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CAPITAL BUDGETING AND PROCUREMENT PRACTICES**

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CAPITAL BUDGETING AND PROCUREMENT PRACTICES

Philippe Burger and Ian Hawkesworth

1. Introduction

Capital investment is a key function of government. However, for a number of reasons it has proven difficult for governments to ensure that capital investment represents value for money, is affordable and is budgeted and accounted for in a prudent and transparent manner. This paper discusses these challenges facing governments. Ideally the way a government budgets and accounts should be neutral and not have an impact on its capital procurement decisions. However, this is not always the case. Using the findings of a survey conducted among OECD countries and enhanced engagement countries in 2012, it provides an overview of what OECD governments are doing with respect to planning and prioritisation, procurement, construction, operation and management, monitoring and evaluation and budgeting and accounting for capital projects. The paper ends with a number of recommendation for capital budgeting and procurement.

Several reasons exist for a renewed focus on capital procurement. In recent years a rather large infrastructure gap developed in many countries and in rapidly developing economies infrastructure gaps are often restraining growth. Due to the effects of the international financial crisis, many government budgets are under significant pressure, causing some countries to curtail capital spending. With the combination of an increased infrastructure gap and increased budgetary pressure comes the need to be more discriminate in terms of which projects are selected. This calls for more robust capital budgeting and procurement processes that ensure value for money, affordability and sound budgetary treatment. In addition, some countries may face other fiscal pressures, such as an ageing society (Penner 2008:10), that create incentives to move transactions off-budget and off the public accounts by using Public-Private Partnerships (PPPs) rather than traditional infrastructure procurement (TIP). Another way to move investments off budget is to procure via a State-Owned Enterprise (SOE) or government investment entity that is classified in the public sector, but outside of general government. In such cases the government very often also issues a guarantee on the debt issued by the SOE, which means that the government still carries the main risk of the project while having less control over it. Naturally such actions do not solve long term fiscal sustainability issues. They merely undermine budget transparency and the relevance of budget documentation. That governments succumb to such budgetary pressure is not new. Indeed, well before the financial crises and using a rather comprehensive sample of countries around the world, Hammani, Ruhashyankikoa and Yehoue (2006:4) show that governments with higher debt levels are more likely to engage in PPPs. Governments can use a multiplicity of accounting devices that affect where (i.e. on whose books) and when (in which fiscal year) transactions are recorded. In a recent paper by Irwin (2012) aptly titled "Accounting devices and fiscal illusion", he sets out the dangers of how accounting devices can be used by governments to make government finances look better than they actually are. Many of these devices involve capital transactions. More often than not, since they involve the selection of procurement methods, they really are more than mere accounting devices. They are in essence devices that affect value for money, affordability and budget transparency.

Capital budgeting and procurement processes must be robust and possible incentives that can undermine the pursuit of value for money should be minimised. Such perverse incentives can be created by the choice of accounting rules and the definition of the government headline budget balance. Strong oversight and review by institutions such as the central budget authority or supreme audit institution may mitigate perverse incentives and budget maximisation tendencies of line ministries. Furthermore, a weak integration of the project planning and *ex ante* value for money assessment with the budgeting process may cause projected and realised value for money to deviate.

Although value for money is a complex concept, one possible way it can be defined is *what the government judges to be an optimal combination of quality, features and price, calculated over the whole of the project's lifetime* (for more detail, see Burger and Hawkesworth 2011: Appendix). It entails economy, efficiency and effectiveness, but also a political role for government to define what the needs and demands of citizens are. Combining these in an assessment, the government needs to establish whether or not a project represents positive value for money. Of course, the government may also override a negative value-for-money finding and proceed with a project. However, by frequently overriding negative value-for-money indicators that show that a project should not proceed, there is also the possibility that the government can undermine the credibility of using value-for-money assessments. In addition, poorly executed value-for-money tests and very uncertain environments cause large deviations of realised from projected value for money. These deviations also undermine the credibility of value-for-money tests.

Various phases characterise the capital budgeting and procurement cycle. The procurement cycle entails planning and prioritisation of capital projects and the subsequent current expenditure and revenue flows that these projects generate. The procurement cycle also includes the preparation of tenders, the vetting of bidders, contract negotiations, contract award, construction phase, operational phase. In the case of traditional infrastructure procurement the asset might have been transferred to the government following the completion of the construction phase, while in the case of a PPP a private operator might operate the project and be responsible for maintenance, management and service delivery. The government also needs to monitor and evaluate the performance of the project, be it a traditionally procured project or a PPP.

This paper seeks to establish what capital budgeting practices countries follow with respect to both PPPs and TIP projects. The former include projects where private parties are responsible for the construction and provision of an asset delivering a government service, the former represents projects where the government itself carries most of the risks with respect to the establishment and operation of the asset delivering the governments service (Burger & Hawkesworth, 2011). The paper emphasises the importance of a robust procurement cycle. If the procurement cycle lacks robustness it often causes the poor selection of projects, cost- and time overruns, poor service delivery and therefore, in general, poor value for money.

Based on the overview of what countries do, and drawing on the literature, the paper is organised in the following way.

The volume of PPP investment and traditional investment will be briefly touched upon. While PPP-investment is the smaller part of total investment it appears presently to be the one that carries the most risks. Therefore PPP investment volumes in particular merit attention. The performance of PPPs is also much discussed. While the construction phase of PPPs is usually more successful than TIP there is still no clear general evidence with respect to whole of life cost.

A key issue for PPPs is the budgeting and accounting treatment. Particular budgeting and accounting systems may result in PPPs being categorised as either on or off the public sector's balance

sheet and hence whether they affect the government's headline budget balance. If a country uses cash budgeting the initial charge for capital investment will mainly hit the budget over the construction phase rather than as depreciation under accrual based budgeting. There is no perfect system and accounting and budgeting systems have various strengths and weaknesses. The main lesson is that any illegitimate incentives to prefer one form of capital procurement to another due to budgeting and accounting treatments should be countered by complementary rules and procedures.

The procurement process of capital investment has various key phases. This section gives an overview of these key phases and who does what in the survey countries. The chief executive or cabinet is the primary actor in the prioritisation of infrastructure and capital projects in 12 of the 23 countries. In eight countries it is also involved in the needs assessment, conflict resolution and deciding whether the TIP or PPP mode of delivery is more adequate. The central budget authority (CBA) plays a role in most countries (15 countries) with respect to planning and budgeting proposals. In a smaller number of countries it also plays a role in the prioritisation of infrastructure and capital projects (nine countries) and ex ante value for money assessments (eight countries). In a majority of countries the CBA is required to approve, if not all capital and infrastructure PPP and TIP projects, then all those above a certain threshold. A somewhat larger number than the number of countries requiring CBA approval for TIP projects, require it for all PPP projects (six versus three countries). As can be expected, the ministry responsible for the project plays a significant role in almost all the activities. Executive agencies for infrastructure play a role in many of the countries with respect to project outputs (eleven countries), ex ante value for money assessments (twelve countries), planning and budgeting proposals (ten countries), monitoring project execution (thirteen countries) and ex post evaluation (11 countries). The supreme audit institution plays a primary role in ex post project evaluation in the case of twelve countries. The key elements of a good institutional PPP framework is that the tasks of political prioritisation, prioritisation, value for money, affordability, execution, regulation, audit and accountability are conducted by institutions with clear mandates and sufficient capacity.

This will be followed by a discussion on planning, prioritisation and ensuring value for money. A key element in prioritisation is cost/benefit analysis (C/BA). Cost/benefit analysis is meant to provide an indicator of the total benefit a particular project will generate for society by applying a holistic and quantifiable view. In essence it is meant to indicate whether the project represents *absolute* value for money for society. It should ideally provide the basis for comparing execution options for a particular project as well as comparing different projects to each other. However, C/BA is not as straightforward as it may appear and countries use it to varying degrees. Indeed, C/BA is usually only one element when governments decide which projects should go ahead. Elected politicians, other stakeholders and experts also usually play an active role. Should the government decide to proceed toward procurement of a particular capital asset, TIP is still usually the default option. However, for particular projects a PPP procurement method may be the better option. One key element in determining whether to use a PPP versus a TIP is a *relative* value for money test. The test seeks to indicate the relative difference in value for money from a TIP public sector option and a PPP. Value for money tests, perhaps in the form of a Public Sector Comparator, are only as good as their design, the input and the realism of how they are interpreted.

A capital asset must, regardless of its procurement method, be affordable in the near and long term. A key task for government is thus to ensure that payments needed to service the specific project and/or the portfolio of projects can be afforded by the users and/or the public purse. A particular role is usually played by the Ministry of Finance ensuring affordability, transparency of spending and managing the contingent liabilities.

In addition to cost/benefit analysis, value for money tests, affordability and budgeting/accounting issues there are a number of lessons that need to be taken into consideration when deciding whether to procure using a PPP or a TIP. These include the dangers to VfM from detailed input specification; transaction costs are higher with PPP; a lack of competition affects both PPP and TIP procurement; PPPs perform better than TIP in the construction phase, but there is less clear evidence with respect to whole-of-life costs; regardless of their accounting treatment, both PPPs and TIPs create liabilities for government; user fees can be levied on by both a public and a private operators; the Public-Sector Comparator is only as good and credible as what is invested in it.

In conclusion, the paper will list recommendations that will contribute to making the procurement cycle more robust and reduce skewed incentives governments may face during the procurement cycle.

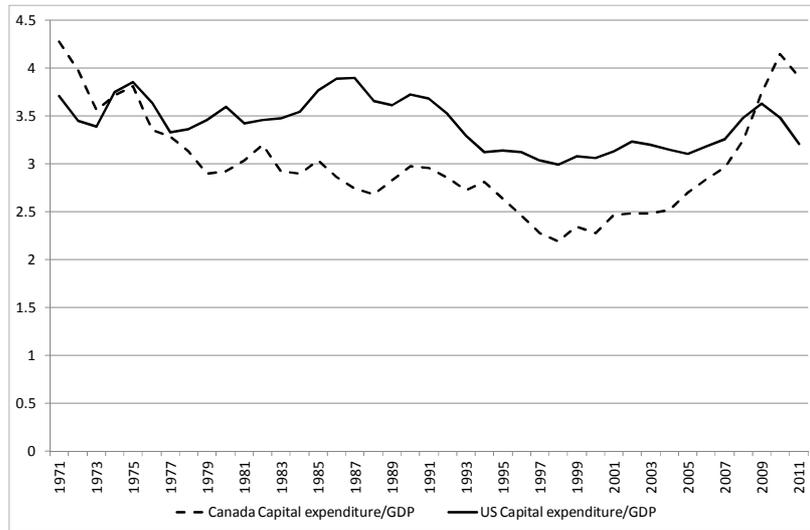
2. Government investment figures at a glance

In many OECD countries investment by the government as percentage to GDP decreased to significantly lower levels in the early 1980s and since then have not increased again.¹ These include Austria, Belgium, Canada, Denmark, Finland, Italy, the Netherlands, Norway, Sweden, Switzerland and the US. Some like Canada and New Zealand saw a decrease, but together with Australia saw an increase again from the mid-2000s. Figures 1 and 2 demonstrate this for a few countries (with some further Figures contained in the appendix for other countries).

The point can be made that in many OECD countries basic infrastructure was in place by the 1980s and that subsequently governments needed to dedicate less to capital creation (note that the numbers cited refer to gross investment). Thus, one could have expected a decrease in the capital expenditure/GDP ratio. In addition, economic growth rates by the 1980s slowed significantly in OECD countries relative to the 1960s. Therefore, to keep the overall stock of public capital in line with the size of GDP required less investment. Nevertheless, there are also indications that the decrease in capital expenditure in many countries went beyond these explanatory factors and that subsequently an infrastructure gap opened in many OECD countries. For instance, McKinsey Global Institute (2010:32) reports that 40% of the water pipes in London are older than a 100 years, while 12% are older than a 150 years. Lin and Doemeland (2012:10), citing several studies, report that in the US the median age of coal power stations is over 40 years. In addition, according to Lin and Doemeland (2012:10) the European Commission reported in 2011 that to remain competitive the EU needs over the decade following 2011 between US\$2.1 trillion to US\$2.8 trillion in infrastructure investments. They also report that the American Society of Civil Engineers in 2009 estimated that the US needs US\$2.2 trillion of infrastructure spending in the five years following 2009. However, at that stage US\$1.18 trillion has not been budgeted.

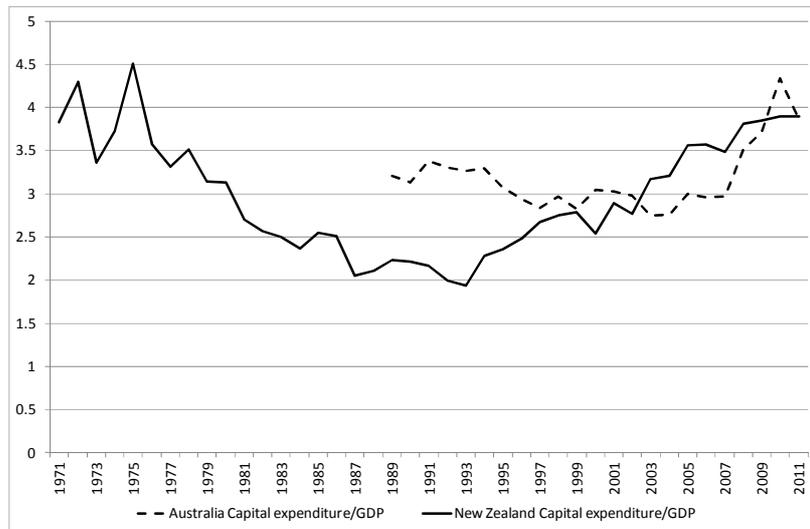
¹ All data in this section derives from the OECD Economic Outlook 91. The data used for capital expenditure is Government fixed capital formation, value, appropriation account, while the data for current expenditure derives from Current disbursements, general government (% of GDP). The capital expenditure was divided by nominal GDP.

Figure 1. Capital expenditure/GDP ratios for Canada and the US



Source: OECD Economic Outlook 91 and authors' calculations

Figure 2. Capital expenditure/GDP ratios for Australia and New Zealand



Source: OECD Economic Outlook 91 and authors' calculations

3. Public-private partnerships volumes and performance

PPPs account for a relatively small part of total public infrastructure investment flows. However they represent sizeable investments and can be expected to increase further in light of fiscal pressures on many national treasuries.

Eighteen countries have enough information to state the percentage that PPPs constitute of public sector infrastructure investment (total asset value, public plus private components included). Of these eighteen, five report that they do not have any PPPs. Of the remainder, eight report PPPs to constitute 5% or less of public sector infrastructure investment (see Figure 7). Table 1 contains the information with reference to specific countries. The UK tops the list with the percentage of public sector infrastructure investment that takes place through PPPs exceeding 15%.

Table 1. For the 2011 fiscal year, what percentage of public sector infrastructure investment flow (total asset value, public and private components included) took place through PPPs? ²

Australia	>10% - 15%	Korea	>5% - 10%
Austria	No PPPs	Luxembourg	>5% - 10%
Canada	>1% - 3%	Mexico	>15%
Czech Republic	>0% - 1%	New Zealand	>1% - 3%
Estonia	No PPPs	Norway	>3% - 5%
Finland	>10% - 15%	South Africa	>3% - 5%
Germany	>3% - 5%	Spain	>3% - 5%
Hungary	No PPPs	Sweden	No PPPs
Italy	>1% - 3%	Switzerland	No PPPs

² The survey was conducted during the period June-August 2012. The questionnaire was sent to senior officials in the central budgetary authorities and related institutions. All 34 OECD countries were included, as well as two OECD enhanced engagement countries (Brazil and South Africa). Of the total 36 countries approached, 23 responded. The countries that responded are: Australia, Austria, Brazil, Canada, the Czech Republic, Estonia, Finland, Germany, Hungary, Italy, Japan, Korea, Luxemburg, Mexico, the Netherlands, New Zealand, Norway, Slovakia, South Africa, Spain, Sweden, Switzerland and the UK.

Table 2. The number of PPP contracts, their value and the extent of failure and renegotiation

Australia	Canada	Czech Republic	Finland	Germany	Japan	Korea	Luxembourg	Netherlands	Norway	Slovakia	South Africa	UK
If possible provide the total value of PPP contracts concluded for the 2011 fiscal year (in national currency)												
	<Can \$8bn	1bn CZK	Note 1	1.6bn Euro		2.2Tr KRW	115m Euro				R90m	£2.1 bn
How many PPPs were operating in your country during the 2011 fiscal year (i.e the stock of PPPs)?												
127	67	46	3	12	58	567	0	18	3	1	20	648

1) Finland: At the end of 2011 there were three central government's PPP contracts in force with a total commitment value of 1,6 billion Euros. Expenditures so far amounted to about 360 million Euros while future annual budget expenditures on these projects are foreseen to amount to some 50-70 million Euros during the next 15-20 years. This excludes any future new PPP projects.

As shown in Table 2 there is a great variation in the number of PPPs in various countries. The UK tops the list with 648 PPPs, with Korea a close second at 567 PPPs. Australia comes in at third place at 127 PPPs.

Much is said and written about the extent to which one asset procurement method (PPP or TIP) outperforms the other. Responses show that a minimal number of PPPs failed (less than 18 of the cross country stock) or had to be renegotiated to arrange an extension of the duration of the contract (less than 10). Bailouts are also limited in number (less than 12). According to Table 3 PPPs outperform TIPs with regards to timeliness, construction cost, operating cost and quality of the finished project. PPPs perform worse than TIP with regards to transaction costs. However, as discussed below, the picture is a less positive for PPPs with regards to operating costs.

Table 3. Based on the general experience of your government, how do PPPs perform relative to traditional infrastructure procurement with regard to the following dimensions?

	Better than TIPs	The same as TIPs	Worse than TIPs	Not enough data
Timeliness e.g. being completed on-time/according to projected deadline	14	1	0	2
Construction cost e.g. projects completed on or under expected budget	12	2	0	3
Operating cost e.g. projects operate on or under expected budget	7	3	1	5
Quality of the finished project e.g. projects comply with code, innovations, etc.	10	3	0	4
Transaction costs	4	1	7	4

The following questions attempt to elicit more detail regarding deviations of actual cost from projected cost and the extent to which delays occurred during the planning and construction phases of the PPP or TIP projects.

In the nine countries that could report results for PPPs in Table 1, construction costs did not exceed projected cost by more than 10% (see Table 4). Of the 12 countries reporting results for TIP projects, six reported that realised construction costs usually exceed projected constructions costs by more than 10%. Therefore, on the basis of construction costs PPPs seem to perform better than TIP projects. However, also note that six countries report that they do not have sufficient data to make such an assessment for PPPs, while nine report insufficient data to make such an assessment for TIP (the latter constitute almost 40% of the countries that responded to the survey).

Table 4. In the experience of your government in most TIP and PPP projects in the period 2002-2011, to what extent do ex ante, projected construction costs deviate from the realised construction costs of projects?

	PPPs	TIP
Realised cost is lower than projected cost by less than 10%.	2	0
Realised cost does not deviate from projected cost.	4	2
Realised cost is higher than projected cost by less than 10%.	2	4
Realised cost is between 10-29% more than the projected cost.	1	4
Realised cost is between 30-49% more than the projected cost.	0	2
Realised cost exceeds the projected cost by 50% or more.	0	0
Too little data to tell.	6	9

Although 12 countries reported that PPPs perform better than TIP projects with regard to construction costs, only seven countries could do so for operational cost. Only three countries in the case of TIP and four in the case of PPPs could assess the extent to which realised operational costs deviate from projected costs (see Table 5). Most countries report that they do not have enough data to make a judgement: 10 for PPPs (out of the 18 countries with PPPs responding to the survey) and 15 for TIP (out of the total of 23 countries responding to the survey). The large number of countries that

are not able to respond with respect to PPPs is not necessarily that surprising. PPPs are relative new to most (though certainly not all) of the countries that respond that they do not have sufficient data. However, what is surprising is the number of countries that are unable to respond to this question with respect to TIP projects. The large number of countries with insufficient data also means that there is little information to assess *empirically* whether PPPs outperform TIP projects over the lifetime of the project. This contrasts strongly with the purported motivation of going the PPP route, namely the maximisation of whole-of-life value for money.

Table 5. Given the experience of your government in most TIP and PPP projects in the period 2002-2011, to what extent do ex ante, projected operating costs deviate from the realised operating costs of projects?

	PPPs	TIP
Realised cost is lower than projected cost by less than 10%.	0	0
Realised cost does not deviate from projected cost.	3	1
Realised cost is higher than projected cost by less than 10%.	2	2
Realised cost is between 10-29% more than the projected cost.	0	0
Realised cost is between 30-49% more than the projected cost.	0	1
Realised cost exceeds the projected cost by 50% or more.	0	0
Too little data to tell.	10	15

Table 6 shows that in terms of the delay of time between the moment a decision is taken to procure capital and moment when the projects starts operating, six countries report delays in some PPP projects (meaning between 10% and 49% of projects), with one reporting it in the vast majority of projects. Seven countries report delays in some TIP projects.

Table 6. During the period 2002-2011, what proportion of TIP and PPP projects experienced delays between the moment a decision is taken to procure capital through TIP or PPP, and the moment when the project starts operating?

	PPPs	TIP
In all projects	0	0
In the vast majority of projects (i.e. in 75%+ of projects)	1	0
In most projects (i.e. between 50% and 74% of projects)	0	0
In some projects (i.e. between 10 and 49% of projects)	6	7
In a few projects (i.e. in more than 0%, but less than 10% of projects)	3	4

With regard to the nature of the delays, Table 7 shows that in Australia and Canada delays in approval play a significant role in PPP projects. Construction periods that are longer than expected also play an important role in PPP projects in Australia, Hungary and Mexico, while changes in what government wants from the project also serve as important causes of delay in Australia, Brazil, Slovakia and Spain. Construction periods that last longer than expected is a common and relatively very important problem in the case of TIP projects in nine of the ten countries reporting problems with delays. Government changing its mind about what it wants from a TIP project also plays an important role in Australia, Slovakia and Spain.

Table 7. Were the delays mentioned in the previous question due to: (When selecting, please indicate the level of importance of the cause of delay using a scale of five, with 1 being the least important and 5 being very important)

	Australia	Brazil	Canada	Estonia	Germany	Hungary	Korea	Luxembourg	Mexico	Slovakia	Spain
PPPs											
Delays in approval ¹	5		5		1		2				
Differences due to stakeholder disputes ²		4			3	4	2			3	
Longer than expected contract negotiations	2	1	1		2		4			5	2
Construction takes longer than expected	5	3				4			4		2
Time delays due to financial pressure on construction company	5	2					1			1	4
Government changes its mind about what it wants from project. Thus, during the negotiation or construction it changes the desired outputs	5	4	1		3		1			5	4
Other									3	5	
TIP											
Delays in approval ¹	5			1	1		1	3			
Differences due to stakeholder disputes ²		1		3	3	4	2	3		3	
Longer than expected contract negotiations	2	2		4						5	2
Construction takes longer than expected	5	3		4	3	4	5	3	4	3	4
Time delays due to financial pressure on construction company	5	2		2	1					1	1
Government changes its mind about what it wants from project. Thus, during the negotiation or construction it changes the desired outputs	5	2		1	3		2	3		5	4
Other								2	3	5	

1. E.g. in parliament or oversight committees

2. E.g. when a new high-speed rail line runs through a densely populated area with residents being unhappy about it, or unhappiness to pay by possible users.

4. The impact of budgeting and accounting systems on capital procurement

4.1. Defining capital

Public budgeting and accounting should allow the executive and legislative parts of the government to allocate resources to the legitimate and transparent execution of policy. Good budgeting practices allow the government to plan and record its efforts to maximise the welfare of its citizens. However, capital and the traditional techniques of public budgeting represent an awkward fit and may contain perverse incentives. The awkwardness covers issues such as the definition of capital, the headline deficit measure that the government selects, the budgeting and accounting system. The answers to these issues might create unintended incentives for procuring capital in a certain way.

Any analysis of capital budgeting needs to consider what constitutes capital. At least since the 1960s proper budgeting for capital and capital budgeting required the application of a set of criteria, first to decide whether the expenditure qualifies as a *capital* expenditure, and secondly, whether or not the expenditure is justified. The latter usually entails a cost-benefit analysis or value-for-money assessment, as well as an assessment as to whether or not the expenditure can be afforded, either in a single-year, or multi-year budgetary framework.

Traditionally whether or not an expenditure was classified as a capital expenditure depends on three accounting criteria (Premchand 2007:94):

1. Will the good be used in the production or supply of goods and services? – Called the *productivity criterion*.
2. Does the life of the good extend beyond one year? – Called the *longevity criterion*.
3. Is the good intended for resale? – Called the *use-by-government criterion*.

Premchand (2007:94) further argues that economists usually add a further criterion: Is the good either self-financing or self-liquidating? Self-financing means that the good can service its own interest payments, while self-liquidating means that the good can service its own interest and principle repayments.³ To establish whether or not a project is self-liquidating requires that the government does a whole-of-life (net present value) valuation of their projects. If only self-liquidating projects are approved, a government effectively (though not necessarily formally) applies the three accounting criteria, as well as the economic criterion. Of course, such pure examples where governments *only* select self-liquidating projects as capital do not exist in reality. However, if the government does not in general use a whole-of-life (net present value) approach, it might select projects that do not represent positive value for money. It also means that the economic return on government capital might be lower compared with the case where it did apply a whole-of-life (net present value) approach.

If a government does apply a whole-of-life (net present value) approach and use it as a determining factor when selecting most of its capital projects, it might just as well use the economic criteria formally when defining capital. The exception to this would be heritage goods or goods such as national parks, while it should be possible to apply the economic criteria to all capital that will be used in producing government services. Doing so will give a clearer picture about the government's

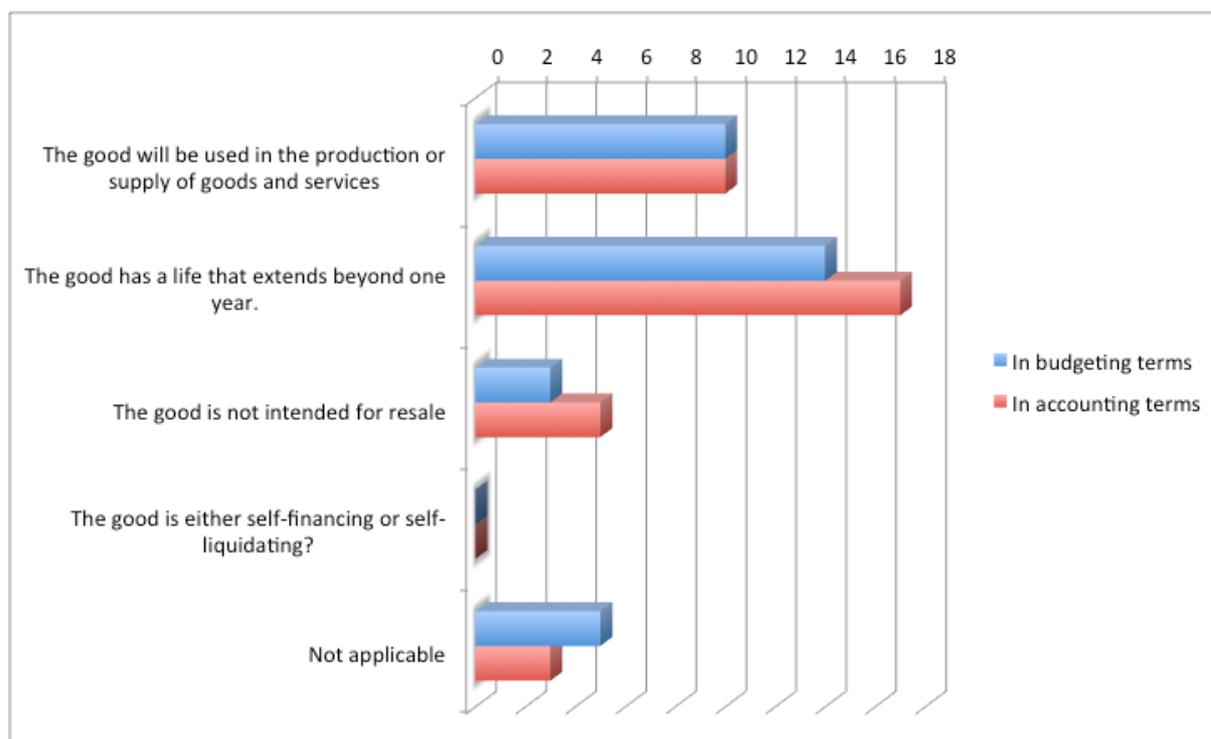
³ The ability of a good to service its interest and principle repayments might be either direct or indirect. If government charges user fees on the beneficiaries of the service rendered with the good, the good might service its repayments directly. However, if by rendering the good it can be argued that households and firms earn more income, then the additional taxes collected on that higher income might be viewed as the ability of the good to service its interest and principle repayment.

net worth, particularly if that government also applies a Golden Rule according to which over the business cycle a government does not borrow more than it needs to finance net capital expenditure⁴ (with depreciation being met from revenue – also see Kahn and Mayes 2009:4).

In most of the countries what qualifies as a capital good depends mainly on two criteria (see Figure 3). The most important is whether the good has a life that extends beyond one year (the longevity criteria), and secondly whether or not the good will be used in the production or supply of goods and services (the productivity criteria). Canada, Estonia, Italy, New Zealand, Slovakia, South Africa and the UK use both these criteria. Sweden, Korea and Finland also apply the longevity criteria in their accounting, but not in their budgeting. A few countries also consider whether or not the good is intended for resale (Canada, Estonia, and the UK in both their accounting and budgeting, while Norway, Spain only uses it in their accounting).

⁴ The principle behind the Golden Rule is that of intergenerational equity (Posner *et al*, 2009: 87). Thus, with taxpayers servicing debt in future, both the benefits received and the payment for the benefits received are allocated on an intertemporal basis – in principle each generation pays for the benefits it receives. Also see Bird (2008:2), who referring to Musgrave (1997), states that “...so the use of loan finance for public capital formation -- along with procedures such as capital budgeting to make the linkage clear—has much to be said for it as a means of ensuring that the political process through which public goods are provided yields the desired time path of total (public plus private) consumption.” In addition to intergenerational equity, tax smoothing is also raised as a rationale for financing government investment with debt. Its case is contrasted with that of tax-financed investment. Thus, if, to finance the investment, government has to increase taxes, the tax burden will increase. If the taxes create a deadweight loss, the increase in the deadweight loss will increase proportionally with more than the increases in the tax rate. Thus, the marginal cost of increasing the tax rate in terms of the deadweight loss, is an increasing function of the tax rate. Hence, it is then better to borrow the funds needed for the investment and not to raise the tax rate. A prerequisite though, is that the good must be self-liquidating – thus, the investment needs to yield a return, directly or indirectly, that will allow the government to service the debt without increasing the tax rate in future (e.g. if private income increases due to the investment, the government might be able to collect more taxes without increasing the tax rate). In this manner, the tax rates are smoothed over time and tax distortions are minimised.

Figure 3. In accounting and budgeting terms, which of the criteria below does your government use to define a good as capital? (More than one option per country is possible)



4.2. Capital accounting, budgeting for capital and capital budgets

When identifying some transactions as capital in nature, a further distinction is drawn between:

1. Capital accounting
2. Budgeting for capital (or capital budgeting)
3. Capital budgets

Capital accounting refers to the keeping of separate accounts for realised capital and current transactions in the books of the government. A distinction between these two types of transactions is possible both within the context of accrual- and cash-based accounting systems. The same is true for capital budgeting, i.e. in planning prospective transactions, a government can distinguish between prospective capital and current transactions and it can do so either under an accrual- or a cash-based budgeting system.

Distinguishing between capital and current transactions in the budget can occur in a unified budget, or in two separate budgets. Therefore, capital budgeting can occur within a unified budget that encompasses both capital and current transactions, or it can occur in a separate capital budget.⁵ In

⁵ Up to the 1970s many countries had altogether separate capital and current budgets (Jacobs 2008:7-10). In many Commonwealth countries it was the practice to have separate revenue and loan accounts. The revenue account recorded recurrent transactions, while the loan account recorded capital expenditure. Formally a surplus on the revenue account would be carried over to the loan account, while it was seen as acceptable to borrow funds to finance capital.

some countries these separate budgets are managed by separate government departments and parliament even approves them separately. The underlying logic to the practice of having separate capital and current budgets is the same as the logic, and the discipline, underlying the so-called Golden Rule. Thus, usually the practice is that current transactions on the current budget are financed from tax revenues, while capital transactions can, but need not, be financed by loans. The rationale for separate capital and current budgets is the danger that a unified budget makes it easier for mandatory items such as entitlements to crowd out discretionary items such as capital (Posner *et al*, 2009:56).

However, with increased emphasis on the integration of capital and current expenditure, most countries introduced a single, unified budget (cf. Jacobs 2009:7-8). Table 8 indicates that in Korea, the Netherlands, Norway and Sweden no distinction is made between capital and current transactions in the budget. By implication this also means that there are no separate budgets for the two types of transactions. Mexico and the UK use dual systems with two separate budgets for current and capital transactions. The other seventeen countries distinguish between capital and current expenditure, but in doing so they use a unified budget that includes both.

Table 8. There has been a long debate in many countries as to whether or not government should have a budget for capital that is altogether separate from the budget for recurrent expenditure and revenue. Does your government:

a. Make no distinction between capital and current expenditure?	
Korea	Norway
Netherlands	Sweden
Total: 4	
b. Distinguish between capital and current expenditure, but in doing so, uses a unified budget (i.e. a budget that contains both capital and recurrent expenditure)?	
Australia	Italy
Austria	Japan
Brazil	Luxemburg
Canada	New Zealand
Czech Republic	Slovakia
Estonia	South Africa
Finland	Spain
Germany	Switzerland
Hungary	
Total: 17	
c. Use a dual system, i.e. where there are altogether separate budgets for capital and current items?	
Mexico	UK
Total: 2	

The great majority of OECD countries run single, unified budgets. This is done with the recognition that the government operates under a single overall budget constraint and that different claims on the budget, be they capital or current, should compete with one another within the limitation of the overall budget constraint (Posner *et al*, 2009:57). A unified budget also makes it easier for the government to consider non-capital alternatives to capital projects. For instance, if a road experiences congestion, one possibility is a capital project to enlarge the road (i.e. add some lanes), but the non-capital alternative might be to impose a congestion charge that will choke off demand and alleviate the

congestion. Of course, although the introduction of a unified budget might be predicated on the better integration of capital and current expenditure, it does not guarantee better integration.

Unfortunately, with many governments switching to unified budgets and the use of an overall cash-based budget balance in the 1970s, the discipline inherent in having separate budgets for capital and current expenditure (i.e. that only capital expenditure can be loan financed) was lost. With an overall cash-based budget balance that includes both current and capital expenditure it becomes less clear whether government borrowing finances only capital expenditure, or both capital and current expenditure.

In an effort to ensure budgetary discipline, governments such as the German and UK governments introduced the Golden Rule (Jacobs 2008:7). In Germany it was written into the constitution, while the UK government accepted it as policy in 1997, and put it in law in 1998 in the Finance Act 1998 and the Code for Fiscal Stability. In 2009 Germany tightened its policy stance on debt beyond the specifications of the Golden Rule by amending articles 109, 115 and 143 of its constitution and thereby introducing the debt brake whereby the federal government will not be allowed to run deficits from 2016 and the German states not from 2020 (exceptions though are allowed). With the onset of the 2008/9 financial and economic crisis, the UK went into the opposite direction and in 2009 abandoned the Golden Rule. Although the Golden Rule is not general practice, by using it governments can justify incurring deficits to finance capital. Thus, given the fiscal stress that many countries experience, one might expect renewed interest in the Golden Rule.

More popular than the Golden Rule are fiscal rules that put limits on debt and deficits. Those imposed by the EU are an example. As the ongoing fiscal crisis testifies, many countries exceeded the limits set by these rules even though their contents have been made stricter through time (e.g. the EU's Fiscal Compact⁶ accepted in 2012 for implementation in 2013 is stricter than the conditions of the Stability and Growth Pact or the Maastricht Criteria).⁷ Therefore, strengthening discipline with a fiscal rule in a system with unified budgets, does not necessarily guarantee discipline – only political will can guarantee that.⁸

Not only does the introduction of a unified budget make it less clear what type of expenditure government borrowing finances, but in a unified budget capital expenditure draws less attention and subsequently might be lower compared to a case with separate current and capital budgets. This is indeed what Poterba (1995) in his seminal study found for the US. Using data for the 1960s in a study that compared US states, Poterba (1995) found that states with separate current and capital budgets spent more on capital (note that more is not necessarily better though). However, the presence or absence of a separate capital budget did not affect non-capital spending.

⁶ According to the Fiscal Compact governments will pursue a budgetary position that is balanced or in surplus, with a lower limit on the structural budget deficit of 0.5% (1% for countries with debt/GDP ratios significantly below 60%). In addition, if the public debt/GDP ratio exceeds 60%, the government will reduce it by 1/20th of the excess over 60% per year.

⁷ A government that runs a sustainable fiscal policy is a government whose debt/GDP ratio will not tend to explode in the medium to longer run. If in general a government just ensures that its debt/GDP ratio does not explode in the medium to longer term, it can be said to implicitly apply a Golden Rule as it can be shown that in the medium to longer term its deficits and debt is financing capital. If it ran a current deficit in the past, it will in future have to run primary current surpluses (i.e. current surplus that also excludes interest payments) to ensure that its debt/GDP ratio does not increase. Thus, if it wants to keep its debt/GDP ratio stable, all borrowing in periods after it ran the current deficit needs to finance capital.

⁸ Also see Mintz and Smart (2006) on public investment and the use of fiscal rules.

Whether a government should run separate capital and current budgets or run a unified budget (that nevertheless distinguishes between capital and current expenditure) is, as discussed above, not unambiguously clear. While separate budgets imply stronger discipline but weaker integration of capital and current expenditure decisions, the opposite is true for unified budgets. Thus, whichever option a government selects, it needs to also address the weak points of that option. If it selects the use of separate capital and current budgets, it will need to strengthen the selection mechanisms of capital projects to ensure that line ministries integrate their capital and current expenditure decisions better. If it selects a unified budget, it should ensure that the unified budget is also accompanied by guidelines or fiscal rules, as well as the political will to limit government borrowing that finances current expenditure.⁹

4.3. The incentive structure of accrual- and cash-based systems for accounting and budgeting

In addition to the acceptance of the Golden Rule or other fiscal rules, some countries also replaced their cash-based budgeting and accounting with accrual-based budgeting and accounting. Cash-based budgeting and accounting systems recognise transactions and events when cash is received or paid, whereas accrual-based budgeting and accounting is a system in which revenues are recognised when they are earned and expenses are recognised as they are incurred. Accrual-based means that the headline deficit measure, called a net operating balance, excludes capital acquisition cost but includes the depreciation of capital (the consumption of capital).¹⁰ The move to introduce accrual accounting coincides with the release by the IMF in 2001 of new guidelines for Government Finance Statistics (GFS). The 2001 GFS system differs from the 1986 GFS system in being an accrual-based system compared to the cash-based nature of the 1986 version (also see Kahn and Mayes 2009:1).¹¹

Blöndal (2004:105-7), Schick (2007:130-7), Robinson (2009:78-9) and Kahn and Mayes (2009:3 6) discuss the arguments for and against accrual-based budgeting. With respect to capital these include:

1. With accrual-based budgeting decision makers have more information about full cost. For instance, cash-based systems do not record depreciation, while accruals do. This will improve budgetary discipline, as well as the effectiveness and efficiency of expenditure. Specifically, better choices are made with respect to priorities, inputs to use, as well as the choice between outsourcing and internal production. However, opponents argue that improved discipline can be created without accrual-based budgeting. For a detailed discussion on this, see Schick (2007:131-7).

⁹ Bird (2008) also suggests that good governance means that governments should think through the link between expenditure and sources (i.e. tax revenue or debt) used to finance a project. For instance, most taxes introduce distortions and deadweight losses that are not always included as costs in the projects that these taxes finance. The same is true of the opportunity costs of foregone private investment if government borrowing would absorb financing that would otherwise have been used for private investment. However, there are also dissenting views, such as Spackman (2004:482) who argues that public investment has little displacement impact on private investment.

¹⁰ Therefore, conceptually speaking the difference in monetary value between the net operating balance and the cash-based total balance should be net investment.

¹¹ Note that an accrual-based system contains an accrual-based component, as well as a cash-flow statement. Thus, strictly speaking the choice between an accrual-based and a cash-based system is not a choice between only accrual-based and only cash-based numbers. Rather it is a choice between accrual-based and cash-based numbers on the one hand and only cash-based numbers on the other hand. Also note that many countries have a permutation of both systems, with some transactions being recorded on a cash basis and other being recorded on an accrual basis.

2. The introduction of accrual-based budgeting focuses attention on the improvement of the management of capital stock, including the acquisition, disposal and maintenance of capital. Again, opponents argue that such improvement can be done without accrual-based budgeting.
3. In a cash-based system the lump sum spent on capital investment is all recorded in the year that the government pays for the investment. An accrual-based system will allocate the capital expenditure over the life of the capital, thus eliminating the perceived anti-capital bias of the cash-based system. However, some opponents of the accrual-based budgeting argue in favour of the “matching principle”, according to which the lump sum expenditure on capital acquisition is all recorded in the year in which the government pays for the capital so as to "match" it to the year in which the political decision was taken to buy the asset. If not matched but allocated over the life of the capital, the expenditure of future governments will reflect the decisions of previous governments. Robinson (2009:78) also mentions that some countries, such as the US and France, use a commitment-based system, which differs from a cash-based or accrual-based system. In a commitment-based system the government reports in the budget the total capital expenditure in the year that the contract is signed, even if the payment for capital takes place in a later year.
4. Some argue that an accrual-based system allows for less manipulation aimed at making the government’s financial position look better. For instance, in a cash-based system an asset can be sold, thereby reducing the deficit, while an accrual-based system would not record it as a reduction in the net operating deficit. However, Schick (2007:134) argues that accrual-based systems contain various other ways in which the government’s financial position can be manipulated to make it look better (e.g. assumptions regarding tax arrears or discount rates) and that often these manipulations are more difficult to detect than the manipulations in cash-based systems.

The choice of system, i.e. whether a government selects a cash-based or accrual-based system, or something that is a hybrid of the two, affects the comparability of costs and ultimately may affect the choice between public-private partnerships (PPPs), delivery through an SOE¹² and traditional infrastructure procurement (TIP).

Accrual-based budgeting is still less popular than accrual-based accounting: by 2004, seven OECD countries had introduced accrual accounting, while three introduced accrual-based budgeting (Blöndal 2004: 117). By 2009 Posner *et al* (2009:78) added Denmark to the list. The responses to this survey show that there are a number of variations in how the two principles are applied.

¹² Note that for reasons of brevity this paper includes under the heading of SOEs not only pure SOEs, but also delivery through government controlled infrastructure agencies (some are wholly or partly owned by the government), as well as delivery through private incorporated companies, where the government guarantees the debt that the SOE, agency or company issued to invest in the asset.

Figure 4. What is the basis for your government’s accounting (of realised transaction) and its budgeting (of prospective transactions)? (More than option possible)

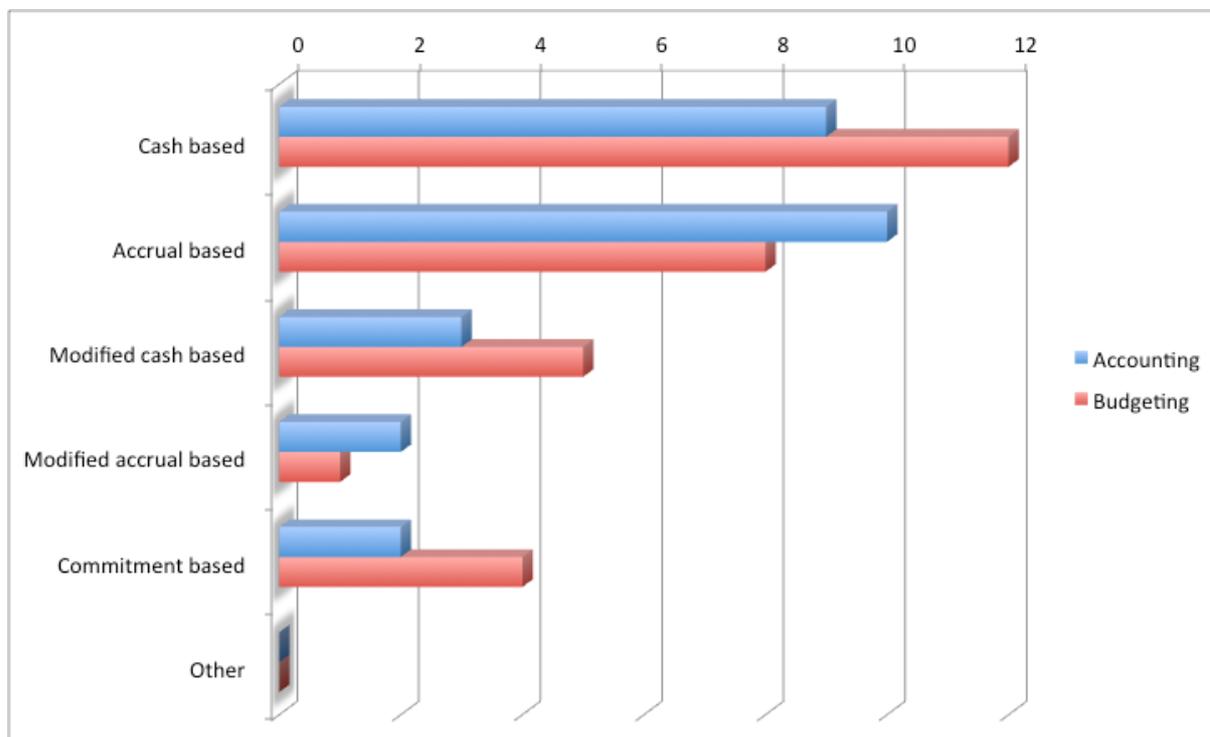


Figure 4 shows that most countries use either a cash-based or accrual-based system for their accounting and budgeting, with some using a combination of methods. For instance, with respect to accounting Italy uses a combination of a cash-based and commitment-based system, while Switzerland uses a combination of an accrual-based and commitment-based system. For its budgeting Finland uses a combination of a cash-based, accrual-based and commitment-based system. However, most countries use only one system. For instance, eight of the nine countries that use a cash-based system for their accounting, use only a cash-based system. Eight of the ten countries that use an accrual-based system only use an accrual-based system. For budgeting the picture is more mixed. Five of the twelve countries that use a cash-based system for budgeting, use only that system, while for accrual-based budgeting the number is three out of the eight countries. Table 9 shows that in non-accrual based budgeting systems the appropriations for the capital project are appropriated annually according to the project plan. While this may result in delays and indeed higher costs due to the risk of a project being discontinued it is often a direct result of the one-year basis of the budget process in OECD countries. The legislature’s ‘power of the purse’ as a general rule involves appropriating for only one year and does indeed never extend beyond a legislature’s term.

Table 9. If your government uses a cash-based, modified cash-based or commitment-based system to appropriate funding in the annual budget, does it allocate construction costs in the following manner?:

a. Total cost is appropriated in the first year and subsequently carried over until the project is completed.

Finland

Total: 1

b. The cost is appropriated annually according to the project plan.

- | | |
|----------------|-------------|
| Brazil | Mexico |
| Canada | Netherlands |
| Czech Republic | Norway |
| Estonia | Slovakia |
| Germany | Spain |
| Hungary | Sweden |
| Korea | Switzerland |
| Luxemburg | |

Total: 15

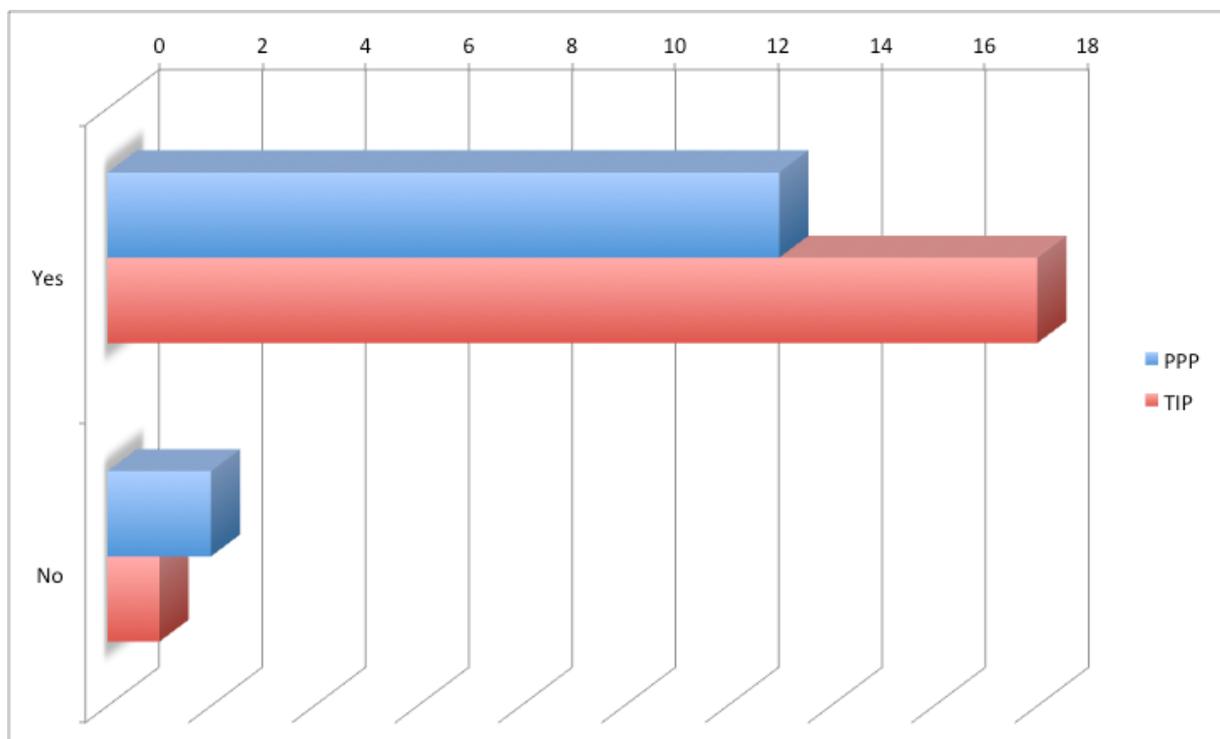
c. Not applicable since your government only uses an accruals-based system.

- | | |
|-------------|----|
| Australia | UK |
| New Zealand | |

Total: 3

Good planning suggests that the construction cost estimates of the value-for-money analysis, discussed in the next section, should serve as inputs into the budget and medium term expenditure estimates of government. This is indeed the case for TIP and PPP projects in respectively thirteen and eighteen countries (see Figure 5).

Figure 5. Do the construction cost estimates of the value-for-money analysis for projects serve as inputs into the budget and medium term expenditure estimates of government?



4.3.1. *The choice of system and comparability of the costs of PPPs and TIP*

Irrespective of whether the government uses a cash-based or accrual-based system, with a PPP the capital expenditure is not recorded on the budget or in the accounts of the government. It will appear on the budget and in the accounts of the private partner. Instead, the government records the annual payments to the private partner. These payments should allow the private partner to service its debt (repayment of loan, as well as interest), pay for the maintenance and management of the capital and generate some profit.

Irrespective of whose debt it is or who owns the asset, if the debt repayment of a project is aligned with the lifetime of the asset, the amount of debt repaid and the amount of the depreciation that the asset entails might be very similar (whether that asset is owned by the private partner, as in the case of a PPP, or is owned by the government, as is the case with a TIP). Therefore, in an accrual-based system, if the government selects a PPP, that part of the amount that the government pays to the private partner to allow it to repay its debt, might look very similar to the amount that would be recorded for depreciation if the government selected a TIP project instead of a PPP. Thus, in an accrual-based system the current expenditure of PPPs and TIP projects might look very similar and are comparable. In contrast, because the cash-based system excludes depreciation on TIP projects while a payment to a private partner in a PPP will still include the component to allow it to repay its debt, the current expenditure of government on PPPs and equivalent TIP projects are not completely comparable. Therefore, because the accrual-based system accounts for depreciation of TIP projects the current expenditure in an accrual-based system will look larger than in a cash-based system. However, this difference in cost size is an illusion, as it merely rests in the inclusion or exclusion of depreciation.

Thus, equivalent treatment of the PPP and TIP options suggests the use of an accrual-based system. Alternatively, if government uses a cash-based system an equivalent treatment of the PPP and TIP options requires a full recognition of depreciation costs.

4.3.2. *The choice of system and the choice between TIP, PPP and delivery through a SOE*

The preference for the delivery through TIP, PPP or a SOE might be influenced by the government's choice of headline deficit indicator, which in turn depends on the budgeting and accounting system that the government uses. Conceptually the cash-based *total balance* indicator and the accrual-based *net lending/borrowing* indicator are similar. Both concepts include current expenditure and net capital acquisition (although the cash-based definition does not account for depreciation). The focus of both these indicators is also on changes in the government's total (gross or net) debt position. However, the inclusion of capital expenditure in both indicators means that when there is pressure to reduce the deficit and debt, there are the following incentives:

1. An incentive to prefer PPPs and SOE delivery to TIP, because with a PPP and SOE delivery the capital expenditure and the accompanying debt are off-budget and off the accounts of the government. Mintz and Smart (2006) note that governments at times create agencies outside of general government and then reroute investment through these agencies. In addition, these agencies issue bonds to finance the investment projects, while the government guarantees the debt. In this manner the investment decision is off-budget with respect to the general government. Thus, the government will find it easier to comply with a debt and deficit rule defined in terms of the cash-based total balance or accrual-based net lending applied to general government.¹³ However, there exist also very legitimate reasons why a government might

¹³ Mintz and Smart (2006:20) uses the example of Infrastructure SpA (Ispa) in Italy. Ispa is a joint stock company that at the time of writing their article was controlled by the Italian government. It uses private sector partners for investment projects in various infrastructure sectors and issues bonds to obtain finance for

decide to let an agency conduct the investment instead of a government department. If the type of project is complex and a specific agency specialises in projects of that type and complexity, the agency might be in a position to deliver better value for money. The choice between delivery through an agency and delivery through a traditional government department is therefore very similar to the choice between using a PPP and TIP. This similarity extends to the balance sheet treatment of assets. If an agency buys the asset with funds it raised in the capital market, the bulky investment does not appear on the balance sheet of the government.

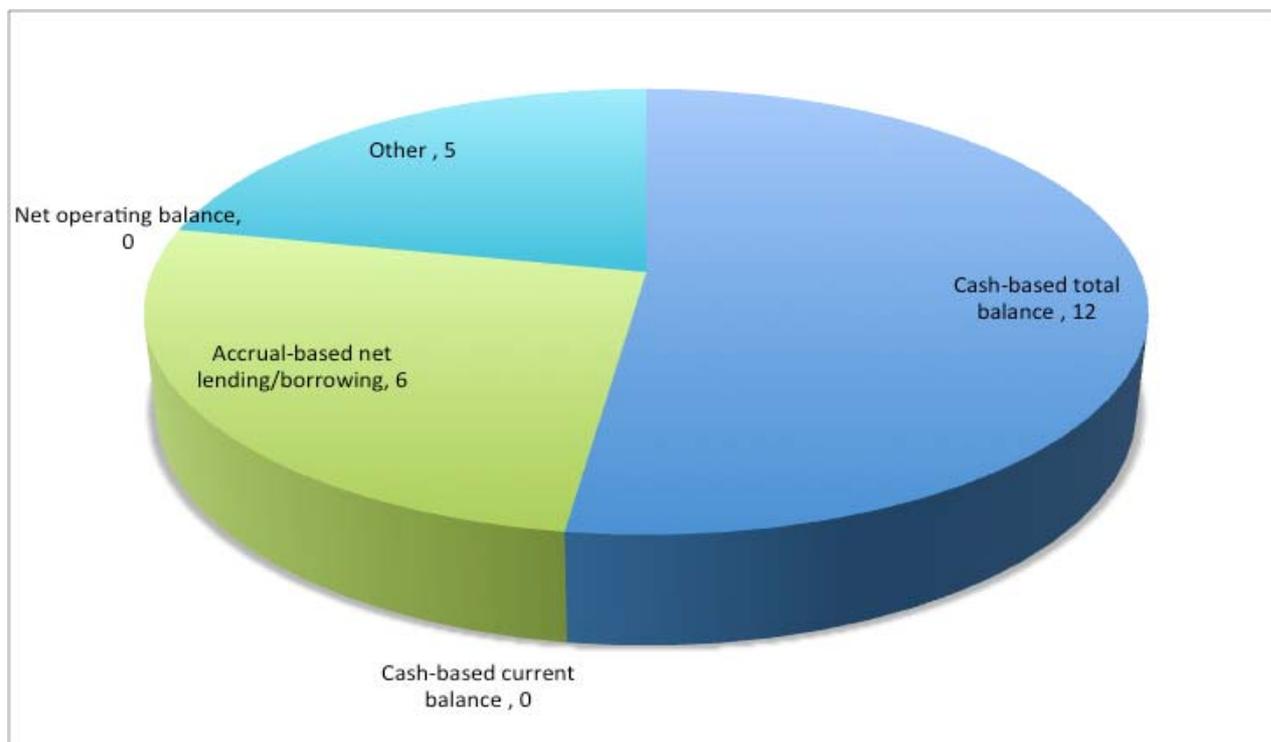
2. An incentive to reduce capital expenditure in the form of TIP relative to current expenditure. Reducing capital expenditure might be easier than reducing entitlement expenditure or other expenditure that flows directly to voters (e.g. salaries of civil servants), and doing so may succeed in reducing the deficit (be it a cash-based total balance or an accrual-based net lending/borrowing indicator). However, reducing the deficit through a reduction in capital expenditure will not improve the net worth of the government. Only a reduction in current expenditure to reduce the deficit will improve the net worth of the government.
3. Of the 23 responding countries, twelve use cash-based total balances as headline measure of the budget balance (see Figure 6). Another six countries use an accrual-based net lending/borrowing measure, while five use a combination of systems.¹⁴ The differences in headline measures are largely a reflection of the type of accounting and budgeting systems that the countries use.

these projects. However, the Italian government guaranteed much of the debt. In 2005 this led Eurostat (2005) to rule that the bonds Ispa issued to finance a high-speed railway link between Turin, Milan, Rome and Naples should be counted as part of government debt (Eurostat 2005:2).

¹⁴ Details about "Other":

- Brazil: Public revenues measurement is cash-based, while expenditure is commitment-based.
- Hungary: Mixed-based total balance.
- Italy: Revenues includes also revenues from sale of financial and non-financial assets, while expenditure includes loans granted.
- New Zealand: The government uses two key measures - Accrual based net debt and OBEGAL, which is a net operating balance measure. These are defined in published financial statements of the NZ Government see <http://www.treasury.govt.nz/budget/forecasts/befu2012>
- South Africa: Modified cash-based total balance.

Figure 6. Which budget balance measure constitutes your headline measure?



These incentives would not exist if the headline measure were the accrual-based net operating balance. Preference for its use is predicated on it measuring a change in the government’s net worth, instead of assessing the change in total (gross or net) debt.¹⁵ By adopting an indicator such as the net operating balance, the government focuses on its net worth, instead of its debt. It thereby eliminates the incentive to reduce capital expenditure instead of current expenditure or to shift the capital expenditure off the budget or off the accounts of the government in times of budgetary pressure.

Despite this benefit of the net operating balance, fear could exist that the government might lose control over borrowing if it does not also approve the total amount of borrowing that finances investment (Martí 2006:63-4). However, controlling the net operating balance does not preclude the government from controlling the total level of borrowing (Robinson 2009:79). This can be done by augmenting the targeting of the net operating balance with an additional borrowing limit on capital expenditure. The alternative is for the government to target the net lending/borrowing instead of the two individual balances (i.e. the net operating balance and the borrowing for capital expenditure). However, Robinson (2009:79-81) points out that a budgetary limit on capital is not even a necessity,

¹⁵ Conceptually the accrual-based net operating balance is similar to the cash-based current balance. Both include current expenditure, but exclude capital expenditure. However, although they are conceptually similar, the cash-based current balance suffers from one drawback compared to the accrual-based measure: it does not provide an indication of the change in government’s net worth. The problem with the cash-based current balance is that it does not include depreciation. When calculating the net worth of government, depreciation is a rather key concept and cannot really be left out of the equation. An accrual-based net operating balance includes depreciation (as well as other non-debt liabilities (*cf.* Robinson 2009). A focus on net worth implies treating government more akin to a company (though of course there are still significant measurement issues when it comes to assessing non-financial asset values for inclusion on the government balance sheet).

as there are also indirect ways to control capital spending, as in Australia and Denmark. In Australia parliament approves a pool of funds from which spending ministries at any time can use funds to procure capital, while in Denmark spending ministries can take out internal state loans, on which there is a limit per department. In addition, in both countries central approval is required for capital projects.

Nevertheless, if a government explicitly budgets for capital expenditure, it probably uses a cash-based total balance indicator, an accrual-based net lending/borrowing indicator or an accrual-based system together with targets for both the capital budget balance and the current budget balance. To ensure that under these configurations of the system there is no incentive to prefer PPP projects to TIP projects, the government should, irrespective of whether a project is a TIP or PPP project, budget the full capital cost upfront (Funke et al, 2013). In the case of a TIP project, the full capital cost is the direct capital cost, while in the case of a PPP it is the capital component of all future costs. This is in principle the practice in the UK and France (HM Treasury 2007, paragraphs 14-17; Posner *et al*, 2009: 67).¹⁶ Where the government carries a contingent liability, the same should be done for all investment projects of SOEs. The presumption that the capital cost of all these SOE and PPP investments will be fully budgeted upfront, would eliminate largely the incentive to prefer PPPs and SOE delivery to TIP delivery merely because the investments of PPPs or SOEs are recorded off-budget and off the books of the government.

An additional, but related matter relates to the measurement of the impact of PPPs, SOEs and TIP on fiscal sustainability. Being part of government's everyday activity means that the effect of TIP projects on fiscal sustainability is fully reflected in public debt and future primary balance numbers. The same is not true for PPPs and projects undertaken by SOEs whose debt the government guarantees. This again creates an incentive to get projects off the books of the government. According to Hemming (2006:51-2) there are two ways open to the government to prevent this asymmetry between PPPs and TIP projects:

1. Add the present value of future PPP commitments to public debt to establish a more realistic reflection of the government's total commitments. Sustainability would then be judged in terms of public debt plus PPP commitment. Should fiscal policy seem unsustainable, the question will be with how much does the primary balance need to be adjusted to ensure fiscal sustainability.
2. Do not add the PPP debt to public debt, but include the non-debt-servicing component of the future expenditure that PPPs imply for the government as part of the primary expenditure of the government. Should public debt seem unsustainable with the inclusion of the PPP costs into the primary balance, the government will have to indicate how it plans to ensure fiscal sustainability by cutting expenditure and/or raising more revenue.

With respect to SOE investments where the government guarantees the debt that the SOE issues, the implied contingent liability of government should be added to public debt to assess the sustainability of fiscal policy.

In the interest of transparency and good fiscal planning and management, budget documentation or other published material should contain an assessment of contingent liabilities. Ideally they should be listed and priced, but merely listing them would help to flag potential problems. However, as indicated in Table 10, only in four countries for PPPs and three countries for SOEs, agencies and private incorporated businesses does government documentation list and price contingent liabilities (the four are the Czech Republic, Estonia, Finland and Slovakia, while the three are Brazil, Estonia

¹⁶ Of course this also implies that, in order to prevent double counting only the operating part of the unitary charge paid annually by the government to the private party is expensed (see HM Treasury 2007).

and Luxembourg). In three countries government documentation lists contingent liabilities related to PPPs (Canada, Italy and South Africa). The same number of countries lists them for SOEs, agencies and private incorporated businesses (Canada, Italy and New Zealand).

Table 10. Does the budget documentation or other published material contain an assessment with respect to contingent liabilities derived from:

	PPPs	SOEs, Agencies and private incorporated businesses
a. Yes, they are listed but not priced	3	3
b. Yes, they are listed and priced	4	3
c. No	11	11

5. Overview of the procurement cycle and institutional roles

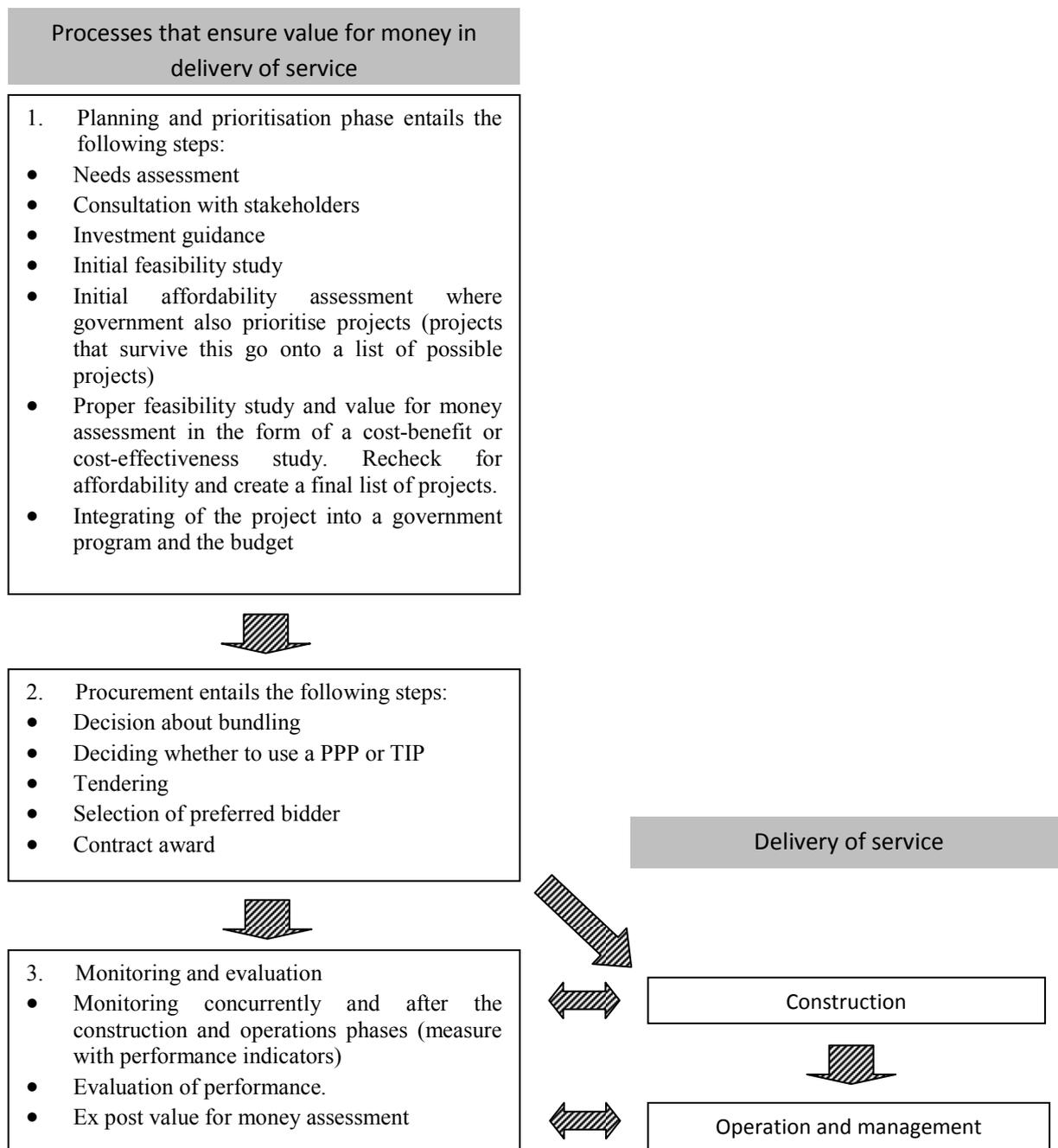
As noted in the introduction, there are several phases to the capital procurement cycle (see Figure 7¹⁷). Broadly, the phases can be divided into those that are aimed at ensuring that the delivery of the service yields maximum value for money (planning and prioritisation, procurement, monitoring and evaluation) and the actual implementation of the project (construction, operation and management). The focus of this paper is on institutional roles, systems and activities that are necessary for ensuring value for money and affordability. The issues of the implementation phase are consequently not discussed in this paper.

Value for money should be the golden thread that runs through all these phases. In principle, the government should undertake no project unless it represents value for money. Value for money is a concept that includes both qualitative and quantitative aspects and typically involves an element of judgment on the part of the government. The value-for-money point is often made in terms of allocative efficiency, where the latter is defined in terms of benefits and costs (Jacobs 2009:8). However, it goes beyond allocative efficiency to encompass the planning and prioritisation, the actual procurement as well as the monitoring and evaluation phases of the procurement cycle.

Planning and prioritisation as well as procurement should be done with the intention of selecting those projects that will maximise value for money once constructed and operating. Monitoring and evaluation focus on whether value for money has been attained. The focus on value for money contrasts with a procedures-based procurement system, where the latter focuses primarily on compliance with stated rules and procedures (Veiga Malta, Schapper, Calvo-Gonzalez and Berroa 2011:12). Therefore, the rules involved with a value-for-money approach focus on steering public sector managers towards maximising value for money.

¹⁷ Also see Rajaram, Le, Biletska and Brumby (2010), as well Dorotinsky (2008a, b).

Figure 7. Phases of the procurement cycle



Source: Authors

As illustrated in Figure 7 the capital procurement process can be broken down in several activities, with different institutions primarily being responsible for each of these activities. These activities are listed as the column headings in Table 11. The chief executive or elected government body is a primary actor in the prioritisation of infrastructure and capital projects in twelve of the 23 countries. In eight countries it is also involved in the needs assessment, conflict resolution and deciding whether the TIP or PPP mode of delivery is more adequate. The CBA plays a role in most

countries (fifteen countries) with respect to planning and budgeting proposals. In a smaller number of countries it also plays a role in the prioritisation of infrastructure and capital projects (nine countries) and ex ante value for money assessments (eight countries). As can be expected, the ministry responsible for the project plays a significant role in almost all the activities. Executive agencies for infrastructure play a role in many of the countries with respect to project outputs (eleven countries), ex ante value for money assessments (twelve countries), planning and budgeting proposals (ten countries), monitoring project execution (thirteen countries) and ex post evaluation (eleven countries). The supreme audit institution plays a primary role in ex post project evaluation in the case of twelve countries.

In a majority of countries the central budget authority (CBA) is required to approve, if not all capital and infrastructure PPP and TIP projects, then all those above a certain threshold (Figure 8). A somewhat larger number than the number of countries requiring CBA approval for TIP projects, require it for all PPP projects (six verses three countries).

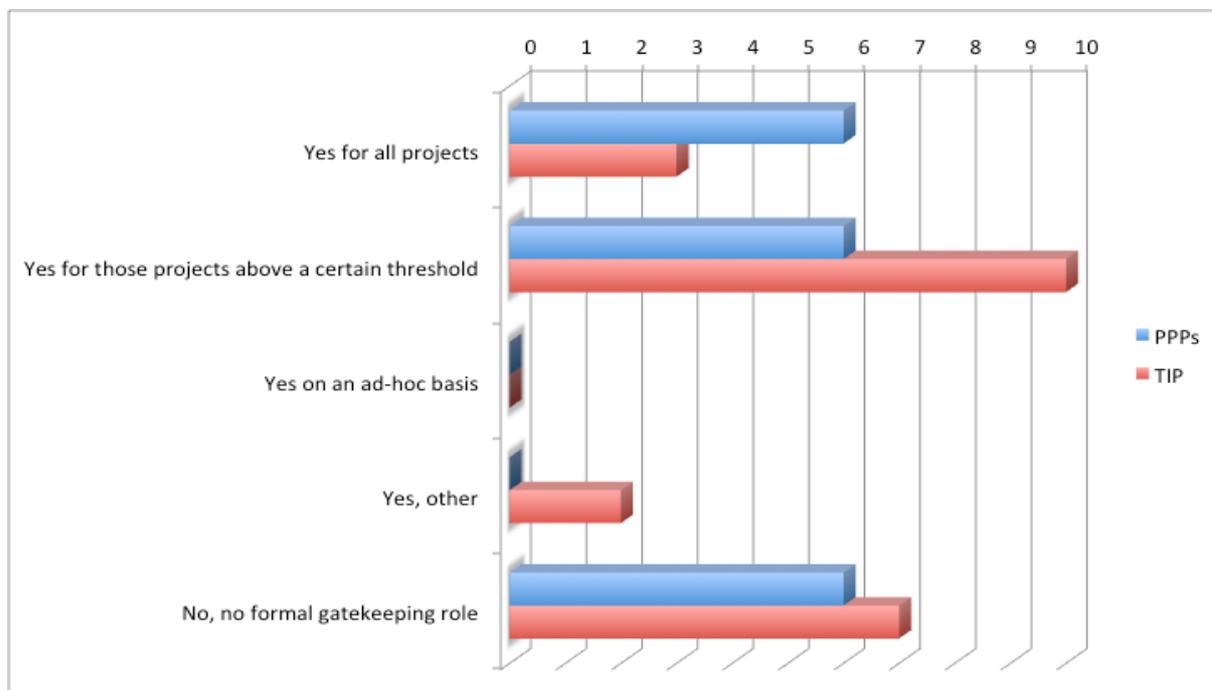
Table 11a. Please indicate who are the primary actors responsible for each of the below activities. Select maximum two or three actors per row, including them only if they play prominent roles in each activity. Not all of the below activities take place in every country, if an activity does not take place, please select the N.A choice.

	Prioritisation of all infrastructure/ capital projects	Needs assess- ment	Consultation about project outputs	Ex ante value for money analysis	Planning and budgeting proposal	Dispute resolution
a. Chief Executive or elected governing body	12	8	4	1	3	8
b. Legislature or Legislative body	8	2	1	1	1	1
c. Central Budgeting Authority	9	6	6	8	15	6
d. Ministry responsible for capital projects	18	21	18	15	21	11
e. Executive Agency for infrastructure answering to Ministry	7	8	11	12	10	6
f. Private consultants	0	2	6	9	1	1
g. Civil society organisations	2	1	4	2	2	1
h. Supreme Audit Institutions	1	2	2	1	1	1
i. N.A. (e.g. activity does not take place)	1	0	0	1	0	3

Table 11b. Please indicate who are the primary actors responsible for each of the below activities. Select maximum two or three actors per row, including them only if they play prominent roles in each activity. Not all of the below activities take place in every country, if an activity does not take place, please select the N.A choice

	Monitoring project execution	Ex post evaluation	Deciding whether PPPs or TIPS are more adequate	Determining rules for PPPs	Procurement for PPPs
a. Chief Executive or elected governing body	4	2	8	5	2
b. Legislature or Legislative body	1	0	2	4	1
c. Central Budgeting Authority	7	4	12	11	4
d. Ministry responsible for capital projects	18	17	17	9	11
e. Executive Agency for infrastructure answering to Ministry	13	11	5	3	4
f. Private consultants	4	4	3	1	5
g. Civil society organisations	1	1	0	0	2
h. Supreme Audit Institutions	6	12	1	2	0
i. N.A. (e.g. activity does not take place)	0	0	2	3	6

Figure 8. Is the Central Budget Authority required to approve capital/infrastructure projects of line ministries (even when these projects fall within the existing approved budget envelope of the responsible line ministry/agency)?



In twelve countries the supreme audit institution is responsible for ex post value for money assessment. It assesses *ex post* value for money relative to the *ex ante* value for money in Australia, Brazil, Finland, Germany, Hungary, Luxembourg, Mexico and the Netherlands, while in Estonia, Norway, Slovakia and South Africa it does not.

6. Planning, prioritisation and ensuring value for money

The Planning and prioritisation phase starts with the conceptualisation of the project and ends when the project is ready to proceed to tender. At the outset a line ministry and/or other relevant authorities needs to conduct a needs analysis. This will often be linked to the political program and mandate of the elected government and the project may on a general level be part of a long-term infrastructure development plan. Such a plan might exist either at either a national or a policy area level.

If a project is complex or out of the ordinary for a line ministry, it might also need project guidance. External consultants may fulfil such a role. From the outset the government should consult external stakeholders of the project. These could include the direct beneficiaries of the service, but also those affected by the delivery of the service, labour unions, lobby groups or those dealing with public interest issues such as environmental interest groups. While it may make the process more complex, involving these stakeholders at an relatively early stage should ensure legitimacy and buy-in as well as reduce delays caused by disputes with external stakeholders. For instance, agreeing on who should undertake an independent environmental impact study for a project might reduce delays. If a contract has significant implications for labour, involving labour unions from the outset, reduces labour conflict and therefore reduce cost, thereby improving the value for money of the project. Obviously specific projects may impact certain groups negatively, at least at the outset. It is the role of

government to weigh the interests of various groups against each other in order to maximise total public welfare.

A needs analysis should then be expanded into an initial feasibility study. Usually no government wants to subject all project proposals to full *ex ante* value for money analysis for the simple reason that such an analysis is costly and time consuming. Hence a preliminary screening after the initial needs assessment, as well as a screening after an initial feasibility study might eliminate those project ideas for which the need is not as urgent or that are clearly not feasible.

After the initial feasibility study the government should add projects to the list of possible projects that it will scrutinise and sort in order of priority. Adding projects to a list of possible projects is of course an ongoing process that depends on when initial feasibility studies are completed. However, to ensure systematic prioritisation, the timing of doing the prioritisation should be synchronised with the budget cycle. This calls for concrete procedures to integrate prioritisation within the budgeting cycle (Jacobs 2011:417). Synchronisation also means that prioritisation should be done with a preliminary consideration of affordability and the government's budget constraint in mind – it makes no sense to consider projects any further if the government does not have the resources to finance them. Not only should projects fit into the current year's budget envelope, but given that capital projects are typically long-term in nature, thought should also be given to the long-term implications and commitments that a project implies.

6.1. *The Concepts of Value for Money and the Public Sector Comparator*

Those projects that survive the needs analysis and preliminary feasibility study, as well as the initial prioritisation and affordability test should then be subjected to a proper feasibility study and *ex ante* value for money assessment. This includes the full development of the project idea. In countries where *ex ante* value-for-money assessments are done, they often constitute the key component of the planning and prioritisation phase of the procurement cycle. Once the *ex ante* value for money assessment are done, the government should also revisit its initial prioritisation of projects to ensure that the results of the proper feasibility study and *ex ante* value for money assessment coincide with those of the preliminary feasibility study. If there are deviations affecting the value for money of the project, they may also affect the initial prioritisation of the projects.

Prioritisation is needed because every project has an opportunity cost – i.e. selecting any particular project implies that another project cannot be realised. Value for money is maximised by ensuring that the value for money yielded by a selected project exceeds the value for money foregone by not realising another project. Not only should a single line department prioritise its own projects, but the government as a whole should do so in terms of broad capital expenditure categories. Where projects are relatively large compared to the total budget, it might also be advisable that the chief executive (office of the president, prime minister, cabinet or central budget authority) prioritise projects centrally. As mentioned above, if a government uses an accrual budgeting and accounting system that targets the net operating balance, it might also require that all capital projects be approved centrally. This will ensure that opportunity costs are considered on an overall government level. It will also ensure that total borrowing does not exceed what the government considers feasible and prudent.

With regard to traditionally procured projects, the most formal and extensive form of *ex ante* value-for-money assessment is the cost-benefit analysis. Related to cost-benefit analysis is cost-effectiveness analysis.¹⁸ Governments use both of these quite extensively (see Table 12).

¹⁸ Both a cost-benefit and a cost-effectiveness analysis consider the costs and outcomes of different options. However, unlike a cost-benefit analysis, a cost-effectiveness analysis does not seek to quantify the benefits financially. As they are in principle seeking to perform the same task and are conceptually close to each other, for the purposes of this paper cost-effectiveness analysis will be treated together with cost-benefit analysis under the heading of cost-benefit analysis.

Table 12. Briefly identify the types of value-for-money analysis that your government uses: (E.g. cost-benefit or cost-effectiveness analysis). If your government uses cost-benefit or cost effectiveness analysis for TIP, does it also use cost-benefit or cost effectiveness analysis for PPPs?

	TIP	PPP
Australia	C/BA	C/BA
Austria		
Brazil	C/BA and CEA	C/BA and VfM assessment elaborated by private partner
Canada	C/BA	C/BA and PSC
Czech Republic	C/BA	
Estonia	CEA	
Finland	Mostly C/BA	Mostly C/BA
Germany	C/BA and CEA	C/BA, CEA and PSC
Hungary	C/BA	C/BA and PSC
Italy		
Japan		
Korea	C/BA and policy analysis.	C/BA, policy analysis and PSC
Luxemburg		CEA
Mexico	C/BA, CEA and economic justification	PSC
Netherlands	C/BA	C/BA and PPC
New Zealand	C/BA	C/BA and PSC
Norway	C/BA	C/BA
Slovakia	C/BA	PSC
South Africa		
Spain	C/BA	C/BA
Sweden	C/BA, CEA and multi-criteria	
Switzerland	C/BA	
UK	C/BA	C/BA

C/BA: Cost-benefit analysis, CEA: Cost-effectiveness analysis, PSC: Public Sector Comparator, PPC: Public Private Comparator, VfM: Value-for-Money assessment.

As is well known, cost-benefit analyses include social costs and benefit to a project. Therefore, the question that cost-benefit analyses address is not a narrow one of costs and benefits to the government, but rather costs and benefits to society. A cost-benefit analysis may also be done for a PPP, but in many countries the government conducts cost-benefit analysis only for traditionally procured projects.

Cost-benefit analyses typically also include an assessment of alternative project options (e.g. when a road is planned, the assessment may also consider alternative options such as rail¹⁹). Thus, cost-benefit analyses are used to establish both absolute and relative value for money. Absolute value for money concerns the question whether the benefits of the project exceed the costs, while relative value for money concern the question whether the option selected (e.g. a road) compares favourably in

¹⁹ A proper cost-benefit analysis would also consider non-capital options. Thus, the need for enlarged or extended roads and rail should also consider the use of for instance user fees that could choke off the demand. Of course, choking off demand might have larger societal and economic costs such as dampened economic activity that should also be considered in the analysis.

terms of value for money to the alternative (e.g. a rail line). Thus, in the case of a cost-benefit analysis the relative value for money question refers to a comparison of different outputs (e.g. a stretch of road vs. a stretch of rail) that might deliver the same outcomes. However, primarily the focus of the cost-benefit analysis is the absolute value for money assessment.

Figure 9. Absolute and relative value-for-money assessment

Cost-benefit analysis (considers absolute value for money and compares the value for money of alternative options for projects relative to each other)

Road	Rail	Higher toll on existing road	etc...	
Road project delivered through TIP	Road project delivered through TIP	Government charges a higher toll		TIP
Road project delivered through a PPP	Road project delivered through a PPP	A private operator charges a higher toll		

Public sector comparator (considers the value for money of procurement options relative to each other)

Source: Authors

What a cost-benefit analysis typically does not do is an assessment of the relative value for money that involves a comparison of the different modes to deliver the outputs. It typically does not compare delivery through a PPP to delivery through TIP. To consider whether or not to use a PPP instead of delivery through TIP the government may use a public sector comparator (PSC).²⁰ The PSC compares the bids private bidders make to a hypothetical reference project undertaken in the traditional manner by the public sector. The purpose is to establish whether or not delivery through a PPP compares favourably with traditional public sector delivery. Figure 5.1 presents the relationship between the value-for-money tests such as the cost-benefit analysis and the PSC. Note that a PSC does not include the broader costs and benefits to society. It has a narrower focus, including only the direct costs and revenues involved in the project. Including broader societal costs and benefits should not be necessary if a cost-benefit analysis already indicated that the project represents both absolute value for money and relative value for money with respect to alternative output options. However, in only a many countries projects that are selected as PPP candidates do not go through a cost-benefit analysis prior to being selected as potential PPP projects. It therefore follows that if a PPP project is only subjected to a PSC and not a cost-benefit analysis, the government will only be testing value for money on one of the two axes of Figure 9.

Proposing an expansion of the use of value for money assessment methods such as cost-benefit and PSC is not uncontroversial. Critics of these techniques argue that the level of uncertainty that is involved in making cost and revenue projections that often span 20 to 30 years is of such a high degree that it renders these types of assessments rather weak, and decisions based on them implicitly arbitrary. These critics argue that in some cases the creation of a project radically changes the environment in which it is constructed. As a result the behaviour of and opportunities open to economic agents may change to such an extent that an accurate forecast of future costs and revenues becomes impossible, rendering those forecasts that are made mere ‘guestimates’. In some cost-benefit

²⁰ In the UK a simplified value-for-money tool is used instead of a public sector comparator.

or value-for-money assessments governments attempt to capture this risk by developing different possible scenarios for the project, or by risk-weighting expenditure and revenue streams. However, detractors of these techniques argue that these refinements may still not capture the uncertainty properly. It might also be too rough an approach to use in decisions regarding project viability.

The difficulty in estimating future costs is further aggravated by ‘optimism bias’, which is the tendency of capital budgets to underestimate significantly the construction costs and time of most capital projects (Flyvbjerg *et al* 2002). Flyvbjerg *et al* (2002) argue that this tendency does not seem to decrease through learning over the years. Indeed, it remains deeply entrenched.²¹

6.2. *The assessment of value for money in surveyed countries*

Burger and Hawkesworth (2011) reported that in general PPPs in many countries are subjected to more stringent value-for-money criteria compared to TIP. The survey conducted for this paper confirms this finding (see Table 13). In eight countries all PPP projects are subjected to absolute value-for-money assessments such as cost-benefit analysis), while in only five all TIP projects are subjected (the five overlap with the eight: Finland, Hungary, Germany, Mexico and the UK). In seven countries all TIP projects above a threshold are subjected to value-for-money assessments, while in a further nine countries the TIP projects that are to be subjected to absolute value-for-money assessments are selected only on an *ad hoc* basis. Furthermore, in twelve of the countries all PPP projects are subjected to relative value-for-money assessments such as public sector comparators (PSC), with a further three countries requiring it for all projects above a threshold. In assessing below all the numbers for PPPs, note that five of the 23 countries reported that they have no PPPs.

²¹ Indeed, optimism bias is not only limited to the construction phase of the project. Soares, Coutinho and Martins (2007) conducted a study based on applications during 1994-6 for investment incentives approved by the Portuguese Institute IAPMEI during the 2nd European Union Framework Programme. The incentives mostly supported Portuguese industry development. Soares *et al* (2007:26-7, 36) found that although estimates of future operating expenditure were mostly accurate, estimates of investment expenditure were very volatile (possibly due to delays in execution of the projects), while sales were systematically overestimated (by 9%).

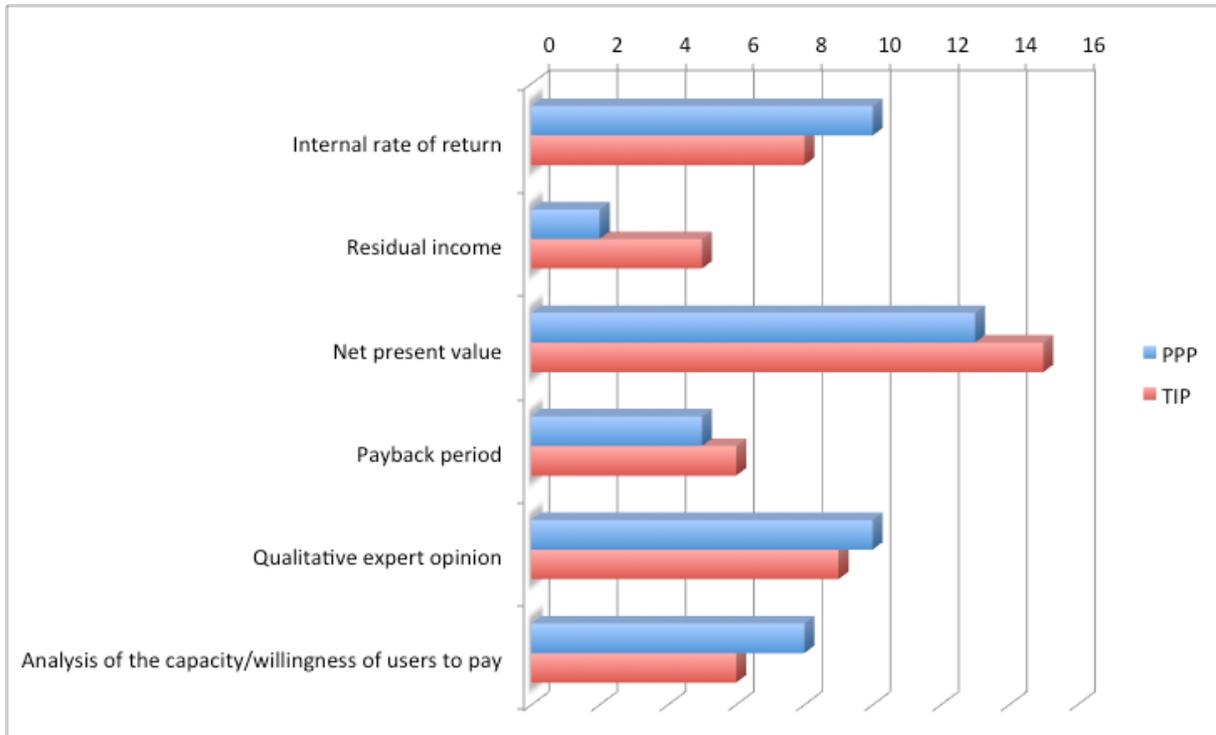
Table 13. In general, does your government apply an absolute value-for-money analysis (such as a cost-benefit or cost effectiveness analysis) and/or relative value-for-money analysis (such as public sector comparators) that takes a whole-of-life (net present value) approach to prospective capital projects? (Select the most relevant option.)

Absolute value-for-money assessments (e.g. cost-benefit analysis)	PPPs	TIP
Yes, for all projects	8	5 ¹
Yes, for all those above a threshold	2	7 ¹
Yes, on an ad hoc basis	4	9
No	2	1
Other	3	4
Relative value-for-money assessments for PPPs (e.g. public sector comparator)	PPPs	
Yes, for all projects	12	
Yes, for all those above a threshold	3	
Yes, on an ad hoc basis	1	
No	1	
Other	2	

1) Both these numbers include Finland, as some types of investment projects all need to be subjected to an absolute value-for-money assessment, while for other types (e.g. IT) only projects above a threshold need to be subjected to an absolute value-for-money assessment.

Figure 10 lists the number of countries and the various methods that they report using to assess value for money. In their assessment of value-for-money governments use a variety of tools. The most popular is net present value and the internal rate of return on projects (see Figure 10). For TIP projects eight countries also assess the capacity and willingness of users to pay (Austria, Brazil, Czech Republic, Germany, New Zealand, Norway, Slovakia and Spain) (six countries in the case of PPPs: Brazil, Estonia, Germany, New Zealand, Slovakia and Sweden). In nine countries for TIP and ten for PPP projects does the government use qualitative expert opinion (the nine do not overlap fully – only Brazil, the Czech Republic, Germany, Korea, Mexico and Slovakia apply it to both TIP and PPPs).

Figure 10. Which of the following tools are used in the value-for-money analysis? (More than one is possible):



Value-for-money assessments help governments attain value for money if they play a decisive role in project selection. It helps little if a government goes through value-for-money assessments, but then, when the assessments indicate negative value for money, nonetheless decides to proceed with a project on the basis of other, non-value-for-money criteria. For both PPP and TIP projects countries nine countries indicated that value-for-money analysis plays a decisive role in all or a vast majority of cases. However, for PPPs seven of the nine countries use value-for-money assessments for all their PPP projects. For TIP the corresponding number is two countries.

Table 14. In which of the following cases does the following statement hold true: “Absolute value-for-money analyses (as well as relative value-for-money analyses in the case of PPPs) play a decisive role in whether or not projects proceed to the procurement stage” (‘decisive’ meaning the project does not proceed unless the value-for-money analysis indicates it is a viable project)?

	PPPs	TIP
In all projects	7	2
In the vast majority of projects (i.e. in 75%+ of projects)	2	7
In most projects (i.e. between 50% and 74% of projects)	2	3
In some projects (i.e. between 10 and 49% of projects)	1	2
In a few projects (i.e. in more than 0%, but less than 10% of projects)	0	4
In no project	2	1

Enquiring as to what other factors do play a role if value for money does not play a decisive role, survey evidence indicates that for both TIP and PPP projects political will/interest plays an important role. Another relatively important factor for both TIP and PPP projects is if the project constitutes part of a long-term infrastructure development plan. However, notwithstanding the above, Table 14 shows that only in a few countries would projects proceed if the value-for-money analysis indicates that a project is not financially viable (as measured in e.g. net present value terms).

As discussed above, Flyvbjerg (2002) showed that many investment projects are prone to underestimate their construction costs. To ensure more credible estimates of expected costs some governments include an estimate of optimism bias in their value-for-money tests. Typically this means that after the cost of the project has been estimated, the cost is further inflated with an estimated optimism bias to hopefully get projected cost closer to what realised cost will turn out to be. Figure 11 indicates that for TIP projects nine countries out of the fifteen who responded to the question report that they include an estimate of optimism bias in their value-for-money test. For PPPs eight of the thirteen countries responding include such an estimate in the value-for-money testing. The eight countries that include it in their value-for-money test for PPP projects are Australia, the Czech Republic, Finland, Germany, Korea, New Zealand, Spain and the UK. In addition to these eight countries, Estonia and Luxembourg also include the estimate of optimism bias in their value-for-money test for TIP projects.

Figure 11. In the value for money test that your government uses for TIP and PPP projects, does it explicitly include an estimate for optimism bias (optimism bias means the tendency for ex ante assessments to underestimate the cost and time it will take to complete a project)?

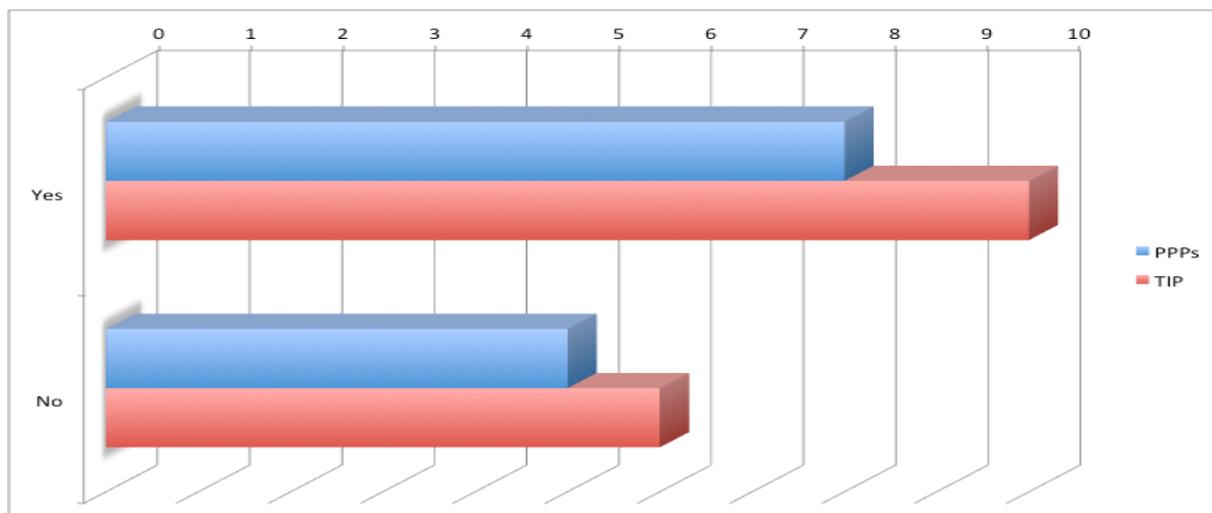


Table 15 indicates that sixteen of the 23 governments think absolute value-for-money assessments such as cost-benefit analysis really contribute to better decision-making in the case of TIP (these are Australia, Brazil, Canada, the Czech Republic, Estonia, Germany, Hungary, Korea, Mexico, the Netherlands, New Zealand, Norway, Slovakia, Sweden, Switzerland and the UK). Twelve hold the same opinion with regard to the use of cost-benefit analysis in the case of PPP (these are Australia, Brazil, Canada, Finland, Germany, Hungary, Korea, Mexico, the Netherlands, New Zealand, Slovakia and the UK). (Twelve countries constitute the *majority of countries with PPPs*; recall that in five of the 23 countries there are no PPPs, so this is twelve out of eighteen countries. In addition, there are also two countries in which they do not use absolute value-for-money assessments, meaning this is twelve out of sixteen countries.) In fourteen countries relative value-for-money assessments for PPPs (such as public sector comparators) really contribute to better decision making.

Table 15. Which one of the following two options best describes the experience of your government with value-for-money analysis for projects?

Absolute value-for-money assessments (e.g. cost-benefit analysis)		PPPs	TIP
They really contribute towards better decision-making	Yes	12	16
	No	1	1
In general, they create a false impression of precision and management rigour	Yes	1	0
	No	5	7
Relative value-for-money assessments for PPPs (e.g. public sector comparator)		PPPs	
They really contribute towards better decision making	Yes	14	
	No	1	
In general they create a false impression of precision and management rigour	Yes	0	
	No	6	

There is also the link between political decision making and its fit with the results of value-for-money assessments such as cost-benefit analyses. The point is sometimes made that a project was

selected on the basis of politics, while it did not represent value for money. Traditionally value-for-money assessments focus on the economy, efficiency and effectiveness of a project (Diamond 2005):

1. Economy in the use of resources: maximise inputs per dollar, euro, pound, yen, etc.
2. Efficiency: maximise outputs per input.
3. Effectiveness: maximise outcomes per output.

However, as is clear from the above, economy, efficiency and effectiveness focus on the supply side of delivering the good or service and does not consider whether or not there is a demand for it. In principle, if a user fee is to be charged, the government can test the market to assess possible demand. However, as is well-known, if the good in question is a public good or a good with a relatively large externality, demand will not be fully revealed – a free-rider problem will exist. This is where the politician comes in. The role of the elected politician is to express the demand for publicly delivered goods. The problem exists when there is a demand for the good but the value-for-money assessments (such as a cost-benefit analysis) indicate that the cost of delivery exceeds the benefits/revenues.²²

The presence of such cases where value-for-money assessments indicate that costs exceed benefits/revenues calls for politically sanctioned guidelines. These guidelines should focus on seeking a clear and transparent procedure for processing negative value-for-money assessments whilst allowing for the political function of revealing public demand and public interest.

7. Ensuring affordability of the project and government portfolio

A project should only go ahead if it represents *ex ante* value for money *and* is affordable. Once the *ex ante* value-for-money assessment of a capital project is done and it is clear that a project will represent value for money, the government needs to decide whether or not it wants to continue with the procurement process towards implementation. Affordability of the project is again the deciding factor, which means that the initial prioritisation of the project needs to be revisited in light of the *ex ante* value-for-money assessment previously conducted. A project, or a project portfolio, can be said to be affordable if government expenditure associated with a project, be it a PPP or other mode of delivery, can be accommodated within the intertemporal budget constraint of the government. As was the case with the initial affordability test, establishing whether or not a project is affordable also means that the decision whether or not to go ahead with the project must be synchronised with the budget cycle of the government, thus calling for explicit procedures to do so. Specifically, affordability means more than just fitting into the upcoming year's budget, as the project should at least fit into the medium term budget envelope of the government department (*cf.* Jacobs 2009:8-9). Obviously a project that is expected to be fully depending on user charging, rather than government revenue, needs to be assessed in terms of users' ability and willingness to afford the use of the asset.

The project approval should take into account that the project represents a multi-year commitment to both capital and current expenditure. It is advisable that both *construction* and *operational* cost estimates of the value-for-money tests serve as inputs into the budget and medium-term expenditure frameworks, not just of the year in which the project is approved, but for as long as the project is operational. This requires a thorough integration of the project into a government department's program and budget (and thus, also in the overall national/federal budget). As Table 16

²² The problem exists whether defined as a broader case where costs exceed broader social benefits or defined as a narrower financial case where direct costs to government or a private provider exceed direct revenue flows.

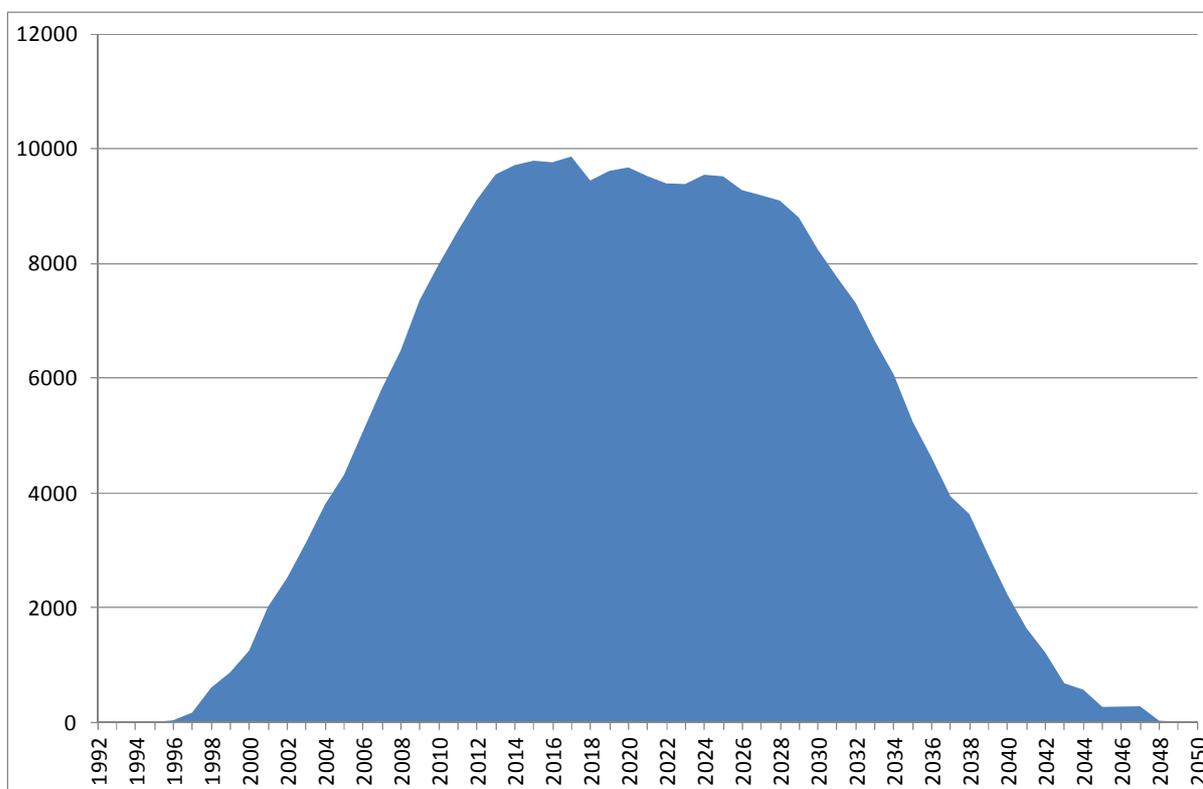
indicates, in the majority of countries surveyed, government departments should demonstrate that new infrastructure projects fall within their existing budgetary envelopes and expected medium-term resource allocation before they can proceed with the projects. In 13 of the countries it is always necessary for PPP projects, while in 16 countries it is always necessary for TIP projects (see Table 15).

Table 16. Should a government department demonstrate that a new infrastructure project falls within its existing budgetary envelope and expected medium-term resource allocation before it can proceed?

	PPPs	TIP
Yes always (100% of the time)	13	16
Yes very often (>75, but <100% of the time)	2	4
Yes often (>50-75% of the time)	0	0
Yes sometimes (>25%-50% of the time)	1	0
Yes rarely (>0, but <25% of the time)	0	0
No, not required	2	2
Other, please specify	2	1

As part of the feasibility study, and where relevant, the government should also explore the possibility of introducing user fees. Physical infrastructure projects (such as roads) or social infrastructure projects (such as hospital facilities) may create the opportunity to introduce user fees. These should of course also be reflected in the budget as it may affect affordability. Value for money is linked closely to affordability and sustainability. A focus on affordability and sustainability, and thus whether or not a project falls within the budget envelope in the foreseeable future, encourages the use of multi-year budgets (or a medium-term expenditure framework), as well as a whole-of-life approach to capital budgeting (Jacobs 2009:9). Multi-year budgeting and a whole-of-life approach highlights that by procuring capital, the government implicitly also commits to the running expenditure that the project will yield in future. However, as Posner *et al* (2009:64,72) argue, there is still in general a need for proper affordability tests on the level of sophistication of value for money tests. This is a challenge for the future, but the manner in which the UK treasury reports future commitments with respect to PFI deals might represent an initial suggestion as to how affordability tests can be refined.

Figure 12. Total unitary charges of UK PFI projects of all projects signed as of November 2011 (GBP millions)



Source: HM Treasury, "PFI Signed Projects List" http://www.hm-treasury.gov.uk/ppp_pfi_stats.htm

In the UK the treasury reports long-term payment projections of annual unitary charges of PFI projects (see Figure 12). It is therefore possible to see what payments the government probably will need to make on its existing set of PFI projects as far into the future as 2050. A government could do something similar for TIP projects. Cost-benefit analyses and feasibility studies report projections for future operating, maintenance and interest costs that TIP projects generate. These projections go well into the future. As part of its affordability assessment, and in the interest of transparency, the government could, just as with PPPs, also report the commitments TIP projects imply in future years. Thus, even though medium term budgeting typically covers only the next three to five years, augmenting it with a report on all the future commitments that projects imply might very quickly provide an indication when projects become unaffordable. For instance, with respect to PFI projects, Posner *et al* (2009:63) note that the according to HM Treasury annual PFI charges have grown to encumber 25% of operating budgets.

8. Procurement – choosing the option delivery method

Once the government established *ex ante* that a project represents value for money and is affordable, the project is ready for the procurement phase. A first step in this phase would be a decision on the degree of bundling. According to Estache and Iimi (2011) there is a trade-off between the size of the project and the degree of competition involved in the bidding process. Larger projects with a high level of bundling might allow for economies of scale and scope, which reduces cost. However, larger bundled projects usually attract fewer bidders, which increases cost. Not only are

large projects technically more demanding, but if a contract includes different types of services (for instance, Estache and Iimi (2011) consider the combination of a water treatment plant and distribution networks), competitors who do not possess the technical proficiency in all of the types of services included, are unlikely to bid. However, Ossowski (2007) notes that bundling may create incentives to reduce life-cycle costs. Hence, by unbundling the government can enhance competition, but it might also increase life-cycle costs and reduce the possibilities for economies of scale and scope. Thus, in complex projects that involve bundling, the government needs to consider carefully what level of bundling will yield the highest value for money.

A second step in the procurement phase is a decision regarding the mode of procurement – i.e. whether the government wants to use TIP or a PPP to deliver the project.²³

In principle, the decision of procuring an asset should be divorced from the decision of how to procure an asset. Of course the result of value for money and affordability tests will feed into such a decision. In eleven countries the government must always first decide on the procurement of an asset (which would include an assessment of its affordability) before it considers the choice between PPP procurement and TIP (Table 17).

Table 17. Does the government first decide on the procurement of an asset (which would include an assessment of its affordability) before it considers the choice between PPP procurement and traditional infrastructure public procurement?

	PPPs	TIP
Yes always (100% of the time)	11	11
Yes very often (>75, but <100% of the time)	3	5
Yes often (>50-75% of the time)	1	0
Yes sometimes (>25%-50% of the time)	0	0
Yes rarely (>0, but <25% of the time)	0	0
No, not required	1	2
Other, please specify	3	3

Not all projects need to undergo a formal and extensive assessment to establish which procurement mode will deliver the most value for money. Firstly, to subject all projects to an extensive consideration will be too costly and time-consuming. Secondly, governments might want to limit the extent to which they use PPPs simply because PPPs introduce a level of inflexibility to the budget. In a TIP project engaging in the project implies an implicit long-term commitment to incur in future the current expenditure necessary to operate and maintain the project. However, this commitment is not contractual to the same extent as a PPP contract. The operational and maintenance cost of a TIP

²³ There are also other options such as complete in-house production, alliancing, outsourcing and delivery through an agency. While a private firm is usually responsible for the construction of an asset in the case of a TIP project (i.e. a simple design-build-transfer contract), complete in-house production uses no private participation at any stage of the project. Alliancing represents a case where government and the private sector together undertake a project and share the risks. Outsourcing entails a private company performing a service on behalf of or for the government – the government nevertheless still carries the risks involved. Agency delivery involves a government agency, sometimes outside of general government, delivering the service. As described above, some agencies have the power to issue debt that may or may not be guaranteed by government. In terms of their balance sheet and budgetary treatment they can be treated in a manner similar to PPPs. This paper limits itself to TIP and PPPs, as these are widespread and, given the possibility for skewed incentives, represent some of the more controversial choices that a government needs to make.

project usually involves employment contracts of civil servants and supply contracts for material needed to operate and maintain the project. However, if the government needs to cut maintenance and operating expenditure on an operating TIP project, it might be able to transfer the civil servants, or ultimately, if expenditure cuts demand it, lay them off. Contracts with suppliers are also more flexible and usually of a shorter term than a PPP contract. Operating and maintenance cost in the case of a PPP is usually incurred by the private partner and paid with the fee it receives from the government. This fee is set by the PPP contract and the government cannot reduce it unless it breaks or renegotiates the contract – both options are rather expensive as they may involve the government remunerating the private partner for lost income covering the remainder of the contract. Thus, it is easier for the government to reduce its expenditure in the case of a TIP project than a PPP contract. The higher degree of flexibility of TIP projects therefore explains why most governments want to limit the extent to which they use PPPs. Because of the inflexibility of PPP contracts, the government may wish to impose a limit on the extent to which it engages in PPP contracts. For instance, a government might limit its engagement in PPP contracts to 1% or 2% of the annual total budget.

In most countries there is no structured way to establish whether or not a project should be considered for PPP status (*cf* Burger and Hawkesworth 2011) and the selection of projects to be considered for PPP status occurs on a rather *ad hoc* basis. Hence, according to Recommendation 5 of the OECD Recommendations of the Council on Principles for Public Governance of PPP (2012) governments should use a procurement option pre-test. A procurement option pre-test considers a set of conditions that are pre-requisites for a successful PPP (Burger and Hawkesworth 2011:39-43). These include *inter alia* sufficient competition in and for the market, the possibility to quantify and define the amount and quality of the outputs, and the possibility to transfer a sufficient amount of risk to the private partner. Should these conditions not hold, it becomes unlikely that a PPP will deliver more value for money than TIP and thus unnecessary to entertain any longer the PPP mode as an option for delivery.

Once a project has been selected as a possible PPP candidate the government needs to apply a *relative ex ante* value for money test to establish whether or not the PPP option can be expected to outperform the TIP option. In most countries that apply such a *relative ex ante* value-for-money test, it takes the form of a public sector comparator (PSC) as mentioned above. Once the project is placed out on tender and the bids of the respective private bidders are received, the government will compare these bids to the PSC to establish whether or not the PPP option outperforms the public sector, i.e. TIP, option. In comparing the PPP option to the TIP option the following should be kept in mind:

- *Regardless of their accounting treatment, both PPPs and TIPs create liabilities for government:* Some governments still undertake PPPs to get the project off the books of the government. However, what moves off the books of the government are the asset and its associated debt, not the life-time cost. In the case of traditional infrastructure procurement the government incurs the initial debt to finance the asset. Thereafter it pays the operational expenditure and services the debt. Thus, the government will need to raise tax revenue to do so. With a PPP the government incurs no debt to finance the asset. The private partner finances the asset by raising capital in the form of loans and equity. The private partner also needs to service this debt and pay operational expenditure in future. However, to do so it needs to earn enough income in future, usually by charging the government annual fees or user charges. Again, the government will need to raise tax revenue to do so. The payment of these fees is of course contingent on the private partner complying with the contract in terms of the quantity and quality of what it delivers. In principle, if it does not comply, the payment is not made. Nevertheless, the payments due under a PPP contract, though not certain, are nevertheless expected to realise. They are therefore not like contingent liabilities that are not expected to realise. Thus, although a PPP does not create a liability on the books

that is as certain as the debt liability is in the case of TIP, it nevertheless creates an expected liability that equals the present value of all the service fees and user charges that the government is expected to make to the private operator of the PPP.²⁴ Therefore, with both traditional infrastructure procurement and a PPP the government faces a liability. In both cases the government will need to allocate revenue in future to service the liability.

- *Too much input specification can undermine the rationale for PPPs.* PPPs rely on the private sector creatively responding to the bundling of an asset and the delivery of a service hereby building, maintaining and operating the asset more efficiently than what a public sector traditional delivery method would be able to. However, experience has shown that if government does not accept giving the private sector significant leeway on inputs and processes, the benefits of private sector participation will diminish. It is therefore important that this is born in mind if the PPP option is to be explored.
- *Transaction costs are higher with PPP:* As documented in Table 2.3 transaction costs in PPPs are usually significantly higher than with TIP. Posner *et al* (2009:69) reports that bidding costs sometimes represent up to 3% of the total project cost, while advisory services often exceed 5% of the total contract cost. Bidding for a PPP contract is therefore expensive and may be considered prohibitive by companies who would otherwise have wished to submit a bid. This may limit the amount of bidders, which in turn limits the competition for the contract. This argues for PPPs being most relevant in larger projects where transaction cost historically make up a smaller percentage.

PPPs perform better than TIP in the construction phase, but there is no clear evidence with respect to whole-of-life costs. Studies have found that PPPs outperform TIP projects (*cf.* Allen Consulting Group, 2007; Arthur Andersen and Enterprise LSE, 2000; Fitzgerald, 2004; Haskins, Gale and Kelly, 2002; Mott MacDonald, 2002; National Audit Office, 2003; and University of Melbourne, 2008). However, most of these studies focus on the cost and time overruns during the construction phase of the project and do not focus on the operational phase of the project. The same pattern was discussed in section 2 of this paper. The reason why PPPs might outperform TIP projects during the construction phase may simply be because the quicker and cheaper the project is completed, the quicker the private partner can start operating the project, and start earning revenue to service its debts and maximise its return.

- *User fees can be levied on both public and private operators:* The possibility to charge a user fee on final beneficiaries should not be confused with the choice between procurement options as the government can also charge a user fee on final beneficiaries in the case of TIP. The project need not be a PPP in order for final beneficiaries to pay for the service that they receive. Thus, the correct comparison is between a TIP project where the debt servicing and operational costs are paid for by user fees that are levied on final users, and a PPP (concession) where the debt servicing and operational costs are also paid for by user fees that are levied on final users. The alternative is to compare the PPP and TIP options with the government paying either directly or indirectly for the service in both cases.
- *The Public-Sector Comparator is only as good and credible as what is invested in it:* In a few countries some types of projects have for a long time only been undertaken by using PPPs. This means that for many years there were few, if any TIP projects that delivered this service. As a result there is currently little reliable information based on actual TIP projects

²⁴ If the PPP represents more value for money than the TIP option, the present value of this expected liability should be *less* than the debt plus the present value of the operational expenditure that government would have incurred had it chosen traditional infrastructure procurement.

to inform a PSC or an equivalent value for money instrument. It is then argued that using a PSC to establish whether or not a PPP represents relative value for money is not credible and that the government should consider not using a PSC or equivalent when deciding whether or not to proceed with a PPP. However, the complete predominance of one procurement type, even after the government conducted PSCs or their equivalents, rather suggests that in reality PPPs became the default option in a system geared completely towards using only PPPs. In such a system using relative value-for-money assessments such as PSC and their equivalents seems to be rather ritualistic as the system does not really allow alternatives anyway. Such a government should rather re-establish the true choice between the TIP and PPP options and by using PSCs the government should over time again build up sufficient and reliable information for use in later PSCs. Of course, initially the information on which the PSC will be based will not be based on actual TIP projects, but as the portfolio of actual TIP projects increase, the PSCs will become increasingly more reliable.

Once the government decided on which procurement mode to use, it needs to set out a tender, select the preferred bidder and negotiate and award the contract. If the project is a PPP the selection of the preferred bidder will involve the use of the PSC. In all these activities the government will need to ensure that the tender, bids and final contracts achieve the initial needs identified and do not drift from the initial objectives. These are important topics that are beyond the scope of this paper.

9. Monitoring and evaluation

In the case of both TIP and PPP projects once a contract is awarded and the construction phase commences, there is a need to monitor and evaluate performance. Monitoring and evaluation needs to occur concurrently to the construction and operation and management phases of the project. The type of project will dictate which performance indicators will be identified and what benchmarks these indicators should attain. In addition to regular monitoring and evaluation occurring, there is also a need for the government to evaluate *ex post* whether or not the project delivered value for money. Ideally, the *ex post* value-for-money assessment needs to be conducted with reference to the initial *ex ante* value-for-money assessment. This will allow the government to identify deviations. A larger database of project performance focusing on the identified deviations will allow the government to also identify whether or not realised optimism bias is different from that included in its *ex ante* value-for-money assessments and should there be a difference and should it be quantifiable, what its scale is. Once quantified, the new estimates of optimism bias can be used to calculate optimism bias benchmarks for future *ex ante* value-for-money assessments. In addition, the monitoring and evaluation phase should establish whether or not the TIP and PPP projects operated within their allotted budgetary envelopes. If a project cost the government more than it budgeted for, the government should require the ministry under whose auspices the project resorts, to cover the cost overrun by reallocating resources from within its budget. To the same extent ministries should also be allowed to keep cost savings (Jacobs 2011:418).

In addition, an *ex post* value-for-money assessment should occur after completion of the project's construction phase, while further *ex post* value-for-money assessments should be conducted at regular intervals over the lifetime of the project to assess whether or not actual operating and maintenance cost align with *ex ante* estimated operating and maintenance cost. Thus, the government should not wait for the 25 years of a 25-year project to have run its course before it conducts an *ex post* value-for-money assessment of the operational phase of the project. Regular *ex post* value-for-money assessments conducted during the lifetime of the project should be possible given that it entails a comparison between the projected results coming from the *ex ante* value-for-money assessment and the realised results coming from the operation of the project.

If the government conducts individual *ex post* value-for-money assessments for both TIP and PPP projects, it may also be in a position to do *ex post* value-for-money assessments that compare TIP and PPP performance. As mentioned above, *ex post* value-for-money assessments that compare TIP and PPP performance have been done for a number of countries, but these studies focus mainly on the construction phase and conclude that PPPs in general outperform TIP projects in terms of cost and time overruns. Given the relatively newness of PPP programs at the time these studies were conducted (the UK only implemented PPPs since 1992), these studies did not compare performance of PPPs and TIP projects during the operational and management phase.

Many governments focus their planning of activities mainly on a program-by-program basis, rather than a project-by-project basis. Thus, monitoring and evaluation as well as *ex post* value-for-money assessments are done on a program-by-program basis. However, since projects are mostly selected on a project-by-project basis, it is advisable for a government to augment its program-by-program evaluation with project-by-project assessments.

The government should also on an overall level track the number of PPP failures as well as the number of PPP contracts that were renegotiated. The implications of these failures and renegotiations for the attainment of value for money may be significant. If failure occurred, with the private partner losing its equity stake, the government or one of the other private partners (such as the main lenders) might have exercised their step-in rights. If the private partner has been replaced through another tender, value for money might have been largely preserved. However, if the government has to take over the service and deliver it itself, there is the danger of significant value for money loss.

If contract renegotiations occurred at the request of the private partner, there is also a high probability that the government lost value for money compared to the original contract negotiated. It is therefore in the interest of the government to keep track of the overall performance of its PPP contracts, so as to ascertain *ex post* whether or not value for money was attained on target and if not, what the extent of the shortfall from the target is. In some countries capital projects form part of a longer-term infrastructure development plan, either of the government as a whole or of the specific line department in question. These plans usually state overall objectives to be achieved and outcomes to be realised. An *ex post* value-for-money assessment also need to ensure that the outcomes achieved by the various TIP and PPP projects are aligned with the initial objectives and outcomes set out in the infrastructure development plan. This would be the ultimate sign of policy success.

Lastly, the government should ensure that the monitoring and evaluation is not only done by the line department responsible for the project, but also by the Central Budget Authority (usually the Ministry of Finance) and the Supreme Audit Institution.

10. Conclusion and recommendations

To conclude and based on the above analysis this section sets out a list of recommendations that will ensure that the capital procurement process will be more robust and therefore, more successful in maximising value for money. With respect to accounting and budgeting systems and their impact on capital procurement the recommendations are:

1. ***Budget the full cost of capital upfront.***
 - ***The government should, irrespective of whether a project is a TIP or PPP project, budget the full capital cost upfront.*** In the case of a TIP project, the full capital cost is the direct capital cost, while in the case of a PPP it is the present value of the capital component of all future user charges to be paid to the private partner. Budgeting the full cost upfront removes the incentive to prefer a PPP to a TIP project on the basis that the PPP records the transaction off-budget and off the books of the government.
 - ***The government should budget the full capital cost upfront for all investment projects of SOEs where the government carries a contingent liability.*** As with PPPs, budgeting the full cost upfront removes the incentive to prefer rerouting transactions to SOEs merely because the SOE records the transaction off-budget and off the books of the government.
2. ***All debt of entities such as PPPs and SOEs that might impact government debt should be recognised explicitly and included in the assessment of fiscal sustainability.***
 - When assessing the *sustainability of government*, ***either include PPP debt with public debt, or alternatively, when not adding the PPP debt to public debt, include the non-debt-servicing component of future expenditure that PPPs imply for the government as part of the primary expenditure of government.***
 - With respect to *SOE investments where the government guarantees the debt of the issue*, ***the contingent liability of government should be added to public debt*** to assess the *sustainability of fiscal policy*.

With respect to the procurement cycle, the following recommendations are made:

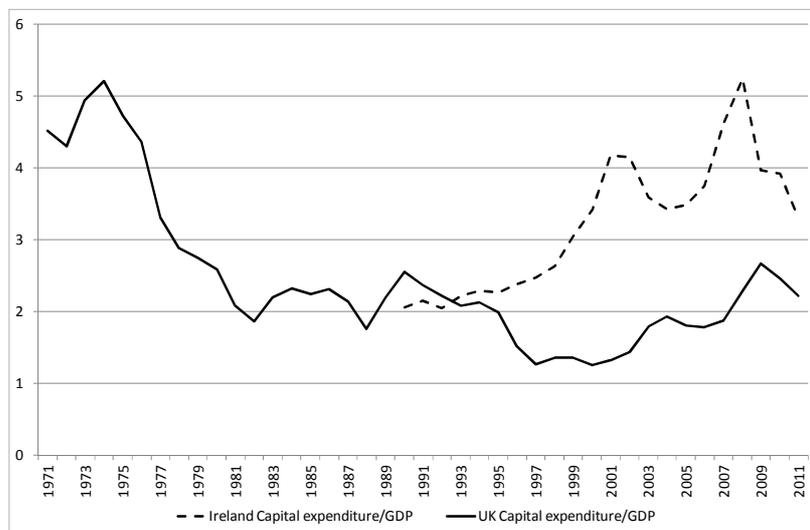
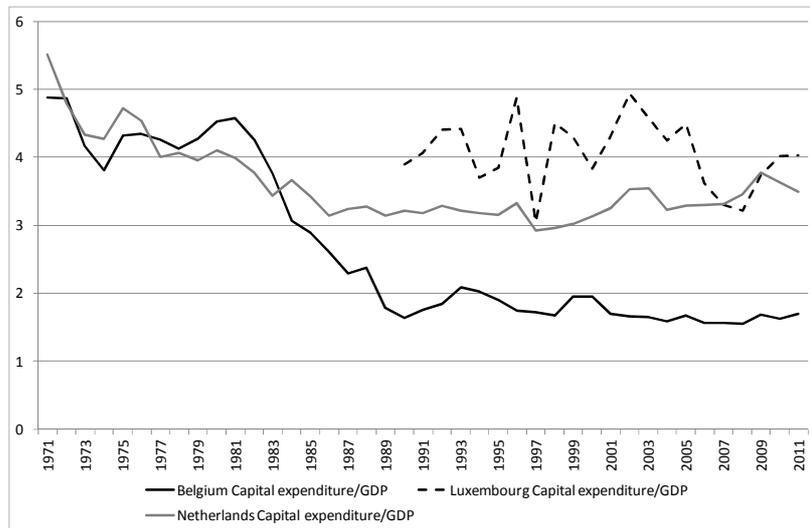
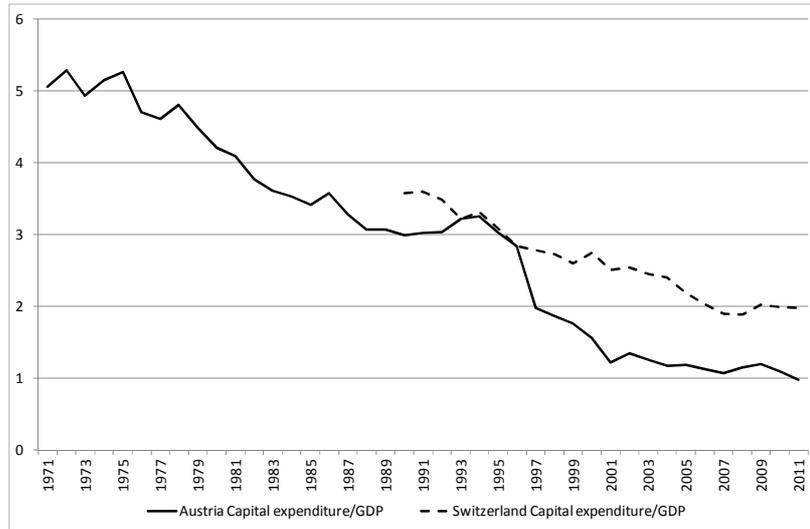
3. ***All possible capital projects should be subjected to a needs analysis, an initial feasibility as well as an initial assessment of affordability.*** The initial assessment of affordability entails the prioritisation of projects. Only those projects that pass this phase should be put on a list of possible projects that will undergo a full feasibility study and *ex ante* value for money assessment.
4. ***The prioritisation of projects should be synchronised with the budget cycle.*** This will require specific procedures to ensure the synchronisation occurs.
5. ***The ex ante value for money assessment should take a whole-of-life approach. Once it has been done, its results should be compared to the initial affordability assessment and be fed as inputs into the present and future budgets of government.***
 - ***The ex ante value for money assessment should take a whole-of-life (net present value) approach that integrates the capital and current costs over the project's lifetime.*** Usually a whole-of-life (net present value) approach takes the form of a cost-benefit analysis or cost-effectiveness analysis.

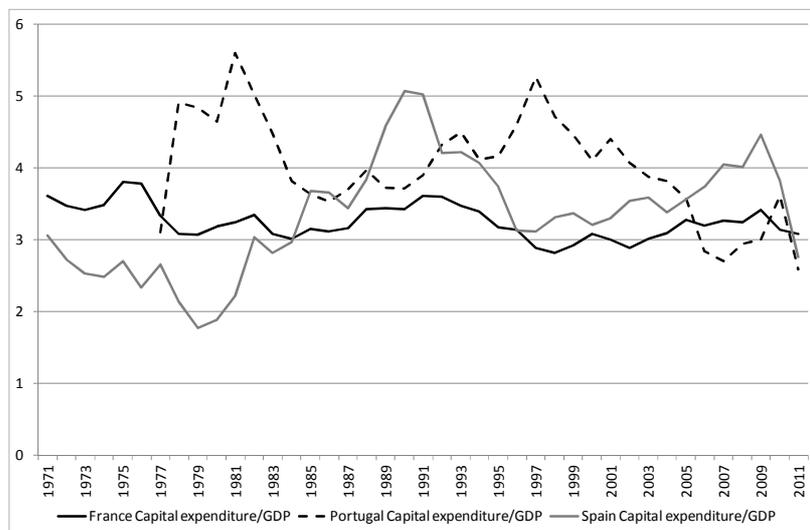
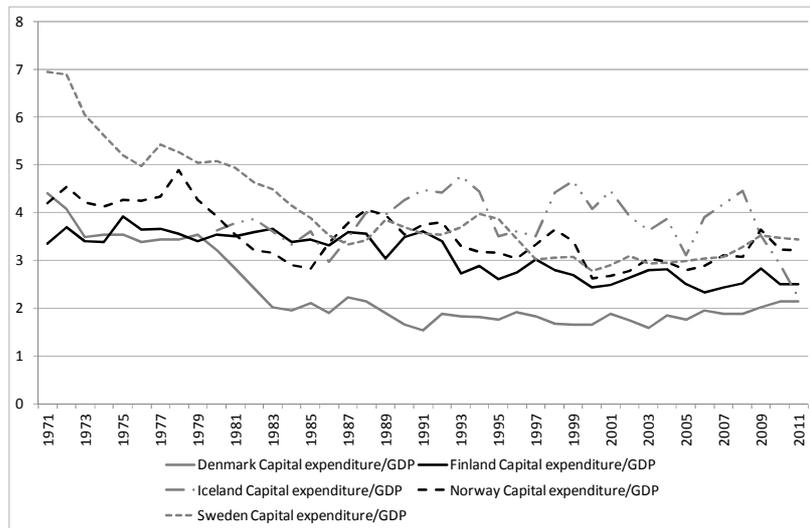
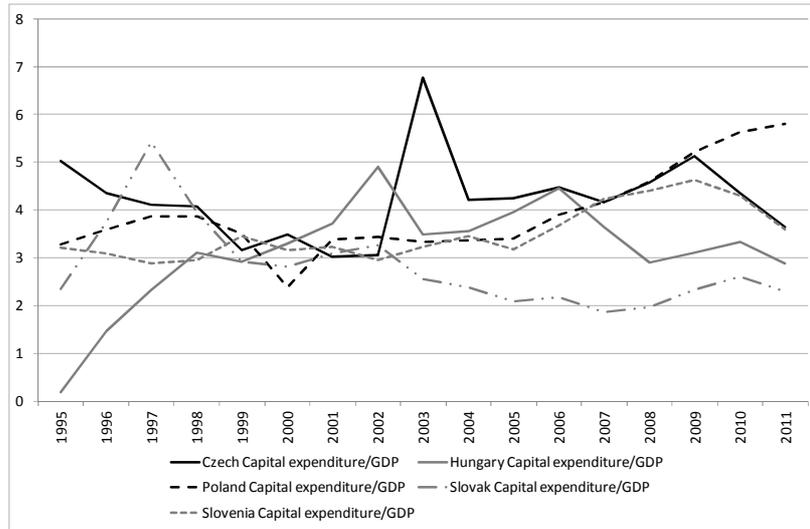
- ***The initial affordability assessments of those projects that pass the ex ante value for money assessment should be revisited*** to establish whether they are still affordable and to reconsider the prioritisation of projects done in the initial affordability assessment. *Again this process should be synchronised with the budget cycle.*
 - ***The results of the ex ante value for money assessment should be fed as inputs into the present and future budgets of the government.*** This applies to both the capital and the current expenditure elements of the *ex ante* value for money assessment.
6. Some governments report the claims that the unitary charges of their PPPs put on future government expenditure, usually decades ahead. In the same manner ***the government can also report the claims that TIP projects will put on future current expenditure, also for decades ahead.*** Reporting this requires not more data than was needed to calculate the unitary charges that a government needs to pay PPPs in future and it will provide information on the affordability of the government's proposed and actual projects.
 7. ***All projects, or at least all projects above a threshold, should include as part of their cost estimates an element that reflects the typical 'optimism bias' experienced in projects.***
 - ***Systematically biased deviations between ex post and ex ante value for money assessments should be recorded and serve as basis for the calculation of optimism bias in future contracts.***
 8. Before setting a project out for procurement, ***the government also needs to decide on the degree of bundling in the contract.*** Higher levels of bundling allows for economies of scale and scope and may reduce life-cycle cost, but higher levels of bundling may also mean less competition for the contract. Thus, the government needs to trade these aspects off to establish what level of bundling will lead to the highest value for money.
 9. ***When using PPPs to deliver services, it is advisable that governments apply procurement option pre-tests as well as relative value-for-money assessments such as PSC (or an equivalent instrument) to support the pursuit of maximum value for money.***
 - ***The government needs to apply a procurement option pre-test to assess whether or not a project needs to be considered for delivery via a PPP.*** The procurement option pre-test considers whether or not there is sufficient competition for and in the market, the possibility to quantify and define the amount and quality of the outputs and the possibility to transfer a sufficient amount of risk to the private partner. If a project cannot fulfil these requirements it probably is not suitable for delivery through a PPP.
 - If a project might be suitable for delivery through a PPP, ***the government needs to conduct a relative value-for-money assessment using a PSC*** (or an equivalent instrument) to assess whether a PPP will deliver more value for money than TIP.
 10. ***If the government considers the introduction of a user fee to be paid directly by the direct users of the service delivered by a PPP, the correct public sector comparison is with a TIP project that will also introduce user fees.*** What should not be compared is a PPP that charges user fees vs. a TIP that charges no user fees and where the government pays for the service using taxes. Such a comparison will cause the TIP project to look more expensive than the PPP.
 11. ***Government should conduct ex post value-for-money assessments.*** These value-for-money assessments should compare realised outcomes with the *ex ante* value-for-money assessments to

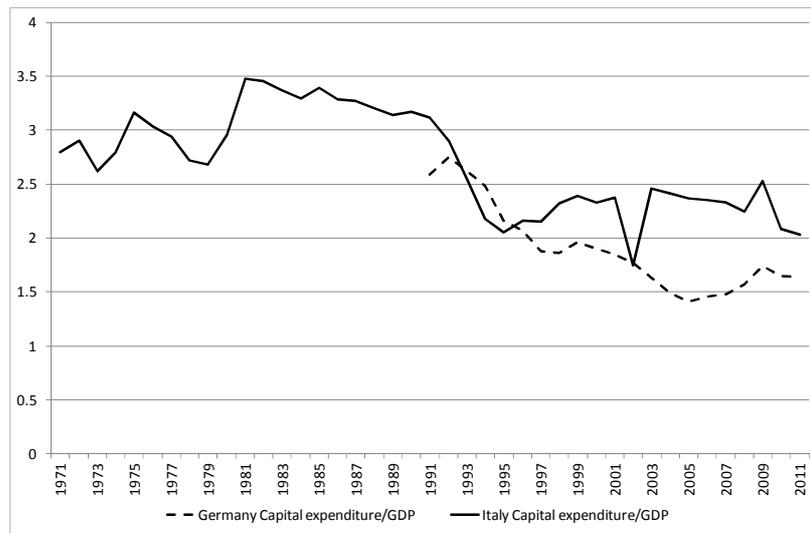
establish whether or not there has been deviations. In addition, an *ex post* value-for-money assessment should occur after completion of the project's construction, while further *ex post* value-for-money assessments should be conducted at regular intervals over the lifetime of the project to assess operational performance. Furthermore, the government should ensure that the monitoring and evaluation is not only done by the line department responsible for the project, but also by the **Central Budget Authority** (usually the Ministry of Finance) and the **Supreme Audit Institution**.

12. If a project cost the government more than it budgeted for, the government should require the ministry under whose auspices the project resorts, **to cover the cost overrun by reallocating resources from within its budget**. To the same extent ministries should also be **allowed to keep cost savings**.

Appendix 1: Capital expenditure/GDP for selected countries







Source: OECD Economic Outlook 91 and authors' own calculations

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