Concessions to PPP?

A perspective on infrastructure development in the EU

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Abstract

In this paper, a literature review has been presented on the subject of public private partnerships for the development of infrastructure projects. The central question in the paper was: 'Is PPP a viable option for investments in infrastructure from a theoretical point of view?' The theoretical perspectives from the discipline 'economics of the public sector' result in some interesting insights. Firstly, from a cost point of view it is possible that the government is more efficient and the private party is more efficient in terms of turnover. Secondly, PPP is no solution to the budgetary shortages of governments. The financial cost reduction for the government is not proven scientifically so far. The inclusion of private parties will probably result in efficiency but also in cost increases. Thirdly, PPP seems to increase the quality of public services, but at a higher cost. Furthermore, the exact realised efficiency is never to be found, because a comparison (actual numbers) between a PPP and the traditional way can't be made. Process managment shows that it is no simple task to turn a PPP into a success. When the participating parties are persuaded of the advantages that the cooperation between public and private parties can offer, have chosen consciously for the PPP, and are prepared to invest in cooperation for the long-term, then PPP can offer means to pursue the defined objectives. If true cooperation is aimed for, costs, risks, and profits must be shared instead of devided. The joint venture can provide insights into the process of sharing. The theoretical perspectives offered by business economics provide insight in the way businesses operate and what the consequences are for cooperation with investments in infrastructure. Firstly, in general it is unattractively for private parties to invest in infrastructure. In order to make it more attractive, profits can be offered to the private parties. However, this will increase the total costs of the project. Overall, the major problems lie in the distinction between public responsibilities and private aspirations.

Theory and facts prove that PPP seems not a very viable option for investments in infrastructure (the right part 'no' of the table). The left part is the arguments in favour of PPP. However, most arguments are not proven but appear to be 'positive'goals that are aimed for by PPP. While the right part of the table appear to be facts that are proven scientifically.

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1 Introduction

Public private partnerships (further PPP) are frequently presented as the solution for budgetary shortages for governments at European, national and regional levels (van Ham and Koppenjan, 2001). A PPP invests in infrastructure whereby efficient cooperation is claimed to have advantages for both public and private parties. For governments, advantages could be higher (or the same) quality against lower project costs, or a higher (social) quality against a higher cost. The final goal might then be the improvement of the quality of public services (Advani and Borins, 2001). For businesses, advantages could be financial output (profits) and possibly the development of new markets (WRR, 1994). In Europe, it proves to be difficult to really interest private businesses for investments in infrastructure. Therefore, the central question, that we adress in this paper, is: 'Is PPP a viable option for investments in infrastructure from a theoretical point of view?'

In section 2, the history of investments in infrastructure is given, large infrastructure projects are defined and a description is given of the contexts of PPP. Section 3 considers PPP from three theoretical disciplines. These disciplines are economics of the public sector, process management and business economics. Section 4 contains the conclusion of this article.

2 Infrastructure investment projects and the role of PPP

In this chapter, type and history of infrastructure projects that might be suitable for PPP are described. Furthermore, public private cooperation is analysed.

2.1 History of investments in infrastructure in Europe

Since the Napoleontic time, governments play an ever more active role in construction of infrastructure. Its purpose has always been to guarantee infrastructure according to a detailed government intervention to safeguard social interests (Groote, 1995). In defence of infrastructure development one often refers to the economic benefits of it. Infrastructure development not only generates direct effects, but also -and especially- indirect effects. The latter effects play an important part in the political discussion about the volume and the location of investments in infrastructure. However, often the discussion remains abstract and vague when its effects are not materialised empirically. Untill recently, designing, building maintaining and financing infrastructure were traditional government tasks in Europe. This can be illustrated by the construction of the rail network in the second half of the 19th century in the Netherlands. For 1860, the net existed of four lines with total length of 350 kilometres. After adopting the railway law, this number grew in twenty-five years to 1250 kilometres. In 1933, in the Netherlands, it was decided to start with the construction of the national motorway network. In comparison with other countries, this was rather early (only Italy, Germany and the United States had decided about motorways at that moment). The first motorway built according to the new principles became available in the Netherlands in 1934 already. It was the motorway of Utrecht to The Hague (Buiter, 1997). From the start, the government did financing and the construction of motorways.

Since the Second World War, a distinction can be made in three different periods in which investments in infrastructure are treated differently. The first period runs from approximately

1945 up to 1970 (roughly the period of rebuilding in Europe). Rebuilding was a common goal, which lent itself pre-eminently for (intensive) cooperation between government and private parties. A lot of infrastructure projects thus frequently were executed by means of a form of PPP. The cooperation goals were simple aimed at building roads. During the sixties, this changed. Growing differences between public and private goals made cooperation more difficult. The second period (1970-1982), is characterised by a growing gap between the public and private sector. Suspicion and mistrust replaced the cooperation of the 1st period. In this period, governmental policy was especially aimed at town renewal. Social objectives in governmental policy played an important role as a result of which less space was available for input of businesses. Because of this, cooperation in investments in infrastructure hardly took place. In the third period (1982 up to present), more PPP took place. The beginning of this period can be characterised by economic decline and high unemployment. Governments had to work more efficient and to aim at realising feasible goals. Partly, the answer came from working more closely with businesses again. Governments focussing on core tasks, deregulating sectors, decentralising and privatising created more opportunities for business initiatives. These developments, combined with relaxing controls have far-reaching consequences for the role of the government at the financing and construction of infrastructure (Fukuyama, 1992; Henry, 1993). In the financing of port infrastructure this has already conducted to larger efficiency and lower costs (Kent and Ashar, 2001). But, until now private financing of infrastructure has most significantly taken place in Latin America, the Caribbean and Eastern Asia (World bank, 1996). In Europe, until now, the results have been limited. It is thus too optimistic to think that by private involvement the inefficiency of the government can be entirely made up for. But, from financial perspective it is attractive to involve private parties to create economic and commercial value.

A new period for investments in infrastructure might be starting as in recent years the realisation has grown in the EU that investments in infrastructure, whether in roads or rail, should be intensified (Ministry VROM 1991, Ministry EZ 1997, European Commission, 2001). After more than a decade of relatively little attention towards infrastructure in the early ninety's, the need for an intensified investment program is clear.

2.2 Infrastructure projects

In general, large infrastructure projects are the most suitable for public private cooperation (WRR, 1994). Larger projects offer more opportunities for larger efficiency savings that can be realised. A large project can be defined as a project with a large physical scope, a large financial scope and economic impact (more than 1 billion euro), national importance and/or political importance, a technical, legal and organisational complex question, a question that needs to be addressed fast, extensive resistance, negative (environmental) effects and plural objectives (WRR, 1994). Such projects might offer possible interesting starting points for private involvement at planning, construction, financing, maintenance and/or operating infrastructure. However, many governments in Europe aim for decentralisation. This might result in smaller projects on regional/local levels, thereby reducing the number of large projects and thus the prospects for PPP.

Infrastructure

Infrastructure can be defined as everything that links A with B. Geerts and Heestermans (1992) present the following definition: the total of property supplies such as ways, bridges, airports, ports, etc.. In a study to the meaning of this term (Nijkamp et al., 2000) it appeared that infrastructure is a broad concept and a lot of different definitions exist. In the study, infrastructure has been defined as: 'that property supplies which increase the efficiency of the use of the production factors and meet the following conditions:

- infrastructure is directly productive;
- it is characterised by stock characteristics (capital goods);
- has the character of a (semi) public good.

In this paper, the emphasis is mainly on road infrastructure in Europe. A complicating factor for many infrastructure projects (and thus PPP) is the fact that cost estimates for projects usually are not correct. Globally, in 90 percent of the infrastructure projects, costs are underestimated. The average cost underestimation is 28 percent (Flyvberg et al., 2002). For infrastructure projects, time and efficiency profits are usually the main drivers for a PPP (van Ham and Koppenjan, 2001). Time savings seems possible through PPP, however, efficiency savings are less feasible. PPP will results in more accurate cost estimates, leading to cost increases for infrastructure projects (with an average of 28%). It seems unlike that efficiency can fully compensate these cost increases.

2.3 Public private Partnerships

Differently than the theoretical term 'public private partnership' suggests, in practice, there frequently proves to be talk of a concession instead of a pertnership. The relation between public and private parties is formed by means of a sharply delimited contract (concession). The question could then be posed if PPP is the correct term for a relation that might actually be a concession? To answer this question, it is important first to define PPP. Public means belonging to the government or being a government task or service (Geerts and Heestermans, 1992). Private means belonging to or originating from a private person or private persons (Geerts and Heestermans, 1992). Partnership (or cooperation) is defined as working with each other on the same task. Where 'together' stands for 'considered as one entity' (Geerts and Heestermans, 1992). For example, together funding a separate entity for sharing costs, benefits, and risks. In accordance with the definition of the term PPP, a concession does not seem to fit. A term as, for example, public private agreement (PPA) is perhaps better at its place.

Several types of agreements (or cooperation) can be distinguished (Kenniscentrum PPS, 1999 and 2002). The difference can be in exploitation, execution, and/or planning. In a traditional infrastructure investment setting, the government does everything from designing, building, financing, and maintaining. Generally, governments do have lower costs of capital and therefore it would be wise that governments finance the infrastructure (the traditional setting). Furthermore, Mullen and Williams (2004) show that the costs of capital do have a statistically significant effect on maintenance/repair costs. The joint venture is the ultimate form of partnership (a real PPP). The infrastructure is planned and realised through a joint

entity. Usually, this is not the setting for the development of infrastructure in Europe. Another form is the concession. The government gives a right to a private company for a certain period. The private company is responsible for building, financing, and maintaining the infrastructure. After expiring, the concession goes back to the government. In practice, PPP is defined as a cooperation in which the public and private sector jointly develop – with conservation of their own identity and responsibility – a project to realise appreciation, and this is based on a clear task and risk partitioning (http://www.pps.minfin.nl). The Algemene Rekenkamer (2002) uses a broader definition; 'PPP is considered as forms of cooperation where exists':

- not-without engagement interaction between governments and companies;
- allocation of control, costs and dangers;
- appreciation at the partitioning of convergent aims;
- both social and commercial characteristics
- conservation of the respective identity and responsibility of involved parties.

Given the history of infrastructure investments, the charcteristics of infrastructure projects and of partnerships, a number of questions and dilemmas arise. In random order the following questions and dilemmas have proven their relevance within the Dutch context and might apply to the European context as well (Spit 2004):

- How do you 'tempt' your private partners into contributing to any uneconomic parts of the project?
- With whom and how many private partners do you embark on the project?
- How do you organise the partnership and what position do you choose as a government – do you want to be in charge or do you accept a role as an equal (or lesser) partner?
- How do you organise on a public level the partnership between the government and other authorities involved?
- Are you capable of providing private partners with the confidence (a reliable partner), who will follow a consistent policy during the long course of the project?
- How do you ensure the involvement of and support from the inhabitants of your city?

There is no simple and unambiguous answer to these questions. Each PPP project has its own characteristics and requires its own specific approach. This is also the view of PPP experts. From the Dutch experiences until now, many valuable recommendations can be distilled. Two research bureaus (Ernst & Young and the Central Planning Bureau) have summarized them in their reports. Their main recommendations are:

- *The objectives of the PPP-project:* A government should begin with clearly formulating the objectives they would like to achieve in a possible PPP project. Preferably, these objectives should be measurable. This may seem evident, but evaluations show that this is often not the case. In some of the Utrecht cases there were clear visions of what the government wanted to achieve, but the problems in the subsequent phases could not be foreseen.
- *PPP or not?:* A local authority (or firm) should only choose for public-private partnership if its added value is clear (combining resources, knowledge and skills).

However, in order to make this choice a well-grounded one, informal talks with prospective partners are often required. A government has to make sure, that there is a 'minimum variant' (a solution that does not include PPP) to fall back on. Such a fallback option strengthens the negotiating position of a government towards the private parties and provides clarity on the added value of a public-private partnership.

- *The selection of partners:* Partners should be selected based on competence. Market mechanisms will have a positive effect on price and quality. This may be true, but still most municipalities choose for a simple invitation of private partners or a private tender – and not for a public tender. It strongly depends on the project and the local circumstances which method of selection is to be preferred. In case of the UCP project in Utrecht e.g., there was little to select. Here the choice for partners was a direct consequence of the (land) positions they took up in the area to be developed.
- *The delineation of the project:* It is an art to find the right balance between the ambitions of the participating parties and the feasibility of the project. Each partner has to benefit from it. The government usually expects from its private partners a contribution towards the costs of unprofitable items or a share in the profits on profitable items. As for the UCP-project in Utrecht the ambitions of the partners, especially those of the government, had been taken into account. In retrospect, the scope of the project was probably too broad. It was difficult to break the project up into manageable parts.
- *The shape of the partnership:* for a PPP various legal forms are possible. Municipalities and private partners can establish a business together (whether or not with risk baring capital from the government). Alternatively, they can shape their co-operation in contracts. In the Netherlands both types are used. Basically, the Dutch experiences show that it is not recommendable to establish a business together if this has no visible added value. The crucial point is always that proper arrangements have to be made concerning the tasks and risks. This can best be formulated in legal contracts. Experts often state that the best contracts contain a paragraph on conflict management on which all partners agree. If such a paragraph is missing, then the feasibility of the partnership is limited.
- *Confidence:* A very soft, yet very important aspect is mutual confidence between the partners and their representatives in the partnership. Openness about ambitions, plans and costs all add to this confidence. For the municipal authorities this implies: to ensure that all officials participating (one way or the other) in the partnership are very well acquainted with the wishes of the government, but also are acquainted with the ambitions of the business community (speak a similar language). Generally, private partners are averse to what they see as the whims and inconsistencies of public authorities. Sometimes, however, a government has no other choice than to be inconsistent, as was the case in Utrecht with the UCP-project. Eventually the election proved to provide such a change in the political administration that it could not but cause an important inconsistency in the partnership.
- *Support:* It is important that there is sufficient support for the project among the population. It seems an obvious advice, but reality –at least in the Netherlands- show

otherwise. The question is how to organise this in a right way. Large infrastructure projects are usually not very warmly welcomed by the inhabitants. There is often resistance to change (at all), to the temporarily inconvenience of the building activities or to specifics of the objectives of the project. A proactive council in order to address these feelings of resistance seems then inevitable. But then the question rises: how can a government bring the project into the open without violating the intended result to much, including the necessary costs?

When compared to other complex projects, infrastructure planning adds two extra problems (De Bruijn et. al. 1996): the problem of location (where will it be located) and the problem of time (which causes uncertainty). The latter is particularly important because it fuels the legitimacy issue. Therefore, the question whether or not the money could better be spent on issues such as tackling poverty issues or subsidising employment, is gaining importance as the process continues, herewith complicating the progress. In the next section, economics and organisation management will provide theoretical insights into the basics of the sketched problems.

3 Theoretical disciplines

In this section, three theoretical disciplines, which are important for PPP projects, come up for discussion. The fields are economics of the public sector, process management and business economics. The discipline of economics of the public sector is important in order to understand the role of the government in investments in infrastructure and to identify government goals in PPP from a more theoretical point of view. The discipline of process management is important because this analyses the cooperation between public and private parties in a PPP from a theoretical background. The discipline of business economics is important because this analyses the basics of business economics and the role the private parties are interested in (in a PPP) from a theoretical perspective. The theory is used to evaluate the basic principles of PPP projects.

3.1 Economics of the public sector

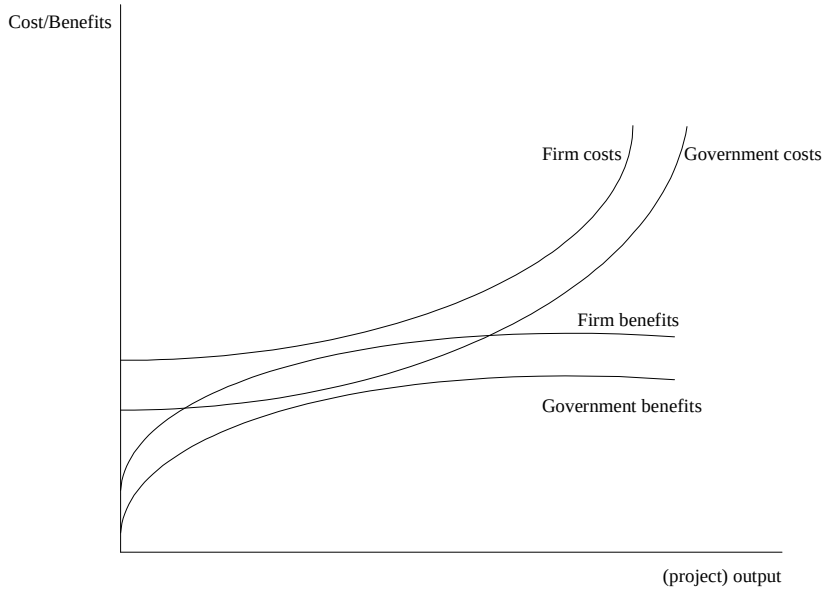
Costs and benefits form the public sector and businesses

According to Dietrich (1994), two important principles have had a large influence on the economic perspective on the public sector and its relation with private sector activities (businesses). Firstly, both sectors are involved at several separate activities with several separate responsibilities. Secondly, the public sector must restrict itself to developing an economic legislative infrastructure. There are situations conceivable where cooperation of public and private parties might lead to efficiency. The following situations can be distinguished:

- the government is more efficient in terms of costs, the private party in terms of turnovers. For example, on the cost side there can be private sector failure, because a collective good must be produced whereby 'free-riding ' occurs (see figure 1);

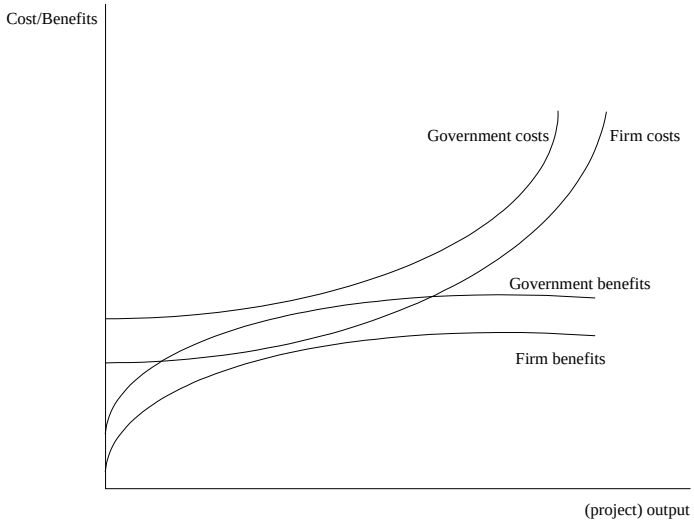
- the government is more efficient in terms of turnovers, the private party in terms of costs (see figure 2).

Figure 1. Relation between government costs and business benefits



Source: adapted from Dietrich, 1994

Figure 2. Relation between business costs and government benefits



Source: adapted from Dietrich, 1994

Government failure

These considerations on benefits and costs of governments and private parties might lead to interventions. An important consideration for the government to intervene (or not) is the fact that an economy is efficient if goods and services are produced maximally, given the inputs. The Pareto-optimum is then reached, if it is impossible for a person to improve without someone else being more badly finished. If the Pareto-optimum is realized, then conditions of consumers' optimisation (exchange efficiency), cost minimisation (production efficiency) and profit maximising (top-level efficiency) have been met. To public goods (in case of Pareto efficiency) must apply that the total of the marginal values exceeds the marginal costs. It must be noted that for public goods it is difficult to retrieve the marginal appreciation of consumers. Government failure exists when the acting of the government leads to Pareto-inefficiency. Another important economic reason for the government to intervene is the fact that complete competition does not lead on all markets to the most optimum outcome. However, if full competition comes about, this is also called Walrasian balance (Katz and Rosen, 1998). For this balance, assumptions are that behaviour of people and organisations is competitive and prices are set at levels where demand meets supply. If there exists a structural problem with demand and supply on a certain market that has consequences for prices and quality, this is called a market failure. Market failure may give reason for government intervention. The main reasons for market failure are described in the table below.

Table 1. Types of market failure

Market failure	Definition	Example	Intervention
Public goods	Goods are non-rival and non-exclusive	Defence, street lightning	Government intervention
External effects	Actions of persons/businesses have impacts on others, but prices do not reflect these costs	Pollution, congestion	Tax or subsidise to balance private and social costs
Asymmetric information	Buyer and seller do have different information	Health care, 2nd-hand cars	Regulate quality, 'pooling' of insurances
Increasing scale advantages	Average costs decrease when production increases	Natural monopoly (water, electricity)	Social ownership, regulating private monopoly

Source: Connolly and Munro, 1999

Other economic considerations of the government to intervene in economic living can be, for example, income inequality or poverty. In many Western countries, the last decades, the role of the government has been tried to decrease. It is therefore striking that to most countries apply that government expenditure has actually increased as a percentage of GNP (OECD, 1996). Wagner's Law and the Beaumol impact therefore still seem to apply. Wagner's Law

states that the government expenditure tends to grow more rapidly than the GNP. The Beaumol impact is the fact that labour-intensive services tend - compared to goods – to relatively increase in price. Since many public authorities are labour-intensive (and price inelastic), government expenditure has the inclination to increase as a share of GNP.

Public goods

A collective good is a good that is non-excludable and therefore it is not possible to split the good up in small, marketable entities, as a result of which nobody can be excluded of the use. Exclusion is either physical impossible or legislation is (to) expensive. A public good is non-rival; the use of the good does not go at the cost of the use of the good by another person. Except for the moment when there is excessive demand (then, for example, congestion arises). The marginal costs for an extra entity of the not-competing good are 0. Particular to this type of goods is the fact that they are generally experienced as particularly useful, but that the market (in the most broad sense of the word) does not produce these goods. It can be government responsibility to solve this market failure and ensure that the social demand is satisfied. With collective goods it is possible that 'the tragedy of the commons' occurs (Hardin, 1968). This is the inclination of free accessible sources to become overexploited (e.g. ways, fishery, bunches).

Is infrastructure a public good?

Infrastructure used to be a public good. Infrastructure was seldom or with great difficulty produced on a free market. It was not economically attractive to businesses to produce them because no good price could be stipulated. Supplies of infrastructure have - as if being a collective good - the inclination to provoke 'free-riding'. Every citizen separately, wants to profit from good roads, but does not want to join in paying, because others will do that nevertheless. Caused by technological developments it is nowadays better possible to apply excludability (e.g. toll systems, kilometre levy). Moreover pricing can also prevent infrastructure from becoming competing (think of congestion). On the other hand, private investors' profit motives are incongruent with the public good characteristics (Ping et al., 1999). Therefore, from a theoretical point of view, investments in infrastructure do not seem to fit into private investment schedules. The cooperation between public and private parties might even lead to the worst of both worlds. No profit maximisation and no optimisation of social welfare. Research by Tsai and Chu (2003) shows that in the case of a Built-Operate-Transfer project with governmental regulation, the performance is actually in between profit and social welfare optimisation.

Investments in infrastructure

The scope of the private involvement by investments in transport infrastructure depends – among other things – on the characteristics of the investment. Investments in infrastructure have a number of specific, economic characteristics (ECMT, 1990, Wiegmans, et al., 2002):

- the expected economic life span is very long, from 20 years up to more than a century. For this reason, also the pay-back time is long (15 up to 30 years);

- the construction period can be characterised by high investment amounts which causes directly high interest expenditure;
- the variable costs tend to be low in comparison with the fixed costs. In such cases, pricing strategies according to the marginal costing principle (which is economically optimal) will not produce sufficient output on the invested money. In general, this means that investments in infrastructure are unattractive to private parties;
- the construction period lasts long (2-7 years depending on the scale of the project);
- there are many procedures before the real construction starts;
- the investment is irreversible the moment the project has started (halting the project would lead to high costs and alternative application is frequently not possible);
- and each investment in infrastructure is unique.

Infrastructure investments and private involvement

A number of aims can be pursued by private financing of infrastructure (ITS, 1999):

- minimising the impact of extra taxes, extra debt and/or extra financial guarantees;
- introduction of private sector advantages such as management and control;
- making available of private innovations in infrastructure projects;
- increasing the financial budgets for other projects.

Given the characteristics of infrastructure and given the objectives of public and private parties, nevertheless it is perhaps possible for the government to involve private parties in infrastructure projects that offer no sufficient financial output at first sight. The market can be also involved in scope enlargement (e.g. coupling the realisation of infrastructure to area development) (Langmyhr, 2001). The growing lack of governmental financial resources makes it even more interesting to mobilise the market. Private financing of infrastructure is frequently associated with continuing public involvement and responsibility at strategic network - and location planning. In the case of toll ways or urban mass-transit infrastructure, the government gives a concession to a private party for managing and developing certain infrastructure for a certain period. After expiring, the concession returns to the government. There are several ways the private sector can contribute to the development of the transport system (ITS, 1999). Firstly, the private party can be involved in financing the investment, where the operator of the infrastructure pays back the loan. This ensures that commercial aims are involved in an investment in infrastructure. Secondly, the private party can be involved at the exploitation of the infrastructure, where the users ensure its turnover (toll, parking tariffs). This results in a development towards turnover maximisation, which can strongly influence social objectives (negatively). Despite of the higher capital costs by private financing, the need to express risks in money and to ensure profits, it is frequently claimed that by involving private parties at infrastructure investments, the total costs for the society could be lower. However, the actual savings have never been scientifically proved. In the future, this will be extremely difficult (or maybe even impossible) to realise, because each infrastructure project is unique. Therefore, it is not possible to obtain actual realised savings of private involvement in infrastructure projects.

Conclusion

From economics of the public sector perspective, several conclusions for PPP can be drawn. Firstly, from a cost point of view it is possible that the government is more efficient and the private party is more efficient in terms of turnover. Secondly, it is also possible that the government is more efficient in terms of turnovers and the private party in terms of costs. Thirdly, there are several reasons for the government to interfere in economic living. Reasons concerning infrastructure might be the public goods characterise and the external impacts. An important development is that the public characteristics of infrastructure are decreasing. Finally, in general it is unattractively for private parties to invest in infrastructure.

3.2 Process management with PPP

The development of infrastructure is a complex process. The key to a successful project is to accurately direct the input, interests and ambitions of the parties concerned. Research by Ghosh and Jintanapakanont (2004) shows that main risk factors in large infrastructure projects are related to, delay, safety, social factors (e.g. public consultation), physical risk (of the site), and subcontracter. Before and during the development process, aim, strategy, activities and resources must be constantly recalibrated and filled in again. Sometimes, new pulses must ensure that processes that got bogged down are smoothly redrawn. Process management and surroundings management become all the more important. Long et al., (2004) have identified 5 problem areas that exist for large construction projects. The areas are: i) incompetent designers/contractors; ii) poor estimation and change management; iii) social and technological issues; iv) site related issues; and v) improper techniques and tools. An important task when choosing for PPP and the institution of it is bringing together as much interests as possible. For this reason, process management is an important success factor in a lot of (Dutch) PPP-projects.

Public-public and private-private cooperation

More and more parties are involved in the infrastructure (and spatial) development. This results increasingly in public-public and private-private cooperation preceding the effective PPP. Both government and market parties organise themselves before cooperation between public and private parties comes up for discussion. In general, private parties are capable to organise themselves rapidly. Moreover, their objectives (profits) and interests (business continuity) are generally clear and lie by nature frequently dense at each other. In order to counter this market party strength, the government is forced to organise itself well. If more governments take part in a PPP, it is essential that public-public cooperation has been agreed upon before agreements with the market are made. (Political) objectives from the government are frequently more diverse in nature, difficult to measure and not always complementary. Because of this, making agreements between public parties frequently progresses less rapidly. Public-public cooperation frequently appears difficult and more complex than the PPP. The public-public agreements help to form a common vision, guarantee that is spoken with one mouth and prevent that governments work against each other.

Public-private cooperation

Then the cooperation between public and private entities can be worked out. This is an intensive and careful process that exists from the following steps:

- Stakeholder analysis: Which parties (in the surroundings of the project) are important and have possibilities to contribute to the project (financially)? Electing the right parties to form a PPP sometimes proves to be an art in itself. Forming the PPP concerns creating assessment. This means that no important players are left out and on the other side also that not too much parties sit to the table;
- Common vision shaping. The interests and visions of the parties show differences and similarities. It is the task to find similarities in vision and to reciprocally respect differences in vision (if possible). A common vision brings people and organisations more closely together. The common vision forms the basis for cooperation;
- Feasibility analysis. The next step is to stipulate the feasibility of the common vision (the first test of the cooperation). Making a financial estimation for the project can be helpful. Preparing the financial overview is an instrument that can contribute to mutual faith and transparency, and forms an excellent appliance in search for the correct cooperation form. The financial estimation presents an exploitation overview of the project and is a basic form for the participating parties to find the cooperation with the best financial and social result;
- Agreements. After a positive result from the feasibility analysis, the different components of cooperation can be developed: i) exact risk division; ii) the financial design; iii) the organisation structure and the division of tasks, roles, powers and responsibilities; iv) the internal and external information - and communication structure; and v) the legal design;
- Decision-making. When it is clear who cooperates with who and what will be realised, it is best to fix the agreements through definite multi-annual agreements. This decision-making on the agreements is frequently a process on itself. Finally, this phase will result in drawing up a contract/agreement between the participating public and private parties or even in the establishment of an organisation with or without legal personality.

It is no simple task to turn the PPP into a success. Hsieh et al., (2004) have found that change orders (procurement changes during construction) are important causes for cost and time overruns. A 10-17% ratio of change order cost to total project cost has been found. When the participating parties are persuaded of the advantages that the cooperation between public and private parties can offer, have chosen consciously for the PPP, and are prepared to invest in cooperation for the long-term, then PPP can offer means to pursue the defined objectives. In order to maximise the potential success, a contract must be drawn up and this can be done according to the eight step-appraoch developed by von Branconi and Loch (2004). They have identified 8 key business levers for a project contract: technical specifications, price (quality of the cost estimate), payment terms, schedule, performance guarantees, warranties, limitations of liability, and securities.

3.3 Business economics

Business economics consists of a number of sub elements. Among other things, these sub elements are the venture, financing and the costs. Because of the desired private input at formerly public projects, these aspects become all the more important to the government. A Business is a for-profit (production) organisation (de Boer et al., 2004). For the PPP projects, generally, two sectors are very important: i) the construction sector; and ii) the banking sector. Construction businesses are production ventures, whereas the government and the banks operate in the service sector. This might signal possible problems between the sectors. The most important goal for the private sectors (as for other businesses) is the realisation of profits. Moreover, securing continuity is important for businesses. The number of businesses determines the market in a certain sector. At complete competition, there are many businesses and many customers. In case of a monopoly, there is only one business. At oligopoly there are only a limited number of businesses. Both the construction sector and the banking sector appear to be an oligopoly.

Financing the activities of businesses and their costs

Financing businesses is possible with own sources or with external financing. Own financing is money put into the business by the owners for an indefinite period of time. External financing is brought into the business by third parties. The asset and liability structure of the ventures around PPP (or maybe the PPP itself) are less interesting, and for this reason considered as given. The main question asked to the private party in a PPP project is: ‘do you want invest in this project’? Therefore, the investment must contribute to the venture objectives of profits and continuity. The viability of the business must at least be secured and ideally be increased. Businesses have several methods to assess this. For that purpose, among other things, they calculate the deserving periods, the average annual profit, the internal profitability and the net cash value (de Boer et al., 2004). In order to assess the realisation of the objectives of companies, the money- and good flows in a company must be registered. The information is used to be able to control the venture and to be able to justify the delivered performances. The costs within a company can be classified in a lot of different manners, which stipulates the realised profit. An important classification is the one whereby the costs of input, labour, durable production resources, ground, service, taxes and financing are calculated.

Conclusion

Business economics offers insight in the way in which companies operate and what possible consequences might be for the government within PPP projects. Firstly, the construction businesses are production ventures, whereas banking services and the government operate in the service industry. This might ensure possible problems in the common implementation of the PPP projects. Secondly, the market of the most important private parties that are involved in PPP is an oligopoly. Thirdly, profits at banks are rather constant, whereas construction companies have activities that are more cyclic and therefore profits vary more. Finally, the construction companies have relatively high fixed costs and at the banks the cost of labour is the most important.

4 Conclusions

In this paper, a literature review has been presented on the subject of public private partnerships for the development of infrastructure projects. The central question in the paper was: 'Is PPP a viable option for investments in infrastructure from a theoretical point of view?' First, a description has been presented on the backgrounds of public-private partnerships and on investments in infrastructure. Secondly, three theoretical disciplines have been analysed in order to answer the problem definition.

The description of the backgrounds of the infrastructure projects and the analysis of the term PPP lead to a number of conclusions. Firstly, the role of the national and regional governments in financing infrastructure is changing. This changing role means that the national governments withdraw themselves on core functions. Regional governments are given more responsibilities. In general this means more smaller infrastructure projects that are less suitable for PPP. Secondly, the theoretical definition of PPP and the more practical definition differ. In Europe, most PPPs in infrastructure are worked out as a concession (and therefore not a real PPP). This means that aroused hopes for advantages in practice, partly do not materialise due to the theoretical main issues. The concessions in Europe appear to be expensive agreements between public and private parties that lead to some financiel relief for public parties in the short run. A complicating factor is the large diversity in projects that might qualify for PPP. More specific, each infrastructure project is unique, making it even more difficult to implement cooperation.

The theoretical perspectives from the discipline 'economics of the public sector' result in some interesting insights. Firstly, from a cost point of view it is possible that the government is more efficient and the private party is more efficient in terms of turnover. This could also be the case for the development of infrastructure (e.g. the government being able to attract cheaper finance). Therefore, it might be worthwhile to identify costs and benefits for government and private businesses in order to combine the strong points. Secondly, PPP is no solution to the budgetary shortages of governments. The financial cost reduction for the government is not proven scientifically so far. Till recently, indications for financial cost reductions based on estimates seem to be sufficient. The inclusion of private parties will probably result in efficiency but also in cost increases. Thirdly, PPP seems to increase the quality of public services, but at a higher cost. Furthermore, the exact realised efficiency is never to be found, because a comparison (actual numbers) between a PPP and the traditional way can't be made.

Process managment shows that it is no simple task to turn a PPP into a success. When the participating parties are persuaded of the advantages that the cooperation between public and private parties can offer, have chosen consciously for the PPP, and are prepared to invest in cooperation for the long-term, then PPP can offer means to pursue the defined objectives. If true cooperation is aimed for, costs, risks, and profits must be shared instead of devided. The joint venture can provide insights into the process of sharing.

The theoretical perspectives offered by business economics provide insight in the way businesses operate and what the consequences are for cooperation with investments in

infrastructure. Firstly, in general it is unattractively for private parties to invest in infrastructure. In order to make it more attractive, profits can be offered to the private parties. However, this will increase the total costs of the project. Overall, the major problems lie in the distinction between public responsibilities and private aspirations. The main conclusions are given in the table below.

Table 2 Is PPP a viable option?

Yes	**No**
Economics of the public sector	
Reduce budget shortages (g)	Reduced number of large projects (d)
Cost reduction for government (g)	Cost for large projects are underestimated (f)
Better quality of public services (g)	PPP is not the right scope (f)
Public goods characteristics are decreasing (d)	Allocation of costs/risk instead of coop (f)
Organisation management	
Project efficiency (g)	
Business economics	
Profits for private companies (g/f)	Not-profitable parts of projects (f)
Development of new markets (g)	Infrastructure is unattractive (f)

G = goal, d = development, f = fact

Theory and facts prove that PPP seems not a very viable option for investments in infrastructure (the right part ‘no’ of the table). The left part is the arguments in favour of PPP. However, most arguments are not proven but appear to be ‘positive‘goals that are aimed for by PPP. While the right part of the table appear to be facts that are proven scientifically.

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