

Chapter 3

Transport infrastructure for development in Uruguay

Uruguay has an infrastructure gap in the condition and management of its transport sector. In terms of planning, the country lacks a clear strategy, such as a National Transport Plan. Accordingly, project programming is difficult as there is no clear agreement on prioritisation. In terms of infrastructure delivery and operations, the country appears to be focusing on PPPs to close the gap. Due to prudential constraints, Uruguay needs first to adopt a holistic view on how its infrastructure sector should be planned and organised before considering private participation. Infrastructure projects developed as PPPs need to be aligned with a National Transport Plan. Also, the prioritisation and procurement decisions should be carried out by separate entities to avoid potential bias. Uruguay should enforce and strengthen the current regulations, avoiding off balance sheet PPP execution. Clearer regulations should be set for PPPs' contract renegotiation. At present, PPPs should only be considered where there is a critical and clear present need.

Adequate infrastructure is an essential ingredient for growth and for boosting productivity, playing a key role in reducing income inequality and fighting poverty (Balmaseda et al., 2010). In Latin America, however, evidence shows that an infrastructure gap *vis-à-vis* other industrial and developing regions opened up in the 1980s and 1990s (Calderón and Servén, 2010), as governments sought fiscal balance by cutting back on public investment. While the region experienced high rates of economic growth in the 1990s, poor infrastructure stock and quality has been holding back the region's full potential for growth and poverty reduction.

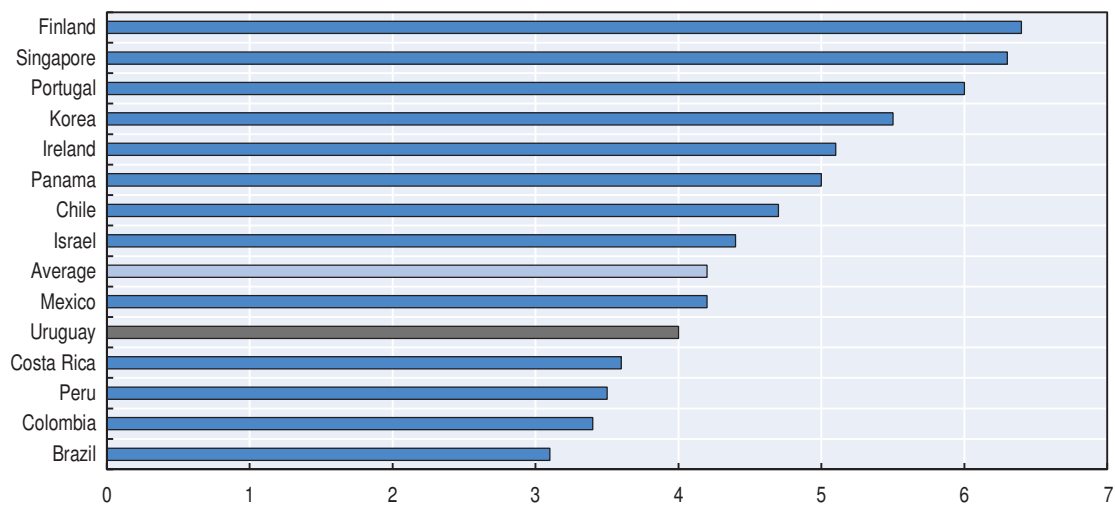
Uruguay's infrastructure gap is significant and its poor quality seems to be putting an important brake on economic growth. Even though improvements have been made, major challenges remain, especially in the transport sector. This chapter outlines Uruguay's main challenges, including an overview of its transport infrastructure planning and governance processes. It assesses the pros and cons of public-private partnerships and other models for infrastructure investment, before making some detailed recommendations for the country's next steps.

Poor transport infrastructure is undermining growth

Uruguay needs to improve the quality of its existing infrastructure to boost its productivity and to increase its citizens' quality of life. Since the 1980s, retrenchment in overall investment in Latin America has seen the infrastructure gap grow between this region and other middle-income and more developed economies. Although Uruguay had a reasonable infrastructure stock in the 1980s, the reduction in investment has undermined government capacity to maintain it. Infrastructure is considered among the top five most problematic factors for private sector development in Uruguay. While major investment in the electricity and telecommunications sectors over the past decade has boosted the quality of these sectors compared to other economies in the region (Figure 3.1), Uruguay's transport challenges may be limiting its successful insertion in global value chains.

Uruguay's electricity supply is among the most efficient in Latin America. This sector has received most private investment in the last decade, allowing for significant improvements in the provision and quality of the service. Hence, the percentage of firms that consider electricity to be a major constraint is below the regional average and its quality ranks as medium-high (WEF, 2014). Uruguay's telecommunication infrastructure has surpassed the OECD average in less than a decade. The number of mobile and fixed line subscriptions – a general measure of telecommunications infrastructure – tripled between 2005 and 2013 (WEF, 2014). This radical improvement in coverage may be the result of a significant increase in private investment in the sector, involving more than 20 projects in the last decade.

Figure 3.1. Overall infrastructure quality



Note: Index includes telecommunications, electricity and transport. The index is interpreted as: 1=extremely undeveloped - among the worst in the world-; 7=extensive and efficient - among the best of the world

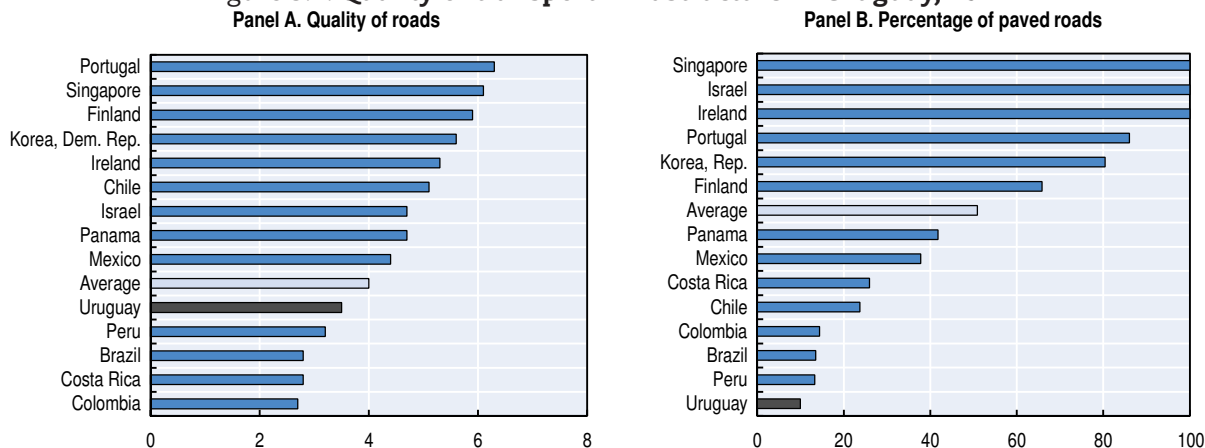
Source: WEF (2014), *World Competitiveness Report 2014-2015*, World Economic Forum.

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Uruguay's port infrastructure is also considered to be above international standards; nevertheless, the country will face challenges in meeting demand in the medium term, given the strong growth of logistics-related sectors such as mining and pulp mill. The improvements in port infrastructure are the result of a clear national policy to develop the export sector and logistics services. This began in 1992 with the approval of the Port Law (*Ley de Puertos*) and since then government national policy has concentrated on creating a regulatory framework that will attract foreign investment, promote market diversification, update operational procedures to international standards and reduce costs (Olazabal, 2013). The use of integrated technology services such as "Sistema Lucia", which allow for electronic and real time processing of various operations such as freight forwarding and clearing, has seen Uruguayan ports become the reference for the region in terms of efficiency. Nevertheless, more investment is required in multimodal infrastructure to foster long-term economic growth.

The main restrictions for business development in Uruguay are therefore the poor condition of its road and rail networks. The length of the railway in Uruguay is 2 961 km, equivalent to 1.7% of the total surface of the country; only 57% of the railway is operational, accounting for 6.5% of total national load, including passengers and freight (Tettamanti, 2013). Infrastructure capacity is quite low and railways are not in good enough condition to operate efficiently. This situation not only increases accidents, but also puts up transportation costs due to poor reliability.

Inefficiencies in the railway services have increased the demand for road transportation. Uruguay has a road density of 0.44 km of road per square km of surface, which is close to the OECD average. The total road network is 8 570 km long, equivalent to 4.9% of the country's total surface. In terms of quality, 46% of the network is in good condition, 27% in average condition and the remaining 27% in poor condition. However, only 10% of roads are paved (Figure 3.2) and since 2008, road infrastructure quality has declined, mainly because of reduced maintenance capacity (Cáceres and Farinasso, 2014).

Figure 3.2. **Quality of transport infrastructure in Uruguay, 2014**

Note: The index goes from 1 (extremely undeveloped, among the worst in the world) to 7 (extensive and efficient, among the best in the world).

Source: WEF (2014), *World Competitiveness Report 2014-2015*, World Economic Forum.

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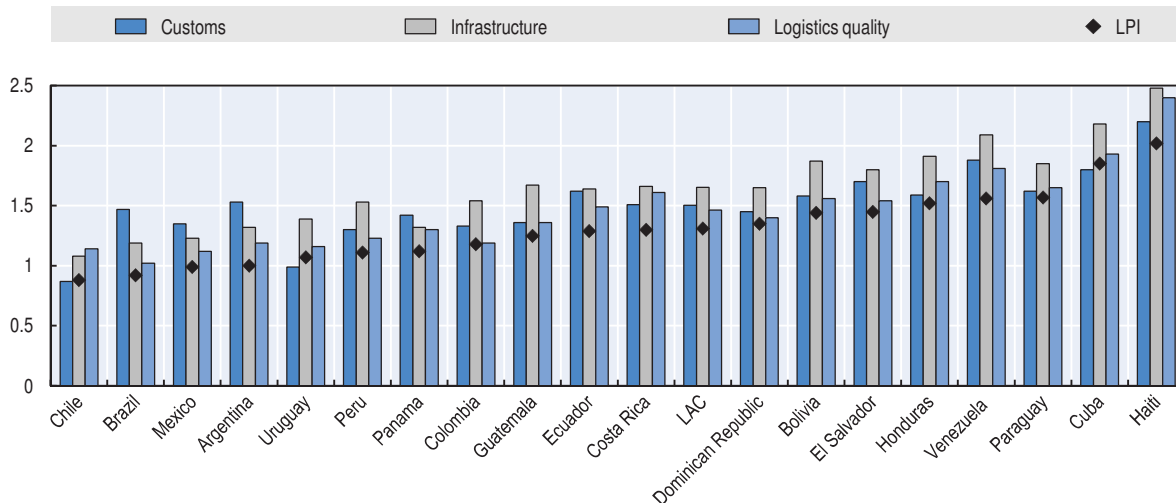
The poor quality of Uruguay's road and rail networks is reducing the country's ability to locate itself as a logistics hub for the area. Figure 3.3 compares Uruguay's performance with the OECD's best performer (Germany) on the World Bank's Logistics Performance Index (LPI).¹ Uruguay's performance on logistics is only 30% that of Germany, and is largely held back by the quality of its infrastructure and customs procedures (Figure 3.3). The OECD notes that if countries were to improve their score by one in the LPI, labour productivity could improve by up to 35% (OECD/CAF/ECLAC, 2013).

Considering the high coverage of road and railroad networks, rehabilitation should be concentrated on maintenance and upgrading to increase their quality. However, the share of maintenance in overall expenditure has been falling recently, reaching half a percentage point of GDP in the allocation for 2014. At the same time the demand for transportation services has surged and the geographic direction of traffic has changed due to development in new regions (Cáceres and Farinasso, 2014). An increase in maintenance expenditure will be key to meeting the challenges arising from the increases in production and in cargo tonnage and the emergence of new destinations for cargo outside Montevideo.

Significant increases in economic growth could result from improvements to the quality of the country's infrastructure services (Calderón and Servén 2010). Despite the great heterogeneity across the region, good quality transport infrastructure is a shared challenge (Balmaseda et al., 2010). Analysis shows that Latin America's best performer in transport infrastructure is consistently below emerging Asia. Given the reduction in public investment in the past decade, the region should undertake policy measures to foster private investment in infrastructure in order to close the infrastructure gap. However, without measures to address low quality institutions, opaque procurement and concession processes, periodic re-negotiations of contracts, and inadequate regulatory frameworks for public-private partnerships, private investment in infrastructure will make little headway. The region should also increase the quality of public services and avoid future fiscal

consolidation based solely on a reduction of public investment. The rest of this chapter discusses how some of these challenges can be met in Uruguay.

Figure 3.3. **Logistics performance gap to the best-performing OECD country, 2014**
Latin American and Caribbean countries



Note: The Logistics Performance Index (LPI) has a scale of 1 to 5, where 5 represents the best logistics performance. The gap refers to the difference for each logistics component with the best-performing OECD country, which is Finland for the LPI and for customs, logistics quality, and tracking and tracing; Germany for infrastructure and timeliness; the Netherlands for international shipments. Latin America and the Caribbean (LAC) consists of 19 countries.

Source: Authors' estimations based on OECD/UN-ECLAC/CAF (2013), *Latin American Economic Outlook 2014: Logistics and Competitiveness for Development*, <http://dx.doi.org/10.1787/leo-2014-en>.

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Infrastructure development needs to start with a national plan

Without a clear sense of direction, infrastructure prioritisation will remain a challenge for Uruguay. The country currently lacks a comprehensive national or sectoral transport master plan which summarises objectives, deadlines, measures and the means for their execution and resourcing.² This results in an unclear project pipeline, a problem confirmed during the OECD interviews with the relevant authorities. Agreement needs to be reached not just on a general direction, but in sufficient detail to allow for clear project programming.

Uruguay has invested considerable resources in developing a national strategy³ for the development of transport and logistics to 2030. Guided workshops were used with the help of external experts to elicit the objectives and principles for this national strategy. Numerous objectives have been proposed for individual sectors, as well as for the institutional setup of the transport sector. The strategic objectives set out in the document “Policy and Social Dialogue for Logistics in Uruguay 2030” have been appropriately agreed in a broad public consultation process. However, the document is rather abstract (Box 3.1), and with the exception of a few specific projects, only mentions the potential need to create master plans. The information includes partial analysis, opinions, and lists of projects from official and non-official sources. These projects appear to have been considered but have not been officially approved. In short, neither the existing document nor its supporting documentation include the important elements outlined in Box 3.2.

Box 3.1. Uruguay's strategic plan for logistics, transport and infrastructure 2030: An excerpt

The plan lists the priorities to be implemented in the short run. These include:

- Short-term feasibility study for the construction of a deep-water port, analysing the potential demand, location, jurisdiction, regional hinterlands, and the potential externalities.
- Encouraging the use of rail for inland freight transportation in a safe and efficient way; adopting modern information and communication technology in railway management; enabling and restoring some rail networks may be economically sustainable in the medium term.
- Fostering the use of the river network for transporting goods, for tourism and for other services; promoting sustainable projects in the Uruguay River and in the Hidrovia Uruguay-Brazil (Laguna Merim - Lagoa dos Patos); optimising the outlet to the sea for freight ships by deepening Canal Martín García; improving and increasing the port infrastructure in Nueva Palmira and Fray Bentos and connecting these ports to the railways.
- Improving the competitiveness of the Port of Montevideo (increasing the port area, deepening the dredging, improving its connectivity with the hinterland and using the Uruguay River as a waterway).
- Implementing a Unified Information System, including a register of drivers, traffic accidents, and traffic offenders, to achieve efficient and safe road transportation of goods and passengers.
- Developing and promoting a high-quality collective urban transport system.

Source: Uruguay Infraestructura 2030.

Box 3.2. An overview of the main components of a national transport plan

A proper transport plan should:

1. Provide a basis for sustainable sector development over the medium-long term;
2. Cover the whole sector development and maintenance requirements, independent of funding sources;
3. Include operations, organisation and infrastructure development;
4. Include considerations of systemic reform where necessary (e.g. the planning process);
5. Address issues of/guarantee sustainability of both construction and operation and maintenance;
6. Require robust strategic analysis of demand / functionality of the network;
7. Require clear demonstration of need/concept of particular solutions based on an analysis of underlying issues;
8. Be inter-modal;
9. Be based on the relevant economic, social and environmental developments and objectives;
10. Provide the link between the relevant (national) policies and the projects to be implemented;
11. Provide the basis for further project development;
12. Be suitable for the future incorporation of new information and developments and allow for further development of the plan.

Source: JASPERS (2014a), *Jaspers Appraisal Guidance (Transport): The Use of Transport Models in Transport Planning and Project Appraisal*.

A more comprehensive and actionable national transport plan for Uruguay could be developed by drawing on the experience of OECD countries (Box 3.3). The creation of a comprehensive national transport plan is an iterative process involving three main steps:

- Step 1: Information/data collection (including wishes of stakeholders) and checking for data quality.
- Step 2: Analysing the information/data collected (e.g. the current conditions and needs).
- Step 3: Establishing objectives and developing monitoring measures.

Box 3.3. Some OECD examples of national infrastructure plans

United Kingdom

The UK National Infrastructure Plan articulates a vision for UK infrastructure and sets out the government's plan for meeting the UK's infrastructure needs to 2020 and beyond. It identifies "Top 40" priority investments that contribute to meeting strategic objectives in different sectors and will therefore benefit from increased government attention. The criteria used to select the Top 40 priority investments are:

- Potential contribution to economic growth – investment that enhances productivity and enables innovation.
- Nationally significant investment that delivers substantial new, replacement or enhanced quality, sustainability and capacity of infrastructure.
- Projects that attract or unlock significant private investment.

Australia

Infrastructure Australia has enunciated the following targets to guide infrastructure investment and reforms. Investment proposals need to make a positive contribution to these priorities and be aligned with national, state or regional strategic plans.

- Enhance national productivity by more than 2% a year.
- Increase economic growth by more than 3% a year.
- Increase the scale and distribution of private infrastructure investment across the economy.
- Eliminate the avoidable cost of congestion in our cities.

Step 2 can involve transport modelling

An essential part of Step 2 (analysis) is to develop a national transport model (Box 3.4), which is currently lacking in Uruguay's national strategy. This provides an idea of how transport needs could change over time and informs decision makers on the impacts of alternative solutions. It can also be used to analyse the impact of a proposed measure/infrastructure project. The model can be used in different ways to inform the decision-making process (JASPERS, 2014a):⁴

- Understanding the function of existing infrastructure in terms of passenger groups, freight types, trip types and origins and destinations.
- Identifying bottlenecks in the network and understanding the need for additional capacity.
- Providing demand data for appropriate options analysis, design and dimensioning of new infrastructure and operational services (e.g. public transport timetables) responding to traffic forecasts and functional requirements.

- Understanding how transport conditions will change in the future in response to changes in population, employment, economic activity, car ownership and development patterns.
- Implicitly, the outputs above provide quantitative information that informs scheme design, cost benefit analysis, financial analysis, and environmental assessment.

Simulations for the movement of passengers and goods may also be linked to other models (e.g. the national macroeconomic model).

Box 3.4. What is a national transport model?

A traffic model is a fundamental tool for understanding the current traffic system, also allowing for realistic traffic forecasting, taking into account the socio-economic and land-use developments of the study area, and how these affect transport demand and its interaction with the transport supply. Analyses of the interventions can be both qualitative and quantitative. For informing a National Transport Plan the model must be multi-modal, in order to capture the complexity of users' behaviour, and should cover the entire national territory and transport network, plus the main access/exit corridors beyond the national borders. The model should also involve more detailed modelling for each region, from which relevant data can be extracted for nationwide analyses. Furthermore, the model should also permit to assess not only the different interventions on the transport infrastructure, but also on the organisation and operation of entire transport system. The model can be provided by an external consultant, but its conceptual management and maintenance (of data on transport demand and supply, of the types of analyses to be carried out, etc.) must always be in the hands of public stakeholders (ministries of transport, regional/local authorities and operators, etc.).

Source: JASPERS (2014a), *Jaspers Appraisal Guidance (Transport): The Use of Transport Models in Transport Planning and Project Appraisal*.

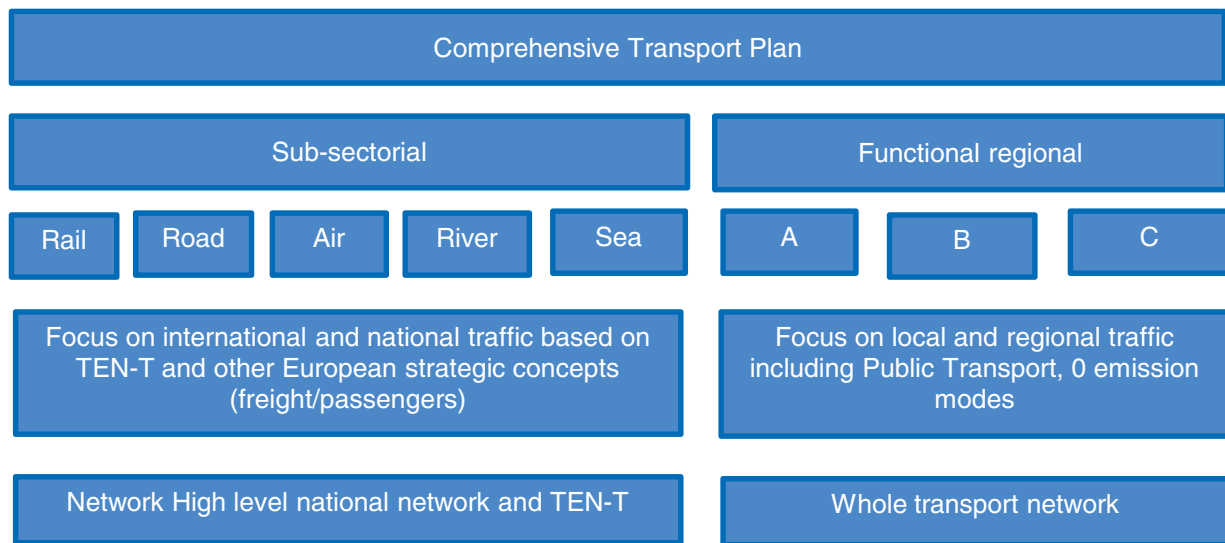
If a transport model is developed, to remain up to date and useful it must also be maintained. In practice, it is often difficult to maintain complex transport planning models as an up-to-date planning tool. They require specialised knowledge, and the data requirements can be very large and expensive to collect. While it could be recommended that Uruguay develops such a model to support more informed decisions, a more serious priority is to develop and agree on an operational master plan for each mode of transportation. These plans should have a greater level of detail than the current strategy and summarise objectives, deadlines, measures and the (realistic) means for their execution and affordability.

Several OECD countries have developed guidance for transport modelling, which is used in the terms of reference for procuring the model from a private supplier. Where such guidance is not available, external experts could be sought to adapt existing documentation.⁵

Step 3. Setting objectives and developing monitoring measures

The comprehensive transport plan should be drafted on the basis of sectoral analyses, complemented by functional regional concepts⁶ as appropriate (JASPERS, 2014a). Figure 3.4 below presents one example. Although it has some EU specific elements (i.e. in part it relates to concepts and policies, such as TEN-T,⁷ which were adopted on a supra-national level), the approach is generic.

Figure 3.4. **Integration of sub-sectoral and functional regional documents to the EU's Transport Plan**



Source: JASPERS (2014a), *Jaspers Appraisal Guidance (Transport): The Use of Transport Models in Transport Planning and Project Appraisal*.

In the EU the entire process is subject to Strategic Environmental Assessment (to ensure preservation of natural habitats, and address trans-boundary effects and climate change issues). The final part of the process involves a public consultation, making the draft document available to the public and allowing the finalisation and adoption of the document at an appropriate government level. Adequate mechanisms for monitoring operational and capital expenditures should also be introduced at this stage.

Infrastructure investment prioritisation can be considerably improved

Once a comprehensive national transport strategy has been agreed and adopted, all investment projects should be prioritised according to government goals and a social evaluation. The decision to invest should be based on a whole-of-government perspective and be separate from considerations of how to procure and finance the project. Those projects that survive the needs analysis and preliminary feasibility study, as well as the initial prioritisation and affordability tests, 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 is 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 project prioritisation.

Although the OECD understands that value for money should be the only test as to whether a particular project is procured by PPP or through conventional procurement routes, not all OECD countries perform value-for-money analysis for PPP projects (see Box 3.5). The decision to invest should also be based on a holistic cost-benefit analysis (CBA) addressing the project's interaction with other government policy tools and objectives. In OECD countries,

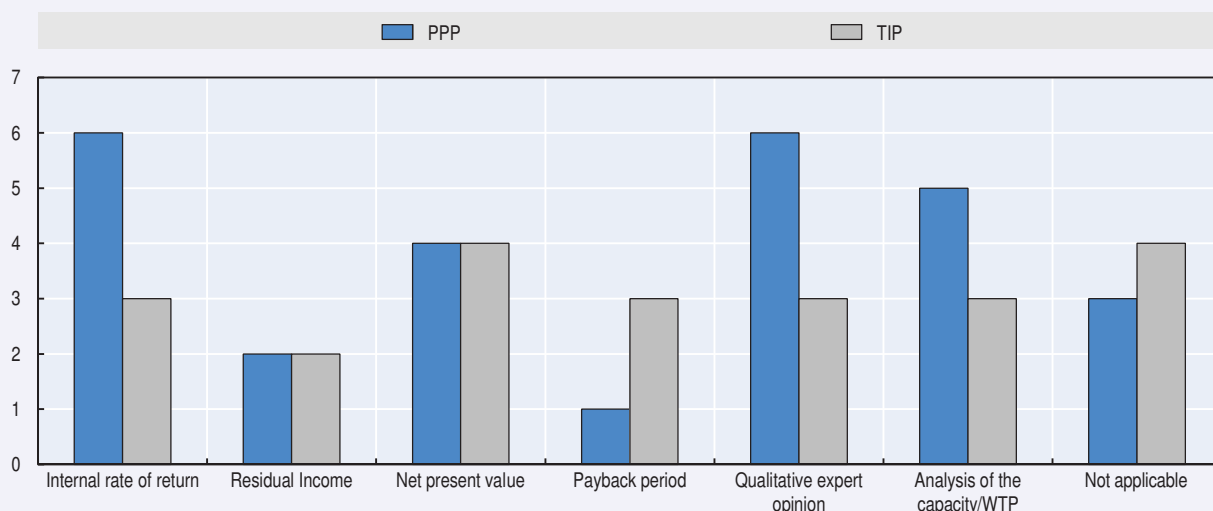
Box 3.5. Value for money in OECD countries


Any project, whether it is a PPP or a traditionally procured project, should only be undertaken if it creates value for money (Burger and Hawkesworth, 2011). Value for money can be defined as what a government judges to be an optimal combination of quantity, quality, features and price (i.e. cost), expected over the project's lifetime. Thus, the value-for-money concept attempts to encapsulate the interests of citizens, both as taxpayers and recipients of public services.

There are several techniques for assessing value for money. Cost-benefit analysis is a systematic process for calculating and comparing benefits and costs of a government policy.

Cost-benefit analysis is related to, but distinct from cost-effectiveness analysis. In cost benefit analysis, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and costs over time are expressed on a common basis in terms of their "net present value". Cost-effectiveness analysis is a form of economic analysis that compares the relative costs and outcomes (effects) of two or more courses of action. Cost-effectiveness analysis is often used in the field of health services, where it may be inappropriate to monetise health effect. Common measures include "quality-adjusted life years". Other relative analysis methods could be for example public sector comparators (Figure 3.5).

Figure 3.5. Value for money in OECD countries: Specific tools used in VfM analysis



Source: OECD (2014), *Budgeting Practices and Procedures in OECD Countries*, OECD Publishing, <http://dx.doi.org/10.1787/9789264059696-en>.
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About half of the OECD countries do an absolute value-for-money analysis such as cost-benefit analysis for all PPP projects. Two-thirds of the countries do such analysis either for all PPP projects or projects above a certain threshold. This is the case for 56% of traditional infrastructure projects. Most of the rest do such analysis on an ad hoc basis. Only one country (Slovak Republic) reports that they do not perform absolute value-for-money analysis on TIP projects. Five countries report that an absolute value-for-money analysis is not applicable for PPP projects while two more countries report that an absolute value-for-money analysis is not applicable for TIP projects, of which Switzerland reports not applicable for both types of projects.

The net present value methodology is used by almost two-thirds of the OECD countries followed by the internal rate of return methodology (48% on PPPs and 39% on TIPs) and qualitative expert opinion (42% on PPPs and 33% on TIPs). Between 15% and 18% of the countries do not use such specific tools.

Source: OECD (2014), *Budgeting Practices and Procedures in OECD Countries*, OECD Publishing, <http://dx.doi.org/10.1787/9789264059696-en>.

the CBA is more frequently required to approve PPP projects than traditional infrastructure projects; while 42% of OECD countries require that CBA approves all PPP projects, this is the case for only 18% of traditional infrastructure procurement projects (OECD 2014).

Although Uruguay has the methodologies to implement a value-for-money analysis, it does not possess enough detailed historical information for comparing a proposed procurement option with other procurement methods. Instead the country has to rely on international agencies with the expertise to perform the analysis based on regional or international benchmarks. Uruguay needs systems in place that allow for the compilation of detailed information on project execution. Some measures to foster this process have been set in place with the implementation of a programme budget and the National Public Investment System (SNIP; see Box 3.8), but more needs to be done. Uruguay should aim for budget detail at project level and to establish reliable data collection systems that will allow for the construction of a significant database for value-for-money analysis.

Chile's National Public Investment System is a good example of a structured and coherent framework for identifying, co-ordinating, evaluating and implementing public investments (Box 3.6).

Box 3.6. Chile's National Public Investment System (SNI)

In Chile, all central and regional (even local) public bodies wishing to undertake an investment project or programme must apply to the National Public Investment System (SNIP) for funding. Chile's system gives a major role to the social appraisal of publicly funded projects and programmes. The Planning Ministry (Mideplan) applies a system of checks aimed to verify, first, the formal admissibility of the project and, second, its contribution to a positive welfare change.

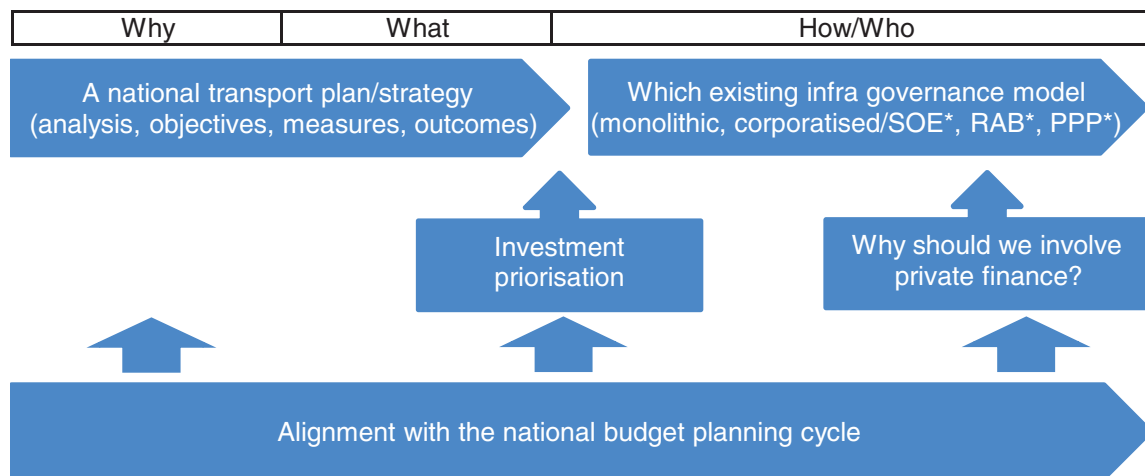
A key feature of the project appraisal procedure is the institutional separation between the entity promoting the project and Mideplan, the institution in charge of taking the funding decision, as well as of both ex-ante and ex-post project evaluation. This institution is responsible for regulating the procedures for appraising projects that seek public funding, developing and managing an information system for investment initiatives, developing project preparation and appraisal methodologies and training public officials. Project appraisal is carried out according to a multistage assessment with different filters depending on the phase of the project implementation as well as the complexity of the project. Finally, a strong emphasis is put on standardisation of criteria and formats for the information presented, facilitating project comparison and ranking. The methodology, standards and norms are widely disseminated and systematically taught to public officials at all levels of government, which has contributed to an appraisal culture permeating the Chilean public sector.

Source: Gomez-Lobo (2012), "The ups and downs of a public transport reform: the case of Transantiago", *Working Papers* WP 354.

What are Uruguay's infrastructure governance challenges?

Developing a national transport plan is the first step; it then has to be implemented, maintained and funded. Together this is referred to as infrastructure governance (Figure 3.6). There are several approaches or models of infrastructure governance, including state-owned enterprise (SOEs), public-private partnership (PPPs) and regulatory asset base (RAB) models, described below. Uruguay's current approach shares elements of both SOEs and PPPs.

Figure 3.6. **The transport infrastructure planning and governance process (an investment perspective)**



Notes: SOE: State-owned enterprise; PPP: public-private partnership; RAB: regulatory asset base model.

This section first describes Uruguay's current approach to infrastructure governance, before reviewing the pros and cons for the country of new approaches (e.g. PPPs or RAB) and of improvements to the existing approach.

Uruguay's existing infrastructure governance needs to be strengthened

The traditional and dominant model of infrastructure governance in OECD countries involves transport infrastructure being exclusively managed through a state agency (e.g. a highway agency) or a corporatised entity (e.g. a highway company, a railway company). The agencies are distinct and separate organisational units from the ministries, but they are considered to be a part of the public sector (i.e. subject to the same rules and obligations in terms of financial reporting, worker pay systems, etc.). The infrastructure companies are subject to corporate law and are generally state-owned. The financial reporting in a company is a clear advantage, when compared to an agency. Companies are subject to accrual-based accounting, which is a more complete way of reporting than the cash flow-based accounting used in the public sector (e.g. there is no depreciation in the cash flow system). These infrastructure managers answer to the line ministry and execute the relevant strategic policy documents, using direct provision, traditional public procurement (with simple or multi-year performance contracts)⁸ or outsourcing.⁹ The infrastructure managers are directly in charge of all or the majority of the sectoral infrastructure (e.g. the road or rail network). Annex 3.A1 contains a detailed discussion of the challenges of the traditional infrastructure governance model.

In Uruguay, SOEs and PPPs have been preponderant for the governance of infrastructure projects. Uruguay has not yet fully established a corporatised structure in its transport sector. The National Road Directorate (DNV) at the Ministry of Transport is in charge of the core road network, with less than 20% being managed by a corporatised highway company – CVU. The works on the CVU's network are however undertaken by the DNV (under the

terms of a contract signed with CVU to provide technical support to ensure that these roads are maintained according to prevailing standards in the Uruguayan road network). Uruguay uses multi-annual maintenance performance contracts (known as CREMA) in the road sector. The maintenance management types on the road network are outlined in Table 3.1 below.

To improve its performance, Uruguay needs to corporatise its infrastructure management function. This will mean creating an institution in charge of managing infrastructure, which will need to prepare financial statements in line with private sector rules. This company should have a performance and a multi-year financing contract in place. It should also publicly report on its fulfilment of performance objectives and the condition of the infrastructure. An important part of this process – beyond the scope of this paper – then becomes the state corporate governance (the procedures for setting a competent management, supervisory boards etc.).

Table 3.1. Road condition in Uruguay by management type

Management type	Road condition (Km)			Total
	Good and very good	Acceptable	Bad	
Concession with tolls	119	0	0	119
DNV	2 338	1 628	1 392	5 358
Contracted maintenance (CREMA)	183	89	40	312
Routine maintenance (microempresas)	815	375	256	1 446
Concession MTOP-CND	1 375	87	0	1 462
Total	4 830	2 179	1 688	8 697

Source: CAF (2010), *Análisis del sector transporte*.

In the rail sector Uruguay has already embarked on a model that is closer to OECD practice. Recent restructuring involved the corporatisation of the railway functions and vertical separation between the infrastructure management company – AFE (*Administración de los Ferrocarriles del Estado*) and the operator – SELF (*Servicios Logísticos Ferroviarios*). The general idea is to enable competition between operators in terms of infrastructure management. The restructuring process also involves the establishment of a regulator (DNTF - *Dirección Nacional de Transporte Ferroviario*, part of the Ministry of Transportation and Public Works - MTOP), to ensure fair access to investment on the part of the infrastructure manager. Uruguay has also decided to introduce a government regulator, with external experts providing capacity-building advice (World Bank, 2014). However, Uruguay might want to consider establishing an independent regulator rather than a government regulator in the future.¹⁰ This may not only be desirable from the perspective of regulating fair access to infrastructure – it would also allow for a more transparent approach to financing and efficiency incentives which are not possible under government regulation.

The restructuring of the sector is a positive development, but should be more than a formal change. A multi-annual performance contract needs to be established between MTOP and AFE, to ensure budget predictability and efficiency. Table 3.2 summarises the benefits of multi-annual contracts¹¹ according to European rail infrastructure managers.

Table 3.2. **Reported influence of multi-annual contracts for rail infrastructure management**

Reduction in maintenance cost due to:	Estimated efficiency gains
More efficient use of resources	2-5%
Increased efficiency in outsourcing maintenance	5-10%
More advanced personnel reduction policies	0.1- 3%

Source: Tzanakakis (2013), *The railway track and its long term behaviour: a handbook for a railway*.

Does Uruguay's current system achieve cost recovery?

Cost recovery and life-cycle optimisation are two key challenges inherent in the traditional model. Any investment should recover the cost of the initial investment, depreciation (to allow for the replacement/renewal of the infrastructure), operations (management and current maintenance), and the cost of financing (including an adequate return). In short, the entity that is managing the infrastructure should have enough resources to pay for its operational expenditures (OPEX), capital expenditures (CAPEX) and the cost of sustainably maintaining the condition of the infrastructure. Uruguay has not yet managed to achieve full cost recovery.

Life-cycle optimisation, on the other hand, involves taking decisions which optimise costs over the whole life-cycle. It also requires predictable funding. If an infrastructure manager's funding is not predictable or is insufficient, the efficiency of infrastructure governance will be severely impaired (see Table 3.2 above).

In theory, full cost recovery should be easy to achieve. Investment appraisal deals with the question of what investments should have priority. Priority investments should have the highest expected social and economic welfare outcomes. In the absence of economic crises, if a country has chosen the right infrastructure investments, economic growth will generate the additional public finance, which can then be used for new welfare-generating investments and to maintain existing infrastructure for future generations. In practice, however, both cost recovery and life-cycle optimisation are influenced by political cycles. The short political cycles of individual governments lead to short-termism and are driven by voters' expectations. Voters appreciate the lowest possible prices, which can mean insufficient spending on maintenance because this does not immediately affect the quality of the service they receive, and instead defers these costs to the next generation. The costs of deferred maintenance are however thought to be much higher than bank interest rates (see Annex 3.A1).

An important part of the process towards full cost recovery in transport is to develop a national, multi-sector infrastructure balance sheet. This would record the value of the infrastructure in line with the current cost accounting principles¹² and include the cost of deferred maintenance so as to reflect the true value of infrastructure in a transparent way. Some OECD countries have achieved this in some sectors (e.g. the Netherlands for its railway infrastructure), but there is a need to expand this to all network industries.

Despite rapid growth in road traffic, Uruguay is starting from a relatively low base. The annual average daily traffic on many major inter-urban roads is between only 1 000 and 3 000 vehicles. As a comparison, the traffic volume on New Zealand's motorways and expressways is above 8 000 vehicles a day, and 12 000 in arterial roads. This suggests that Uruguay's initial core road network has been over-provided, raising questions about affordability and what parts of the network should be recovered and to what extent.

For rail, the situation is more serious, with about 50% of nearly 3 000 km of lines in disuse due to poor condition (Tettamanti, 2013). Table 3.3 also suggests that the use of the operational part of the network is minimal, which is again related to the poor technical condition of the infrastructure.

Table 3.3. **Freight traffic in Uruguay, 1999-2007 (in thousand tons and millions of ton kilometers)**

	1999		2007		Variation in ton-km 2007-1999 (in %)	Average distance 2008 (km)
	Tons (1000s)	Ton-km (in millions)	Tons (1000s)	Ton-km (in millions)		
Uruguay	1 321	239	1 393	304	27	218

Source: CAF (2010).

The traditional model of infrastructure governance described above has developed to different levels of sophistication in different countries and will likely evolve further. Nevertheless, the traditional model around the world to date has had difficulty establishing an efficient and transparent incentive framework that is resistant to the myopic perspective of individual governments or individual interest groups (see Annex 3.A1). Moreover, it is also lacking in transparency in terms of full cost recovery (to what extent the current generation is deferring the cost of existing infrastructure to the next). The next section explores other options.

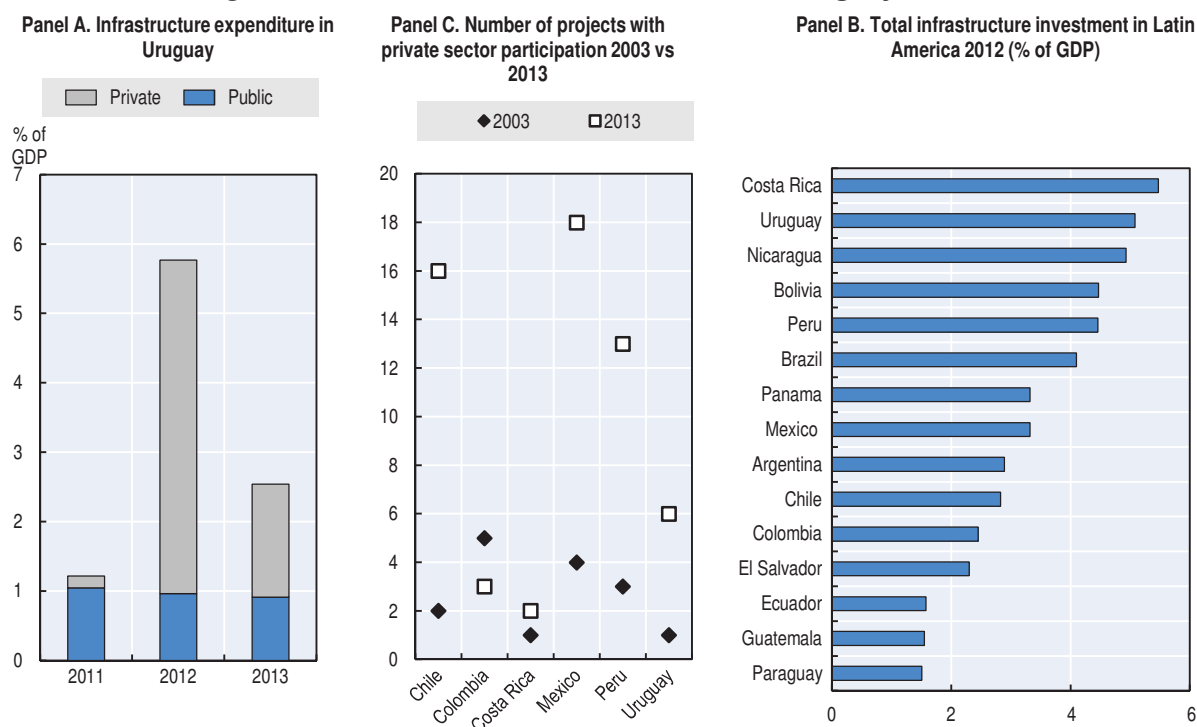
Can private sector participation close the infrastructure gap?

The United Nations Economic Commission for Latin America and the Caribbean estimates that to close the region's infrastructure gap, Latin American countries will need to invest 6.2% of GDP annually (ECLAC, 2014). This is a much greater investment than Uruguay has made over the last decade (less than 2% on average – below the region average of 2.7%). Nonetheless, investment in infrastructure has risen significantly in Uruguay in the last five years due to a major expansion in private sector participation (Figure 3.7).

Public sector expenditure on infrastructure has remained constant over the last decade (at around 1.5% of GDP), concentrating on greenfield road projects. While most resources have been allocated to capital investment, recent years have seen some increases in human resources investment as a consequence of the implementation of the Public Private Partnership Law (detailed below) and the new railroad regulatory framework, which demands greater technical expertise.

There are several options for private sector participation in infrastructure delivery and operation. In principle, however, these boil down to two main generic models, distinguished as competition with the economic regulator and competition for the contract.

The regulated asset base model (RAB) involves competition with the economic regulator. It normally (but not necessarily) involves the privatisation of an existing infrastructure management company. The company is granted a license from an independent institution – the economic regulator. This approach is otherwise known as (economic) regulation by contract. The license is in effect a contract with the regulator, which entails rights and obligations for both parties. The incentives in this case come from the economic regulator, mimicking competition.

Figure 3.7. **Total infrastructure investment in Uruguay 2011-13**

Source: Public data: Authors' calculations based on data from *Observatorio de Políticas Públicas de Uruguay*. Private sector data: World Bank (2014), *Private Participation in Infrastructure* (database), accessed March 2014, <http://ppi.worldbank.org/>.

StatLink  <http://dx.doi.org/10.1787/888933330220>

The public-private partnership (PPP) model involves competition for the contract and the use of a concession. It can apply to the operation of existing infrastructure or the creation and operation of new infrastructure in terms of project finance. Both approaches are generally included under the term of PPP. The concession length is limited, usually to the expected life of the infrastructure in question (e.g. 20 years in the case of roads). In this case, ensuring competition is crucial in maximising the social welfare benefits of the project/concession.

Both approaches encourage efficiency and create a contractual “bubble” aimed at protecting the infrastructure manager from the time-inconsistent behaviour of policy makers. However, they both vary in their characteristics and challenges. Annex 3.A1 summarises their general characteristics more fully, while below we outline what they have to offer Uruguay.

PPPs may offer efficiency benefits

There are good reasons why Uruguay (or any country) should consider private sector participation. However, these are primarily related to efficiency rather than new sources of financing (Box 3.7). In developing countries, the introduction of economic regulation and private sector participation through PPPs has had a substantial impact on the performance of network industries. Estache and Rossi (2010) explored a representative sample of 220 electricity utilities from 51 development and transition countries between 1985 and 2005 to show that privatised firms were more efficient than regulated, state-owned enterprises, and that the establishment of a regulatory agency was essential for greater efficiency.¹³

There is little difference in the scope of investment undertaken by state-owned and privately held enterprises, however (Gassner et al., 2009). Furthermore, private sector participation (henceforth PSP) in developing and transition economies does not go hand in hand with the achievement of full cost recovery. As many examples of PSP in these cases are fixed duration concessions, if they fail to sufficiently invest in and maintain infrastructure, the assets will be hard put to maintain their service levels (if at all possible), but residual value at the end of the concession will be reduced.

The way in which PSP can outperform traditional infrastructure governance is in its efficiency in constructing and operating infrastructure. This is explained by the incentives inherent in such approaches (see Annex 2.A1 for more detail). The private sector does not necessarily have superior technical knowledge in the management of infrastructure, but public governance is generally not sufficiently developed to match the performance of the PSP.

Box 3.7. The myth of PPPs and new money for infrastructure

The motive for the increased introduction of private sector participation (PSP) in infrastructure was strongly influenced by budget constraints. In the case of privatisation of utilities and other companies, sales proceeds were generated. And in the case of PPPs off balance-sheet treatment appeared to extend the borrowing constraint, allowing new investment. The gains are more apparent than real, however. In the absence of changes in efficiency, the sale of a company is a one-off measure. The money “earned” will have to be repaid by future generations. Off balance-sheet treatment in the context of PPPs also does not create new funding possibilities. By now it has become accepted by OECD countries that the use of PPPs for achieving an artificial extension of the public sector’s borrowing constraint is inadequate as it draws on a “pool” of affordability which is limited. Funding projects with the same tax base, regardless of whether the funds are collected as taxes or user charges, reduces the ability of the tax base to fund other projects. In this context, it is crucial to choose the best procurement route, which generates greatest social welfare, PPP or another). Recognising this point, UK has for example adopted the IFRS (International Financial Reporting Standards) for public accounting purposes, which basically requires that almost all the PFI projects are accounted for on the balance sheet. In simpler words, PPPs do not generate “new” or “free” money.

Source: OECD, 2012, Recommendations of the Council on Principles for Public Governance of Public-Private Partnerships.

Uruguay established a regulatory framework for PPPs in 2011. But for more than 15 years prior to this, private sector participation in public works lacked a clear and transparent framework, even though major investments were made in the telecommunication and electricity sectors. Private participation in Uruguay was covered by a variety of different legislation, such as the Accounting and Financial Administration Text (TOCAF) and the Law Governing the Concession of Public Works.

The public-private partnership regulatory framework approved in 2011, Law No. 18 786, was based on regulations already in place in OECD countries,¹⁴ especially Spain. The law aims to create a clear, predictable and legitimate institutional structure for PPP implementation, including information on project oversight, sanctions and means of appeal, and general provisions for contract renegotiation, contract extinction and dispute settlement.

The law allows projects to be funded through PPPs to be introduced to the government by a public entity and the private sector. This process is co-ordinated through the *Corporación Nacional de Desarrollo* or CND, a non-state entity created by Law No. 15 785.

Submitted projects are validated by the CND and then submitted to the corresponding public sector entity. For transport infrastructure, most proposals will be directed to the Ministry of Transportation and Public Works (MTO), which should determine if the project fits into the National Development Plan or a National Transport Plan (which Uruguay does not yet have in place). Public entities direct their proposals to the Planning and Budget Office (OPP) as part of the public investment process, and to the Ministry of Economy and Finance (MEF).

The CND has important responsibilities for productive development, projects and services, and fiduciary administration. It is mandated to promote the implementation of projects through PPP procurement, develop the guidelines and methodologies required by the PPP law, advise the public sector at all stages of the PPP process through an agreement with the entity responsible for implementation, promote inter-institutional co-ordination and acquire any private company as a financial instrument to foster PPP development.

The law envisions the line ministry or entity pursuing the PPP as being ultimately responsible for PPP implementation, from project proposal to supervision and reporting. This includes preparing the pre-feasibility, feasibility and impact studies to submit to OPP and MEF. This process is similar to the one established in the National Public Investment System (SNIP; see Box 3.8), according to Law No. 18 996, which is co-ordinated by the OPP. After the project has been approved through SNIP's procedures and by MEF, the line ministry has to hire a financial advisor and/or the CND to perform the value-for-money analysis and prepare other documentation required by the PPP law.

Box 3.8. Uruguay's National Public Investment System

The National Public Investment System (SNIP) is the set of standards, tools and procedures to manage and guide the process of public investment in the country. It aims to optimise the allocation of public resources through the implementation of the most suitable investment options from an economic and social point of view. The framework includes priorities and strategic guidelines established by the government to achieve sustainable development.

The SNIP is composed of the OPP in its capacity as governing body, and by other government institutions that must propose and implement their projects through the SNIP. These institutions include:

- a) all the institutions covered by the national budget
- b) the autonomous entities and decentralised services of industrial and commercial state domain
- c) local governments
- d) private and public capital companies
- e) private entities with 100% public-sector ownership, independent of their legal status.

Source: Planning and Budget Office (OPP).

However, there are some imperfections in Uruguay's PPP set-up. These include:

- Contract renegotiation
- Bottlenecks and biases
- Effective competition

Unclear contract renegotiation terms leave the government vulnerable to cost increases

One aspect which needs careful handling is the topic of contract renegotiation, whereby the private partner in a PPP demands new contract terms in response to a change in circumstances. There are numerous triggers for renegotiations, from exogenous shocks (such as the global economic downturn, which affected traffic/demand levels).¹⁵ Most evidence indicates that the incidence of renegotiations is large (especially in Latin America) and most undermine the economic purpose of the PPP contract. This is a result of the strategic behaviour of one or both parties to the contract and endangers the political viability of the approach. Renegotiations may be inherently necessary to the PPP approach, but can be managed by establishing a distance between the government agency responsible for the PPP and the private partner. An obvious mechanism would be the creation of a PPP regulator, which would bring us closer to the RAB approach – see the next section.

Contract modification is not clearly delimited in Uruguay's regulations. As experience in some countries may show, contract renegotiation may imply additional costs for government (Bitran, et al., 2013). The legislation in place in Uruguay establishes that contract modifications and renegotiations cannot increase the cost of the project by more than 50% of the original cost, or the operational expenditure, depending on the original contract signed. Modifications requested during the construction phase of the project cannot exceed 30% of the original cost or operational expenditure. Furthermore, the law (Law No. 18 786) states that renegotiations can only occur under the following circumstances, leaving the door wide open for all kinds of renegotiations that would jeopardise the economic purpose of the competition for the PPP:

- The public administration modifies the cost and benefits established by the contract when all the following conditions apply:
 - ❖ The modification occurs after the contract was signed, and there was no means of foreseeing it.
 - ❖ The adjustment significantly modified the economic-financial estimates.
 - ❖ The modifications are significant for the contract and are not due to measures implemented that will yield a general economic and financial improvement.
 - ❖ Events of force majeure have significantly modified the economic-financial estimations.
 - ❖ Any of the events established in the contract regarding the modification of the contract happen and the parties do not reach an agreement.

Procedural bottlenecks and biases exist

In Uruguay projects subject to the PPP law are meant to be funded by PPP prior to any feasibility study or value-for-money analysis. The fact that these projects already have a funding vehicle in place can create some bias in the project structuring and evaluation process. For example, the public administration may be tempted to propose larger projects as they do not have to be financed with their own resources. Similarly, evaluation may be biased towards the selection of projects to be funded through a PPP without considering any social welfare impacts. In contrast, in OECD countries, projects must be evaluated and prioritised *before* any funding vehicle is chosen.

Private sector project proposals may involve higher costs for the entities involved than to any government entity proposing the same project. Although the provision for private sector project proposals aims for the government to receive a proposal with minimum

compliance with the regulations, it could make the project proposal stage a bit costly, as private entities will have to perform a prefeasibility study of a project that the line ministry may not agree upon pursuing.

Moreover, the many and varied roles of the CND may undermine the implementation of a transparent and clear framework. The general guideline dictates that two separate institutions should develop the methodologies and carry out the evaluation; yet the CND performs both roles during the PPP process. Government should foster market competition between CND and other financial advisors. Even though in-house provision is an established form in OECD countries, governments should avoid any policy measures that may generate unfair competition between the private sector and the CND. Additionally, government institutions should not receive preferential treatment pricewise when soliciting CND expertise for project and value-for-money evaluations.

The decision to invest should be taken from a whole-of-government perspective and be separate from the decision on how to procure and finance the project; there should not be any institutional, procedural or accounting bias either in favour of or against PPPs (OECD, 2012). The approval or prioritisation of a project should not only occur at different stages of the investment cycle – they should also be performed by different institutions. The PPP law mandates both OPP and MEF with the roles of project approval and procurement. This may reflect the roles of these institutions in the budgetary and investment processes – even though OPP has the constitutional and legal mandate to coordinate and advise the presidency in both processes, actual practice requires approval of any decision by MEF.

According to the OECD (2012), the roles of each actor can exist in a number of institutional set-ups, but it is important that they be kept separate so as not to confuse the key tasks of each actor and to ensure clear lines of accountability. The Central Budget Authority in Uruguay is split among three institutions: MEF, OPP and the National Comptroller Office. The PPP law fosters this institutional overlap. Although almost all OECD countries have localised the central budget authority with the Ministry of Finance and/or Economy, it can also be split among two or more institutions, as is the case for Australia, Canada and Ireland. As long as roles are clearly established and there are no overlaps in decision-making processes, having a split central budget authority may not be a major restriction to the efficient implementation of the budget, investment or PPP process.

Once prioritisation has been established and the procurement mechanism approved, the line ministry is responsible for preparing the bidding documentation and opening the competitive dialogue process with potential applicants to discuss technical and financial aspects of the project. The bids are submitted to the PPP Unit (Box 3.9), which evaluates them against the original feasibility and value-for-money documentation provided by the line ministry. In the meantime, the project is provisionally awarded to one of the bidders, pending the report from the PPP Unit.

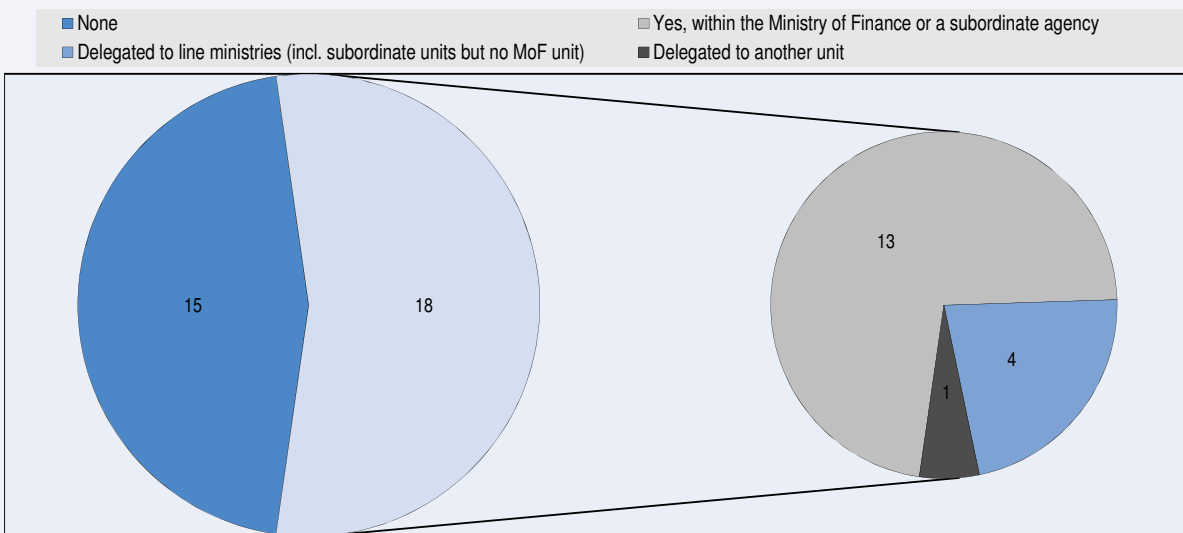
Before the contract is signed the company needs to secure the financing and warranties required to start project operation. At this stage some issues may arise, specifically in the capital markets where regulations require a signed contract as part of the documentation to request a bond issue approval. If the company overcomes any restrictions that may exist the contract is signed and the construction of the project should begin, otherwise it will go to the bidder at second place in the bidding process.

The oversight and reporting of implementation are the responsibility of the line ministry, who needs to audit the company and report progress to the PPP unit. The line ministry also has the obligation to register all the expenditures related to the PPP project as a budget line within their reporting to the central budget authority, which responsibilities in this case are represented by OPP. The payment stream from government under the PPP contract should be highlighted; the information should be disclosed at the same time as the results of the long-term fiscal analysis that shows the long-term effects of the stock and new flow of PPP contracts.

Box 3.9. The role of a PPP Unit

Given the complexity of PPPs and their infrequent use, the OECD recommends that the critical skills to ensure value for money may need to be concentrated in a unit that services all relevant authorities (OECD 2012). The law established a PPP unit within the Ministry of Economy and Finance. In a survey of budgetary practices, 18 out of the 33 participating OECD countries have established one or more PPP units within their central government. Most of these countries have established the PPP unit in the Ministry of Finance or a subordinate unit of this ministry. Seven countries have more than one PPP unit, meaning PPP units are present in line ministries in addition to the unit in the Ministry of Finance. Four countries (Chile, Denmark, Hungary and Japan) have PPP units only in line ministries and one country (Greece) has a PPP unit in another body.

Figure 3.8. OECD countries with one or more PPP units in central government



Source: OECD (2014), *Budgeting Practices and Procedures in OECD Countries*, <http://dx.doi.org/10.1787/9789264059696-en>.

StatLink <http://dx.doi.org/10.1787/888933330231>

According to the law, the PPP Unit has to follow up on the financial and economic aspects, as well as budget requirements, risk assessment and perform the analysis and registry of PPP projects that the law mandates to the MEF. The unit's responsibilities shall be limited to the assessments and registry task which should align with the current National Public Investment System. As recommended by the OECD, the PPP unit should help the relevant authorities prepare and negotiate the PPP contract, but it should not decide on whether the PPP should move forward; this green-light process should be anchored in the Central Budget Authority.

Source: OECD (2014).

Competition

Achieving strong competition for the PPP is of crucial importance. Without it, the projects will not deliver the desired social welfare outcomes. Uruguay's current PPP law and corporate legislation could be hindering the development of competition in the context of PPPs. As pointed out in the chapter on FDI (Chapter 2) only Uruguayan nationals or enterprises may be granted concessions in the transport sector. Uruguayan enterprises are those that are managed, controlled, and in which more than 50% of the capital is owned by Uruguayan nationals domiciled in Uruguay. This effectively means that foreign private sector participation is only possible by establishing a subsidiary in Uruguay, while direct cross-border competition is unlikely (becoming a minority partner in a PPP/concession).

In principle, protectionist policies in this context would not be a bad idea if the country was sufficiently large to generate strong competition in its internal market. This, however, is rarely the case. Indeed, one of the main concerns in the protection of national interest and protectionist behaviour is the fear that private competition in construction from abroad might lead to the transfer of infrastructure capital expenditures to that country. At the same time, several OECD economies have been subject to collusion between bidders in construction.¹⁶ Large projects and/or large risk transfer requirements also reduce potential competition, leading to few potential bidders and an increased risk of collusion, especially if the same three bidders are present on multiple projects (Zitron, 2006).

However, direct cross-border competition is not the preferred mode of competition in construction in general. This is primarily because each country has some local specifics in construction standards and requirements. It is also advantageous to have a local partner, familiar with other local market specifics. The dominant approach in cross-border competition is through joint ventures and establishment of local subsidiaries, but this is also an area where current rules and regulations in Uruguay may be obstructive. Other aspects of construction involve sourcing materials, where in most cases the economics dictate that if the local market is competitive, it is also best to procure construction materials locally. In addition some types of materials have to be within a specific range of the project (e.g. an asphalt plant needs a source of gravel etc.). These local specificities could explain why in the EU, for example, despite the "common market", direct cross border competition in construction between 2008 and 2012 accounted for only 3% of all tendered works in construction (above public notice thresholds) (Kutlina-Dimitrova and Lakatos, 2014).

PPPs and RABs compared

Sector limitations

The RAB is generally applied in utilities (electricity transmission, water supply, railways infrastructure), whereas PPPs are predominantly present in transport, health, social and other projects. In principle, both approaches can be applied on individual projects (buildings/sections of a network) or on an entire network, but in the case of RAB there is no practice yet for standalone greenfield projects. For transport, RAB is used in railway infrastructure management, although there is no OECD evidence of a country applying the model to the road sector. This would be considered an innovation.

Financing and costs

In principle in both PPP and RAB the financing for the functions of the infrastructure company can come from the user charges or from the government budget (i.e. the

availability-based PPP model; see Box 3.A1.1 in the annex). In terms of the cost of financing it is generally accepted that PPPs are substantially more expensive to finance than RABs (see also PPP issues with risk and uncertainty). The decision and political responsibility to ensure full cost recovery (through the budget or through user charges) remains with the policy makers in both cases.

Ownership

In the case of the RAB there is also the question of the ownership of the infrastructure company. The company can be public or private. Given the research on privatisation in regulated network industries, it is generally understood that in the network industries, which have characteristics of a natural monopoly and require economic regulation, ownership is important.¹⁷ The results in the literature cited suggest that in terms of cost efficiency the public ownership without regulation performs least well, public ownership with regulation follows, and private ownership with regulation is on average expected to perform best.

The challenge of the state-owned regulated company is that it can still be subject to following political objectives (incl. political appointments of the management) or that the efforts of the regulator might be reduced, because of insufficient tension if both entities are state owned. An example of such an outcome can be found in Slovenia in Europe (Makovšek and Logožar, 2014). There the text book application of efficiency incentives in electricity and gas distribution networks, combined with lax regulation of the regulator failed to produce any efficiency improvement in the first five-year period.

Government credibility

The ability of the government to uphold its contractual commitments, pipelines etc. is a crucial element for the success of either approach. RAB or PPP contractual framework should shield the infrastructure manager from political short termism. Clearly this will not be the case if the government decides to renege on its contractual commitments. In the case of the RAB this may involve government interference with the economic regulation. For PPPs, opportunistic renegotiations of the initial contract by either side or both can reduce or destroy the social welfare outcomes that PPPs are supposed to deliver. A more serious setback to private participation in infrastructure would be expropriation.

Capacity

In both cases (RAB or PPP) a capacity building period is necessary. In the case of the PPPs, the capacity building involves the creation of a dedicated PPP unit, promotion of the concept and its understanding, the maturing of the PPP market etc. Similarly, in the case of RAB, a newly created regulator will not have the same capacity as an established institution with a decade of track record. Nevertheless, it may be easier, with the help of private consultants, for a government to deploy a PPP faster than a RAB model. The reason is that in the latter model, a legislative framework would first have to be set up, then the economic regulator. Once that is achieved, the regulator would have to require from the regulated firm to introduce a range of tools, that are necessary for the regulator to properly execute its function and which any company in the sector should have anyway to properly manage its business. Among other things, an essential part of this is a modern accounting and (physical) asset management system (see section: The dominant approach to infrastructure governance in the OECD and Uruguay).

Recommendations

Overall our review finds that in principle, there are no immediate restrictions to the application of either PPP or RAB to infrastructure delivery. The main difference is in the speed of deployment. Implementing an RAB model is a longer-term option as it would first require some preconditions to be fulfilled (see below). However, given the long-term nature of infrastructure investment, the potentially longer introduction of RAB is relative. It has to be viewed as a long-term policy direction - a system of infrastructure governance for the country for decades to come. PPPs appear to be a more costly option, but would enable projects to get done and may yield improvements to the practice of the traditional model, as was acknowledged in the UK.

One of the main motives for introducing PPPs in Uruguay seems to be to alleviate the government's borrowing constraint. During the OECD interviews this position was stated several times. This overlooks the fact that with Uruguay's availability-based model, all such PPPs will have to be disbursed from the government's budget, requiring an increase in line ministries' budgets to pay the unitary charges. Even if there were cases of PPPs in Uruguay which could fund themselves (through user charges, tax increments or other means), the ultimate borrowing constraint is the affordability of infrastructure for the tax base or its users.

Even if Uruguay was successful in deploying the PPP model, in the short and medium term it will still only apply to a small share of the total infrastructure stock. PPPs cannot hope to fully replace the existing approach to infrastructure governance in Uruguay, and this is also true for all OECD economies. This is because most PPP applications in Uruguay will be availability-based and will count against a prudential fiscal exposure limit. This limit is currently set by Uruguayan PPP law, which states that the net present value of PPP commitments should not exceed 5% of GDP. Uruguay's GDP in January 2014 was UYU 55.71 billion, so 5% is about UYU 2.7 billion. As a rough illustration, this amount is perhaps sufficient to rehabilitate the major road corridors using PPPs, but not the entire main road network (according to interviews). Moreover, if the entire PPP commitment was spent on the road sector, little room would remain for other sectors. According to recent technical reports (World Bank 2014), the density of Uruguay's rail and road traffic is insufficient to merit commercially viable PPPs, thus the only possible model is the availability-based PPP, in which projects are funded from the government budget or in combination with user charges/tolls. The same applies for an RAB.

The steps involved in implementing an RAB approach in Uruguay's road sector, given that it has already embarked on a PPP path, can be illustrated as follows:

1. The country continues on its existing path, setting up and executing a road PPP pipeline.
2. In parallel, a regulatory framework would have to be set up, following the establishment of a new independent institution – the economic (road) regulator.
3. CVU which is state-owned, would be placed in an RAB and an incentive framework.
4. Following several years of capacity building of the regulator (with the help of external international institutions/experts), CVU would be privatised.
5. New projects next to CVU's territory could be delivered by CVU using traditional procurement or project finance, where after the construction phase the new/refurbished asset is introduced/bought into CVU's RAB.
6. Other existing PPPs at that time could be either left as they are to run their course or be "bought" into the RAB framework.

7. Other RABs aside from CVN could be established, if economically feasible (to make benchmarking/yardstick competition easier; but subject to critical minimal size of the company) or there could just be a single national highway company.

- **Create a national transport plan.** Private sector involvement and healthy competition require a clear and credible project pipeline. Our review finds that Uruguay's existing transport strategy is not sufficiently detailed to allow credible project programming. We recommend that Uruguay creates a national transport plan. Uruguay should strive to define details in the national transport plan for each mode (or more detailed master plans if necessary). Such a document should summarise objectives, deadlines, measures and the (realistic) means for their execution and affordability.
- **Conduct a detailed review of the public investment management system** (including the investment evaluation/budgeting process).
- **Postpone the value-for-money test until the country has sufficient compiled data to perform it.** Instead Uruguay should assume that PPP represents value for money. The country should set a time in the future (in the medium term), when this assumption will be tested and revised if needed. Such a requirement, its execution and funding, should be binding by law (possibly the PPP law). The current process should only assess the feasibility/eligibility of projects for PPP (e.g. is the project of sufficient size to justify transaction costs, can a good output specification be defined etc.). When the data conditions are met, the country can reintroduce the VfM test.
- **Conduct an ex-post analysis of a sample of traditionally procured projects.** This would not only serve as a comparison for PPP performance, but would also improve existing project appraisal and delivery practices.
- **Create a clear budget and procurement framework.** The institution responsible for the decision of procurement in the budget and investment process is not clearly established. To ensure the efficacy of the PPP process, it is imperative for Uruguay to develop a budgetary framework which entrusts clear mandates and an efficient budgetary and procurement procedure. As a suggestion, project approval should remain in OPP within the SNIP framework, while the procurement method determination should be the responsibility of MEF, since it possesses more accurate information on the country's overall macroeconomic and fiscal situation.
- **Do more to maximise competition for PPP and other construction projects.** An independent intergovernmental/international institution should be asked to assess the potential economic impact of foreign competition in the construction sector in general. That being said, should foreign direct cross-border competition prove to be a problem, the country should instead resort to sourcing requirements,¹⁸ rather than hindering foreign competition. Sufficient attention (notably funding) should also be given to the competition authority and its operational capacity. The OECD did not address this aspect in this review, but it is nevertheless important to stress its importance.
- **Establish clear guidelines for contract re-negotiation and private sector compensation for unforeseen circumstances.** Despite the fact that Uruguay is just setting out on the PPP path, it should have a view on contract renegotiations. The OECD recommends that Uruguay adopt a mandatory guidance document which contains detailed descriptions of when renegotiations of PPP contracts are allowed and to what extent. Only if conditions change due to discretionary public policy actions should the government consider compensating the private sector. Any other compensation for changes in commercial

conditions should be explicitly negotiated in the contract. Otherwise, the risks to re-negotiations of PPP contracts due to changes in international conditions not foreseen at the moment of the contract award could significantly increase fiscal costs of PPPs for the government (OECD 2012). Clear, predictable and transparent rules for dispute resolution should be in place to resolve disagreement on the above between the public and private parties. Furthermore, any re-negotiation that substantially alters the original agreement should be made public and be subject to approval by the authority responsible for approving PPPs. Such an agreement should be as competitively done as possible. The responsibility for the supervision/administration of renegotiations should be devolved to a body which is considered to be independent (e.g. the competition authority, or supreme audit institution). The substance and economic impact of renegotiations should be publicly available.

ANNEX 3.A1

Infrastructure governance: Three models compared

The traditional model: Infrastructure governance by the state

In the traditional model, infrastructure is generally delivered through government procurement. This involves the tendering of works through simple contractual schemes, which at most, bundle the phases of design and construction (the Design-Build contract). The dominant reliance is still on the traditional DBB contract (Design-Bid-Build), where each phase is procured separately. This approach has some general characteristics:

1. In traditional procurement the public sector retains most of the risks.
2. The public sector retains the possibility of changing the scope of the project during construction, but that option is often abused. There is a well recorded tendency of public project sponsors to misrepresent the true expected costs and benefits of projects, to make them more attractive to the decision makers (Flyvbjerg et al 2002). Although changes to scope in this mode of procurement are generally less costly than in a PPP arrangement, they are still very expensive.¹⁹
3. A lack of risk transfer translates into higher competition between the bidders and potentially lower prices. In such projects capital requirements for the construction companies are much less demanding than in contracts, where substantial risk is transferred.
4. In traditional procurement, the operations phase is normally not bundled to the design and construction. This greatly reduces the incentives of considering future consequences of decisions in each of the phases. The short government voting cycles also introduce short-termism into decisions (Helm, 2010). Politicians tend to favour the red ribbon cutting for as many projects as possible, without considering the future costs of this infrastructure. As a consequence, cheaper infrastructure may be built, which is later more expensive to operate and maintain. This means there are fewer incentives for project life cycle cost optimisation to be achieved.

In recent years, OECD countries have paid much attention to on-time and on-budget performance issues of traditional public delivery. It is generally accepted that PPPs have a better performance in terms of on-time and on-budget delivery. Box 3.A1.1 provides some empirical detail on the topic.

After the construction phase, the infrastructure in the traditional model in most OECD countries is operated by a government agency or a state-owned corporatised entity. This raises two major challenges, for: i) performance incentives; and ii) cost recovery and life-cycle cost optimisation.

Performance incentives are limited:

- Infrastructure management companies (or agencies) share several characteristics with natural monopolies (entry barriers in terms of sunk cost, economies of scale and scope etc.). Accordingly, they are not subject to adequate competitive pressures. The main efficiency thus comes from the management of the entity. In this model, it can be common, despite safeguards, for the management to not be selected according to competence. The model may pursue other objectives as well, which may be in conflict with the tenets of performance and efficiency.
- It is also not uncommon for large and powerful unions to develop in such entities, with considerable involvement not only in workers' rights, but also business decisions and overall strategy. And because governments tend to make quick savings in infrastructure expenditures in times of need, publicly-owned companies often pursue strategies to protect their cash flow. These can translate into low efficiency and quality levels (e.g. hiring too many employees, granting excessive benefits). Decision makers usually avoid social unrest or confrontation with the unions. The "budgeting" of the government then provides enough funding for the wages of the infrastructure manager, but not enough to fully recover the cost of the infrastructure. The "savings" of this process are then manifested in a slowly deteriorating condition of the infrastructure. From an engineering perspective, the cost curve for catching up deferred maintenance is exponential. The cost of catching-up very quickly becomes far greater than what are considered to be the normal ranges of government borrowing cost in industrialised countries. The limit of the process is, of course, when a complete reconstruction of the infrastructure is required. Indeed, such a policy transfers the cost of catching-up with the maintenance backlog to the next generation of taxpayers and makes optimisation of the infrastructure lifecycle cost impossible.
- When the infrastructure manager does not have a modern asset management system in place, lack of maintenance eventually leads into a process where infrastructure on the network "randomly" starts to fail, creating the need for many interventions within a short period of time (i.e. putting out "fires" on the network). The consequences of this are many unexpected expenditures, which make future planning (or cash-flow optimisation) impossible.

The main challenges of infrastructure delivery and management are thus two-fold. Firstly, they involve the creation of a framework or a "bubble", which will protect the infrastructure manager from the time-inconsistent behaviour of decision makers. Secondly, they require the creation of a framework or an instrument to introduce efficiency incentives in the system, and which are more robust than the traditional model. Both aspects are a matter of government credibility or institutional maturity. While there are examples of the traditional model performing well in some sectors and countries,²⁰ in many instances, this will not be the case.

In summary, the traditional model of infrastructure delivery and management does not entail sufficiently robust incentives to ensure adequate efficiency and can be outperformed by other governance models. The efficiency concerns were however not necessarily the primary motive for the expansion of private capital participation in infrastructure that started in the 1980s, as illustrated in the box below.

Public-private partnership model

The PPP (concession or the project finance model) approach is well known (Box 3.A1.1), so this annex does not go into great detail of its general characteristics. The focus is rather on some characteristics of this approach which are less well known and the challenge of renegotiations in PPP contracts.

Box 3.A1.1. Defining a PPP

Public-private partnerships (PPPs) are long-term contractual arrangements between the government and a private partner whereby the latter delivers and funds public services using a capital asset, sharing the associated risks. In a PPP agreement the service delivery objectives of the government are intended to be aligned with the profit objectives of the private partner. The effectiveness of the alignment depends on a sufficient and appropriate transfer of risk to the private partners.

In a PPP contract, the government specifies the quality and quantity of the service it requires from the private partner. The private partner may be tasked with the design, construction, financing, operation and management of a capital asset required for service delivery as well as the delivery of a service to the government, or to the public, using that asset. A key element is the bundling of the construction and operation and maintenance of the underlying asset over the life of the contract. The private partner will receive either: a stream of payments from the government (an **availability-based PPP**) for services provided or at least made available; user charges levied directly on the end users (a **commercially-viable PPP**); or a combination of both.

This definition excludes a wider array of arrangements in which non-governmental organisations such as non-profit civil society groups, trusts, church groups etc. are involved in the development and delivery of public or semi-public services. It includes concession type arrangements where the concession is designed to deliver a public service but excludes concessions such as licenses to use government assets such as mining which are another way for government to raise revenue. It also excludes traditional public works contracts. The government may also establish service standards as a representative of the public interest when PPPs are financed from tolls or user charges. Public-private partnerships are often undertaken by a special purpose vehicle acting as the government's private sector counterparty. A special-purpose vehicle is often (but not always) a consortium of companies responsible for the main activities of the public-private partnership.

Source: OECD (2012), Recommendations of the Council on Principles for Public Governance of Public-Private Partnerships.

In a typical example of a project finance structure, the developer is a parent company, which is the equity investor in the project company (The Special Purpose Entity- SPE). The SPE normally transfers the construction risk to a construction contractor. The SPE sells the services of the infrastructure built to the users and is remunerated, either with a user charge or through an availability payment.

In the OECD countries financiers in PPP/project finance generally use turnkey fixed price/fixed date contracts (full transfer of endogenous construction risk), resulting in a very good on time/on budget performance. In Latin America this is generally not the case. Instead the lenders/investors or the SPVs in question include a larger contingency in the project's budget for potential cost overruns, due to insufficient capital strength of the developers/construction companies.

Regardless of this technical difference, risk is not shifted outside of the PPPs contractual scheme (to the procuring entity) and must be paid for – either through the higher base CAPEX cost (the cost of the construction) or through the higher expected rate of return.

The cost of construction risk transfer is considerable. Evidence in the roads sector shows a higher ex-ante cost for a large share of traditional and PPP procured projects *vis-à-vis* the cost of traditional procurement (Blanc-Brude et al., 2006). The costs are actually also substantially above the expected cost overruns in traditional procurement for road projects (Makovšek, 2013).

There are several dimensions of the risk transfer premium. For the construction risk one potential explanation is the construction of a higher quality infrastructure to achieve lower cost of maintenance of operation later – the optimisation of life-cycle cost. In general, however, there is little evidence to support such an assumption. In addition, there is evidence available, that the IRRs (IRR-Internal Rate of Return) are ex-post consistently higher, than envisaged in the IRR of the winning bid. It would appear that, at least in terms of construction performance, the limited existing evidence suggests that PPPs do not outperform the traditional model.

The risk transfer premium has some potential explanations, but is still a matter for research. The risk premium is substantial and some evidence indicates that even in developed economies competition is insufficient or cannot reduce this risk premium. The size and complexity of the projects also leads to self-selection, as not every firm can bid. This may be an inherent characteristic of the PPP approach and remedies to this challenge are not straightforward. In that context, there is currently no mechanism in a PPP to share potentially excessive gains (apart from sharing refinancing gains, which is common in PPP contracts in developed countries), but one could be introduced. It is not clear though, whether the market would accept such a mechanism.

Another potential challenge in a PPP is the assumed efficiency throughout the contract's lifetime. It is accepted that PPPs are not subject to the same excess employment issues as the traditional model, i.e. perform better. As circumstances change in the long life of the project, further efficiency gains might be possible. The PPP approach assumes that the ex-ante competition for the PPP contract ensures maximal efficiency incentives throughout the contract's lifetime. With regard to the core services in a PPP contract there is no mechanism to provide additional incentives for efficiency during the long operational life of the infrastructure. There is no research available on the evolution of operational performance in a PPP.

The regulated asset base model

The RAB model is one of two approaches towards the calculation of efficient service provision in economic regulation literature. It is generally seen as an alternative to the PPP (project finance) model. The approach is normally applied to existing infrastructure assets, not to standalone greenfield projects (such a practice has not yet developed). Nevertheless, an existing infrastructure manager in a RAB scheme can deliver new projects, using traditional procurement or project finance. After the completion of the construction phase, the infrastructure can be absorbed into the RAB regime.

The model as such is generic and does not preclude a source of finance. The figure below presents an illustration of a RAB model in which the economic regulator has a “duty to finance” the functions of the regulated company, while the money to sustain this can

come from a dedicated budgetary source (e.g. fuel tax for the road users) or user charges (e.g. tolls). If the source of finance is budgetary, it should be sufficiently protected (ring fenced or dedicated) from spurious government intervention.

An illustration of the RAB model

The RAB model has several characteristics. Some of the main ones are:

- The model adheres to the principle of financial capital maintenance (maintaining monetary or market value of the assets through time).
- It provides incentives for efficiency where for example the regulator tries to determine what is the efficiency target (through benchmarking, cost modelling or other techniques) and aims to provide rewards (or penalties) for achieving (or not) the efficiency gains within a pre specified time frame and procedure.
- Full cost recovery should be ensured, including the provision of an adequate return (on the value of the regulatory asset base), provided the efficiency gains are met.

An example of a well-known incentive mechanism associated with RAB is the RPI-X mechanism. The “X” reflects a measure of inefficiency, which the regulator determines and applies on the annual allowed price growth (RPI – Retail Price Index). The inefficiency adjustment is reset in regular price review periods, which typically last five years. This gives the regulated company a sufficient amount of time to adjust, with the efficiency targets or gains being jointly negotiated.

The RAB approach is not without challenges. One is the difficulty of the regulator to assess and incentivise the efficiency of capital expenditures (Makovšek et al., 2015). This involves the appropriate management of infrastructure delivery without cost overruns. It can also involve an inadequate preference for expensive infrastructure solutions. The other challenge for the regulator is the establishment of what an “adequate^{21, 22}” rate of return is. It is thought that because the investors’ return depends on the value of the asset base, the management of the regulated company might have an incentive to excessively increase the asset base beyond what is optimal. This problem is called the “CAPEX bias” and involves decisions that favour CAPEX over OPEX solutions (e.g. building a water treatment plant instead of financing a responsible water use campaign).

Notes

1. The LPI is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance. The LPI 2014 allows for comparisons across 160 countries. The LPI is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade. See lpi.worldbank.org.
2. In many cases the national transport plan also defines the future strategy of infrastructure governance.
3. As can be determined for example through the overview of Uruguay 2030 documents on the homepage of Ministerio de Transporte y Obras Públicas/Dirección Nacional de Planificación y Logística (<http://www.mtop.gub.uy/>).
4. JASPERS (Joint Assistance in Supporting Projects in European Regions) is a special technical assistance unit set up by the EU to help countries in the technical execution of projects and policies. This includes assistance to countries which do not yet have a national transport plan or model. See http://ec.europa.eu/regional_policy/en/funding/special-support-instruments/jaspers.
5. Such as, “JASPERS Appraisal Guidance (Transport): The Use of Transport Models in Transport Planning and Project Appraisal” (JASPERS 2014b).
6. Functional regions are not necessarily the same as administrative regions – they reflect areas with a high level of transport interactions, such as a city and its hinterlands. They may also be defined on a transnational level (i.e. a functional region that covers more than one state).
7. The European Union (EU) aims to develop Trans-European Networks (TEN). In the context of transport these refer to the creation of international corridors within the EU, which are expected to foster the economic development in the EU as a whole. EU co-funding is available to support the deployment of the infrastructure projects on these corridors.
8. In many cases in the OECD the relationship between the infrastructure manager and the ministry is defined by a multi-annual contract and/or a performance statement. The performance statement can follow the principle of “management by objectives”. It defines the desired outcomes (in terms of performance of the infrastructure/quality, investment etc.) and is directly linked to financing, which must be agreed with the state (when user-charging policy is in question) or provided by the state budget.
9. This is more present in the road sector with the performance contracts. In the rail sector, which is thought to be more complex, the Dutch rail infrastructure manager, which is vertically separated from the operators, is the only company in Europe (no other national infrastructure manager in the World is known to the OECD), who has successfully outsourced railway maintenance and attempts to create competition between the maintenance companies. The UK also made the attempt but was unsuccessful.
10. In all regulation models, a high level of professional skills is required of the regulator. The differences between them are primarily the “distance” from political intervention. In the government regulation approach a state entity assumes directly a regulatory role in the markets, subject to market failures. Independent regulation involves an independent agency. A high degree of political commitment and functional and economic independence of the regulatory agency are necessary. When an independent regulator is also responsible for supervising the performance contract and providing economic incentives to a public service infrastructure provider, this is generally known as regulation by contract. The OECD has developed guidelines on the governance of the regulators (OECD, 2014).
11. In the EU, substantial energy has been devoted to achieving the principles of multiannual contracts, but this remains a challenge, even though the EU directives require their application (http://ec.europa.eu/transport/modes/rail/infrastructures/contracts_en.htm).
12. Infrastructure is long-lived, and so in the elementary accounting approach assets are depreciated against their historical purchasing value. Even though historical cost accounting accommodates the price growth over time, the money “put aside from the depreciation” may not suffice to replace the historical asset with the new asset. One tool to determine the current cost of replacement is the modern equivalent value or MEV. This involves an audit of the network and the establishment of the cost of the modern replacement asset. This technique is especially important in sectors which rely on technology that substantially changes over time (i.e. railways, telecommunications etc.).
13. Gassner et al. (2009) studied a dataset of 1 200 utilities (water distribution, waste water collection and treatment, electricity distribution) in 71 development and transition economies, including

- 301 utilities with PSP and 926 state-owned enterprises. This study found significant efficiency gains of private over public management.
14. The countries used as benchmark to develop the regulatory framework for PPPs were: Australia, Canada, Chile, Spain and United Kingdom.
 15. The subject has been abundantly covered by World Bank experts (e.g. Guasch 2004; Guasch et al 2014) and the OECD (Bitran et al. 2013).
 16. Historically, collusion in the UK in the construction industry was also possible on smaller scale projects than PFI schemes, as evidenced by past OFT investigations: http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.oft.gov.uk/OFTwork/competition-act-and-cartels/ca98/decisions/bid_rigging_construction.
 17. See section: Closing the gap - private sector participation in infrastructure.
 18. Alternatively the government could introduce a requirement on local sourcing of materials and personnel in the tendering procedure (e.g. award 5% of the selection points to the bidder with higher reliance on local sourcing of material and personnel).
 19. Bajari et al (2014) show, that in small sized road construction works (in their sample the largest contract is USD 15 m), adaptation costs during the project construction account for 7.5-14.1% of the total project cost (without accounting for legal and other fees).
 20. A recent ITF roundtable on railway efficiency (www.internationaltransportforum.org/jtrc/RoundTables/2014-Railway-Efficiency/index.html) revealed a glimpse into the complexity of ownership and incentives in the railway sector. It was noted that the performance of the SBB (the Swiss infrastructure manager and operator) and the Dutch ProRail are comparable, although they are differently organised state owned companies, responding directly to the state (decision makers/politicians). Both appear to outperform Network Rail in the UK, which was at one point private and is now subject to efficiency incentives from an economic regulator – the Office of Rail Regulation.
 21. The “adequate” return is determined through WACC (weighted average cost of capital).
 22. A well-known theoretical problem with regard to excessive investment in physical assets is the Averch-Johnson-Welisz effect. In simple terms, it suggested that if the regulator would choose the rate of return above the company’s true rate of return, the regulated company would excessively invest into physical assets to increase its return. Despite the fact that the regulators normally probably do set the rate of return of regulated companies above the company’s “true” rate of return, because they cannot precisely determine the “true” rate, there is no or very little evidence (Law 2014) that this effect is actually material.

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