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MEASURING VALUE FOR MONEY IN PUBLIC PRIVATE PARTNERSHIPS: A REVIEW OF THE PUBLIC SECTOR COMPARATOR IN AUSTRALIA, CANADA, NEW ZEALAND AND UNITED KINGDOM

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Abstract

Public-Private Partnerships are defined by the OCDE (2008) as “an agreement between the government and one or more private partners (which may include the operators and the financers) according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners”.

Due to their characteristics and due to governments’ limited ability of funding public infrastructures projects, they are becoming part of the government’s portfolio as a good solution to fill the “infrastructure gap”.

We undertake OECD (2008) assembly of the top ten countries with the largest public-private partnerships deals in 2003 and 2004 and, we select those countries that have more formalised policy regarding the use of the public sector comparator and those that are more quoted in the literature (Australia, Canada and United Kingdom). We also select New Zealand because they already adopt the public sector comparator methodology even thought there percentage of public-private partnerships projects is not so expressive in the public investment as the other countries that we analysed. The purpose of this work is to find which methodologies are implemented, while establishing a comparison between all four countries.

Several conclusions arise from our investigation. We found that all four countries adopt the public sector comparator in order to assess bids, and it is always created in the early phases of the project plan. We also observe that they all use different methodologies with the same purpose: achieving value for the taxpayers. However, there are substantial differences on the methodologies developed in each country.

Key words: public-private partnerships; value for money; public sector comparator; discount rate; risk allocation

Resumo (em Português)

Parcerias Público-Privadas são definidas pela OCDE (2008) como "um acordo entre o governo e um ou mais parceiros privados (que podem incluir os operadores e os financiadores), segundo a qual os parceiros privados entregam um serviço de tal forma que o objectivo de prestação de serviços do governo esteja alinhado com o objectivo de lucro dos parceiros privados e onde a eficácia do alinhamento depende de uma transferência suficiente de risco para os parceiros privados "

Devido às suas características e, devido à limitada capacidade dos governos de financiar projetos de infra-estruturas públicas, as parcerias público-privadas têm vindo a tornar-se uma boa solução para preencher o "gap de infra-estruturas".

Analisamos o estudo da OCDE (2008) que aborda o conjunto dos dez países com os maiores negócios parcerias público-privadas em 2003 e 2004 e, selecionamos os países que têm uma política formalizada quanto à utilização do comparador do sector público, tendo em consideração aqueles que são mais citados pela literatura (Austrália, Canadá e Reino Unido). Selecionamos também a Nova Zelândia porque já adota a metodologia do comparador, ainda que a percentagem de projetos em parcerias público-privadas não seja tão expressivo no investimento público como os outros países que analisamos. O objetivo deste trabalho é encontrar metodologias que são aplicadas, ao estabelecer uma comparação entre os quatro países.

Várias conclusões podem ser retiradas da nossa investigação. Concluímos que todos os países em análise utilizam o comparador para avaliar as propostas e que este é criado nas primeiras fases do desenvolvimento do projecto. Observamos também que todos os países em análise utilizam metodologias diferentes mas sempre com o mesmo objectivo: maximizar o valor para os contribuintes. Contudo, verificamos que existem diferenças substanciais entre as metodologias desenvolvidas por cada país.

Palavras-chave: parcerias público-privadas; comparador do sector público; taxa de desconto; alocação do risco;

Acronyms

BAFO	Best and Final Offer
CAPM	Capital Asset Pricing Model
EC	European Commission
EIB	European Investment Bank
FBC	Final Business Case
HM Treasury	Her Majesty Treasury
IMF	International Monetary Fund
IRR	Internal Rate of Return
KPMG	A *big 4* auditing company
NHS	National Health Services (UK Department of Health)
NPC	Net Present Cost
NPV	Net Present Value
OBC	Outline Business Case
OECD	Organisation for Economic Co-Operation and Development
OJEU Notice	Official Journal of the European Union
P3	Canada designation for Public Private Partnership
PFI	Private Finance Initiative (term used in the United Kingdom)
PPP	Public-Private Partnership
PSC	Public Sector Comparator
SRTP	Social Rate of Time Preferences
UK	United Kingdom
USA	United States of America
VfM	Value for Money

Table of Contents

List of exhibits

List of figures

1. Introduction

The financial resources, as well as the ability of any government or its agencies to initiate and develop major infrastructure projects, have their limits (Fitzgerald, 2004). To fill this "infrastructure gap", created mainly due to the lack of public funds and the excessive levels of debt in the public sector balance sheet, governments have been using increasable public-private partnerships. This has created an exponential worldwide growth of the public-private partnerships projects, which has been occurring mainly over the last two decades.

The European Commission (EC, 2003) argues that the international interest in public-private partnerships comes from the large investments in infrastructures, from the greater efficiency in the use of resources, and from the commercial value that public sector assets have achieved.

Nevertheless, countries have seen the need to create and implement a system of evaluation of the proposals to ensure that such projects deliver taxpayers value for money. In this context, value for money is mainly achieved through the use of a public sector comparator or one of its derivates. In either case, it is essentially a quantitative measure of all costs of the project, and it is the primary benchmark on which the value for money from the public-private partnerships is compared to the bids received from the private sector.

OECD (2008) provides to the literature with a assembly of the top ten countries with the largest public-private partnerships deals in 2003 and 2004 (see Exhibit 1). From those countries we select three countries - Australia, Canada and United Kingdom - that have more formalised policy regarding the use of the public sector comparator and those that are more quoted in the literature. We also analysed New Zealand because they already adopt the public sector comparator methodology even thought there percentage of public-private partnerships projects is not so expressive in the public investment as the other countries that we analysed. The purpose of this work is to find which methodologies are implemented, while establishing a comparison between all four countries.

Exhibit 1 – Top Ten Countries with the largest public-private partnerships deals in 2003 and 2004

Rank 2004	Country	Value USD millions	Deals	% share	Rank 2003	Value USD millions	Deals	% share
1	United Kingdom	13 212	81	32.6	1	14 694	59	56.7
2	Korea	9 745	9	24.1	3	3 010	3	11.6
3	Australia	4 648	9	11.5	7	611	4	2.4
4	Spain	2 597	7	6.4	2	3 275	8	12.6
5	United States	2 202	3	5.4	4	927	2	3.6
6	Hungary	1 521	2	3.8	11	251	1	1.0
7	Japan	1 473	15	3.6	10	274	5	1.1
8	Italy	1 269	2	3.1	5	714	3	2.8
9	Portugal	1 095	2	2.7	n.a.	n.a.	n.a.	n.a.
10	Canada	746	3	1.8	n.a.	n.a.	n.a.	n.a.

Source: Dealogic, quoted in OECD (2006), "Interim Report on the Role of Private Participation in Major Infrastructure Provision", GOV/TDPC/URB(2006)5, OECD, Paris, page 57.

We also intend to research into the various stages of the project development, in which the governments can implement the public sector comparator, and in which circumstances the public-private partnerships are tested in order to achieve value for money (with either the public sector comparator or with one of its derivates).

From our analysis, several conclusions can be taken. We found that all four countries adopt the public sector comparator in order to assess bids. We also found that the public sector comparator is always used in the early phases of the project plan, with the goal of achieve additional value for money for the government and, consequently, for the taxpayers.

Although competition is essential in the bidding process in order to create value for money. But there is no universal formula for assessing public-private partnerships or each of its components. In essence, each project must be evaluated on a case-by-case basis.

In Section 2 we present an empirical analysis of the public-private partnerships and their main components, particularly the trade-off between public-private partnerships versus traditional procurement, and the definition of a value for money assessment (including the public sector comparator, the discount rate and risk allocation). In Section 3 we focus on the public sector comparator methodologies adopted by each of the analysed countries. Section 4 presents a full comparison of their methodologies, while Section 5 exhibits the main conclusions from our survey.

2. Private Public-Partnerships: Empirical analysis

The European Investment Bank (EIB, 2003) regards that there is no simple, single and aggregated definition for the public-private partnerships. However, for the purpose of this article we used the OECD definition of a PPP, which is as follows:

"…an agreement between the government and one or more private partners (which may include the operators and the financers) according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners (OECD, 2008, p. 17)."

The European Investment Bank (EIB, 2003) also state that public-private partnerships appear in the government portfolio as a good solution to fill the gap between investment needs and available public resources for infrastructures (such as hospitals, schools, roads, bridges and tunnels, airports, prisons, light-rail networks, air traffic control systems, and water and sanitation plants). They became really attractive for politicians because they stay off the "balance sheet". A view highly contested by the Accounting Standards Board cited in the Farrel Grant Sparks report (1998).Concerning public debt, Ball et al. (2007) argues that private finance initiative will improve the government's position in the short term, but raising doubts on the long-run.

The European Commission (2003) discusses that public-private partnerships are not a "miracle solution" or the "all or nothing" approach for a country's infrastructural needs, reinforcing the idea that only high priority national projects should be considered for public-private partnerships projects. Nonetheless, some argue that, in many cases, there is either a public-private partnership or no project at all (Thomson, 2005).

Unlike the private sector, governments do not seek profit as their main objective. Therefore it is normal that the efficiency levels of the public sector are different from those of the private sector. However, an IMF report (2004) refers that, although there is much literature on the subject, we cannot conclude that the private sector is more efficient than the public. Yet, Blanc-Brude et al. (2009), Thomson (2005), and Grimsey and Lewis (2005, 2004), quoting HM Treasury (2003 b), refer that the private

sector scored well in delivering the asset on time and without costs overruns. Leahy (2005) argues that risk and reward go "*hand by hand*" in private finance initiative deals and the risk transferred from the public sector should provide a major incentive for the private sector to supply cost effective and higher quality services on time.

Colman (2000) presents a view of the public-private partnerships project based on four main pillars. The project has to be a good use of taxpayers' money, it should have a good strategy with clear goals, a proper bidding process that emphasizes competition must be applied, and finally it is important to verify if the project makes sense.

Hodge and Greve (2007) observe that public-private partnerships have become a favourite expression when describing new institutional arrangements for governments. OECD (2008) refers that the private partners typically design, build, finance, operate and manage the infrastructure, and after this process they will deliver the service to the government or straight to the final user. Regardless of the entity that receives the final service, the State or the taxpayer, the private party will always be remunerated.

OECD (2008) completes the public-private partnerships definition by arguing that it is inherent to the government the indication of the quality and quantity of the service delivered. But it must also ensure that sufficient risk is transferred to the private party in order to guarantee efficiency. Another implicit issue is that, at the end of the contract, the government might become the owner of the asset after paying a residual value contractually agreed (or no residual value at all).

Public-private partnerships are capable of accelerating infrastructure provision with faster implementation. They also reduce the whole life costs with better risk allocation, better incentives to perform which will improve the quality of the service, and eventually generate additional revenues (EC, 2003). The management skills of the private sector are also a vital advantage for the public-private partnerships route. However, Shaoul (2005) strongly criticises private finance initiative deals, claiming that their policies are enriching a minority at the expense of the majority, and for which no democratic mandate can be secured.

Broadbent and Laughlin (1999) suggest that the accountability of public-private partnerships projects should stay in or out of the "balance sheet" according to the degree of risk transfer to the private sector. HM Treasury has already adopted this policy.

Another point of view is defended by Shaoul (2005), stating a new use of accountability of the public-private partnerships projects with the three "Es" policy: economy, efficiency and effectiveness. She also indicates that the value for money analysis is focused on the economy rather than on efficiency and effectiveness.

Morallos and Amekudzi (2008) outline that, typically, the public-private partnerships implementation process includes four phases: initial feasibility assessment, the procurement phase, the construction phase, and the operation phase.

2.1. Traditional Procurement or Public-Private Partnerships Route?

Public-private partnerships should be used only if they provided better value for money than traditional methods. Their structures are typically more complex than traditional public procurement due to the number of parties involved, and particularly, due to the mechanisms used to share risks (EIB, 2003). According to the EIB (2003) and Thomson (2005), the decision between public-private partnerships and traditional procurement should take into account the capital budget, recurring budget, risks, complexity premium, skills' transfer, flexibility, and innovation. OECD (2008) points out that the nature of the service, the level of competition and the achievement of value for money and affordability should also be issues to take into account by the governments.

Morallos and Amekudzi (2008) highlight that public-private partnerships enable public agencies to transfer a substantial amount of the costs to the private sector. The involvement of the private sector in these procurements aids the acceleration of the implementation of projects, as well as encourages innovation in the delivery of services and technology. The authors also suggest that the public-private partnerships route should be chosen instead of the traditional procurement. This derives from the fact that, in the latter case, the entire burden of ensuring the projects' success falls on the public sector, which may have limited experience, capabilities, and resources to expend on such projects. However, Grimsey and Lewis (2004) and Reiss (2005) claim that the public-private partnerships route model is not a "fit all" solution. It should not be chosen if there is lack of competition, overbidding by public-private partnerships contractors and faulty risk transfer.

OECD (2008) regards that public-private partnerships perform better than traditional procurement, quoting NAO (2003) and Allen Consulting Group (2007), which have analysed the UK and Australian cases. Savings are also deliverable through this route (Arthur Andersen, 2000).

Affordability and value for money are key issues on the success of a public-private partnership. Morallos and Amekudzi (2008) express that value for money is one of the leading tools available for public agencies to evaluate the value of a public-private partnership or a traditional procurement project. A good legal framework is also required. Arthur Andersen (2000) discusses that the success of private finance initiative method depends on the extent of the robust procurement framework. Despite all this, Leahy (2005) argues that the public sector must choose mechanisms that will provide the lower whole-life cost to the economy.

2.2. Defining Value for Money

Value for money has a key role in the success of public-private partnerships, and is usually defined as a measure of the economic efficiency of a project. Ball et al. (2007) provides a definition of value for money related to the idea that non-public providers can deliver services of the same quality of those that could be provided by the public sector but at a lower overall cost.

The factors that define value for money vary from project to project and between sectors (European Commission, 2003). Morallos and Amekudzi (2008) quote an Arthur Andersen study (2000), which concludes that there are six key drivers of value for money in project finance initiative projects: risk transfer, the long-term nature of contracts (including whole-life costing), the use of an output-based specification, competition, performance measurement and incentives, and private sector management skills. They highlight risk transfer and competition as the most important drivers.

The literature suggests that value for money is more likely achieved in roads and in prisons. On the other hand, Hospitals and schools have not so expressive and clear results due to limited data and bundling issues (Quiggin, 2004; Riess, 2005; Shaoul, 2005; and Hodge and Greve, 2007).

Broadbent and Laughlin (1999), Leahy (2005) and Grout (2005) discuss that healthy competition is often the best guarantor of value for money. For instance, in the London Underground and in the Libra project, the lack of competition has been real costly for taxpayers. Financing arrangements can also affect its conception (Leahy, 2005). She also argues that a key element of the value for money evaluation is the success of the genuinely transference of the risk between both sectors.

Grout (2005) uses an *ex-ante* analysis of the value for money approach. He argues that, when involving public-private partnerships, there is an inherent transfer of risk from the public sector to the private sector, and this should come out as the core incentive mechanism. According to him, there are many possible value for money tests. Therefore, he groups them into four broad categories: performing a full cost-benefits analysis, assessing the cost of service delivery to the government, comparing private alternatives, and confirming the viability of the chosen project. Morallos and Amekudzi (2008) outline their assessment of value for money on the discount rate, on the weakness of the calculation and bias, in the limitations in risk management procedures, and in the flexibility and continual assessment of value for money.

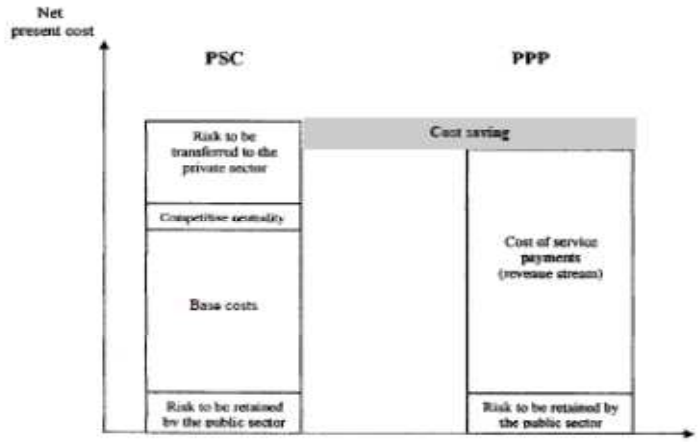
Grout (2005) also remarks that there is not one value for money test that fits all situations. If the public-private partnerships route is less costly to the government than traditional procurement, it also provides the larger net benefit to the economy. Regarding that statement, we note that the principal evidence that value for money can be, or has been achieved is provided through the use of a public sector comparator, which we discuss above.

2.3. Public Sector Comparator

Any rational decision between public-private partnerships and public procurement involves a complex analysis. The public sector comparator is designed to compare the probable costs and benefits of the two, thus generating a Net Present Value (NPV) framework for assessing the virtue of implementing a public-private partnership. Public-private partnerships are better than a traditional procurement whenever the value of the discounted cash flows of payments to the private sector are less than the net present cost of the public sector comparator.

The comparator is "*a hypothetical project contract in which the public sector undertakes all functions (design, built, operate etc.) based on actual costs incurred on similar projects*"; it should include all risks and the value of any assets made available for the project (EC, 2003, p. 58). In Exhibit 2, we present a comparison of the public sector comparator against a real public-private partnership bid.

Exhibit 2 - Public Sector Comparator and Value for Money



Source: Grimsey, D., & Lewis, M. K. (2004). *Public Private Partnerships - The Worldwide Revolution in Infrastructure.* Edward Elgar Publishing Ltd., pp 138

The application of the comparator should not be the same in all projects. This is often a time consuming and expensive task and the results are only as good as the baseline information provided. Nonetheless, according to Arthur Andersen (2000), the average estimated savings in net present costs terms of using public-private partnerships is around 17% over the contract duration.

OECD (2008) refers Grimsey and Lewis (2005) four alternatives to the public sector comparator: i) undertake a complete cost-benefit analysis of a feasible public sector option and a real public-private partnerships bid (German style), ii) assuming a hypothetical public sector comparator before the bid compared to a "shadow" public-private partnerships (Japan and Netherlands style), iii) accept a comparator after the bidding process for prior comparison with the other public-private partnerships bids (Australian style) and, iv) encouraging a competitive bidding process (France and USA style). Grimsey also argue**s** that the public sector comparator is easier and simpler to compile than any of the other alternatives presented.

Morallos and Amekudzi (2008) state that a raw solution of the public sector comparator must be presented, in order to take into account the base costs of a project, namely the capital and operating costs of producing the reference project. This should illustrate a full representation and fair estimation of all costs, assuming that the reference project will be presented to the same level of standards and specifications that would be required in the public-private partnerships option.

After accurate preparation, adjustable to a comparable basis and once the NPVs of both (public sector comparator and the public-private partnerships) is compiled, a simple comparison between the two should be carried out. Value for money is demonstrated in a public-private partnerships project when the net present cost of the discounted cash flows of payments to the private party is less than the net present cost of the public sector comparator (taking into account the cost adjustments for transferable risk and the adjusted costs retained by the public sector, bearing in mind competitive neutrality effects).

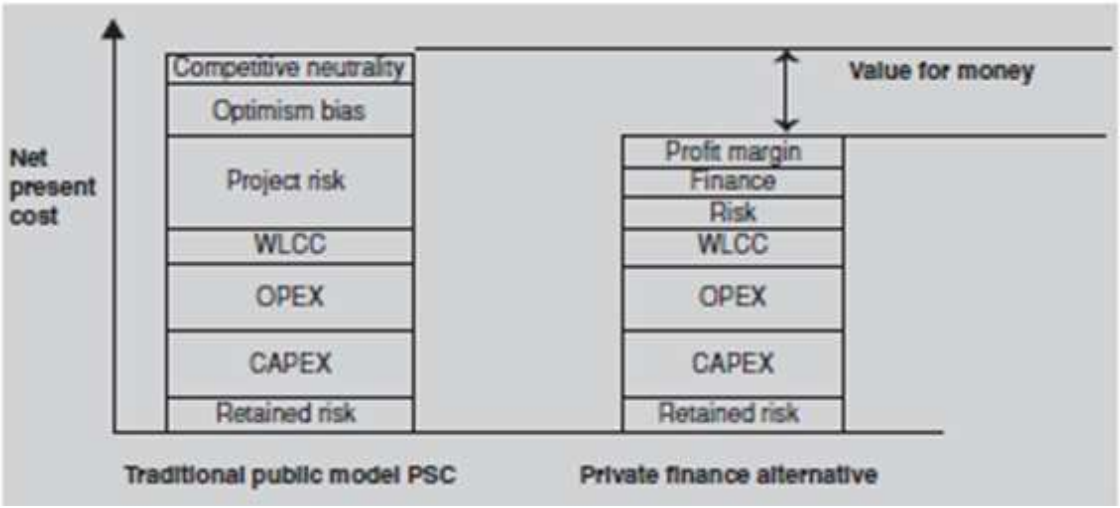
Grimsey and Lewis (2005) outline some criticisms of the value for money methodology. They argue that the public sector comparator is too subjective and too simplistic, relies on unquantifiable elements (qualitative factors), is riskier than the public-private partnership, and also incomplete. Inaccuracy, omitted risks, lack of consensus on the discount rate, possible manipulation and high costs are other disadvantages referred by the authors. Pangeran and Wirahadikusumah (2010**)** state that the public sector comparator does not include the cost-benefit social analysis and that it uses too much quantitative factors, which could generate a biased analysis.

Quiggin (2004), quoting Heald (2003), reports that the public sector comparator is virtually worthless in *ex-ante* analyses, while Thomson (2005) states that there is no generalised answer *ex-post* to whether public-private partnerships are more or less expensive than traditional procurement projects. Brenk et al. (2005) conclude that unrealistic demand projections leave to affordable projects ("optimism bias").

Grimsey and Lewis (2005) also suggest that the use of a comparator or its alternatives should be a relevant fact in the decision on the choosing of the type of procurement. Due to the complexity of this process, we can conclude that comparisons between private partners' bids and the public sector comparator are very hard and prone to significant error.

Regarding the density between traditional public model and private finance initiative, we present the conceptual model of value for money with an alignment of the value for money components. This illustration is present in Exhibit 3.

Exhibit 3 - Conceptual model of value for money



Source: Akintoye, Akintola and Beck, Matthias. Police, Management and Finance of Public-Private Partnerships, Wiley-Blackwell, pp 384

2.4. Risk Allocation

In order to accomplish a successful and efficient public-private partnership, value for money and affordability must be delivered to taxpayers. Risk transfer has a crucial role in this course of action. The European Commission defines risk as "*any factor, event or influence that threatens the successful completion of a project in terms of time, cost or quality.*" (EC 2003, p.50).

Risks are directly translated into financial implications. After a proper evaluation, the public sector must find the optimal risk allocation in order to transfer risk to the party "best able to manage it" in the most cost effective manner. This goal could be obtained by allowing each sector to do what it does best. This does not imply that the maximum risk should be transferred to the private party, and despite all uncertainty, a clear distinction of the endogenous and exogenous risk should be made.

Quiggin (2004) argues that, in practise, a complete risk transfer is not possible in most cases. For each project, some risks are more relevant than others (Leahy, 2005), and the type of public-private partnership selected will affect risk allocation.

Arthur Andersen (2000) points out that risk transfer valuations accounted 60% of the total costs savings, in 17 out of 29 projects, and financing costs typically form less than a third of the cost of a private finance initiative project, although there is considerable variation around this average.

Usually, risk allocation is categorized as follows: revenue risk, choice of private partner, construction risk, foreign exchange risk, regulatory contractual risk, political risk, environmental/archaeological risk, latent defect risk, public acceptance risk, sustainability risk, and hidden protectionism[1] (EC, 2003). Ball et al. (2007) suggest that the costs rates applying in the construction phase and design quality, representing two thirds of total risk, which are attached to heavy financial penalties (Arthur Andersen, 2000). Ball et al. (2007) also outline that risk transfer is at the very heart of the economic case for a private finance initiative deal.

Each party will value risk differently, with the private party applying higher discount rates, which will give the public private partnerships a lower NPV when compared to

[1] See also the risk matrix in Grimsey and Lewis (2004, p.180-182).

the public sector. Risk quantification will express the potential impact of a risk in financial terms and will allow the identification of a cost effective risk allocation and management strategy (EC, 2003).

The public sector needs to transfer some of these "uncertainties" to the private parties involved in the project, regarding of course the optimal allocations between both sectors, and reducing the probability of unnecessary contingencies on renegotiation phases, after the project is already delivered.

In Table 1 we present an assembly of the literature regarding public-private partnerships.

Table 1 – Assembly of the public-private partnerships literature

Author / Year	Main Findings
EIB (2003)	PPP appear in the government portfolio as a good solution to fill the gap between investment needs and available public resources for infrastructures (such as hospitals, schools, roads, bridges and tunnels, airports, prisons, light-rail networks, air traffic control systems, and water and sanitation plants).
European Commission (2003)	PPPs are not a "miracle solution" or the "all or nothing" approach for a country's infrastructural needs.
Thomson (2005)	In many cases, there is either a public-private partnership or no project at all.
Lealhy (2005)	Competition is essential in PPP projects
Lealhy (2005)	Risk and reward go "hand by hand" in PFI deals and the risk transferred from the public sector should provide a major incentive for the private sector to supply cost effective and higher quality services on time.
OECD (2008)	The private partners typically design, build, finance, operate and manage the infrastructure, and after this process they will deliver the service to the government or straight to the final user.
Colman (2000)	Presents a view of the PPP project based on four main pillars: i) Making the projects objectives clear; ii) Applying the proper procurement process; iii) Selecting the best available deal; iv) Making sure that the project makes sense;
Shaoul (2005)	Strongly criticises private finance initiative deals, claiming that their policies are enriching a minority at the expense of the majority.
Shaoul (2005)	The three "Es" policy: economy, efficiency and effectiveness.
Morallos and Amekudzi (2008)	Typically, the PPP implementation process includes four phases: initial feasibility assessment, the procurement phase, the construction phase, and the operation phase.
Ball et al. (2007)	VfM is related to the idea that non-public providers can deliver services of the same quality of those that could be provided by the public sector but at a lower overall cost.
Arthur Andersen (2000)	There are six key drivers of value for money in project finance initiative projects: risk transfer, the long-term nature of contracts (including whole-life costing), the use of an output-based specification, competition, performance measurement and incentives, and private sector management skills.
Quiggin (2004), Riess (2005;), Shaoul (2005) and Hodge and Greve (2007)	Hospitals and schools have not so expressive and clear results due to limited data and bundling issues. VfM is likely achieved in roads and in prisions.
Broadbent and Laughlin (1999), Lealhy (2005) and Grout (2005)	Healthy competition is often the best guarantor of value for money.
European Commission (2003)	PSC is a "hypothetical project contract in which the public sector undertakes all functions (design, built, operate etc.) based on actual costs incurred on similar projects" (p.58)
Arthur Andersen (2000)	The average estimated savings in net present costs terms of using public-private partnerships is around 17% over the contract duration.
Grimsey and Lewis (2005)	There are four alternatives to the public sector comparator: i) undertake a complete cost-benefit analysis of a feasible public sector option and a real PPP bid; ii) assuming a hypothetical PSC before the bid compared to a "shadow" PPP; iii) accept a comparator after the bidding process for prior comparison with the other PPP bids; iv) encouraging a competitive bidding process;

Source: Made by the Author based on the quoted literature.

2.5. Discount rate

Value for money is extremely sensitive to the discount rate one applies to future cash-flows, which directly reflects on the final NPV costs of both the public sector comparator and the public-private partnerships. As a result, the procuring agency must carefully choose the discount rate, as such choice is of crucial importance (OECD, 2008). Literature is less than unanimous on how to estimate the appropriate discount rate has not been reached. In fact, due to its complicity, there are several possible approaches (see Sarmento, 2010 for a summary of the five main approaches).

One is based on the "social rate of time preferences" (STPR), which reflects the preferences of the current government policy's preferences the discount rate. Grimsey and Lewis (2005) describe this around two dimensions: what society is willing to pay for receiving the service now rather than in the future, and the risk to which it exposes taxpayers with this procedure.

A second option is using the "social opportunity" cost of capital. Such concept is directly linked to the level of non-diversifiable risk in the project, reflecting the pre-tax internal rate of return that can be expected from private sector investments with the same risk. Canada and New Zealand adopt this technique, which is implemented using a deviation model based on the Capital Asset Pricing Model (CAPM).

Thirdly, we have the "equity premium" approach, i.e. the cost of capital for public sector is considerably below the CAPM values, once is the risk-free rate, and consequently the discount rate should be the pre-tax government borrowing rates. The fourth approach adopts a risk-free interest rate of the country, i.e. the interest rate of government debt, related to the maturity of the project.

Several countries used a long-term borrowing rate as a proxy for the discount rate. Where there is an AAA credit rating, this rate will have a propensity to be close to the STPR and below a risk-adjustment discount rate. The HM Treasury (2003) has adopted a 3.5% STPR. Prior to this, they used a 6% discount rate for many years.

The "perfect capital markets" terminology is adopted by a wide range of authors (e.g. Brealy and Myers, 2003), suggesting the idea that the public sector has a lower cost of finance as being an illusion. Even in a world of "perfect capital markets", and where

there is not distorted taxation, it might still be appropriate to use a higher discount rate for public-private partnerships than the public sector equivalent.

The absence of distortions in the competition, and consequently on the formation of the market prices is another characteristic of such terminology. Therefore, in a perfect world, the only variable that commands the discount rate is the operational risk of the project itself. Since we do not have a perfect world, the use of different discount rates for public-private partnerships is a logical option.

On the grounds that the discount rate is specific to each project and is a function of the risks for such particular project, Partnership Victoria recommends the use of a discount rate indicative of the project risk, based on the CAPM, to evaluate the public-private partnerships project. In a perfect market, this would lead to the conclusion that the appropriate discount rate would be the rate implicit in the winning bid, and therefore one would not need to develop a specific discount rate for analysis (Grimsey and Lewis, 2005).

In summary, adopting a risk-free discount rate for calculating the public sector comparator cost, as advocated in some academic literature (e.g. UK Green Book, 2003) is intuitively appealing, but the rest of the exercise concerning the proper adjustments of the cash flows of the project, seems to be particular difficult to carry out.

2.6. Other relevant issues

Under a public-private partnerships contract, instead of purchasing an asset, the public sector makes regular payments (if the service delivery is successfully) to a private sector supplier in exchange for the services partly or wholly delivered through the use of that asset.

Grimsey and Lewis (2005) point out the general concerns about public-private partnerships as a choice of value for money between two very large net present values, where the discount rate methodology cloud be faulty, where irrespective risk is transferred to the private sector, and where discount rates allocations are incomplete bases to draw conclusions about the viability of proceeding with the public-private

partnerships option. They also remark that contract management should be down properly, including all essential risks. Ball et al. (2007) observe that there may be further work in having to refine both design and costing during the BAFO (best and final offer) stage.

Lowest cost is not the same as the best value for money for a project. Colman (2000) proposes that the government must also consider the degree of risk-taking by potential suppliers, the extent of innovation, and the inherent trade-offs between price and quality, rather than simply choosing the bid which offers the lowest price. Risk and reward go hand in hand in private finance initiative deals: the government pays for inappropriately transferred risks though higher services charges. On this subject, Leahy (2005) outlines that clarity about the distribution of risk is not by itself sufficient to achieve a successful risk transfer. She also remarks that there is a need for effective monitoring and sanctioning of the performance of the private partner.

Riess (2005) and Blanc-Brude et al. (2009) state that public-private partnerships literacy paid much less attention to risk sharing than to asset ownership and bundling. Bundling construction and operation will reduce the cost of the project. Riess (2005) also highlights that private ownership is preferable than public equivalent in providing services, and he argues that public ownership makes sense if the cost-saving potential is small (reduce dimension projects).

Morallos and Amekudzi (2008) refer some of the limitations presented by the critics concerning the public-private partnerships route as the faultiness of discount rate used, the weakness of the risk allocation, the bias in the public sector comparator, and also the public-private partnerships comparisons. Ball et al. (2007, pp. 306) comment that "(…)*if the introduction of PFI had lead to the development of whole life costing it would be expected that higher capital costs would be offset by lower maintenance costs (...)*", and vice versa.

3. Public Sector Comparator Analysis

As we referred before, governments need to create and implement a system of evaluation of the proposals to ensure that public-private partnerships projects deliver value for money for the taxpayers. On a great number of projects this is achieved through the comparison of the public sector comparator or any of it derivates against the bids received by the private sector. In order to understand better the public sector comparator components, we aim in Chapter 3 to make a description and a comparison of the methodologies that are adopted by the four most important markets in public private partnerships: Australia, Canada, New Zealand and United Kingdom,

3.1. Australia

Australia is characterized as one of the most important players in the world regarding public-private partnerships, with a sophisticated market (Allen, 2007). The report also states that social infrastructure projects are beginning to widen their dominance in infrastructure projects, mainly with hospitals and schools projects. Fitzgerald (2004) highlights that wastewater treatment facilities, mobile data network, and courts are other examples of the Social Infrastructures investments in Australia.

In his final report to the Treasury, Fitzgerald (2004) outlines that it is important to keep in mind that Victoria and North South Wales are the most predominant public-private partnerships mature markets in Australia, noting that they are a benchmark for the worldwide infrastructure. He also points out that the Partnerships Victoria policy is related to the UK concept of public-private partnerships.

In the majority of the Partnership Victoria's projects, the construction of a public sector comparator is required in order to test whether a bid offers value for money in comparison with the most efficient and likely form of public delivery (Partnerships Victoria Guidance Material - Overview, 2001). Fitzgerald (2004) discusses that a public sector comparator is developed at great cost ($2-3 millions) and in great detail (in some cases it needs to be prepared over more than 18 months, as referred by Partnerships Victoria in the Public Sector Comparator Technical Note, 2003). Through the analysis of eight public-private partnerships projects in Australia, the author also

mentions that the weighted average savings was 9 per cent relative to the respective risk-adjusted public sector comparator.

Once a project is approved through Partnerships Victoria delivery, and when the private funding is allocated, the business case is developed in detail (as early as possible in the procurement process), before the formal tendering process is initiated. After their accurate compilation, the project brief is released. At this stage, the public sector comparator must be constructed and it should make available a realistic estimate of the cost of the project, if it were to be carried out in the public sector (Public Sector Comparator Technical Note, 2003).

The primary step on the construction of a public sector comparator is the definition of the reference project, with the purpose of creating a basis for the comparator calculations. Partnerships Victoria argues that the development of the reference project contributes to the determination of output specifications (including performance standards and project affordability). This process should be based on a built-up technical model rather than merely undertaking a desktop analysis. The provision for competitive neutrality is also an important task at this stage.

After that, it is necessary to create a spreadsheet model forecasting the costs and expected value, therefore the raw public sector comparator is created. Fitzgerald (2004) emphasis that this is the starting point for the evaluation of the risks project regarding two risk adjustments. The first is the adjustment of the raw public sector comparator to create a risk-adjusted public sector comparator (the risk-adjusted public sector comparator is the benchmark cost for public procurement and is expressed as a net present costs, using either a risk-free discount rate or a risk-adjusted rate). The second refers that the risk adjusted included in the calculation of the discount rate that is used to convert the proposed payment schedules offered via tender into a net present cost.

Partnerships Victoria Technical Note (2003) highlights that only financial costs and benefits are incorporated in the raw public sector comparator and, the focus should be on the projects cash flows rather than accrual and other accounting concepts. All forecasts should be prepared on the basis of “everything going well”. Partnerships for Growth (2002) outlines that the public sector comparator needs to incorporate the cost of protecting against those risks that would not, or could not, be transferred.

The public sector comparator must remain confidential until the contract execution (Partnerships for Growth, 2002). Meanwhile, at the bidding process, the Partnerships Victoria Guidance Material report (Overview, 2001) argues that the disclosure of the raw public sector comparator to a shortlisted of bidders has been very helpful because it has enhanced competitiveness, which is reflected on the capability of the bids to provide value for money. The use of the public sector comparator as a way of testing private party bids for value for money is a central element of the Partnerships Victoria policy.

The choice of a discount rate is also important in this process. Partnerships Victoria adopted an approach based on the Capital Asset Pricing Model (CAPM) and their calculations only contain systematic risks (non-systematic risks are excluded). Fitzgerald (2004) suggests that the practice of evaluating tenders by discounting the minimum contract payment schedule by a CAPM-based discount rate be discontinued, because the evaluation of tenders would discount the contract payment stream at a discount rate that reflects the time value of money.

Even though, Partnerships for Growth (2002) present two key elements on the discounted cash flows analysis: the forecasting of future cash flows linked with a project over its life, and the discounting of the forecast cash flows back to a net present value using a discount rate that reflects the risk of the proposal. Fitzgerald (2004) recommends that if the actual market risk is transferred, the use of a risk-adjusted discount rate is favoured rather than to adjust the cash flows.

Regarding this matter, it is important to emphasise that identical discount rate should be used by the government in comparing the public sector comparator and cash flow bids.

Other important issues are the (possible) alterations to the public sector comparator through the procurement process. The comparator should only be changed after bids are received, if it becomes obvious that a significant component has been mispriced or omitted. The Victorian Public Sector Comparator Technical Note (2003) recommends that it would be better to include the risks implicitly in the public sector comparator than to omit them and understate a faulty cost of the comparator. It also suggests that the public sector comparator should not be altered to reflect alternative or more efficient service delivery methods by a bidder or bidders.

There are many other factors correlated with the construction of a public sector comparator. For instance, transactions costs and sunk costs should not be included in the public sector comparator. Inflation should be taken into account, bids from a private party should also incorporate their effect, and the value of all pre-existing assets should also be included. Sensitivity analysis should also be undertaken to emphasize the effects of such possible cost improvement on the public sector comparator (Public Sector Comparator Technical Note, 2003).

The key point, according to Partnerships Victoria, is to highlight that the purely financial comparison of the net present cost in the public sector comparator against the net present cost of the bids received is only one component of the evaluation process. This assessment is made after the submission of the bids to compare them against the benchmark. Fitzgerald (2004) underlines that the use of the public sector comparator should be discontinued in circumstances where the public provision has not been made in the past and is not a reasonable option going forward. In such cases, an analytic comparison should be made against a reference case or a range of benchmarks.

In Table 2 we summarize all the pertinent information related to the public sector comparator methodology adopted by the Australian public agencies.

Table 2 - Public Sector Comparator Methodologies in Australia

Country	Australia
When is the PSC developed?	Prior to bid at the Business Case when the project brief is released
PSC Components	Raw PSC + competitive neutrality + risks
Risk Retained	Included
Risk Transferred	Included
Risk Management	Identified and valued (as cash flow items)
Other Comments	Inflation should be taken into account and the value of all pre-existing assets should also be included
Qualitative Assessments	Material factors that have not been included in the PSC are identified
Disclosure	The PSC must remain confidential until the contract execution (only the disclosure of the Raw PSC is allowed to a shortlist of bidders to improve competiveness)
Alterations to the PSC are allowed?	The PSC should only be changed after bids are received if it becomes obvious a significant component has been mispriced or omitted
When is VfM analysis conducted?	After submission of bids to compare them against the benchmark

Source: Made by the author based on the Partnerships Victoria Public Sector Comparator Technical Note (2003) and Fitzgerald (2004)

3.2. Canada

In Canada there are three levels of government that provide public services: federal, provincial - including territorial - and local - including municipal and regional (Industry Canada, 2003). They also advocate that public-private partnership projects are assessed on a case-by-case basis and, in some instances, enabling legislation and regulations are developed as part of the public-private partnerships process.

It is also mentioned that until the appearance of the comparator, Canada has adopted diverse methods to compare a variety of options such as in-house costs, internal costs, and baseline costs. They also mention that there are cases in which decisions were made lacking a complete and a thorough evaluation of all costs, which would be incurred if the public sector delivered the infrastructure and ancillary services.

Service Industries (2001) and Industry Canada (2003) points out that the comparator should be constructed in the early hours of the planning process, before the bidding process, at the highest level of detail, and it must be updated and detailed all through the planning process before embarking on the procurement process. It is an essential component of the business case document and, at this stage, should be considered as the best estimation for the benchmark until submissions from the market are received. Only afterwards, amendments to the public sector comparator should be considered. External services, such as actuaries and accounts, adding to in-house resources and other source of public sector assistance, are normally used in this period.

Industry Canada (2003) also suggests that the public sector comparator must be created only when public-private partnerships projects intended to take over the ownership/operation of existing public facilities and services by the private sector, and when a new development of any infrastructure/ancillary services is verified. They also state that a public sector comparator has to be prepared to a level of detail that will permit the conduction of sensitivity analysis with a high degree of confidence.

While the public sector comparator should be used as a benchmark to compare the life-cycle costs from various bidders, it may not be the only point of reference to determine the final outcome of the procurement process. Each case should be considered on its

own merits and qualitative considerations, if they exist, should be communicated to the market before starting the bidding process (Industry Canada, 2003).

Risk analysis is a vital issue concerning the achievement of value for money. Thus, Industry Canada (2003) provides their pathway for the risk analysis. It starts with the construction of a risk matrix in order to promote a better identification of specific risks and posterior quantification/calculation of these consequence risks. Following this, an estimated probability must be done for each identified and quantified risk for further assessment of the cost of the risk and consequent allocation.

Murray (2006) regards that there are two major items that differentiate public-private partnerships from public sector comparator: the effect of discount rates on the value of payments (has to be applied to all projects in a consistent and transparent manner, following the UK style), and the estimation (value) of risk transfer. The discount rate used, should take into account the public sector value of money plus a probable premium for the systematic risk inherent in the project (Industry Canada, 2003).

Generally, according to Industry Canada (2003), the risk can be incorporated in the public sector comparator, including the costs of the project specific risk in the cash flow numerator or by any adjustment of the discount rate (cost of capital) to reflect the specific level of risk for each project (like the Australian model). The authors also focus on the fact that the Canadian policy regarding public-private partnerships is based on Partnership Victoria expertise in the comparator components and all the risk allocation of a public-private partnerships project (see Chapter 3.1).

The Canadian Guide for Public-Private Partnerships (Service Industries, 2001) discusses that the density of the discounted cash-flow analysis and resulting public sector comparator should reproduce the expected complexity of bids from potential partners. They also highlight that the comparator should not be changed during the selection process unless such changes cause a material impact on the final output.

The same authors also advocate that public agencies should care for an open policy, but they should not give up its bargaining position for the sake of openness by disclosing the public sector comparator value or other crucial ancillary information. They complement the earlier suggestion by saying that any public-private partnerships project involves the merging of two entirely diverse cultures, profitability versus public service,

and in order to accomplish the success over the long term, both sides must endeavour to understand the other side cultural biases. Hence, care should be taken concerning the disclosure of the comparator.

The Canadian environment presents an interesting test case, where the value for money analysis is tested after bids submission and where public-private partnerships are implemented by various levels of government with very little coordination in terms of approaches and methodologies. What is apparent is a collation of guidance material on how to develop in-house costs, or how to conduct an activity-based costing of a service or a function (Industry Canada, 2003).

Regarding Canada, the main conclusions are presented in Table 3.

Table 3 – Public Sector Comparator Methodologies in Canada

Country	Canada
When is the PSC developed?	Before bidding process
PSC Components	Raw PSC + competitive neutrality + risks
Risk Retained	Included
Risk Transferred	Included
Risk Management	Similar analysis as Partnership Victoria. Risks and their consequences are identified through the utilisation of simulation tools
Other Comments	No formalized policy regarding the development of the PSC
Qualitative Assessments	Not so explicit as Partnerships Victoria, but additional non-quantifiable factors such as how the bid is able to achieve the goals and scope of the project
Disclosure	The level of disclosure is very dependent on the project and the maturity of the provider market. Open disclosure can be given when releasing the PSC, or parts of the PSC as part of the bidding process
Alterations to the PSC are allowed?	Only during the planning process before embarking on the procurement process. During the selection process the PSC can not be changed, unless such changes cause a material impact on the final output
When is VfM analysis conducted?	Tested after bids submission

Source: Made by the author based on Service Industries (2001) and Industry Canada (2003)

3.3. New Zealand

Grimsey and Lewis (2005) and Kats (2006) point out that the New Zealand authorities had at the time little experience in public-private partnerships. Kats also refers that public-private partnership projects for wastewater services and prisons (management) are not used in New Zealand. Due to their lack of experience, New Zealand public agencies should follow the guidelines on this subject used by the Australian (interactive tendering model) and the European model (competitive dialogue) in order to learn more about all the vital issues on public-private partnerships (KPMG, 2010 and New Zealand Treasury, 2009).

The Treasury document also refers that the main concern from the private party is usually the extent of costs which are incurred while still in competition, and the degree of certainty that can be offered around project timings. Nevertheless, it also demonstrates that one of the most important factors for success in public-private partnerships projects is based on the encouragement on a constructive dialogue between both sectors during the procurement and prior to the receipt of tenders.

The same official report outlines that price changes gains through competitive bidding process must be counterbalanced against the extra bid costs and time incurred. According to New Zealand Treasury, quoting the Australian historical data, bidding costs are 2.5-4% of the total project. Competition is essential at this stage.

The success of a project relies on achieving value for money, normally accomplished by the use of a public sector comparator. The public sector comparator is used in other countries (e.g. Australia and UK) and it is a useful tool, but it is not the only evidence that public-private partnerships must be chosen (Kats, 2006). The author points that a public-private partnership only must be chosen if project outcomes can be specified in service level terms, if performance can be measured objectively and performance objectives are durable. He also argues that it is hard to test the public sector comparator because it is essentially composed by hypothetical costs, and it is difficult to factor the cost of things going wrong over the total life of the project.

The New Zealand Treasury (2009) develops their public sector comparator based on the sum of the raw costs (the construction and operation/maintenance costs of the project)

plus the provision for neutrality adjustment (to remove any advantages or disadvantages) plus risk transfer (additional costs and risks). They also state that the discount rate used to bring these costs to a common basis is a very critical issue for the success of the project and when comparing the bids against a common benchmark, the public sector comparator, it is vital that the same discount rate is used for both.

Regarding the risk management, the New Zealand authorities developed a risk matrix is in order to consider all risks and that there are no unintended effects. It is important to remark that the comparator excludes the value of risk retained and costs because these are not transferred to the private sector and would therefore not be in a tender (New Zealand Treasury, 2009 and Kats, 2006).

Therefore, and in this country, the public-private partnerships value for money is judged mainly at the business stage (before tendering process) and whether the best bid is acceptable will eventually depend on whether the bidding process was judged to be sufficiently competitive (New Zealand Treasury, 2009).

As a result, we conclude that the New Zealand government compiles the public sector comparator prior to the tendering process, for further comparison, after the bidding process, with the public-private partnerships bids to define if they represent value for money for the project. Therefore, they determine whether bids are conforming and meet acceptable requirements for the project in question. After the bids pass the test, the cheapest one is selected (New Zealand Treasury, 2009). Supplementary conclusions to the New Zealand methodology, in relation to the public sector comparator, are presented in Table 4.

Table 4 - Public Sector Comparator Methodologies in New Zealand

Country	New Zealand
When is the PSC developed?	Prior tendering at Business Case stage
PSC Components	Raw costs + competitive neutrality + provision for any additional costs and risks that would be transferred
Risk Retained	Not Included
Risk Transferred	Included
Risk Management	A risk allocation matrix is developed in order that all risks are being considered and that there are no unintended effects
Other Comments	The PSC excludes the value of retained risks and costs because these are not passed to the private sector and would therefore not be priced in a tender
Disclosure	Similar as Partnership Victoria
When is VfM analysis conducted?	The VfM is judged principally at the business case stage.

Source: Made by the author based on Kats (2006) and New Zealand Treasury (2009)

3.4. United Kingdom

In our opinion, the United Kingdom is a worldwide benchmark in delivering projects in public-private partnerships, and in any of their vital issues due to their vast experience in this field. They are the pioneers of this type of investment. They have a great number of projects planned/executed over the past decades due to the large amount of public investment that make possible the appearance of many public agencies dedicated to improve the efficiency this type of investment.

HM Treasury (2006) provides the value for money assessment into three different stages: programme level assessment (stage 1), project level assessment (stage 2), and procurement level assessment (stage 3). Viability, desirability and achievability of the project are taken into account in all stages.

In stage 1, the goal is to provide a clear strategic direction of the early tasks in the PFI/PPP process, supporting decision makers with all pertinent information needed to give their approval to allow the project to be engaged forward.

Stage 2 is planned to test the indicative value for money conclusion from the earliest Stage. At this phase, public agencies have the opportunity to verify if the programme level assumptions continue to apply to the project and if not, it is important to review and modify the initial assumptions, including both quantitative and quantitative assumptions, relating to the viability, desirability and achievability criteria.

Finally, a continuous assessment that starts with the issue of the Official Journal of European Union Notice to the contract awarding is to ensure that both procuring authorities and sponsoring departments are fully apprised of market conditions and can identify any market problems premature on the procurement process, in order to effectively evaluate whether there is any erosion of value for money.

The Outline Base Case is prepared through a reference case and further adjustments are altered when the public sector comparator is being constructed. Preliminary, outline or full, the UK Green Book (2003) regards that the business case consists on strategic case, economic case, financial case, commercial case, and programme and project management case.

The public sector comparator provides a quantitative analysis to support a qualitative judgement of the best procurement option, taking into account the risks of each procurement approach as a way of informing a wider value for money appraisal. The existing public sector comparator will be reformed into a comprehensive project appraisal carried out at the outline business case, i.e. prior to procurement and the role of the private sector with the quantitative aspect remaining part of a broader qualitative approach to the assessment (HM Treasury, 2003).

Cost estimation can be quite difficult, depending on the class under consideration and it will normally involve input from accounts, economics and other specialists, depending on the type of appraisal (UK Green Book, 2003). Thus, it is important to make sure that public sector managers have access to high quality advices (HM Treasury, 2003).

Costs and benefits should be based on market prices and they must be articulated in terms of relevant opportunity costs. Sunk costs, depreciations and capital charges should be ignored in an appraisal. Contingent liabilities should also not be included (UK Green Book, 2003).

In addition, the Green Book (2003) points out that if a full cost-benefit analysis has been undertaken, the best alternative is likely to be the one with the maximum risk adjusted net present value. It also argues that each option is judged by establishing a base case and according to it, this is the best estimate of its cost and benefits.

The UK takes the sensitivity of discount rates seriously. The UK Green Book presented and undertook an exhaustive study which recommended a 3.5 per cent stable discount rate. By creating an objective standard for discount rates, the government would strengthen the credibility of value for money reports that are being used to justify the projects, and frequently, the economic case for a private finance initiative approach would crumble.

As we quoted before, the public sector comparator includes retained risks and transferred risks. Retained risks are characterised, according to HM Treasury (2003), as the need for the facility on the given date and the adequacy of its overall size to meet the public service needs, as the possibility of a change in the public sector requirements in the future, whether the standards of delivery set by the public sector sufficiently meet

public needs, and as the extent to which the facility is used or not over the contracts life and the general inflation risk.

HM Treasury (2003) also discusses that transferred risks included meeting the required standards of delivery, the cost overrun risk during construction, timely completion of the facility, underlying costs to the operator of service delivery, and the future costs associated with the asset, risk of industrial action or physical damage to the asset, and certain market risks associated with the scheme.

The same official document outlines that risks are consequently priced separately, for each project option. The discount costs of these risk-adjusted options can then be compared with each other, or with the cost of a private finance initiative project, in a public sector comparator, to settle on which procurement option represents best value for money taking account of risk and uncertainty. The document also points out that "optimism bias" removes the need to risk adjust the conventional procurement level assessment.

Under the Gateway review, a Treasury taskforce was created to increase the standardisation of local government private finance initiative contracts. With extremely skilled procurement and project management advice, reducing procurement delays and helping design robust projects as the main goals. This is a very helpfully procedure because it improves the value for money assessment, concerning private finance initiative (HM Treasury, 2003).

Changes in the Treasury's guidance regarding the value for money comparison between private finance initiative (PFI) and public sector comparator have been outlined by the National Health Services (NHS, 2008) at Outline Business Case (OBC) stage instead of the Final Business Case (FBC) stage. Under competitive dialogue, this means that no further amendments should be made to the quantitative assessment after the OBC is approved. Alterations are only allowed if there is a very significant change in the scope or size of the project. Consequently, they argue that the emphasis on value for money comparison is now placed on demonstrating that a competitive price has been achieved from the preferred private finance initiative bidder selected.

Following the identification and description of all the relevant issues regarding a private finance initiative project (costs, benefits and risks - their valuation and their testing

through sensitivity scenario analysis), the best option should be selected (UK Green Book, 2003).

On the subject of the public sector methodologies assumed in the UK, we present, in Table 5, a role of conclusions that go over the main points of the British experience.

Table 5 - Public Sector Comparator Methodologies in UK

Country	UK
When is the PSC developed?	At Outline Business Stage (the project team updates the analysis from Stage 1 with the project specific information)
PSC Components	Considers similar factors as Partnership Victoria in a spreadsheet model provided by HM Treasury
Risk Retained	Included
Risk Transferred	Included
Risk Management	Value of risks is factored into project costs and then risk-free discount rate is applied to cash flows. The "optimism bias" removes the need to risk adjust the conventional procurement option
Other Comments	HM Treasury uses standards PFI contracts (in order to be able to improve their VfM assessments)
Qualitative Assessments	Viability, desirability, and achievability of the project are taken into account during three stages: program level assessment, project level assessment, and procurement level assessment
Alterations to the PSC are allowed?	No further amendments should be made to the quantitative assessment after the OBC is approved (only if there is a very significant change in the scope or size of the project)
When is VfM analysis conducted?	At Outline Business Stage

Source: Made by the author based on HM Treasury (2006), The UK Green Book (2003) and Value for Money Assessment Guide (2006)

4. Comparative Analysis

This work presents an investigation based on a variety of official documents and literature on the public sector comparator and how it is used in the four countries in analysis. A few conclusions could be drafted from our methodology analysis, regarding the use of the public sector comparator in the public-private partnerships.

From our analysis, we report that all countries underline that, in order for a public-private partnerships project to be chosen, it must deliver value for money. Otherwise another procurement route must be chosen. Therefore, in all the countries that we have analysed, the public sector comparator is used as a mean for testing private party bids for value for money is a central element on the public-private partnerships policy. For that reason, public agencies must coordinate their efforts on the development of the public sector comparator as a mean to achieve optimal value for money for their taxpayers. Although the importance of the comparator in the project process, it must not be seen as the only alternative in determining value for money, other factors must be taken into account. The comparator is one of the tools to make available value for money in favour of public investments.

Even though some countries adopt similar methodologies regarding the public sector comparator, Partnerships Victoria Public Sector Comparator – Technical Note (2003) points out that there is no prescriptive formula or approach which unanimously is appropriate to the determination of value for money in any event.

Industry Canada (2001) regards that the public sector comparator is fundamentally a quantitative measure of all costs, and qualitative factors (such as risk transfer, service quality, and wider policy objectives) that are not included in the comparator must be considered, particularly when the cost reflected in the bids are close to the public sector comparator.

As we referred before, the public sector comparator has essentially four main components: raw public sector comparator, competitive neutrality, risk retained, and risk transferred. The New Zealand Treasury (2009) excludes from the comparator the value of retained risks and costs because these are not passed to the private sector and would therefore not be priced in a tender.

A critical issue in appraising the future cash flows over the whole-life of the project is the discount rate, and as we have seen in the Section 2.5, there is no unanimous decision on this topic. Partnerships Victoria has implement a 3 per cent risk-free discount rate plus a premium risk, Canada and New Zealand assume a Capital Asset Pricing Model deviation (CAPM), which indicates a rate for each project and in each sector, and since 2003 the United Kingdom has adopted a 3.5 per cent risk-free discount rate. Table 6 presents a more elaborated clarification and discussion on this topic.

Table 6 - Discount Rate Analysis

Country	Discount Rate	Comments
Australia	3%* plus a premium risk that is dependent on the risk classification (very low, low, or high risk band)	Partnership Victoria recommends the use of a discount rate indicative of the project risk, based on the CAPM to evaluate the PPP project
Canada	Based on the WACC (WACC= public cost of debt + project risk premium)	This CAPM deviation reflects the minimum rate ot return that investors would require in deciding to invest in a project
New Zealand	Their discount rate is calculated through the Weigh Average Cost of Capital (WACC)**	This analysis depends on the level of non-diversifiable risk in the project, reflecting the pre-tax IRR that can be expected from the private sector investments with the same risk
UK	3,5%* real STPR	It reflects what society is willing to pay for receiving the service now rather than in the future and, the risk to which it exposes taxpayers in this procedure
* risk-free discount rate ** similar to the CAPM approach used in the Canadian Model		

Source: made by the author based on Use of the Discount Rate in the Partnerships Victoria Process (2001), Industry Canada (2003), The UK Green Book (2003), and adapted from Moralos and Amekduzi (2008)

We also outline that Canada and New Zealand follow the Australian methodology of public sector comparator. Meanwhile, the UK has adopted a new value for money assessment based on a three stage analysis (programme level assessment, project level assessment, and procurement level assessment) where the public sector comparator is developed and tested at the second stage. It is important to remember that they all use the public sector comparator before tendering process, and they also built it as early as possible in the business plan.

It is imperative that the public sector comparator be prepared to a level of great detail that will allow sensitivity analysis to be conducted with a high degree of confidence. Partnership Victoria Technical Note (2003) argues that the public sector comparator is more sensitive to movements in the projects capital cost compared with other variables. They also state that there is an inverse relationship between the discount rate and the NPC of the project. It also states that the public sector comparator is not sensitive to changes in the inflation rate, and indicates that the public sector comparator is less sensitive to maintenance and refurbishments costs relative to the other costs tested, except for inflation.

All bidders may have access to the same timing and to the same accurate information about the public sector desires, normally at a project brief. Competition is essential at the bidding process, and in order to improve competitiveness some jurisdictions (e.g. Australia, Canada and New Zealand) allow the disclosure of the raw public sector comparator to a shortlist of bidders.

Changes and amendments in the comparator are also important elements on the public-private partnerships. In Australia, the public sector comparator could be changed during the procurement process and during all the stages ahead until the final comparison between the public sector comparator and the bidders on the tendering process. In the UK, after their final appraisal (during the Outline Business Case – Stage 2 of value for money assessments), the public sector comparator is only altered if there is a forgotten issue that is materially relevant.

In addition, refinancing gains are also an essential issue in project finance initiative. The ability to refinance the project finance initiative contract can be an additional source of revenues to the private party. According to Sawyer (2005), the UK has adopted a 50/50 benefits share policy.

The Canadian Council for Public-Private Partnerships (2008) remarks that Australia and the UK have adopted the international accounting standards for public-private partnerships projects. Contrary from Canada, which has not adopted this system and where their accountability is less clear. Industry Canada (2001) completes this idea arguing that in their jurisdiction there does not appear to be any formalized policy regarding the development of the public sector comparator, unlike the UK and Australia.

One of the many characteristics that make public-private partnerships attractable projects is the fact that they stay “off the balance sheet”, mainly in the European Union countries facing strong fiscal constrains due to the Eurostat rules. Related to this argument, we find out from our analysis that HM Treasury has created a specific model accounting system for project finance initiative, and approximately 60% of project finance initiative projects in 2003 were “on the balance sheet” (UK Green Book, 2003) . According to the UK public agencies the ownership is a central element on this topic, where the private finance initiative projects are either in or out of the public debt is determined according to the degree of risk that government bears more risk than the private party.

After a deep examination linked to the public sector comparator methodologies adopted in each country analysed, we present in Table 7 a more detailed comparison containing the main results from our survey.

Table 7 - A Comparison of Public Sector Comparator Methodologies

Country	Australia	Canada	New Zealand	UK
When is the PSC developed?	Prior to bid at the Business Case (BC)	Before bidding process	Prior tendering at BC stage	At Outline BC Stage
PSC Components	Raw PSC + competitive neutrality + risks	Similar to the Australian Model	Raw costs + competitive neutrality + provision for any additional costs and risks that would be transferred	Considers similar factors as Partnership Victoria
Risk Retained	Included	Included	Not Included	Included
Risk Transferred	Included	Included	Included	Included
Risk Management	Identified and valued (as cash flow items)	Similar analysis as Partnership Victoria.	A risk allocation matrix is developed	Value of risks is factored into project costs and then risk-free discount rate is applied to cash flows.
Other Comments	Current prices. Value of all pre-existing assets should also be included	No formalized policy regarding the development of the PSC.	Excludes the value of retained risks and costs	HM Treasury uses standards PFI contracts
Qualitative Assessments	Material factors that have not been included in the PSC are identified	Additional nonquantifiable factors (goals and scope of the project)		Viability, desirability, and achievability of the project are taken into account during three stages: program level assessment, project level assessment, and procurement level assessment
Disclosure	The PSC must remain confidential until the contract execution	The level of disclosure is very dependent on the project and the maturity of the provider market.	Similar as Partnership Victoria	
Alterations to the PSC are allowed?	Only if a significant component has been mispriced or omitted	During the selection process the PSC can not be changed, unless such changes cause a material impact on the final output		No further amendments after the OBC is approved (only if there is a very significant change in the scope or size of the project)
When is VfM analysis conducted?	After submission of bids	Tested after bids submission	The VfM is judged principally at the business case stage	At Outline Business Stage

Source: Made by the author based on the Partnerships Victoria Public Sector Comparator Technical Note (2003), Risk Allocation and Contract Issues (2001), Use of the Discount Rate in the Partnerships Victoria Process (2001), Services Industries (2001), Industry Canada (2003), The UK Green Book (2003), HM Treasury (2003), Fitzgerald (2004), HM Treasury (2006), Kats (2006), The Allen Group Consulting (2007), New Zealand Treasury (2009), and adapted from Moralos and Amekduzi (2008)

Partnership Victoria Technical Note (2003) emphasis that the interest rate that government can receive on bank deposits has no connection with the funding cost of an investment project. They explain that the true cost of capital for a particular project depends on the relative risks inherent in that project and, as a result, it does not depend on the nature or sources of the finance. Hence, the notion that traditional government procurement creates a “risk free” project is flawed.

The lack of a public sector comparator or other of its derivates creates an unusually dilemma to the public agencies. Hence, the Allen Consulting Group (2007) presents a solution by highlighting that, in unique one-off projects, public sector provision may not be an optimal solution. This is already the case for some information technology projects. Therefore, in these cases the baseline of costs should be the best benchmark available, instead of the public sector comparator.

Several literature has already summarized some of the many significant topics concerning the public-private partnerships. For instance, Grimsey and Lewis (2005) provide details at a global level of public-private partnerships activity with an analysis of 29 countries, Morallos and Amekduzi (2008) examine the value for money comparing Public-Private Partnerships to Traditional Procurement, and finally Hodge and Greve (2009) present the literature with a compilation of all the public-private partnerships studies over the last decade, which is also complemented with their pertinent conclusions. In this context, we contribute to the literature with an assembly of the documents that are the reference guidelines for the construction of a public sector comparator. Our investigation is illustrated in Table 8.

Table 8 - Main documents Guidelines of the Public Sector Comparator

Country	Report	Year	Main findings/comments
Australia	Risk allocation and Contractual Issues	2001	Provides the background methodology for risk allocation according to the Victorian policy that "risk will be allocated to whoever is best able to manage it at least cost, taking into account public interest considerations". It also describes the major types of project risk into ten categories and recommends government-preferred approach on allocating each of the identified risks
	Public Sector Comparator Technical Note	2003	The report provide an example presenting all major steps needed to calculate a PSC for a specific health PPP project
	Use of Discount Rates in the Partnerships Victoria Process	2003	The Victorian government adopt a 3% risk-free discount rate plus a premium risk that is dependent on the risk classification (very low, low, or high risk band). The project risk is calculated through the CAPM evaluation of the PPP project
Canada	Industry Canada	2003	"…outline five key aspects of PSC construction: life-cycle costing (including direct and indirect costs), third party revenues, financial analysis techniques, funding sources and risk adjustments." (OCDE 2008 p.73)
New Zealand	New Zealand Treasury	2009	The PSC components are the construction and operation costs of the project, the provision for neutrality adjustment to remove any advantages or disadvantages, and risk transfer
UK	The Green Book	2003	They recommended a 3.5% risk-free discount rate STPR which reflects what society is willing to pay for receiving the service now rather than in the future and, the risk to which it exposes taxpayers in this procedure
	PFI: Meeting the Investment Challenge	2003	Standardisation of PFI contracts in order to help spread best practice, to improve PFI procurements across the public sector, and to reduce the length and cost of PFI procurement
	Value for Money Assessment Guide	2006	VfM assessment is conducted in 3 different stages of the procurement process: (1) at the program definition of the project, (2) at OBC prior to bid invitations, and (3) is also use after bids submission in selection process. Is important to outline that until contract/financial close, continuous assessment of Vim are still made

Source: Made by the author based on the Partnerships Victoria Public Sector Comparator Technical Note (2003), Risk Allocation and Contract Issues (2001), Use of the Discount Rate in the Partnerships Victoria Process (2001), Services Industries (2001), Industry Canada (2003), New Zealand Treasury (2009), The UK Green Book (2003), HM Treasury (2003), HM Treasury (2006), and adapted from Moralos and Amekduzi (2008)

5. Conclusion

From our study we conclude that the literature is less than unanimous about the issue of Public-Private Partnerships. Nevertheless some reports are favourable to this type of procurement. NAO (2003) states that 76% of project finance initiative projects were completed on time, and that 78% were completed without costs overruns. Allen Group Consulting (2007) analysed 21 public-private partnerships and 33 traditional projects in Australia. They conclude that public-private partnerships demonstrated clearly superior cost efficiency over traditional procurement. Mott MacDonald (2002) observes that traditional procurement has a better performance for standard buildings - projects that not require special design considerations such as hospitals, prisons and airport terminal buildings - than for non-standard (e.g unique buildings with special characteristics).

We observe from our research that there is no universal formula or "one size fits all" for public-private partnerships regarding any of their relevant components: value for money, public sector comparator and discount rate.

Many authors refer that competition is essential in these types of projects (e.g. Lealhy, 2005). The receipt for success on public-private partnerships projects is based on the encouragement of healthy dialogue between the public sectors during the procurement and prior to the receipt of tenders. Competitive dialogue at this stage will improve competitiveness. In our opinion the public sector comparator is the best methodology to evaluate value for money because it provide a realistic forecast of the future cash flows of a public-private partnerships project, it undertake a complete cost-analysis of the public sector option compared with a real project and it is easier and simpler to compile than any of the other alternatives. Therefore we consider that the comparator is defined as the optimum combination of cost, quality, efficiency and effectiveness in a path the leads to value for money.

The public sector comparator includes a valuation of all material and quantifiable risks. These are categorized as non-systematic risk and fall in two components: transferable risk and retained risk. All the important costs and risks must be included in the calculations of the comparator. After accurate and detailed preparation the public sector comparator is used as a quantitative benchmark against which bids are assessed. We

also conclude from our survey that the comparator is prone to errors and sometimes it has been manipulated to get the desired result, and if in the bids evaluation it may appear that some assumptions in the construction of the comparator are inaccurate, they must be corrected, if they are materially relevant.

The discount rate and risk adjustments have a central element whether the commercial arrangements proposed in a tender offer value for money over public procurement. It is very pertinent that the bids comparison must be made against the public sector comparator, and it is vital that the same discount rate is used.

In unique one-off projects, public sector provision may not be the best option (e.g. some IT projects), and in such projects the analytic comparison should be done against a reference case or a range of benchmarks. The important message is that the public sector comparator may not be the only available benchmark to settle on the final outcome of the procurement process.

We also outline that HM Treasury (2003) has implemented a standardized contract approach which has significantly reduced bid costs and time. They argue that this approach maintains the individual flexibility of a particular procurement to set its needs and requirements, but it also provides a standard form for all types of procurements.

We also argue that the viability of the business project should be made regarding the overall performance, the cash flows management release from the project, and concerning all necessary risks. We therefore deduce that when implemented under the right conditions, public-private partnerships have the ability to encourage efficiency and generate substantial benefits for consumers and taxpayers, and with the right level of competition there could be a diminution of the total costs of the project.

The main conclusion from our study is that all countries analysed adopt the comparator when assessing bids as one important tool to define the value for money for a particular project. We also observe that they use different methodologies; each one is adapted taking into account the society in question, which reproduces different methodologies for the public sector comparator. Different but with the same purpose: achieving value for the taxpayers.

Due to the current financial crises, governments need to find solutions to continue delivering public services and assets for their taxpayers, as a result of this facts, we

thing that the public-private partnerships will be even more attractive in the next decade, but we share Grimsey and Lewis (2005) idea that public-private partnerships will never be the principal method of delivering infrastructures and assets due to their complexity. Even though, countries that already adopt public-private partnerships projects will improve their techniques and a new range of countries in development will benchmark these projects and will implement them in their territory. At this point, it would be helpful for the literature to extend similar studies to countries in development such as Brazil, India, and other areas in Asia.

For the future, Morallos and Amekudzi (2008) outline that there is the need to improve risk valuation and allocation strategies. In addition, they also state that value for money should take greater consideration of the role of the qualitative factors in making the final decision to pursue public-private partnerships or not, and they also note that the current value for money quantitative assessment requires to incorporate wider social costs and benefits.

The financial crisis has raised a number of issues on the future of public-private partnerships, mainly due to the “debt overhang” on the economy. As credit is drying up, public-private partnerships future relies on more flexible and affordable projects.

Future research on this field could pass from an analyse for each country of the several components of the public sector comparator. We have described generally how the public sector comparator is conducted, but more information on specific details is available. A substantial work could be done by assessing for each country and then compare it, each one of the points that we have analyse.

Future work could also enlarge this evaluation to other countries that use the public sector comparator.

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