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Public-Private Partnerships in Transport

Antonio Estache
Ellis Juan
Lourdes Trujillo

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Abstract

This paper summarizes the evidence on the evolution of transport PPPs over the last 15 years or so. In the process, it provides a primer on the associated policy issues, including of the central role of project finance in the implementation of PPP policies and the debates on risk allocation in the design of PPPs. The paper also offers a discussion of the increasingly well recognized residual roles for the public sector in transport, with an emphasis on the regulatory debates surrounding the adoption of PPPs.

This paper—Sustainable Development Vice-Presidency—part of a wider effort to increase awareness among policymakers and researchers of emerging issues in the design of public-private partnerships (PPP) in infrastructure. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at ejuan@worldbank.org.

Public-Private Partnerships in Transport

Antonio Estache
(World Bank and ECARES, ULB)

Ellis Juan
(World Bank)

Lourdes Trujillo
(ULPGC, Spain

1. Introduction

This 21st century has started with significant ideological changes involving an increasing popular rejection of a strong role for the private sector in the management and financing of public services. This change is most obvious in developing countries but is not a minor phenomenon elsewhere, most obviously in Continental Europe and to some extent in the UK. Despite these changes, despite the high profile contract renegotiations in Latin America or Africa, despite the railways crisis in England and despite the recurring debate on the matter within the EU, public private partnerships (PPP) continue to be on the agenda of many politicians in both developed and developing countries.[1]

For many governments, the main motivation is the need to reduce the fiscal costs of the transport sector. The concern to cut unit costs is often also present but less obviously so. It has usually been more present in Anglo-Saxon countries but increasingly so in other countries as well as indicated by the EU experience. The conviction that private operators are likely to be able to deliver services more efficiently is indeed often also a key driver of the continued effort to get into PPPs.

Whatever the driving force behind PPPs, they are expected to deliver infrastructure or services at reasonable cost and with attention to social aspects. They also increasingly involve the government making explicit comparisons with public funded and managed alternatives. Even when public sector borrowing costs will be lower, other factors are considered. These include the opportunity cost of public funds and foreign exchange, the efficiency and expertise the private sector might bring to the project and the availability of international liquidity to support specific project types which lend themselves well to some type of securitization.

[1] To our knowledge, there is no single definition of PPP. It covers a wide range of transactions where the private sector is assigned some responsibility, including investment. It ranges from management contracts with no investment obligations to concessions contracts with significant investment obligations in addition to operational and management obligations. In general, these contracts allow the private operators to collect money directy from the users. There are increasingly also many examples in which the government commits ex ante to cover the costs of financing the operations or investment.. The PFI initiative in the UK includes many examples of such contracts. Contract renegotiations often have the same outcome since governments end up subsidizing the operations which were supposed to be self financed when the contracts were signed.

To some extent, this continued enthusiasm may be counterintuitive in view of recurring international financial and liquidity crisis over the last 10-15 years. These crises should have reduced the interest in project finance to finance new toll roads, new airports, new ports, or new railways in emerging markets. Although after the financial crises in East Asia, Russia, Mexico, Brazil or Argentina during the 1990s, project financing almost systematically slowed down but it has also systematically recovered. This is because new sources of money continue to appear. From pension assets to emerging bond markets to new types of bank debt, liquidity is not lacking. Private capital flows to emerging markets reached a new peak in 2006, US$ 623 billion[2]. Even if credit to some actors may be tighter, the global financial markets continue to be liquid and investors are still looking for predictable sources of revenue which most transport infrastructures are potentially capable of providing. Spreads may increase to hedge against increased credit risk and as a result increased de-leveraging but the market will not disappear. Transport infrastructure where the end-user is represented by corporate or commercial clients tends to be less risky given their higher payment capacity of tariffs and charges (i.e., airports, ports, cargo railways, etc.). Conversely, transport infrastructure where the end-user is represented by consumers tends to have more affordability issues and therefore higher risks (i.e., urban transport, toll roads, etc.).

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[2] World Bank: Global Financial Markets

Although the trend has favored the continued growth of PPP and is likely to continue doing so, some things changed in the way the public sector is associating with the private sector. Every crisis teaches the dealmakers something new about how to improve risk management. Every crisis also reveals an impressive creativity by these dealmakers who learn from the mistakes of the past. In the process, the nature of the deals evolves, so do their size and the level and types of leveraging. New types of financial instruments and contractual arrangements to ease PPP in transport continue to be developed.

Some things however don't change. First, forecasts of revenues, traffic, and economic activity continue to be overoptimistic, so that "best case" scenarios often continue to be "sold" as "base case" scenarios, helping to justify the investment decisions.[3] Second, the lack of attention to project evaluation continues to support a willingness to use ever-larger amounts of debt in project capital structures. Even high-risk projects faced heavy debt servicing burdens. Long-term projects continue to be undertaken which use short-term debt, buoyed by confidence that when the debt matured, it will simply be "rolled over" on equivalent (or better) terms. Floating-rate debts are still common, further increasing interest rate risk. Projects that generated local currency revenues continue to be financed in international markets, even if lenders and borrowers know that exchange rates are decreasingly predictable in emerging markets. Third, governments continue to get into deals with risk allocations they don't recognize simply because they ignore the potential consequences of renegotiation. This may explain some of the highest renegotiation rates are observed in the transport sector.[4]

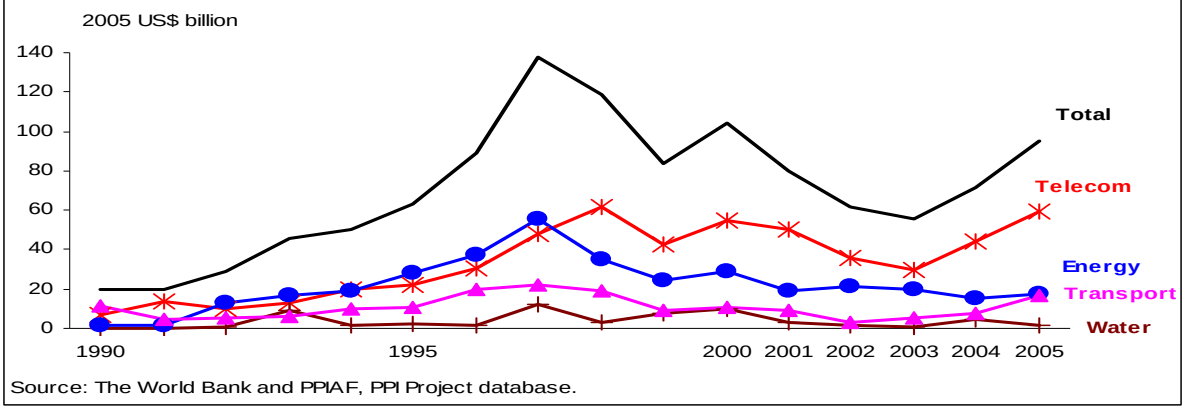
This paper summarizes the evidence on the evolution of transport PPPs and in the process provides a primer on the associated policy issues. To do so, section 2 offers a brief overview of the evolution of the role of the private sector in transport infrastructure. Section 3 discusses the central role of project finance in the implementation of PPP policies. Section 4 covers the main debate on risk allocation in the design of PPPs. Section 5 addresses the main residual roles for the public sector in transport, with an emphasis on the regulatory debates surrounding the adoption of PPPs. Section 6 concludes.

[3] See Trujillo, Estache and Quinet (2002) or Flybjerg (???) for detailed discussion of the strategic motivations explaining recurring optimisms in traffic forecast.
[4] See Guasch (2002)

2. The Rise of Private Participation in Transport

The rise of PPPs in transport has its roots in broader worldwide privatization initiatives during the 1990s. While the catalyzer may have been the dramatic changes introduced by the Thatcher administration in the UK, the bulk of the transactions actually took place in developing countries. Figure 1 provides a snapshot of the dramatic increase in the involvement of the private sector in the development and funding of public facilities and services across infrastructure activities during the 1990s. It shows that transport benefited from a relatively small share of the private commitments to the sector (about 15% of the US$1000 billion or so committed between 1990 and 2005 to all infrastructure sectors). It is also a relatively small share of the investment needs of the sector since the commitments made for this 15 years period represent very roughly the investment needed in 1 year in transport in the developing world.

Figure 1 Investment commitments in infrastructure projects with private participation in developing countries by sector, 1990-2005



Source: The World Bank and PPIAF, PPI Project database.

While the amounts do not represent a huge share of the investment needs of the sector, they are very significant. On average, these deals represent about US$10 billion annually in the developing world alone and about twice as much when developed countries are considered. This is about 55 projects a year across transport sub-sectors in developing countries alone. There is no strictly comparable data for developed countries but most estimates turn around 20 large projects a year on average over the last 20 years, with a growing number of projects in the last 5 years or so.

The distribution of projects across sectors and regions is also of interest. About two-thirds of the projects are in roads, about 18% in rail, 12% in airport and less than 7% in ports. The average project size also varies significantly across sectors ranging from about US$ 105 million in ports to about US$307 million in rail. The average project in roads and airports is roughly US$180 million.

At the regional level, Europe captures about a third of the projects, Asia/Oceania and North America capture about a quarter each and Latin America about a fifth. Africa and the Middle East do not seem to attract many transport PPPs. Within developing countries, about half of the projects of the last 15 years of so were signed in Latin America and about a quarter in East Asia. The largest projects tend to be in East Asia with an average project size of about US$250million, followed by Latin America with projects of about US$ 190 million on average. In the other regions the average projects are less than US$ 80 million on average.

There are many forms of private participation in transport, including:

- *Greenfield projects such as Build, Operate, Transfer (BOT) projects,* where the private sector has the primary responsibility for financing, developing, and operating the facility for a fixed period of time, which should be sufficient to both repay debt and provide the required return on investment. At the end of the concession, assets are transferred to the government under terms agreed to in the contract. Perhaps the most familiar form of participation in transport infrastructure, this has been employed in many different variations.[5] There are alternative versions of these contracts such as *Build, Own, and Operate (BOO),* where the private sector obtains the ownership and control of the facilities, with no transfer to the public sector.

- *Concessions,* where the private sector receives the mandate to operate and expand an existing network and in the process is asked to take on most of the commercial risks associated with the business. Often these contracts are done as joint ventures, in which the public and private sectors share responsibility for financing and

[5] These include Build-Own-Operate-Transfer (BOOT), Build-Lease-Transfer (BLT), Build-Transfer-Operate (BTO), Design-Build-Finance-Operate (DBFO), and Design-Construct-Manage-Finance (DCMF).

operation of public facilities; often also, these contracts include a greenfield project subcontract which covers the additional investment obligations to be delivered under the concession contract

- *The contracting out of services*, where the private sector is contracted to provide services on behalf of the government for compensation, either in terms of a share of revenue, profit, or payments form the government. In general, contracting out does not involve financing risk, although it may involve revenue risk.

Concession contracts, followed by greenfield projects tended to dominate the large scale PPPs over the last 15 years or so. They represented over 70% of all contracts signed in developing countries in the sector. Divestitures are much less common than in energy or in telecoms for instance but they do take place in all sectors, in particular airports, a sector for which management contracts are also relatively more common than in the other transport subsectors.

3. The Central Role of Project Finance in Transport PPPs

While it is quite common to grant private operators the responsibility for the delivery of services in specific cities, region or at the country level, the investment components of these responsibilities are often subject to specific contractual forms. These specific forms of the contracts supporting the investments are driven by the ability to pull together financing schemes around the specific investment project. Project finance is indeed typically used in those sectors that require large capital expenditures, that have long-lived assets, and that require long periods to amortize investment costs and generate required rates of return for both creditors and equity holders.

Project finance is generally used to describe financings in which the lenders look to the cash flows of an investment project for repayment, without recourse to either equity sponsors or the public sector to make up any shortfall. The sponsor usually tries to structure the project so that the gross assets and liabilities of the project are kept off the sponsor's balance sheet.

In the end, the deals are financed from a wide range of very different potential sources, each with different positions, stakes, and incentives that influence the project outcomes. Some of these sources may only be available at different stages in the life cycle of the project. These sources include equity, mezzanine finance, commercial lending, bond finance, project leasing, development finance institutions, export credits, finance, or guarantees provided by bilateral export credit agencies and derivative products, including securitization.[6]

This is roughly how it works in practice. In general, the private operator is granted a concession by the government to design, build, and/or operate transport services or infrastructure for a specified period. This concessionaire typically is responsible for raising the finances required to carry out the project. At the end of the concession period, the facilities and their operation may be transferred to the host government, depending on the nature of the contract. The concessionaire will typically form a Special Purpose Vehicle (SPV), in which a project or a set of projects is treated as a separate entity from the sponsors. Funds are then borrowed solely based on the project's or project package's cash flows and the equity in the SPV itself.[7] This independence allows the project package to be

[6] Equity is generally the lowest ranking form of capital because the claims of the equity investors will rank behind all creditors. On the positive side, the equity holders gain disproportionately if the project performs better than expected Different forms of investment other than straight equity might be considered as "pseudo-equity". For example, in the UK, project sponsors will commonly consider lending debt to the SPV that is subordinated to all other borrowings. This might be considered as an alternative to additional equity, and is normally based on tax considerations and standing in bankruptcy should the concession fail. Mezzanine finance falls somewhere between senior debt and equity. Examples include subordinated debt and preference shares. Payments are made to these investors only after senior debt is serviced and will only be made if certain conditions are satisfied, such as minimum coverage ratios or investment requirements related to the performance of the project. The risks taken by mezzanine providers are greater than those of senior creditors, and so required returns will be higher (but lower than those required by traditional equity investors). Mezzanine capital might be provided by certain investment trusts, mutual funds, or insurance companies..

[7] As the SPV is usually only a legal construct, it needs to ensure that it performs its obligations under the concession agreement by sub-contracting those obligations to third parties. The principal parties usually are the construction contractor and the operator of project facilities. It is common for one or both of these parties to be part of the sponsor consortium, or an affiliate of the sponsors. Since there are usually multiple sponsors, the relationship between them is clearly defined and usually set out in a shareholders' agreement. The SPV might have other equity investors, such as development finance institutions or the government. The SPV is capitalized by the sponsors in agreed proportions, normally on the terms set out in an agreement that deals not only with the sponsors' initial capital investments but also with any further obligations with respect to future contribution obligations. In addition, rules are established with respect to how the SPV is to be administered, how it is to be financed, how sponsors share profits, and how, if at all, sponsors may transfer or sell their shareholdings or interests in the SPV.

separated from the equity investors' balance sheet; therefore it is frequently referred to as "off-balance sheet financing".[8]

The financing structure has a number of recurring characteristics. For instance, bank debt is the primary debt funding source and sponsor equity is committed, and sometimes paid up-front, prior to the provision of any debt finance. In general, the cash flows of the project's package is the principal basis for returns for both debt and equity investors, and the project's assets are the principal collateral for any borrowings. It is important to note that payments to equity holders are subordinate to operating costs and debt service obligations. Once the project is operational, lenders have no or very limited recourse to the credit of the project's owners (either sponsor equity or government in the case of BOT projects). Overall, the transaction heavily relies on contractual commitments between the project participants which is why the regulatory and supervision capacity of governments is so crucial to the success of these transactions.

The difficulties encountered in emerging markets in the 1990s and the well-publicized problems experienced by some transport infrastructure projects have forced both the private and public sectors to expand the idea of project financing. While the ultimate goal may be to arrange project borrowings which will provide a minimally expected rate of return to sponsor equity and at the same time be completely not demanding for the sponsor or the government, such a goal has proven almost impossible to accomplish, except in a few extraordinary situations.

The advantages of project finance vary across participants in the transactions. Promoters of project finance (sponsors and investment bankers) prefer project finance because it has allowed them to undertake projects without exhausting their ability to borrow for traditional projects, and without increasing debt ratios (or at least those that are calculated based on reported financial statements). Project finance structures can be used by

[8] Note that the commercial banks who generally lend directly to the SPV tend to have a very significant control over the SPV. On the one hand they are expected to finance the project on a non-recourse or a limited recourse basis, emphasizing project revenues as the primary source of repayment of interest and principal. It is in return for agreeing to finance the project on such a basis that the banks are likely to require the ability to exercise a considerable degree of control over the SPV and its activities, and to have "step-in rights" should any one of a large number of triggering default events occur.

companies to limit their financial risk to a project to the amount of their equity investment.[9] In addition, if the project itself has particularly strong and secure cash flows, project finance may allow more debt to be employed in the financing mix, since creditors do not have to worry about project cash flows being siphoned off for other corporate uses.

Project finance may provide stronger incentives for careful project evaluation and risk assessment. Since the project's cash flows are keys to obtaining financing, such projects should undergo careful technical and economic review and sensitivity analysis. This may lead to clarification of the nature and magnitude of project risks and what causes them. Having a detailed, objective assessment of project risks and potential may not only enable risks to be allocated to the appropriate parties, but in some cases, the project analysis itself may reveal ways to change the project to reduce the overall level of risks or to improve their allocation. For example, demand analysis of a toll road may show opportunities to delay expansion until certain traffic levels trigger new investments in capacity.

But project finance also has some disadvantages. They are more complex than traditional corporate or public financing, typically involving many more parties and resulting in significantly higher transaction costs. The complexity of project finance deals also makes them very expensive. The due diligence process conducted by lenders, legal counsel, and other technical experts results in higher development costs, with higher fees and interest margins than what is typically charged. It is not unusual for the total cost of a project finance transaction to cost twice as much as straight debt or equity finance. Total costs may reach 7 to 10 percent of total project value. When acting as a financial advisor to a project, investment banks will typically charge high monthly fees, plus all expenses. They also typically receive a success fee if the project reaches financial closure, which can range from .0025 to 1.0 percent of total project value.

Negotiations on various aspects of the project are usually protracted and may be quite contentious. This is especially true for transport projects, which typically are politically sensitive, have high visibility, and retain strong public interest and participation.

[9] The non-recourse nature of the debt in a project financing may change during the life of the project. For example, debt may be structured to provide recourse to the project sponsor only during the construction and commissioning phases.

Getting parties with diverse interests to agree on the nature and magnitude of risks is very hard, let alone getting them to agree on who should bear these risks. The documentation associated with project financing is almost always complex and lengthy.

Even after the financing is closed, the project will usually be subject to closer monitoring by all parties. Because lenders primarily rely on revenue flows to repay their loans, the degree of lender supervision of the management and operation of the project will most likely be greater than for an ordinary corporate loan. Likewise, public officials need an ongoing program to monitor contract compliance and potential exposure to any guarantees that have been provided, as well as regulatory oversight when deemed necessary. Projects finance makes this monitoring particularly complex. In the initial stages, sponsors are likely to fund their equity contribution either internally or from on-balance sheet borrowings. Governments need to be careful to monitor the sources of this initial investment. In some cases, while the project equity appeared sound, the additional borrowing by the sponsor's parent company so weakened the overall company that bankruptcy of the parent impaired the ability to undertake the specific project obligations. In sum, monitoring risk is not only an issue at the beginning of a PPP, it is a issue throughout the duration of the contract.

4. Risk at the Center of Transport PPPs

The identification and management of risks is at the core of the design of any PPP. This is particularly obvious in the context of the project finance dimensions of the PPP because of the non-recourse or limited recourse nature of project debt and the limited contractual undertakings of the project owner. Since each project faces a different set of risks, it is always best to try to identify them at the outset and allocate them to the appropriate parties. This is why one of the first tasks that public officials should address is to understand the distribution of risks to which each party is committed. In many renegotiations or regulatory disputes, the ultimate responsibility and resolution will be based on the assignments spelled out in the contract.

The experience of the last 10-15 years suggests that risks are actually very real! Various studies have shown the extent to which things often don't happen the way they

were planned. According to Guasch (2002), about 75% of the transport contracts in Latin America were renegotiated. Flyvbjerg and his various co-authors have managed to document that the problem is just as important in developed economies. They show that risks should be a concern at all stages of the process.

For new projects, they start at the construction phase where the major risks are delays in completion and the commencement of project cash flows; cost overruns with an increase in the capital needed to complete construction; and the insolvency or lack of experience of contractors or key suppliers. Construction costs may exceed estimates for many reasons, including inaccurate engineering and design, escalation in material and labor costs, and delays in project start-up. Cost overruns typically are handled through a fixed-price and fixed-term contract, with incentives for completion and for meeting pre-specified investment goals. Other alternatives include provision for additional equity infusions by the sponsor or standby agreements for additional debt financing. It is always sensible for developers to establish an escrow or contingency fund to cover such overruns. Delays in project completion can result in an increase in total costs through higher capitalized interest charges. It also may affect the scheduled flow of project revenues necessary for debt service costs and operating and maintenance expenses.

In developing countries, in addition, there is also the risk of unavailability of equipment or materials for construction or operation must be considered. This is especially true with respect to rolling stock or in for specialized equipment, like gantry cranes or loading bridges used in ports or airports. Transit bottlenecks, tariffs, foreign currency fluctuations and other factors can cause a significant increase in costs. Moreover, there are also the risks that the main contractors and key subcontractors lack the experience, reputation, financial, technical, and human resources to be capable of completing the project in timely fashion on budget. This risk is best addressed through tough pre-qualification of bidders (if sponsors are also contractors); through certification and monitoring if unrelated parties are used; and by ongoing financial oversight of the contracting companies themselves, to make sure that poor results form other projects or from weak balance sheets do not spill over into the specific project of interest.

Transport projects can also have a substantial environmental impact. Such projects frequently attract strong opposition from community and environmental groups over issues of pollution, congestion, neglect of public transport and visual impact. Similarly, land acquisition can be a protracted process with the potential for extensive legal delays, particularly in developing countries.[10] In general, the public sector often ends up taking on the responsibility for most of these risks since often it is easier for the public sector to take the responsibility for acquiring the rights-of-way, to pay for them and contribute this asset to the project. Project sponsors often try to ensure that the government bears the risk of providing all necessary land within a given time frame or being liable for damages. Furthermore, the cost of land acquisition can become a major factor where land values have risen rapidly or are subject to speculative activity over which the project developer has no control. In these cases, agreement on some form of cost ceiling may be necessary in the concession contract. In some cases, a special government body may be charged with implementing the land acquisition process. Generally, the host government should ensure that required licenses and permits be obtainable without unreasonable delay or expense.

But risks are also very present at the operating phase. The major risks for transport projects in these stages relate to technology, traffic/revenue risk; regulatory and legal changes; interest rate and foreign exchange risks; force majeure risk; and political risk.

PPP designers cannot ignore new technologies since they can either significantly improve the profitability of a project or adversely affect any project that uses obsolete technology. For example, the use of automatic toll collection technology reduces collection costs and incentives for graft. Another example is technological improvements in customs processing, so that border crossings on major arterial toll roads can be traversed more quickly, saving time for users and making the road more valuable.

Unlike project financing in other sectors, take-or-pay or fixed-price contracts are typically not available in transport, so that demand risk is a major issue in virtually all projects. Even when there is a reasonable level of confidence in forecasts, demand can be dramatically affected by competition form other modes or facilities, changing usage patterns, and macroeconomic conditions. These interrelated issues, over which the project

[10] For example, land assembly was a major factor in delays in the construction of the Bangkok elevated

sponsor often has little or no control, are very difficult to predict and represent a major risk to financing. In particular, forecasting during the early years can be quite subjective. To the extent that these risks are driven by economic conditions, there is a potential role for the government to play in risk-sharing, either through traffic or revenue guarantees or other forms of support. (These are discussed in more detail below.)

But demand uncertainty must be viewed realistically. Over-optimism in traffic projections is common for privatization teams focusing on convincing private operators of the value of their business and for potential operators who want to get the deal, convinced that they can renegotiate almost anything once they have taken over the business.[11] To see this, take the case of toll roads. Traffic volumes are very sensitive to income and economic growth and the failure to recognize this may be one of the main reasons why so many toll road projects have failed or ended in bitter renegotiations. Motorization and vehicle-kilometers traveled tend to increase faster than income levels. This high income elasticity, especially for leisure trips, makes toll roads especially sensitive to macroeconomic conditions. For roads that serve export activities, exchange rate changes can dramatically affect trade, leading to major changes in demand patterns. Many toll road projects in the last decade have dramatically overestimated traffic levels. In some of the Mexican road concessions, traffic volumes were only one-fifth forecast levels. In Hungary, the M1 Motorway attracted only 50 percent of expected volume in its first year of operation. The Dulles Greenway, outside of Washington, initially only attracted one-third of its expected daily volume. Even after a toll reduction of forty percent, the Greenway still was only able to achieve two-thirds of its originally forecast volume. Note that some of these demand risk can be hedged against through contracts with flexible duration as proposed by Engel, Fisher and Galetovic. [12]

Financial risk is the risk that cash flows might be insufficient to cover debt service and then to pay an adequate return on sponsor equity. Financing constraints, especially the lack of long-term debt capital, are a significant hindrance to toll road development. Since the advent of financial crises in emerging markets, few projects are able to generate returns

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highway.

[11] See Trujillo, Quinet and Estache (2002) for a longer discussion of the strategic behavior in transport bids.

[12] Engel, Fisher and Galetovic (2001)

on investment sufficient to attract private capital. This suggests that until macroeconomic risk premiums decline and traffic growth is more established, only a limited set of projects will be undertaken without substantial government support. The financial crises will force many programs to slow down and force debt restructuring of many of the existing concessions. There is a need to promote more secure financing structures to reduce the risk of potential bailouts.

In theory, financial risk is best borne by the private sector, but in transport projects there is likely to be substantial government risk sharing either through revenue or debt guarantees, or participation by state or multilateral development institutions. There also may be cash grants or other financial contributions that serve to improve the project rate of return on private finance. Passenger transport tariffs tend to be very politically sensitive and governments are often more willing to grant subsidies to finance costs than to aim at full cost recovery as they more often do with freight transport.[13]

The recurring financial crises of the last 15 years have shown that currency risks need to be taken seriously. The main currency risk is driven by the impact on the value of the business of fluctuations in the exchange rate. In addition, the toll concession can be subject to a convertibility risk which refers to the possibility that the operator may not be allowed to exchange local for foreign currency. These are major issues for some projects, where revenues are commonly in local currency and adjustments for inflation and exchange rates may lag or encounter political opposition. Projects can reduce this risk by tapping domestic capital markets where possible. Most projects attempt to mitigate exchange risk by provisions for indexing to inflation, although in practice the magnitude of exchange volatility has made such requirements difficult to enforce.

There is also increasing evidence that PPP designers need to anticipate more carefully force majeure issues. This refers to risks beyond the control of either the public or private partner, such as floods or earthquakes, which impair the project's ability to earn revenues. While some private insurance is becoming available for catastrophic risks, the public sector generally is faced with the need to restructure the project should such disasters occur. This may take the form of extending the concession term, or to provide additional

[13] In many countries, often developed, infrastructure subsidies are also quite common for ports and rail.

financial support. The rule is that remedies in the event of force majeure risks should be stated in the contracts; for example cash compensation or an extension of the concession term equal to the length of the disturbance.

In addition to these business related risks, there are risks associated with the interactions with the public sector. The main risks in this category are regulatory, legal and political risks. Regulatory risk stems from the weak implementation of regulatory commitments built into concession contracts but also in laws or other legal instruments relevant to the value of the transaction. The question asked is whether the regulator will exercise its authority and responsibilities over prices, public obligations, competition rules and similar rules that are specified in the contracts and that influence the value of the business. The solution is to try to make sure that regulators have rules to follow and that they are independent enough to be able to enforce them.

But even if regulatory rules are clear enough, they are only as effective as the regulators can be. The best designed regulatory environment is useless if the regulator is not independent or fair. This risk is more common than it appears and pressures on regulators are a major source of concern which investors reflect in their required rate of return. In 1999, a major factor in the restructuring of Mexico's toll road program was the pressure on regulators to cut tolls. In Thailand, a similar concern resulted in decision by the government to cut by 50 percent a toll level it had committed to in a BOT contract. Similar examples could be provided for a large number of countries in more recent years. The outcome is generally that the government ended up taking over the facility.

PPPs typically cover periods of ten years or more. The relevant legal and regulatory environment is likely to change substantially over that period. The rules dealing with the financial consequences of these changes between government, users and operators are critical and yet often forgotten. The rules must cover the possibility of adaptation of the contract terms during the tenor of the project financing.

Political risk concerns government actions that affect the ability to generate earnings. These could include actions terminating the concession; imposition of taxes or regulations that severely reduce the value to investors; restrictions on the ability to collect or raise tariffs as specified in the concession agreement; precluding contract disputes to be

resolved in reasonable ways. Governments generally agree to compensate investors for political risks, although in practice justifications for government actions may be cited to delay or prevent such payments. Thus, private investors generally assume the risks associated with dispute resolution and the ability to obtain compensation should the government violate the concession agreement. The issue of meeting financial obligations while disputes are resolved may be achieved through a requirement of debt service reserves, escrow, or standby financing.[14]

The credibility of the government to uphold contractual obligations and the willingness and ability to provide compensation for political risks are key issues for project finance. Issue of delays or denials of tariff increases have made many prospective parties wary of entering into new projects. This is especially true for foreign capital, which is perceived as especially vulnerable to political risks. Some of the more risky emerging markets may require support from multilateral or bilateral financial institutions to reduce this risk exposure. In addition, political risk insurance may also help manage issues of inconvertibility, transfer, and confiscation.

The project finance component of PPPs involves many participants, each with important roles to play. They include the government, the constructors, the operators/concessionaires, the lending commercial banks and the very heterogeneous groups of other lenders which include national and regional development banks, bilateral agencies, export credit agencies, and development finance institutions.

The allocation of risks among all these actors is thus clearly an essential dimension of the design of PPPs. One of the long-standing tenets of project finance has been that the project participant who controls or is best able to manage the risks should bear them. While true in principle, reality often fails to live up to the goal. Risk allocation is complex and difficult, and for all practical purposes it is a negotiated process. For example, governments are responsible for changes in the law, yet the risk and consequences of such changes are often shifted to the private sector. Or, the central bank may have the greatest responsibility for inflation and interest rate outcomes, yet in reality it is often the project developers,

[14] These political risks are starting to be documented quite well empirically. For instance, Athias and Saussier (2007) find that contracts signed with left leaning public authorities, rather than with right leaning public

creditors, and equity providers who end up bearing the interest rate risk. There are numerous other risks that do not necessarily end up being borne by the party best able to manage it. More often, it is the best and most experienced negotiator that ends up bearing the least amount of risk.

Also, the level and type of risk encountered may change over time. The 1998 Asian crisis increased perceived risk levels enough to increase the required rate of return to levels unachievable for most projects. On the other hand, governments may fall prey to a "fear-greed cycle", in which governments become afraid of program failure and thus offer increasingly better terms. Alternatively, prospective concessionaires who worry that they will get left out bid unrealistically. Subsequently, the element of greed takes over in which governments may fail to live up to commitments and the private sector seeks ways to privatize gains and socialize the project's risks.

Successful PPPs have been characterized by a broad level of risk-sharing between the public and private sectors. Generally, the private sector is better at managing commercial risks and responsibilities such as those associated with construction, operation, and financing. In contrast, transport projects most likely depend on public participation in areas such as acquisition of right-of-way, political risk, and in some cases, traffic and revenue risk. PPPs has worked best when experienced, well-capitalized firms have enough discretion over design and confidence in pricing policy to accept construction and some degree of traffic risk, while the government assumes the risks that it controls and gives consideration to financial support or guarantees if traffic levels in the early years are insufficient.

Ultimatelly, the market seems to be adjusting in the kind of contracts it is writing. Athias and Saussier (2007) highlight the fact that the contracting parties try to sign not only complete rigid contracts in order to avoid renegotiations but also flexible contracts in order to adapt contractual framework to unanticipated contingencies and to create incentives for cooperative behavior. In the case of toll roads, this gives rise to multiple toll adjustment provisions and to a tradeoff between rigid and flexible contracts at the design stage. In an econometric assessment of 71 contracts, they find that the standard view that a rigid

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authorities, appear to be more likely rigid. This seems to corroborate the conjecture that private

contract is to be preferred as soon as specific assets are high, may be true only if other conditions concerning poor adaptation of costs, renegotiation costs and the probability to see the contract enforced are met.

5. The Role of the Public Sector in PPPs

Besides the contractual partnership with the private operator, there are two main ways in which the government continues to be involved in the activities covered by the PPP. The first is the provision of ex-ante guarantees and ex-post guarantees which consist of financial contributions to offset the consequences of undesirable unexpected event which have resulted in a renegotiation of the contract. The second is the regulation of the sector, which generally includes the monitoring of commitments made by all parties through the contract.

5.1 Guarantees

Governments may have to provide guarantees for a wide range of reasons as suggested in the recent book by Irwin (2006). When unexpected events arise and a renegotiation of a contract arises, government need to come up with a mix of government actions that ensures that an acceptable financial return can be generated. This means that the rate of return of the PPP has to cover its cost of capital.[15] These actions may include some redesign of the financing schemes to include guarantees but also of the project design, including its duration as suggested by Engel et al (2001).

A variety of mechanisms can be used to support private financing ex ante by facilitating the closure of the financing aspects of the PPP. These range from revenue enhancements to equity guarantees. Equity guarantees gives the private operator the option to be bought out by the government at a price that guarantees a minimum return on equity. Although the liability is contingent, the government in effect assumes project risk and corresponding private sector incentives are reduced. A debt guarantee is an equivalent instrument to protect the lenders. It ensures that the government will pay any shortfall related to principal and interest payments. The government may also guarantee any

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concessionaires have a better reputation among right wing public authorities..

refinancing that is scheduled. It creates significant government exposure and reduces private sector incentives, although it may decrease the cost or increase the amount of debt available to the project. Governments can also provide subordinated loans which can fill a gap in the financing structure between senior debt and equity. From the government's perspective, they also have the attractive feature that they can be repaid with a return if the PPP is successful. There are also a number of interventions which reduce the risks associated with demand. A minimum traffic or revenue guarantee, in which the government compensates the concessionaire if traffic or revenue falls below a minimum threshold, is a relatively common form of support for toll roads and more rarely so in railways, airport or ports. [16] This guarantee can often help facilitate the access of the operator to the financial market. [17] The main alternative to this guarantee to protect against demand risk is to allow the contract to have a variable duration. The contract ends when the demand has reached the level built in the bidding documents. Ex-post, this can also be achieved through contract extensions. These types of financial support involve limited public sector risk, but also do little to support or enhance private financing. First, a government can extend the concession term if revenues fall below a certain amount. Second, a government can restrict competition or allow the development of ancillary services by the concessionaire.

For developing countries, the main risk may be the exchange rate risk. With an exchange rate guarantee, the government agrees to compensate the concessionaire for increases in financing costs due to exchange rate effects on foreign financing. Exchange rate guarantees expose the government to significant risk, as well as increasing the incentive to utilize foreign capital. This can be an important challenge of highly leveraged transactions in foreign currency.

In addition to these instruments which are typically discussed an assessed and negotiated before the contracts are signed, there is a series of instruments government often use as part of the renegotiation of contracts. These include grants or subsidies which ideally

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[15] See Alexander et al (2001) for a discussion of the cost of capital in the transport sector.

[16] Note that in some countries such as Chile for instance, minimum income guarantee to protect the operator are introduced jointly with revenue sharing scheme which allow the government to share—30-50 percent— into extra profits (i.e. revenue generating a return in excess of 15 percent) when traffic is consistently above forecast.

[17] If government's share "downside risk" with the private sector through guarantees, they should also consider seeking instruments that allow profit on the “upside”. One way to do this is by a revenue-sharing arrangement in which the government receives a portion of revenues above a maximum traffic threshold.

should be identified ex-ante but which are more common as part of contract restructuring, at least in the transport sector. In Argentina, this subsidy took the form of a forgiveness of accumulated payments due to the government for the right to operate the concession. In general, these grants or subsidies have no provision for repayment. A common approach to commit to subsidies ex ante in some OECD countries is the provision of subsidies through shadow tolls. Under a shadow toll, the government contributes a specific payment per vehicle to the concessionaire. Because they are paid over time, they may be less of a burden on the public budget. The drawback of shadow tolls, though, is that they may not provide investors with much protection from revenue risks. In addition, the payment of shadow tolls over time creates a credit risk for concessionaires. These inefficiencies can be reduced in a number of ways, such as a declining payment schedule as volumes increase or a maximum traffic level beyond which shadow tolls are not paid. Output-based aid (OBA) is another example of subsidy driven PPP. In this case, it is a mechanism for providing explicit performance-based subsidies to support the delivery of basic services where policy concerns—such as limited affordability for some consumers, a desire to capture positive externalities, or the infeasibility of imposing direct user fees—justify public funding to complement or replace user fees.

5.2 Institutional roles of government in PPPs

While these financing dimensions of the additional role of government in PPP are quite essential, they are relatively simple in relation to regulation and monitoring responsibilities, the second main role of the public sector in PPP. Normally the government that perceives the need for an infrastructure project and determines whether it is suitable for PPPs. In some countries, special units are prepared to package and preparare the PPPs on behalf of the government.[18] The specifics, of course, will depend partly on the political and economic situation facing the country, as well as the characteristics of the project itself. It might be necessary to enact specific legislation, or even to change the constitution, to enable the financing to proceed. (Many national constitutions prohibit private ownership or control of essential public facilities.) In addition, since PPPs are critically dependent on

[18] Dutz et al (2006)

contractual obligations between many parties to the deal, it might be necessary to enact legislation specific to the project or sector. It also may require clarifying laws relating to the recognition and enforcement of contractual obligations and security rights, or the laws relating to nationalization, expropriation, and arbitration. The regulatory regime within which the project is to function should also be clearly defined.

Maybe the most underestimated institutional dimension around PPP transactions is the set up of the institutional capacity to monitor the contract. The standard suggestion is to create an independent regulator who will monitor the commitments made by all parties to the PPP and is accountable to all these parties, including the users, for the effectiveness with which it delivers this regulation function. This academic recommendation has not been overwhelmingly endorsed in the transport sector. While independent regulatory institutions are quite a common match for PPP arrangements in utilities services such as electricity, telecommunications or water services, they are not as common for the transport sector. Indeed, few countries have created a transport regulator that monitors all PPP across subsectors. Most are in Latin America and even then, in most cases, land transport and waterborne transport are generally handled by different agencies.

In most cases, the PPPs are regulated by a public sector agency specialized in a specific sector. Road Agencies supervise both public and private roads and often have a responsibility to monitor transactions associated with secondary roads. Ports, airports or railways PPPs are generally controlled by a specialized agency. Ports authorities generally enjoy that mandate for ports but are generally assigned a single or a set of ports. They are responsible for the management of the PPPs in the port under their mandate. In countries with multiple ports, a national agency often supervises all the local port authorities and in some instances may manage the award of the concessions in each port even though their monitoring is assigned to the local port authorities. Similar arrangements are observed for airports. A single authority is generally responsible for the award of airport concessions but in countries with multiple airports, local supervision of compliance with the contractual commitments is not uncommon. Rail is simpler. Concessions are generally regional and in most country, they cover the whole country. The most common institutional arrangement in that case is a single regulator for all rail concessions. In large countries with significant passenger and in particular suburban transport as in Argentina or Brazil for instance, the

passenger and freight rail services are unbundled and the management and key PPP decisions of passenger rail services are often assigned to the cities or municipalities served by these suburban operators.

The main advantage of a national model of regulation of all transport infrastructures is it ensures consistency in the handling of sectors across the country. It also allows the countries with limited human capital to do the most with the scarce skills available. The main disadvantage is the government loses sometimes much needed flexibility to deal with sector or regional specificities. There is no clear best practice benchmark. For the road sector, after a number of failed attempts, road agencies are starting to deliver in terms of maintenance as well as in terms of investment choice and implementation. The Port sector is starting to realize it needs to look for a new model as the nature of the business is changing. [19] The main challenge for the airport sector has been the difficulties encountered in addressing jointly military and civilian needs in airports. It is still adjusting to the fast growing traffic and it is likely that this sector will have to rethink its model as well once the market will have settled. Overall, an unbundled model also creates some problems in terms of the coordination of the subsector's policies. One of the reasons why some many countries have a hard time supporting effectively the development of effective multi-modalism is the atomization of the policy design and regulation of transport activities in the assignment of government responsibilities. The main solution to this coordination problem is to rely on a competition agency to address any concern of inconsistent regulatory decisions. This option is however limited to many countries who do not have a competition agency or the necessary skills in those agencies.

6. Concluding Comments

Recurrent developments in emerging financial markets and the recent credit crisis catalyzed by the US mortgage crisis have so far not dramatically changed the appetite for transport infrastructure projects. Transport infrastructure projects that have significant commercial risk will face ever higher interest rates, with debt premia for political, currency, regulatory, and sectoral risks. They will also face lower equity contributions with some

[19] Estache and Trujillo (20007)

actors unwilling to put more than 5-10% of equity in the PPP, in particular in developing countries.[20] The substitution of construction equity for portfolio equity will not suffice. Depending on the particular project, rates of LIBOR plus 6 to 10 percent should not be unexpected. In addition, widely used performance indicators such as Debt Service Cover Ratios have been adjusted, so that previous standards such as coverage of 1.5 times interest payments now are commonly 2.0 times or even higher. As a result, there will be increasing pressure for governments to make become involved as equity holders in these projects or government will be increasingly asked to provide guarantees.

PPP efforts in transport, in particular in developing countries, are shifting from new projects to the privatization, rehabilitation, and expansion of existing facilities. The established track records of many facilities lower perceived risks and also the associated revenue stream from the outset to cover capacity additions have become key elements in transport PPPs.. Efforts to bundle transport projects into PPP "packages" for both revenue diversification and to obtain cash flows from a portfolio to fund specific investments within the package of facilities have also increased over time as obvious ways of minimizing or spreading the risks.

Transport PPPs seem to be in the hands of an increasingly concentrated number of actors, including operators, sponsors, bankers, and investors. In transport, just as in other public utilities, about fifteen to twenty project players have emerged at the aggregate level and even less within each subsector. This group is characterized by large size and large capacity to invest; (relatively) low cost of capital with deep access to financial markets; sophisticated development skills; and strong financial support from their parent companies. It is also an increasingly multinational club with a global presence in competitive and non-competitive transactions. While local investors and others may participate in specific niches, these major organizations have become quite effective at setting the acceptable standards and de facto practices in transport project finance.

As the key actors are increasingly well known and as transport policy and regulatory institutions start to be able to deliver on their mandates, PPPs will become more effective policy tools in developing countries. The road to success has been—and still is--

[20] See Correia et al (2006)

long, simply because governments and their policy advisers have somehow been slow to learn from mistakes. There are enough success stories to be confident about the future of PPPs as an instrument of transport policy. The hopes should however be limited to those activities for which PPP can help (ports, airports and high traffic roads for investment. For some countries with high commercial, institutional or political risks, PPPs are not going to be the optimal option for many of their transport needs. For all the others, ignoring them would be just as bad a policy decision.

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