of public bodies or personal income end-user) from which they can pay the price of delivered public services. In order to increase the fi-

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[1] Life Cycle Costs (LCC) include the costs of construction, operation, maintenance and removal at the end of the life cycle. Parts of thestandardISO15686-5:2009are used with permission of Croatian Standards Institute (CSI). Croatian standards are issued by the CSI, Ulica grada Vukovara 78, Zagreb, Croatia. All copyright sand rights of use of normative documents issued by CSI belongs to the Croatian Standards Institute.

[2] Positive externalities are involuntary production of benefits and costs of the individuals to the community. Members of the community do not pay for the benefits received and costs manufacturers do not pay for the costs incurred. Examples of positive externalities include the increase of land prices, reducing the number of accidents due to safe roads etc. Examples of negative externalities include the increasing air pollution and water, increasing the cost of the health care system due to the use of alcohol and tobacco, reducing the value destinations for unsystematic construction, light pollution etc.

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nancial capacity, gap between the necessary financing sources (sources needed to defray the whole life costs of the project) and available financing sources (sources that are available to pay for the cost of public services and are determined with real payment ability or affordability) is funded from the special public sources. In cases where the cost of public services is greater than the price which is ready to be paid by the demand (Amegashie, 2006), public authorities grant direct irreversible subsidies to cover part of the production cost of public services and to achieve a balance between supply and demand. In other words, with subsidizing public projects from public funds, production costs of public project are coordinated with the demand capacity for public services that are provided with this public project.

If the condition of social justification for delivery of a particular public project is met, then it is economically rational and socially justified to ask a question about the impact of models of organization and financing public project on the economics of subsidy. In this sense, traditional (budgetary) model and alternative PPP model are being considered. The goal is to determine whether there is a rational basis for the assumption that different models of the project delivery have different impact on the economics of subsidy. To reach this goal, it is necessary to identify project stakeholders, their specific interests and instruments by which they achieve these interests.

When a public body decides to deliver a public building using the traditional model, in the procurement process, the best contractor in most cases is selected with the criterion of the lowest price. Although public procurement system allows use of criterion of most economically advantageous tender, usually for reasons of process simplicity for selection of contractor as well as proficiency of public administration, in most cases the criterion of lowest prices is applied. If rational behavior of bidders is assumed, which manifests itself primarily in the desire to win a public tender, due to the fact that the bidder has more information than the client in terms of knowledge of the technology and materials of construction and knowledge of the specific risks of the project, often times application of the lowest prices criterion can result in reduced quality of installed materials. Reduced prices of construction caused by selecting materials with reduced quality leads to higher maintenance costs and replacement of worn materials. Such behavior of contractor in theory is being called moral hazard (Neufville et al. 2007). The traditional model implies scenario in which contractor after handing over the constructed building to client step out from the job. Due to this fact the whole life costs of the building are borne by client. Therefore, in the traditional model the overall project risks are being mainly taken by the client and during the total lifetime of the building client pay all flaws (Marenjak et al., 2003).

On the other hand, the PPP model as a basic feature has a transfer of certain risks from the client to contractor (Akintoye et al, 2006; Bult-Spiering, Dewulf, 2006; Grout, 1997). The basic principle in achieving an optimal risk transfer is that each participant in the project bears those risks which he can manage most effec-

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tively, and with the use of mechanism of competition determine contractor who will bear assigned risks with the lowest fee. Greater efficiency in managing the risks that are transferred to contractor is based on the assumption that the fee, which is payable to contractor by client that transfers risk, for the transferred risk is lower than the expected value of materialization of risk. If this assumption is true, client who transfers a risk on contractor has achieved savings expressed as the difference between the materialization of risk and the fee which he paid for the transferred risk.

The objective of delivery of public projects is to create long-term benefits for the wider community. These benefits are most evident in the relationship between the price paid for the delivered project and customer satisfaction resulting from the effects of a public service that is delivered by the project.

The cost of public infrastructure project does not only consist of the capital costs but also include the costs of financing, maintenance, management, replacement of worn materials and the like. In this sense, the cost of the public project to be paid by the users, i.e. the taxpayers, represents the whole life cost of the project. The practice shows that, depending on the complexity of the project, the costs of maintenance, management and replacement of worn materials, for example in period of 20 or 30 years of use, can be several times greater than the capital costs. Therefore, existing and future generations of beneficiaries (taxpayers) will pay the total whole life costs of the project, and not just the capital costs, which means that in relation to their ability to pay of public services is not enough just to put capital costs but the overall whole life costs of the project.

When the public project with its direct sales to end-users of public services is notable to defray the whole life costs, i.e. when the absence of revenues is causing insufficient financial capacity of public bodies or end users which results in the failure of delivery of public project, public authorities (providers of subsidies) direct irreversible subsidies to help to reduce this gap. The providers of subsidies in their behavior seek to apply the principle of good management. The application of this principle is based on maximizing cost-effectiveness of subsidy allocated in a way that with the minimum amount of delivered subsidy the same amount of public service is delivered. In this sense, it is reasonable to consider whether it is possible to increase the effectiveness of subsidy by applying the PPP model, i.e. whether the provider of the subsidy could increase the efficiency of subsidies appropriating the expected value that represents the difference between whole life costs of traditional model and PPP model.

There are several important factors to achieve Value for money – VfM (Bettignes, Ross, 2004; Esty, 2003; Iossa, Martimort, 2011). These are mainly: risk transfer, ex-ante competition, reducing agency costs, economies of scale and consolidation of construction and maintenance phases. Compared to the traditional model, the expected long-term savings are resulting from the difference between

the whole life costs which have been estimated in the contracting phase. Like in any other market, in the PPP market there are successful and unsuccessful projects. However, due to predominantly positive experience compared to negative (House of Commons, 2011; TIF, 2011, HM Treasury, 2013, HM Treasury, 2012; NAO, 2011), the recommendations of public authorities are aimed at further development of the PPP market primarily because well selected, prepared and managed projects in conditions of low political risk, can provide added value to taxpayers.

If transfer of the risk of the public project to the stakeholder that manages it more efficiently can reduce the whole life costs of project and consequently reduce the payments from the budget of public bodies (achieving value for money due to the transfer of risk and competition of bidders), then it is justified to expect a smaller gap between the actual payment ability of public authorities and required payment to cover whole life costs. Reducing of this gap which is achieved by applying the PPP model of delivery of public project represents the basis of the hypothesis which is confirmed with qualitative analysis presented in this paper: **If use of PPP model enable achievement of value for money, then for the same effect of public service, capital costs within the PPP model compared to the capital costs within the traditional model will be subsidized with lower amount of subsidy.**

The goal of this paper is to setup a framework for analyzing efficiency of the allocating of subsidy for capital costs of capital public projects by comparing whole life costs which are resulting from two models of delivery of capital public projects: traditional model and PPP model. Due to fact that combination of subsidy and PPP model is novelty in Europe and the world and till today there is no relevant database of projects funded through the combination of these sources, there are obvious limitations for using empirical sample for confirmation of the hypotheses.

This paper is structured in seven chapters. The first, introductory section provides a framework in which is defined the problem of selecting a model of delivery of public buildings(projects) and through terms of the whole life costs and the payment ability of public bodies two basic models of delivery are differentiated: traditional model and public-private partnerships (PPP) model. The second chapter through basic features compares these two models in detail, and with reasonable arguments attempts to highlight the important benefits of the PPP model. The third chapter describes in detail the system that represents an organization of PPP project with stakeholders that participate in it. Special attention is drawn to the four main subsystems. The fourth chapter analyzes the specific interests of stakeholders in the project and the instruments with which they generate their own interests while minimizing risks and maximizing benefits. The fifth chapter analyzes the systems of subsidizing public projects in terms of socio-economic viability and financial sustainability. The sixth chapter, on the basis of the analysis conducted in the previous chapters, provides recommendations to public authorities and providers of subsidies regarding the operational implementation process

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of subsidizing public projects. The final, seventh chapter presents the concluding remarks in relation of the above, as well as recommendation for further research.

2. Main differences between traditional and PPP model

In order to ascertain how delivery model of public project affects the efficiency of subsidy and instruments through which provider of subsidy can maximize his benefit, it is necessary to identify the similarities and differences between traditional model and PPP model. Since each project has a totality of different risks, it would mean that risk of the project will be the basic criterion of distinction. In the traditional model public authority appears in the role of the investor and bears all or substantially all of the risks of the project under its management. Each materialization of the risk assumed by the public authority affects the cash flow of the public body. Unlike the traditional model, in PPP model project risks are shared among the partners in the project, while respecting the principle that specific risks are assumed by partner that can manage them most efficiently. The main differences between traditional model and PPP model are shown in Table 1:

Table 1:

COMPARISON OF TRADITIONAL MODEL AND PPP MODEL FOR
DELIVERY OF PUBLIC PROJECTS

Criteria	Traditional model	PPP
Risk takeover	Completely taken up by public sector	Shared between public and private sector
Making an investment decision	Based on the political assessment and value of capital costs	Based on the commercial grade, the value of whole life costs and actual ability to pay
Making a funding decision	Based on the solvency of the public sector	Based on the estimates of the masses of revenues and expenditures as well as the ability of the project to meet obligations to funding sources with his exploitation
Impact on public sector debt capacity	Fully loaded with debt	Fully or partially relieved
Control authority	Exclusive powers of the public sector	Divided with regard to the risks assumed
Inspection process for delivery of public services	poor	intense

Source: Rewritten base Juricic, 2011.

After identifying the long-term needs for public buildings, application of the traditional model means that public body is organizing financing, design and construction. In this model private sector is involved in design and construction. Upon completion of the construction, private sector exits the project and leaves management of the building to the public sector (European commission, 2003). Research into the effectiveness of traditional models in a large number of cases have shown inefficiency, in particular with regard to the materialization of the risk of exceeding the deadline and budget for construction[3]. Consequently, the inefficiency of public body as a recipient of subsidy can be transferred to a provider of subsidy affecting the final efficiency of subsidy.

Unlike the traditional model, in PPP model specific risks (for example, construction risk, maintenance risk, financing risk and demand risk) are transferred to the private partner for a fee for transferred risk. Delivered standard of public service is the basis for payment of the assumed risks. This surveillance system increases the overall efficiency and transparency of public project, and as a consequence is transmitted to a provider of subsidy.

3. Stakeholders in PPP project

With regard to the delivery model of public project, in the process of implementation of the project participate a variety of stakeholders from the public and private sector. In the traditional model of project delivery public sector occurs as the client for works and takes all the risks of the public project. In the application of the PPP model private partner does not appear as a contractor for works but as

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[3] Depending on the conducted research, the materialization of the risk of exceeding construction budget was observed in 40% to 90% of public projects as the materialization of the risk of exceeding the time of construction was observed in60% to 82% of public projects (KPMG, 2013; NAO, 2005; Flyvbjerg, 2007; EIB, 2005; TIF, 2011). It should be added and so-called "Stand-Alone" risk, whom public body is exposed when investing into a public project in his area. When a public body, especially locally, according to the traditional model is delivering public building of one type in circumstances where there is no need for delivery of another public building of the same type (for instance, one water supply system or a single system for the disposal of solid waste and waste water), then public body is exposed to "'stand-alone'' risk or delivery of one public building of specific type (Brigham, 1995). In such circumstances, all the risks that materialize in such a project, directly implicate the cash flows of public body. The public body does not have the ability to disperse the risk in a way to form a portfolio of projects that are delivered in a variety of conditions. Public body can reduce this risk in a way that a specific public building is delivered with public-private partnership model because with applying PPP model this risk is transferred to private partner. Private partner may enter into such projects in several cities or countries forming a portfolio of similar or identical projects, thus reducing the risk of an individual investment project.

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a provider of services while public partner appears as a client of services whose main role is to define and measure standard of service that will be delivered by a private partner. This standard is determined by means of the output specification (Kušljić, Čengija, Marenjak, 2009). In this model, public partner has an important part (but not all) of risk transferred to the private partner. Private partner is no longer included only in the period of construction of building, but in the total contractual period which often lasts for more than 20 years. Typical relationship between stakeholders in a PPP project is shown in Scheme 1.

Scheme 1:

RELATIONSHIP OF STAKEHOLDERS IN PPP PROJECT FOR DELIVERY OF PUBLIC BUILDING AND SERVICES THAT IS PARTIALLY FUNDED WITH SUBSIDY
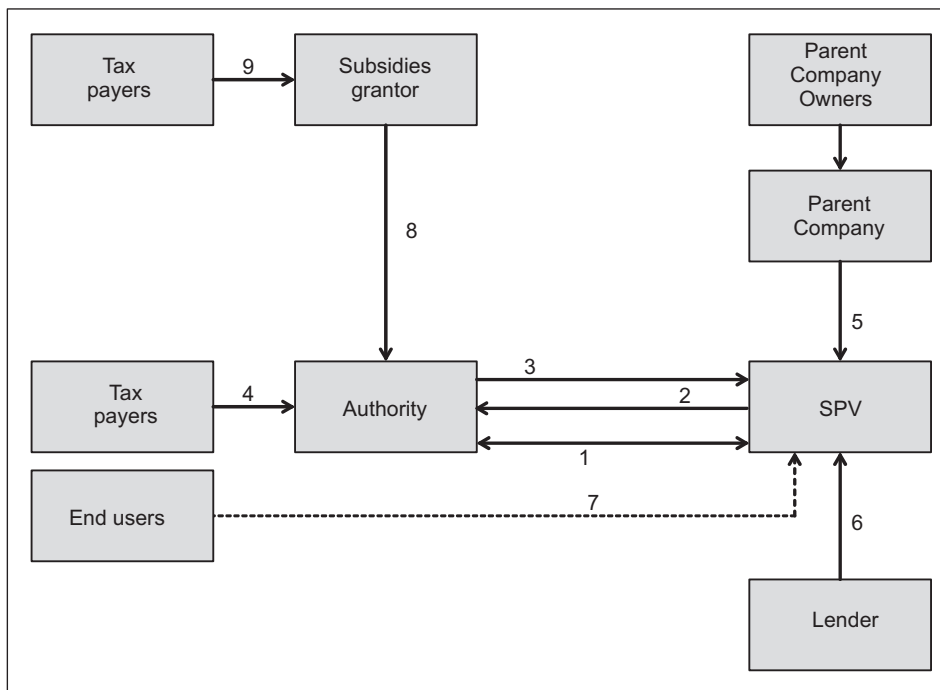
Source: Authors

After the procedure of public procurement is conducted, public authority (employer) enters into a PPP contract with the best bidder, by which he is becoming public partner (1). For the implementation of the PPP project, the parent com-

pany establishes a Special purpose vehicle (SPV)[4]. SPV becomes private partner and is responsible for the delivery of agreed standard of public service to public partner (public body) (2), and private partner will charge delivered service directly from public body (3) or from end-user (7). SPV provides funding which are own resources of the parent company (5) and other sources of funding from creditor (6).The sources of revenue of public bodies for financing fee to be paid to private partner in the contractual period for delivered service are taxes that are collected from taxpayers (4).

Fee (and/or revenues from end-users) to be paid by a public body must be sufficient to defray the whole life costs of building. In this regard, an important part of the project preparation is the process of determining the financial (fiscal) capacity of public body, i.e. the ability to pay long-term commitments[5]. In the case where public body (or end users) is not capable of paying fee, the project cannot be delivered in this way. Then it is necessary, in the case of economically justifiable project, to increase the capacity of public body with use of subsidy with which value of capital costs and consequently the whole life costs are reduced (8). Financial sources of subsidy are also taxpayers interested in socially justifiable and economically rational allocation of subsidy (9).

From the system described in Scheme1arises whole series of interactions marked with different interests. Within this system it is possible to identify four subsystems with specific interests whom individual stakeholders seek to maximize with the variety of merger options, risk takeover and monitoring systems. **The first subsystem** consists of taxpayers, public body and end users. Although, interests of taxpayers and public body are often equated, their interests may be different. It is similar to comparison of company owners and management, taxpayers are exposed to risk of agency costs due to asymmetric information they have in relation to their legitimate political representatives. **The second subsystem** consists of parent company of private partner and owners of the parent company. These two stakeholders are also in agency relationship whose costs they tend to decrease with different organizational forms. The parent company as a private partner takes over certain risks, with which it manages, at least it's expected more efficient than the public partner. The private partner often takes over risk to ensure sufficient sources of financing for public project that consist at least of their own and other external sources of financing. For the purpose of the project implementation, par-

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[4] SPV (*SinglePurposeVehicle*), SPC (*Single Project Company*), SPE (*Single Project Entity*), PC (*Project Company*), OC (*OwningCompany*), CP (*CogenerationCompany*).

[5] In Republic of Croatia, the Budget Law defines limit for assuming PPP fee which amounts to 25% of revenue in the previous year (Article 89 of the Budget Law, 87/08). However, despite this so-called legal capacity, there is also economic capacity and risk adjusted capacity (APPP, 2012; Juricic, 2011).

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ent company establishes SPV -a legal entity whose only activity is that stems from the purpose of the public project. **The third subsystem** is a creditor who, given the level of recourse against the private partner assumes part of the overall project risk. **The fourth subsystem** represents taxpayers as sources of financing subsidy and provider of subsidy as a formal representative of the financing sources of subsidy who on behalf of taxpayers decides on the allocation of subsidy.

4. Specific interests of subjects involved in the public project

All the subjects involved in the project, acting economically and socially justifiable, tend to optimize costs and benefits in order to achieve Pareto optimum (Shah, Takor, 1987), using available instruments. This also applies to subsidy donor. To determine subsidy donor's benefit from supporting public project delivered through PPP model, we need to identify instruments and modes used by other subjects to achieve added value.

4.1. Public body

Initiation of public infrastructure project is under competence of public bodies[6]. Decision on the delivery of public infrastructure (railroad, highway, airport, schools and faculties, public apartments, hospitals, waste water purification systems, aqueducts, geriatric retreats and nursing homes) is usually based on identified need for a certain public service (public transportation, education, care for accommodation of citizens, health care, waste water management, distribution of drinking water, care for elder and disadvantaged citizens and alike).

The objective of each public management should be effective and efficient delivery of public infrastructure and public services related to it. Effectiveness and efficiency of delivery imply that public management and public services are rendered in a right manner and on the basis of properly set long-term objectives. Under the term "manner" of delivery we mean a model of delivery, and the term "objectives" implies long term savings, shorter construction deadlines within the planned budget and alike. Of course, to choose a right model and achieve objectives, we need to accept the existing and foresee future limitations. Existing limitations can be related to available fiscal (financial) capacity and adequate ability for

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[6] Central state, ministries, counties, cities, towns, publicly owned companies.

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payment of assumed long term obligations while future limitations can be related to equalization of cost-benefit ratio for current and future generations of users.

In case when public body does not have adequate financial capacity, which means that it is not able to settle assumed long term obligations, insufficient financial capacity needs to be subsidized from other public sources. If public project is economically justifiable, i.e. if it generates public benefit, financial insufficiency can be compensated through subsidy (EU, Regional policy, 2008). Furthermore, recent public service management implies the efficient quality control system of rendered public service. In traditional model of infrastructure procurement, control of the accomplished standard can be inefficient because the same person (public body) determines, delivers and measures the accomplished standard. Users of public services are subject to the risk of subjective decision-making and unrealistic declaration of costs for the delivered standard. On the other hand, use of PPP model implies that one person determines and measures public service standard (public body - public partner), and the other one delivers the defined standard (private partner). This way, demarcation of responsibility for measurement and delivery is achieved which contributes to increase of objectivity.

We need to emphasize a role of escrow accounts in part related to operational execution of payment[7]. In traditional model, public body makes payments of all costs until the end of construction phase on the basis of so called interim certificates[8], while in PPP model only the costs of delivered standard are paid just in the starting phase of operative utilization of the building. If costs of delivery increase during the period of exploitation of public building, due to materialization of certain risks, in traditional model public body pays incurred costs regardless of the reasons for their emergence. Under such circumstances, in case of withdrawal from such project, public body made all payments for a public building which shall never be used. If in such case part of the costs are settled from subsidies, public body shall not achieve the right to collect the subsidy because the project is not completed. In PPP model, public body starts payments only after the building is brought into state of full availability which is achieved by transferring a construction risks to a private partner. In case of materialization of such risks, public body does not bare costs. Construction costs are paid by a private partner and lender of capital usually through an escrow account. It is especially important to emphasize the role of escrow account in the phase of utilization. In PPP model each payment is made on *''ex-post''* principle. It means that private partner can charge for its services only after verification by the public body of the delivered, agreed upon

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[7] Transaction account opened in escrow bank with predefined documents and payments (Vukmir, 2011).

[8] Periodical payments dependant on agreed upon, executed construction works in the period of constructing a public building.

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standard. After payment of remuneration to the escrow account, bank acts according to previously agreed upon procedures regarding payment of lender of capital, taxes, reserves and private partner. Including subsidies into escrow account system of payment, we achieve the effect of paying solely for the agreed upon standard, which serves the realization of project's objectives. Such approach diminishes risks of insolvency, bankruptcy and payment rank, so called *"cash waterfall"*.

4.2. Taxpayers

Interests of public body (legal entities, institutions, formal political representatives) are often in practice affiliated with interests of end-users of public services (public services consumers or taxpayers). Frequent conflicts between public service users and political representatives regarding inefficacy of public services prove their unequal positions and interests.

In essence, taxpayer and a public body are in a specific agency relationship in which public body is an agent and the taxpayer is a principal. Taxpayer is a source of financing and the public body, in a form of legal representative (mayor, district prefect or a minister) is allocator of funds.

Formal management with taxpayer's money is preceded with public elections of taxpayer's representatives who shall formally be granted a mandate to manage allocation of public sources of financing in a certain period. It is assumed that approximation of supply and demand for public buildings and public services is done during the procedure of public elections of formal representatives. But after public elections, chosen representatives are mostly independent in passing decisions, among other, on model of delivery of public buildings. In such relation, formal representative finds himself in the role of agent and the taxpayer in the role of the principal. In the relationship agent – principal, agent always has more information regarding total cash flow and value of assets he is managing than the principal (Jensen, Meckling, 1976) which causes unbalance of information. Because of such unbalance of information, principal bares so called agency expenses which mostly emanate from costs of supervision in the procedures aimed to realization of principal's objectives.

In the procedure of realization of their objectives, taxpayers shall seek to gain higher quality of certain public service for less money which they pay in the state's budget in the form of taxes. On the other hand, formal political representatives shall seek to choose those public projects, delivery model and system of supervision of their performance, which increase probability of keeping them on their current positions. Within the framework of such conflicted interests, taxpayers

become interested not only in the type of public service rendered in the specific public building, but also in the model of delivery itself which should, beside good ratio between costs and benefit, enable cheaper system of supervision.

Agency costs shall be barred by actual, as well as the future generations of taxpayers. In fact, at the beginning of public building exploitation period, while the building is relatively new, actual generations can achieve rather favourable ratio between the quality of the public service and its price, whilst this ratio is undermined with future generations because of lower quality of services rendered due to lack of maintenance and increased costs caused by energy inefficiency or technological superannuation. Because of that, system of supervision over the delivered standard and system of sanctioning undelivered standard are of particular importance.

For the afore stated reasons and with the objective to protect their interests and interests of users of public services of future generations, taxpayers become interested for the model of delivery - traditional (within which they entirely assume risks emanating from the project of delivery of public building, run by a formal political representative in their name and on their behalf) or alternative – PPP model (within which they bind their formal political representative to clearly define standards of the public service and system of supervision of the delivered standard, transferring risks of building and maintaining to a private partner). When applying alternative model of delivery, taxpayers can diminish unbalance of information on the cash flow and project assets because they agree upon standard, price for the delivered standard and the system of supervision over the delivered standard, in advance. Consequently, taxpayers pay only the delivered standard after its delivery because they transferred part of the project risks to a private partner protecting themselves from excessive payments for each materialized risk, as it is the case with the traditional model of public building delivery.

In the system described in scheme 1, taxpayers appear to be source of financing for subsidy donor. In relation to subsidy donor they are also exposed to risk of agency costs, therefore they are interested in the model of public project delivery which should provide higher efficiency of the allocated subsidy.

4.3. Private partner

Basic interest of the private partner is profit. Financial theory and practice (Esty, 2003; Gatty, 2008; Finnerty 1996) recognizes advantages of project finance technique. Those are, among others, lowering agency costs, lowering underinvestment risk, lowering contamination risk, lowering signalization risk, benefits for

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parent company stock owner because of growth of their stock's market value and the stability of future income.

One of the main duties of the parent company management is to maintain the optimal structure of sources for financing investment project. Decision on choice of the financing mode is based on private information managers have regarding the project perspective and value of the company in the future. Since investment decisions are taken by managers, owners of the parent company shall bare agency costs which represent the balance between underinvestment costs and maximum value of the company (John & John, 1991). From this emanates clear articulation of parent company owner's interest to find a model of investment organization which would minimize agency costs. It is exactly the project finance technique which detaches new assets (public project assets) into so called synthetic balance sheet (Filipenko, 2001) or SPV balance sheet. This detachment of assets from the parent company's balance sheet, and by that from other sources of financing, lowers the discretion of managers in deciding on distribution of cash flow resulted from exploitation of public project assets. Lowering manager's discretion is the result of contractual obligation in beforehand determined arrangement of the cash flow, so called cash-waterfall. This demand of parent company stockholders is similar to the demand of taxpayers in relation to public management.

Application of project finance technique also protects the owners of the parent company from contamination risk. It is a risk of potential "mixing" of cash flows emanating from successful and unsuccessful projects (Gatti, 2011). If cash flow of the public project is isolated within SPV balance sheet, risk of jeopardizing that cash flow, which is directly passed to the owners of the parent company as dividend, is diminished. Since in PPP projects, risks of providing sufficient funding are often transferred to private partners, application of project finance technique protects parent company from the underinvestment risk (Esty, 2003) because parent company is not charged with debt within its balance sheet but the debt is allocated to SPV. In that sense, SPV becomes a medium for dispersion of project risks.

4.4. Subsidy donor

Rational behavior of subsidy donor directs him to the question of efficiency of allocated subsidy. One of efficiency factors is model of project organization and finance. Aim of subsidizing a public project can be planned social benefit under circumstances of insufficient financial capacity of the project. For this reason question imposes, is it more efficient to allocate subsidy to a public project delivered through a traditional model or through PPP model.

There are few main factors which affect subsidy donor's decision on model of delivery:

- each project is composed of series of risks materialization of which determines its final success. In this sense, it is necessary to identify and quantify all the risks;

- different persons participate in the phase of preparation, implementation and managing a public project with different efficacy of managing particular project risks. It is justifiable to raise a question on whether it is possible to allocate particular risks to those subjects who manage them more efficiently because such approach can result in benefits for all the subjects involved in the project;

- taxpayers are inclined to pay only efficiently delivered public service or they tend to pay only for agreed upon standard of public service. They are not prepared to pay for materialized risks which are the consequence of inefficient organization and management;

- subsidy donor tends to increase efficiency of subsidy in a way that for the same quantity of public service, he allocates lower subsidy value.

With afore stated criteria, subsidy donor supervises realization of project objectives for the long run and controls use of subsidy in accordance with the contract. Efficiency of supervision depends on sanction system imposed on subsidy recipient or the person who manages the public infrastructure project. System of supervision without possibility of sanctioning is inefficient. Because of that, it is justifiable to organize the system of supervision in a way that benefits realized by the manager are for the long term linked with subsidy donor's sanctions system. If we chose traditional model of delivery of public infrastructure, every expense caused by materialization of project risks shall be barred by a public body - subsidy beneficiary. In case of choosing PPP model, for the reason of transferring risks and assuming obligations related to delivery of agreed upon standards by a private partner, costs caused by materialization of risks shall not be barred by a public body (or taxpayers) but by the private partner through the system of agreed upon sanctions. This is a significant gain for the subsidy donor and taxpayers because it diminishes costs of supervision over implementation of the project, i.e. it diminishes agency costs.

Efficiency of subsidy allocation does not depend solely on the model of delivery of the public project but also on the mode of subsidy payment. Subsidy can be paid on a one-time basis according to the costs of constructing or periodically on the basis of accounting the delivered standard. In both cases value of subsidy is related to acceptable capital expenses, but the mode of payment is different. In the first case, criteria for payment are the performed works (construction phase),

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while in the second case criteria is delivered standard of public service (running phase). Latter mode has the effect of so called ex-post subsidy payment, which is done only after the delivery of the agreed upon standard. Besides that, protection of subsidy donor is enhanced in case of financial distress of the project or inconsistent application of subsidy agreement.

4.5. Lenders

The main condition for the lenders to put at the disposal of the applicant a certain amount of loan for financing a public project is its long-term financial sustainability. Lender can finance a public body (in case of traditional model) or a private investor (in case of PPP model)[9]. Risk of providing sufficient sources of financing can be retained with the public body, when the price of other sources of financing is considerably lower for the public partner than the price a private partner can achieve in practice. Furthermore, when in case of PPP model project finance technique is applied, lender of capital puts sources of financing at the disposal of SPV.

Each of these financing options has different implications to the interests of the lenders. Structure of sources of financing shall depend on combination of the following factors: position and interests of public body (public debt price and debt level), subsidy donor (maximization of subsidy use efficiency) and a private partner (underinvestment and contamination risk, lowering agency costs) and risks that are indirectly transferred to the lenders. Rational behavior of all subjects involved in the project should result in optimal solution.

Credit risk of the public body is the same regardless of the model of delivery of the public building. If public body undertakes risks related to the sources of financing, price of sources of financing could be lowered.

Hereafter, in table 2 are synthesized specific interests and instruments through which subjects involved in the project realize their interests.

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[9] In case that providing for sufficient sources of financing risk is transferred to a private partner.

Table 2:

STRUCTURE OF PARTICULAR INTERESTS, SUBJECTS AND INSTRUMENTS FOR ACHIEVING THOSE INTERESTS

Title of the specific interest	Project participant	Benefit realization instrument
Lowering agency costs	Parent company, Taxpayers	Project finance
Underinvestment risk	Parent company	Project finance
Contamination risk	Taxpayers, Parent company owners	Project finance
Grant effect	Subsidy donor	PPP
Moral hazard	Public body, Taxpayers	PPP
Lowering signalization costs	Parent company	Project finance
Bankruptcy risk	Public body Subsidy donor	Project finance, Escrow account
Lowering Stand-Alone Risk	Public body	PPP
Satisfying public service	Taxpayer	Subsidy
Lowering credit risk	Lenders	Project finance
Equalization of generations of consumers	Taxpayers	PPP
Long-term savings	Public body	PPP
Shorter terms for the delivery of building	Public body	PPP
Supplier and controller of public service	Public body	PPP
Delivery of public building of excessive value - insufficient solvency	Public body	Subsidy
Lowering of exposure to a public sector	Lenders	PPP
Payment dependant to delivered standard	Public body, Subsidy donor	PPP
Growth in stock value	Parent company owners	Project finance
Long-term supervision of the project	Subsidy donor	PPP
Limitation of expenses	Taxpayers	PPP

Source: Authors

Table 2 shows that different subjects (taxpayers, public body, subsidy donor, lenders, private partner, owners of the private partner) realize their specific in-

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terests through few key instruments (PPP, project finance technique, subsidy and escrow account). Subsidy donor can achieve more efficient supervision over realization of subsidy objectives by applying instrument of delivery of public building through PPP model because in this model supervision over delivery of the agreed upon standards and payments (sanctions) are in close connection with the delivered standards and is subject to constant evaluation during the term of the contract. Public bodies which have no sufficient financial capacity, use the instrument of subsidy in cases of socially and economically justifiable, but financially unsustainable projects. Lower subsidy value shall be needed for achieving capability of paying for total life cycle costing according to PPP model of which it is expected to realize value for the money. At this point, interests of the subsidy recipient and the subsidy donor are optimized – lower amount of subsidy for the same quantity of public services (subsidy donor's interest) results in economical and financial capability of public body to deliver a long-term stable and sustainable project (subsidy recipient's interest). Lack of income is a consequence of overcharge which end-users cannot pay or insufficient fiscal capacity of the public body. Because of that, important goal of each public body is to choose a model of delivery which shall increase probability of realizing long-term savings and limit value of payments in the future. That is possible to achieve through PPP model. In order to verify probability of realizing those aims it is necessary to test project parameters to the potential of acquiring value for money in the phase of preparation of project. This testing is done by comparing total life cycle costing in the traditional and in PPP model.

Regarding identified interests and instruments for achieving interests of subjects involved in the project, it is important to determine the potential of realizing better efficiency of the allocated subsidy considering model of delivery of public project. To evaluate that potential, it is necessary to conduct qualitative identification of subsidy donor's specific interest and to assess the impact of the model of delivery to realization of that interest. Possible structure of this qualitative analysis is shown in table 3.

Table 3:

IMPACT OF THE MODEL OF DELIVERY TO THE POTENTIAL OF REALIZING SUBSIDY DONOR'S INTEREST

Interest	Traditional model	PPP Model
Subsidy amount for the same quantity of public service	Larger	Minor
Complexity of subsidy return procedure in case of financial distress of the project	Larger	Minor
Supervision of project by a subsidy donor	Minor	Larger
Transparency of subsidy use	Minor	Larger
Assessment and account of total life cycle costing of the project	Facultative – almost never applies in practice	Mandatory
Generation equality and subsidy effect	Does not harmonize benefits and costs of generations of consumers	Harmonizes actual and future generations of consumers
Additional feasibility control by a lender of capital in the preparatory phase	Lower – lenders are indifferent	Higher – lenders are very much motivated

Source: Authors

From the qualitative analysis presented in table 3 follows that the subsidy donor can expect more benefit (efficiency of subsidy allocation) if he allocates a subsidy into a public project delivered through PPP model, for the following reasons:

- if total life cycle costing in PPP model are lower than in the traditional model, difference influences lowering of subsidy amount for equal quantity of the delivered public services;

- in case of non fulfilment of project's objectives or in case of project bankruptcy, by allocation of subsidy through escrow account and by successive release of subsidy from the escrow account to the subsidy recipient according to proof of the delivered standard, unused part of subsidy is at any time ready to be returned to subsidy donor, which is not the case with one-time payment of subsidy after finalization of building;

- allocation of subsidy implies control of project implementation in certain period of exploitation after public building is built and put into function

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for the delivery of public service. PPP model essentially presupposes permanent supervision over implementation of the project through the entire contractual period. Furthermore, payments by the public partner are made *ex-post*, after control of the delivery of public service regarding the standard agreed upon;

- allocated subsidy should have the same effect to the actual and to the future generations of service consumers and/or taxpayers. In application of PPP model, this protection arises from *ex-ante* agreed upon standards and *ex-post* payments and delivered standards;

- since in PPP model lender of capital indirectly assumes part of the project risks, he is very much motivated to test feasibility and financial sustainability of the project with the aim to asses credit risk. This control can contribute to lowering unbalance of information between subjects involved in the project.

5. Reasons for applying combination of subsidy with PPP model

In case when public body can afford a project, it is socially and economically justifiable to subsidize a project with outright grant from public sources. Social and economical justifiability implies greater effect of indirect benefits and positive externalities in relation to the expenses and negative externalities (EU, DG REGIO, 2008). In that sense, when solvency of the public body or end-users is insufficient, it is justifiable to include subsidies into sources of financing, lowering this way the value of capital expenses to the level of actual solvency (point 8. on scheme 1).

Nevertheless, type of public project and the related structure of capital expenses is in direct connection with maintenance expenses, change of worn out material, expenses for energy-generating products and alike, which would arise during the life cycle of the public building. Depending on technical and technological characteristics of the public building, expenses during the long period of exploitation can for several times exceed capital expenses. With this approach, logical question imposes regarding expenditures which are subsidized - are those only capital expenditures (CAPEX) or are they operative expenditures (OPEX). Since public project objectives are being realized for a long-term and spread out to several generations of consumers and taxpayers, focus of expenditures is redirected from capital ones to total life cycle costing of the project. Model of delivery of public building through which public service shall be rendered is closely tied with it. Namely, decision on choice of delivery model – traditional or alternative (PPP), is connected right to the expected value for money and potential long-term savings

which are achieved through the effect of transfer of certain project risks from the subject who is managing them insufficiently effective (public body - public partner) to the subject who is managing them more efficiently (private entrepreneur – private partner). Which of those two models of delivery shall be applied by a public body, depends on numerous factors: political support and development of system of public investments strategic planning, level of public management's knowledge on different options for delivery of public infrastructure, legal and institutional organization of public procurement, taxpayer's awareness and interests regarding efficiency of spending public (their) money, development of expert support market in the field of preparing and managing public projects and alike. However, common reason for choosing one model of delivery can be the knowledge and interest of public management regarding efficiency of allocation of public funds. In this sense, reason for frequent use of traditional model of delivery is general perception of public management that the lowest price of capital expenses is the basic and socially acceptable criterion for choice of contractor. We should add to this a fact that public management is trained in traditional procurement procedures, which are not at all simple with most of the strategic projects.

If for the sake of argument, society should accept the thesis that for the development of socio-economic relations public investments (among other) are not sufficient, but that we need efficient public investments, than we could not say that unconditional application of the traditional model would be socially acceptable. Not only the taxpayers and the public body which is delivering the project are included in the context of social acceptability, but a subsidy donor too. In this sense, main social standard should be previous analysis of delivery models options with the aim of selecting the one from which it is expected to provide efficiency of the public project for a long run. It is necessary to redirect a focus from the field of analysis of capital expenditures to the field of analysis of life cycle costing of the project and to managing project risks. As a logical consequence, a question imposes on optimization of joining of more subjects in the project with the aim to realize more benefits for all the subjects involved in the project, which is achieved by allocating certain risks to the subject who is able to manage it the most efficiently.

In this context, question is also raised - which model of the project delivery, through which subsidy shall be allocated, should achieve better efficacy of the subsidy. The following postulates should also be considered:

1. Value of capital expenses, as a component part of total life cycle costing, surely affect overall payments in the long period of exploitation of public project. But, depending on technical and technological characteristics of the project and the ratio between the expenses in the period of exploitation and the capital expenditures, subsidy effects overall payments and solvency of the public body or end-users, in different degree;

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2. If within traditional model capital expenditures are subsidized, each materialization of project risks lowers the effect of subsidy on public body's solvency because the expenses emanated from materialized risk are barred by a public body which diminishes its solvency;

3. In traditional model there is no efficient system of supervision of delivered standard of public service and of paying for the delivered standard. In this view, each delivery of public service is of a lower standard and each expense emanated from materialization of risk is barred by taxpayers and/or end-users. Such distortion of planned project and the related incapability to harmonize standard with payments, reflects to satisfaction of users of public services and to public body's expenditures;

4. Rational behaviour of taxpayers imposes principle of efficient allocation of subsidy, which tends to achieve, eminently and with all available instruments, same quantity of public services for lower value of subsidy. Within the spectrum of available instruments it is desirable to apply the principle of *ex-post* payment for the delivered standard.

Benefits for taxpayers, who are the source of financing the subsidy, are first of all:

- achieving long-term socio-economic benefits;

- allocation of minimum value of subsidy for the same volume of public service;

- reliable system of supervision over achieving objectives of the subsidy and the project.

Long-term socio-economic benefit, accepting the ratio between costs and benefit for the actual as well as for future generations of public services consumers, is achieved by the efficient managing of project risks and total life cycle costs. Although managing whole life costs of the project can be achieved by a traditional as well as by alternative model of delivery, question of the efficient risk management cannot be achieved with the same effects in those two models. Difference is in the source of payment for materialized risks expenses. Namely, if in the framework of the traditional model certain project risks are materialized, their expenses shall be barred by a public body from its budget, with no possibility (or with very limited possibility) for compensation from the third persons. Consequently, those materialized risks' expenses are barred by taxpayers through reallocation of the planned structure of budgetary expenditures. Within PPP model, transferred risks of the public project[10] and its materialization are liability of private partner. In this

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[10] Before all, risk of building expense overrun and construction deadline overrun, risk of keeping a public building in state of availability and, depending on the project, risk of demand and financing.

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sense, contract on a public project according to PPP model sets the upper limit for possible expenses[11] that shall be barred by taxpayers. Mutual dependency of capital expenditures, total life cycle costing and value for money is precisely shown in Chart 1.

Chart 1:

COMPARISON OF STRUCTURE AND AMOUNT OF WHOLE LIFE COSTS
IN THE TRADITIONAL AND PPP MODEL OF DELIVERY
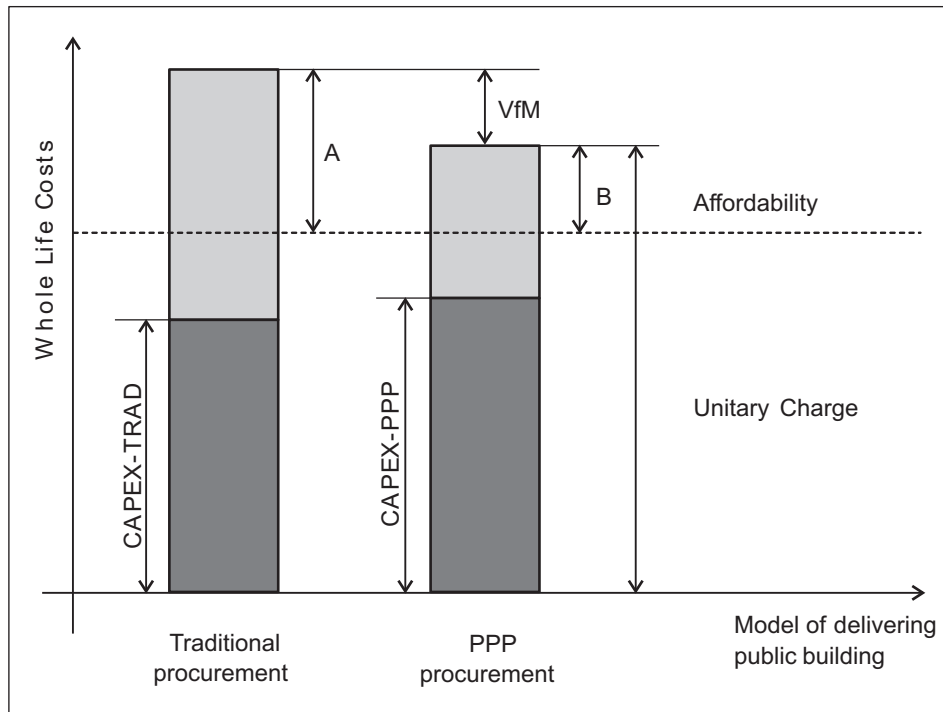
Source: Authors

Legend: A: part of the total life cycle costing over the solvency limit; B: part of reimbursement in PPP model over the solvency limit; CAPEX-T: capital expenditures in the traditional infrastructure procurement; CAPEX-PPP: capital expenditures in PPP model of procurement; VfM (value for money)= LCC (traditional) –LCC (PPP), VfM = A – B. LLC: total life cycle costing.

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[11] Possible price adjustments depending on inflation are hereby abstracted.

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Chart 1 shows whole life costs (its current value[12]) expected in the traditional and in PPP model of delivery. Lower whole life costs is expected in PPP model because of transfer of particular project risks[13] from the public body to a private partner who is managing them more efficiently. Difference in whole life costs represents value for money as a benefit for a public body which reflects in diminishing whole life costs of the project if it is delivered through PPP model instead of the traditional model of infrastructure procurement. With the aim of optimization of whole life costs, private partner could have higher capital expenditures as a result of building in higher quality materials into a project, but consequently, he shall have fewer expenses for maintaining and changes, i.e. less whole life costs.

In cases when public body or end-users have no financial capacity to pay expenses throughout the life cycle of the building (line 'Solvency limit'' on the Charts 1 and 2), then financially unsustainable, but socio-economically justifiable public projects need to be subsidized from the public sources of finances to neutralize insolvency of the project deliverer. Since total life cycle costing on the Chart 2 is smaller in application of PPP model, a need for subsidy shall also be smaller with application of PPP model. Value of subsidy with PPP model shall be lesser for the amount of value for money. In other words, subsidy donor is interested in allocating subsidy in public infrastructure delivered through PPP model because in that case he is allocating smaller amount of subsidy for the same quantity of public service. This is precisely shown in the Chart 2.

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[12] Actual value of life cycle costing (building expenses, maintaining, energy-generating products, change of worn-out material, financing, commercialization return) is accounted in a way that particular financial category in life cycle of the project is discounted to the initial day on referred discount rate.

[13] Building risk and at least one of the two following: availability and demand risk (Eurostat, 2013).

Chart 2:

COMPARISON OF SUBSIDY AMOUNT IN THE TRADITIONAL AND PPP MODEL OF PROCUREMENT OF PUBLIC PROJECT
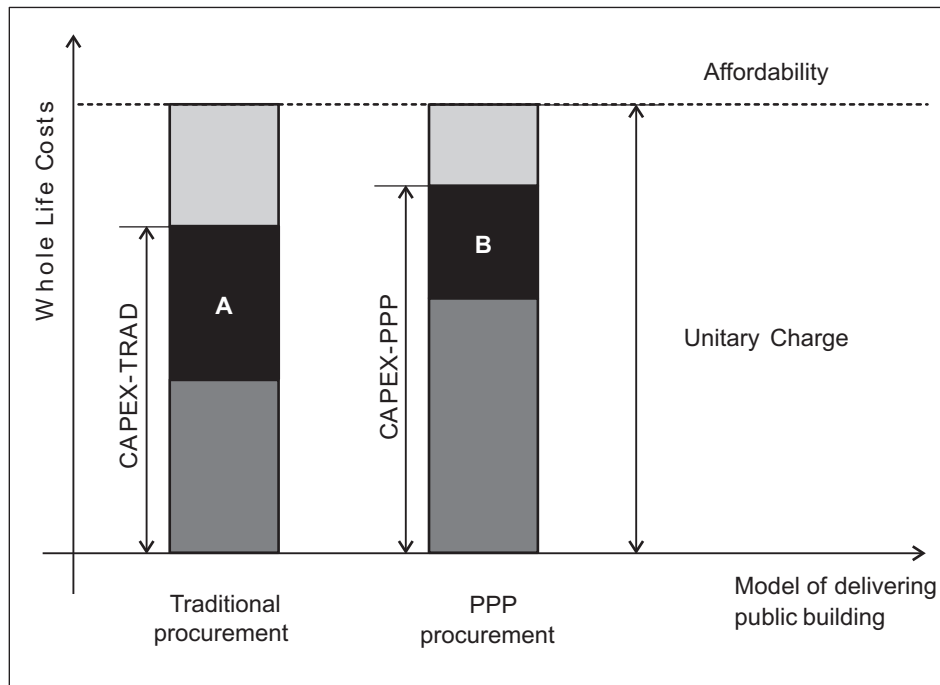
Source: Authors

Legend: A: subsidy of capital expenditures in the traditional model; B: subsidy of capital expenditures in PPP model; CAPEX-T: capital expenditures in the traditional infrastructure procurement; CAPEX-PPP: capital expenditures in PPP model of procurement; VfM = A – B; A > B.

Chart 2 shows that the subsidy for capital expenditures, allocated with the aim to achieve solvency for paying whole life costs, when applying traditional model (A) shall be higher than the subsidy for capital expenditures with application of PPP model (B). This difference in value of subsidy (A-B) equals the amount of value for money (VfM) shown in the Chart 1.

Basis for calculation of subsidy can be capital expenditures of the public project (as shown in Charts 1 and 2) or whole life costs. Capital expenditures are the component part of the total life cycle costing and they can influence it differently depending on life expectancy of the public building and technical and technologi-

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cal complexity of the project. On the other hand, notwithstanding the influence of capital expenditures to whole life costs, solvency always depends on whole life costs because beside capital expenditures, maintenance expenses during the long term existence of the public building need to be paid.

In traditional model of public infrastructure procurement, paying whole life costs is equivalent to actual payments of annuities, maintenance expenses, and expenses for change of worn-out material, energy-generating products and alike. Unlike the traditional model, in PPP model all of those particular expenses are included in PPP reimbursement[14]. Through reimbursement, managing a structure of actual expenses is transferred to the private partner. In this sense, lowering capital expenditures through subsidy, results in lowering whole life costs. Furthermore, Chart 1 shows that public body's solvency limit shall be achieved in PPP model with smaller amount of allocated subsidy. Reason for that is in the fact that value for money, expected because of transfer of certain risks form public to private partner, overflows to subsidy donor[15]. Public body's benefit is binary – with subsidy public project is feasible, without subsidy it is not.

After we determined source of benefit for subsidy donor in subsiding public project delivered through public-private partnership model, we need to determine operative model of subsidy payment procedure.

6. Operative procedure of subsidy payment

Subsidy is usually paid after the structure of acceptable capital expenditures is determined and the contractor is known, after finalization of building phase (European Commission, 2006). However, although the main objective of the subsidy is lowering capital expenditures for achieving affordability, subsidy recipient is faced with certain aims fulfilment of which shall be seen only few years after putting a public building into use[16]. If those aims do not fulfil or if the project falls

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[14] Although in practice there are PPP projects in which private partner assumes, beside building risk, also the risk of maintaining and demand in which case often there are no payments from public partner to a private partner, hereby under PPP project we imply projects in which payments from the public partner prevail in income structure (Eurostat, 2013).

[15] On Chart 3 subsidy B is lower than subsidy A for the amount of value for money.

[16] Control system for the projects financed from EU funds is defined by European Commission and each member state is obliged to organize it. Subject of the control are expenditures and realization of project objectives. Construction, as the project objective, means designed and functionally delivered building. This objective is being checked after finalization of construction. Expenses are checked through the analysis of documentation related to the procurement procedure with the aim to determine whether presented expenses were actually made. Special feature of the control system

into financial distress, subsidy donor can demand return of subsidy for the reason of no achievement of subsidy objectives.

It is obvious, from the aforesaid, that there is a whole line of risks in the relationship between subsidy donor and subsidy recipient. Those risks need to be identified and managed with different available instruments. We emphasize the main of those risks:

1. *Risk of increase of subsidy recipient's affordability* – if during exploitation of public project affordability of subsidy recipient increases, it is justifiable to raise a question of return of part of the subsidy (or a decrease of subsidy amount) for the value of subsidy recipient's affordability increase with the respect to the day of signing a subsidy contract, as it is shown in Chart 3:

Chart 3:

INFLUENCE OF SUBSIDY RECIPIENT'S AFFORDABILITY INCREASE ON A SUBSIDY AND CASH FLOW OF THE SUBSIDY RECIPIENT WITH APPLICATION OF PPP MODEL
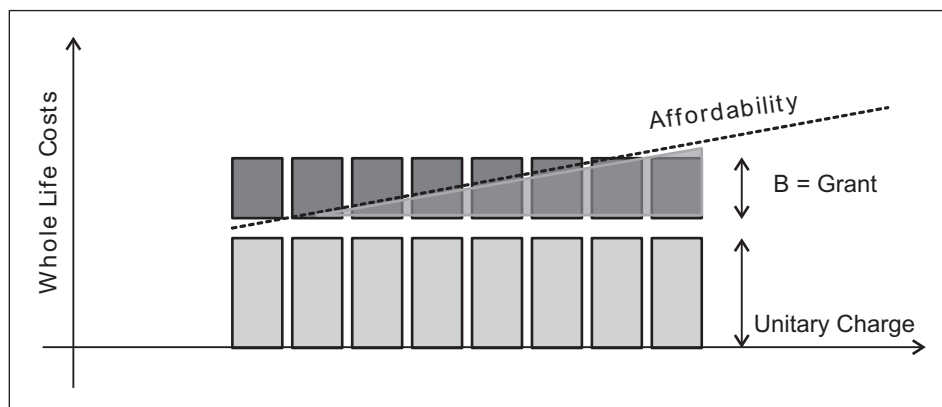
Source: Authors

When project is delivered through the traditional model, subsidy is paid entirely and complex procedure impends of determining real structure of expenditures and risks, value of which is in new circumstances, compared with new affordability of subsidy recipient. On the other hand, if project is delivered through

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for projects financed from EU funds is obligation to implement independent accounting system for dealing with EU resources. Accounting system itself is also subject to control (AJPP, 2013).

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PPP model, project expenditures for subsidy recipient are known *ex-ante* and they are equal to the value of remuneration that he pays periodically. Furthermore, it is important to have in mind real ability of subsidy return. If subsidy is paid entirely on one-time basis, procedure of subsidy return is conditioned with ability and will of subsidy recipient. If subsidy is paid on approval on one-time basis to escrow account and it is later paid periodically as a part of PPP remuneration, there are no risks for the return of unused part of subsidy.

2. *Risk of decrease of subsidy recipient's affordability* – emerges if the financial capacity of subsidy recipient is additionally decreased during project exploitation, as it is shown in Chart 4:

Chart 4:

INFLUENCE OF PUBLIC BODY'S AFFORDABILITY DECREASE ON
A SUBSIDY AND CASH FLOW OF THE SUBSIDY RECIPIENT WITH
APPLICATION OF PPP MODE
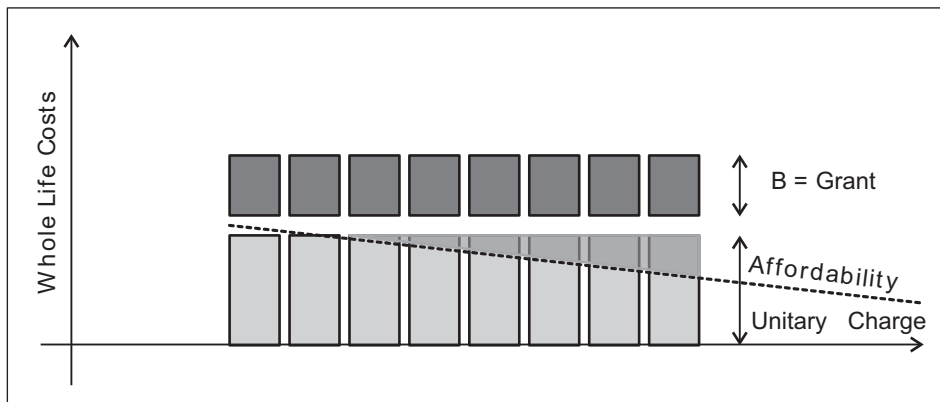
Source: Authors

This change in financial capacity is in direct connection with newly emerged economic conditions and with the quality of subsidy recipient's solvency assessment done during the preparatory phase of the project. After materialization of this risk, all the subjects involved in the project can decide to abstain from managing the project any further. In such case, subsidy donor can demand subsidy return. If subsidy is allocated through the traditional model of infrastructure procurement, probability of subsidy return is lower than in case of return of part of unpaid subsidy deposited on escrow account.

3. *Risk of irresponsible behavior of subsidy recipient* – emerges in cases of breaking rules set by subsidy donor and mostly relates to inapt use of subsidy. In case of materialization of this risk, subsidy donor can demand subsidy return. For subsidy donor, there is a smaller risk of subsidy return if it is successively paid from escrow account through PPP model, then if it is paid on one-time basis through traditional model of infrastructure procurement.

4. *Risk of financial distress of the project* – depending on the cause of financial distress of publicly subsidized project, subsidy donor can demand subsidy return in such circumstances. There is a smaller risk for subsidy return in case when it is allocated through escrow account than in case of payment on one-time basis after finishing building phase of the project. In fact, cause of financial distress does not always have to be on the part of subsidy recipient. In case when public-private partnership model is applied, where risks are dispersed, cause of financial distress can be the risks assumed by a private partner. Then, if subsidy is paid entirely on one-time basis, the greater is risk of subsidy return than in case when it is allocated through escrow account and paid successively as a part of PPP remuneration.

7. Conclusion

In circumstances of budgetary and debt restrictions on the one hand, and the increased gap between supply and demand of public services on the other hand - improvement of public projects management efficiency becomes an imperative imposed on the public management. Such demand is also imposed on the subsidy donor in those public projects which are economically and socially justifiable, but financially unsustainable for the reason of lack of public resources for paying of total life cycle costing of the public project.

In view of rich practice of the traditional model of public infrastructure procurement as well as practice of PPP model application, in the phase of making decision on allocating a subsidy to a public project, subsidy donor justifiably raises a question of efficiency of allocated subsidy regarding the model of public project delivery. Such question is also in the interest of taxpayers - sources of financing a subsidy.

This article presents basic principles and instruments on basis of which, through qualitative analysis, it is possible to asses in what way and at what degree model of public project delivery influences the efficiency of subsidy allocation in socio-economically justifiable but financially unsustainable projects. Taking into account the difference (decrease) of whole life costs of the public project which can be achieved by well prepared and managed PPP model, analysis shows that smaller

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amount of subsidy is needed for the same effect of public service through application of PPP model with regard to the traditional model. Likewise, presented mode of operative implementation of subsidizing a public project delivered through PPP model can lower the risk of subsidy return in case of misuse, increase transparency of public money expenditure and enhance efficiency of subsidy use control.

Following guidelines for further research can result from the conducted analysis: (i) optimization of cost-benefit relation in interaction of four mentioned subsystems, (ii) optimization of subsidy allocation in case of union of public clients of different affordability, (iii) financing PPP projects by a public partner as a special form of subsidizing a public project with the aim of achieving greater value for money, (iv) explore possibility of adjusting subsidy amount with actual client's affordability during life cycle with the aim to preserve long-term financial stability of the project.

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EKONOMIKA KOMBINIRANJA SUBVENCIJA
S JAVNO-PRIVATNIM PARTNERSTVOM

Sažetak

Vodeći se načelom dobrog gospodara, posebno u uvjetima restrikcije proračunskih troškova, javna tijela u postupku davanja bespovratnih subvencija za javne investicije nastoje minimizirati iznos subvencije u cilju postizanja jednake količine učinaka javnih usluga. Da bi se ovakav cilj ostvario, javna tijela razmatraju učinke ekonomičnosti subvencioniranja javnih investicija ovisno o modelu isporuke javnog projekta.

U svjetskoj praksi su se nametnula dva temeljna modela isporuke javnih građevina: tradicionalni model isporuke i model javno-privatnog partnerstva (JPP). Određene karakteristike ova dva temeljna modela imaju različite učinke na specifične interese subjekata u javnom projektu, a posljedično i na ekonomičnost subvencije.

U ovom će se radu, kroz identifikaciju subjekata u projektu i njihovih interesa za sudjelovanjem u svim fazama pripreme i provedbe projekta u ukupnom životnom vijeku javnog projekta, prikazati odnosi, interakcije i instrumenti posredstvom kojih ti subjekti ostvaruju specifične interese kako bi se utvrdila kvalitativna metoda usporedbe efikasnosti modela i odredile determinante upravljanja ekonomičnošću alokacije subvencije u ovisnosti o modelu isporuke javnog projekta.

U radu je pokazano da je za isti učinak javne usluge potrebno alocirati manji iznos subvencije u javni projekt koji se isporučuje po modelu JPP-a u odnosu na tradicionalni model isporuke.

Ključne riječi: Javno-privatno partnerstvo, ekonomičnost subvencije, subvencija, kombiniranje fondova i JPP-a.