

The Fiscal Implications of Infrastructure Development

Remy Cohen

Bocconi University Business School and Cohen & Co.

Marco Percoco

Department of Economics
Bocconi University

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Inter-American Development Bank

Washington, D.C.

Sustainable Development Department

Introduction

In recent years an increasing number of studies concerning the role of public infrastructure in economic development has appeared on the most important scientific journals. In analyzing investment trends in Latin America, Calderón and Servén (2003) observe a widening “infrastructure gap” between Latin American Countries (henceforth denoted LAC) and other successful developing countries in all the sectors considered: telecommunications, power and transport. They also show that the gap was developed during the 1980s and 1990s¹, when fiscal adjustments in the Region were largely carried out by decreasing public infrastructure investment. Changes in primary surplus as a share of GDP were due for at least 50% to the contraction of public investment in infrastructure in Argentina, Bolivia, Brazil, Chile and Ecuador².

Furthermore, Calderón, Easterly and Servén (2003) show that there is limited evidence to support substitution of public spending in infrastructure with private investment. This, in turn, means that the fall in public investment is not fully explained by the entry of private sector in some industries. In fact, there is little evidence that private investment in infrastructure increased after the liberalization of infrastructure sectors, whilst higher private infrastructure spending is associated with more public expenditure in infrastructure.

This is also implied in the work by Estache et al. (2002), where the entry of private sector (in terms of Public-Private Initiatives, PPI) in the newly opened up markets for public utilities generates an increase in the public investment and, very surprisingly, a downward in the recurrent public expenditure. Unfortunately, we do not have any evidence on the cross effect of PPI in public utilities on public investment. Additionally to these findings, their paper shows that:

- Infrastructure may lead to a better income distribution; in particular the more is quality and investment the less is the poverty rate in the economy³.
- Using the production function estimates the authors find that the “infrastructure gap” implies GDP growth differential between Latin America and East Asia of about one-fifth over the last 20 years – nearly one percentage point per year.

The analysis carried out by Calderón and Servén (2003) clearly implies that a catch up in infrastructure investment in Latin America would result in improvements on economic performance (both in terms of growth and international competitiveness of the region) and poverty reduction.

As important as the link between infrastructure and growth is the theme of how infrastructure spending and fiscal policy impact one each other. This requires

¹ The sole exception was the telecommunication sector. This seems to be a relevant point especially if one considers the strategic importance of the industry in enhancing country competitiveness (Cronin et al., 1991).

² In Venezuela the contraction in public investment did not result in a change in the fiscal deficit. In addition, in Brazil, the change in the surplus was smaller than the reduction in public infrastructure investment.

³ On this point, see also Benítez et al. (2000) and Calderón and Chong (2001).

elaboration in at least two levels. First, active management is necessary to minimize the probability of calling a public guarantee (explicit) or renegotiate the payment structure (implicit) in individual projects commissioned by the government. Second, it seems useful to install a governance structure aimed at coordinating government's fiscal management with infrastructure investments. The objective of this paper is to discuss such issues and advance a policy proposal in that regard for the Latin American Region. In section 2 we review the most important issues in fiscal policy and contingent liabilities management. An analysis of the recent experience in infrastructure procurement Latin America is provided in section 3. In section 4 we derive policy implications; finally, in section 5 we present some concluding remarks and proposals.

2. Fiscal Policy and Contingent Liabilities

In the past 20 years, following the debt crises and the public sector borrowing constraints faced by many emerging and developed countries, most infrastructure investment were delayed or cancelled (Guasch et al. 2002; Harris et al. 2003). To fill the gap created by insufficient infrastructure, legislations were passed to attract foreign/local private investors to support the infrastructure development programs that could not be implemented through traditional public finance funding. In addition, governments were required to maintain fiscal discipline in order to meet macroeconomic objectives of fiscal stability. As a consequence, new public investment was severely curtailed as well as investment in required maintenance on existing assets, resulting in a decrease or deterioration of the amount and quality of the infrastructure stock in the region.

Recent macroeconomic literature has focused on the effect of public spending contraction and has provided two alternative theories: the theory of asymmetric effects of public spending and the theory of fiscal illusion. Alesina and Perotti (1996) and Giavazzi and Pagano (1990, 1996) studied some episodes of fiscal adjustment, driven by public expenditure contraction, where the consolidation of public deficit resulted in an unexpected increase in private consumption⁴. Perotti (1999) argues that in times of debt crisis ("bad times") the reaction of the economy to restrictive fiscal policies could change qualitatively, i.e. during "good times" the response of private sector to fiscal shocks may follow a "Keynesian" behavior, and a "non-Keynesian" correlation during "bad times"⁵. Perotti (1999) and Alesina et al. (2002) find empirical evidence of the asymmetric effect of public spending for OECD countries, and explain it by considering the effect of credibility of fiscal policy. This, in turn, means that this framework is not coherent with the structure of Latin American economies where the lack of credibility is supposed to be a driving force of the fiscal policy output, so that the consumption boom during the Eighties cannot be explained by the asymmetric effect of public expenditure contraction.

The impact of the downward in public investment on the lack of competitiveness and a consequent worsening of fiscal deficit has been studied in Easterly (2001) and Calderón et al. (2003) where they develop a theoretical framework aiming to provide an

⁴ The episodes are Denmark 1983-1986, Ireland 1987-1989, Belgium 1984-1987, Canada 1986-1988, Italy 1989-1992, Portugal 1984-1986 and Sweden 1983-1989.

⁵ In an alternative framework, Giavazzi and Pagano (2000) make an attempt to explain these episodes by searching for non-linear effects of fiscal policy.

explanation of what is called “fiscal illusion”. In particular, *fiscal adjustment can be thought as an illusion when it lowers the budget deficit but leaves government net worth unchanged*. Easterly (2001) shows that, under certain conditions, a government will lower the conventional deficit while leaving its path of net worth unchanged and when required to lower its debt accumulation, the government will lower its asset accumulation or increase its hidden liability accumulation by an equal amount. In such a case, fiscal adjustment is an illusion, i.e., cutting public investments, operations and maintenance expenditure and other spending in “productive public capital” will affect the future path of economic growth and then the future situation of public finances (through tax base changes and assets revenues).

This suggests that the current lack of competitiveness of Latin America with respect to other developing countries could be thought of as a result of the contraction of public investment during the past two decades. Fiscal illusion in Latin America was actually exacerbated by the need to meet the external constraints of adjustment programs, the extensive use of off-balance sheet financing and the utilization of contingent liabilities to foster infrastructure investment with no pressure on the current budget expenditures.⁶

3. Contract Incentives: Experience and Some Recommendations

CONCESSIONS AND RENEGOTIATION

Over the past decades, as traditional public finance mechanisms could not be used due to fiscal imbalances, external constraints, volatile capital flows, many countries passed legislations to attract private sector participation to support infrastructure investment programs. The involvement of the private sector was accompanied by large privatization programs aiming at reducing the country public debt but with the same token dismantling monopolistic position and improve efficiency in certain economic sectors. Under this new scenario, government would become market regulator and purchaser of certain goods and services which could be more efficiently managed and delivered by the private sector, subject to profitability conditions and possibly at the same or lower cost for the users. Private agents would be then free to decide what project to implement and under which conditions, under the overall government investment program (Cohen, 2003).

According to this view, *Project Financing* could in principle fill the deficiency gap in infrastructure investment by creating financial mechanisms based primarily on the expected cash flow of the project. Latin America has been one of the region adopting project financing techniques very actively and promoted the legislative changes required to attract foreign/local investors: however the outcome was one of mixed success, as institutional and regulatory framework remained too weak, and too depending from political decision making. Certain sectors (telecommunications) experienced greater success than others (transportation, water).

⁶ There is a growing body of literature on contingent liabilities risk and its implication for fiscal stability. See Mody (2000); Polackova (1998a; 1998b).

Most of the infrastructure projects have been developed under concession arrangements. These arrangements worked well provided that the legal environment is supportive and well structured to deal with events such as cost overruns, renegotiation or contract cancellation. Moreover, the tariff/prices that the infrastructure users should pay should be sufficiently flexible to assure revenues to remunerate the invested capital and repay the project indebtedness. Independent regulatory agencies were set up to oversee tariff application and revision. But most agencies were not sufficiently independent and were relying too much on the political inputs (which were dependent on the election cycle), and most contractors, concessionaires or investors were settling controversies on these issues directly with the government rather than with the Regulator, weakening its position and its enforcement capability.

Over the past 15 years, Public-Private Partnerships (henceforth denoted PPP) have been an active policy instrument to invite the private sector to develop projects under an agreement with the public sector. The basic principle of a workable PPP solution is based on reasonable risk transfer from the public to the private sector, accompanied by a greater efficiency in the operation and management of the activities transferred to the private sector. The main reasons for the great and rapid development of PPP structures were:

- Impossibility to finance infrastructure projects from state budgets.
- Traditional contracting was creating delays in execution and cost overruns.
- Inefficient operation, management and maintenance of the project.

By calling on the private sector in construction, financing and operation of projects, governments were trying to achieve:

- An acceleration of infrastructure investment program.
- Risk transfer from the public to the private sector.
- Use of project financing to assure an adequate return to investors and to meet debt service obligations to lenders.
- Outline of a legislative and institutional framework, flexible enough to accommodate the above objectives.

Experience (particularly in the UK) shows that there have been many types of partnerships ranging from complete transfer of the asset to the private sector, to concessions under users fee or availability charges arrangements, to structure where the asset is returned to the government at the end of the construction period and leased back to the private sector for the operation and maintenance period. A common feature that is emerging, particularly in certain sectors such as transportation, water and healthcare, is that ownership of the asset is no longer considered a key element in the financing process, but rather lenders look at the operation and maintenance of the asset as a primary source for the project cash flow generation. This is why lenders concentrate great part of their due diligence in project financing at analysing the financial standing and operational track record of the asset operators.

In the new framework, the public administration becomes market regulator *and* purchaser of goods and services realized by the project, subject to quality and efficiency of the product of the project. This latter point, by taking away demand risk from the

overall risk assessment of the project, allows for sophisticated financing techniques such as securitization and contributes to reducing the financing costs of the project. Given the government involvement, it was necessary to establish a reference benchmark (the *public sector comparator* and *value for money*) to evaluate the benefit of a private financing methodology compared to traditional government procurement. The UK PFI experience has been positive for certain sectors (roads, healthcare), while other sectors (education, railways, air traffic control) were criticized. Besides the UK government constantly monitor PFI developments and is responsive to required changes in legislation, procedures or financing techniques.

Under PPP-type concessions, particularly in the transportation and water sectors, tariffs are subject to a price cap regulation and the project success is dependent on the development of demand. Price cap regulation was introduced in Latin America as a mean to attract private investment, develop projects and gain in efficiency. Without entering into the details of price cap regulation, recent studies (Estache et al. 2003) demonstrated that in Latin American countries 30% of projects were renegotiated, and the percentage increases to 54.7% and 74.4% if we limit the survey to the transportation and water sector respectively. The percentage changes for projects under a rate of return or a combination of price cap and rate of return.

A further explanation of the renegotiation behaviour could be traced back to the conflict of interest inherent in the concession arrangement. Let us take, for instance, the development of a toll road. The concessionaire main shareholders are usually a construction company that will build the road and an operating company who will operate the road and/or other entities who may have direct or indirect interests in the project. The conflict of interest between the concessionaire and the contractor is very clear and the equity injection of the concessionaire cannot be considered true equity as it is captured under the construction contract. The same applies to the operator who, being a shareholder, operates the infrastructure for the whole period of the concession, without possibility of changes, unless gross negligence or severe underperformance occurs. A support to this explanation can be found in the studies of Estache et al. (2002) and Guasch et al. (2002), Laffont (2001) where they look at the timing of concession renegotiations: it ranges from 2.2 to 4.5 years, which means, considering the type of projects surveyed, roughly at the end of the construction period or very early in the operation period. *This suggests that once the contractor has finished his job, he has little incentives to continue into the project if there is a slight change in the economics of the concession, and he will look for a way out either through renegotiation or by selling his equity to another investor.* The typical BOT type of concession has been criticized and alternative methods of financing have been suggested to minimize opportunistic behaviour by the concessionaire or by the government (Trujillo, Cohen et al. 1998).

MANAGING PUBLIC-PRIVATE PARTNERSHIPS AND PRIVATE FINANCE INITIATIVE

On this point, governments should address some serious issues:

1. *Managing subsidies.* When a project requires massive funding (both in terms of money transfers and services) it might be better for the project if the monies were given to financial vehicles, for a better accountancy and transparency. It is not optimal to let the private sector borrow under indirect guarantees or subsidies paid by the government.

It is far better to have the government setting up his own financial vehicles or entities to which all the rights and cash flows as well as public subsidies are assigned: borrowing costs will be lower. These types of vehicles should exist until all their liabilities are fully paid in the interest of the infrastructure users and the taxpayers; moreover they should also have flexible maturity profiles to absorb demand risks⁷.

2. *Asymmetric information and risk sharing between public and private parties.* A topic having strong fiscal implications is the role of asymmetric information between the public administration and the private sector (Cohen and Percoco, 2003). In a BOT-type concession, the private concessionaire -being also in charge of design, construction, and operation- has more information about project costs, risks and legal way outs than the public sector awarding counterpart. *Risk sharing is endogenous and its allocation depends on the contractual and negotiating strength of the two parties.* The hidden issue here is that without a proper project specification and bidding process by the public sector, the private agent tends to bundle the project risk and drive upwards the infrastructure price, which remain so also during the negotiation phase, when the private sector winner tend to shift back to the public sector, risks which were factored in his bidding price. Asking the private agent to take too many risks, such as design, construction, financing and operation tend to inflate investment costs. This implies higher tariffs to the users, higher operational subsidies if required, and a higher potential exposure of the public sector should some of heir contingent or direct liabilities become callable. When considering concession risks and risk sharing between public sector and private agents, governments could conceive flexible concession maturity which should be a function of the change in the demand, as well as using other techniques such as the least present value of revenues (Engel et al. 2001), where the concession terminates, when such value is achieved by the concessionaire. In these cases, off-balance sheet vehicles would allow for a greater flexibility, monitoring and management of project risks. Moreover, the management of the implicit contingent liabilities gets easier and transparent, as there is a close grasp on the underlying project. In addition, renegotiations of contractual obligations, liquidity facility as well as unexpectedly high cash flows will result in higher project benefits through the reduction of debts or the lowering of tariff.

3. *Role of the legal framework.* Legislation usually changes to improve the functioning of the law. However, if there are too many changes in a short time, lenders and investors start wondering when will be the next change and will take a “wait and see” attitude to get eventually more benefit or will disregard certain investment if they fear that a future negative change in law may affect project financial performance.

4. The Interplay Between Fiscal and Infrastructure Policies

In this section we discuss some policy implications derived from the issues addressed above. In particular, we outline the creation of an entity or agency delegated to infrastructure investment (henceforth denoted Agency) and the reform of capital budgeting and accounting. The creation of such Agency with also off-balance sheet

⁷ The establishment of government-supported financial special purpose vehicle is a building block of the unbundled models described in Trujillo, Cohen et al. (1998).

entities may accelerate the rate of investment in infrastructure, whenever certain indispensable policy definitions are properly taken care of.

THE VALUE OF AN AGENCY FOR INFRASTRUCTURE INVESTMENT

Special Purpose Vehicles (SPV) are the building blocks of project financing as they enhance, among others, project feasibility, risk identification and cash flows segregation. Such vehicles have been contemplated in several legislations and are also used for specific financing mechanisms such as securitization of future revenues. Proper functioning of such vehicles may require contingent obligations from the public sector on issues such as demand shortfall, refinancing possibilities, *true sale* of the revenues or other receivables. Usually these vehicles are set up by the private sector sponsors, but could be set up in a more efficient way (lower borrowing and transaction costs) by the public sector in projects that foresee availability charges or leasing payments by the public administration, and/or strong capital grants.

In addition to project specific SPV, there is a growing debate on the usefulness of off-balance sheet vehicles or entities, owned by the government but not consolidated in the public sector accounts, to promote investment projects, established to by-pass external budget constraints (Maastricht Treaty, IMF/World Bank adjustment programs) and fostering capital investment expenditures⁸. *It also entails issues related to fiscal illusions and contingent liabilities: if a country has not established a record of fiscal prudence and guarantee management, the introduction of such entities by themselves might not imply that real changes for infrastructure procurement are occurring.* These vehicles could be useful and more easily implemented than a redefinition of accounting principles and capital expenditure recording in national budgets. When properly established and managed, these vehicles could solve some of the fiscal illusions issues by bringing more transparency to the investment process; by identifying more precisely project costs (including maintenance and depreciation), risk and returns; by monitoring endogenous events underlying the triggering of the contingent liabilities; by a greater accountability of the managers decision making.

Recently (2002) the Italian government has created “Infrastrutture SpA” (henceforth denoted ISPA), a wholly owned investment company owned by the Treasury Department but governed under the civil code as a private company. The purpose of the company is to foster strategic investments for the development of the country that cannot be accommodated under the budget, due to the EU debt/GDP constraints. The company may receive the government guarantee for its funding; however it is not an automatic mechanism. Guarantees will depend on the project being funded, therefore the management of ISPA should make careful decision on the project capabilities to repay its indebtedness and remunerate the invested capital. The government has appointed management as well its directors.

Setting up such companies may help accelerating infrastructure investment if the company is properly governed. Only projects that have a positive rate of return should be considered and if contingent guarantees are required the company management should monitor the underlying foundation of the project to avoid triggering the

⁸ Blanchard and Giavazzi (2003) provide an interesting framework for the use of a specific agency in order to modify the public budget and meet highly strict parameter of the Maastricht Treaty with no impact on public investment.

guarantee, and the possible recourse to the government guarantee will reduce financial costs of the projects. Furthermore projects and company will be subject to the continuous scrutiny of the rating agencies, in order to arrive at a rating of the company based on its project portfolio. In the 2004 Italian budget “Cassa Depositi e Prestiti” (henceforth denoted CdP), shareholder of ISPA, has been transformed in a joint stock company owned by the Treasury and other institutional investors (Bank Foundations) and received a mission to finance infrastructure projects in addition to current funding to municipalities.

The State ownership of CdP and ISPA will allow for longer maturity funding in accordance to the project profile, at lower rate than the private sector. Certainly the government will incur contingent liabilities, but being the project under entities operating as private corporations, it is likely that the monitoring and the risk management of those liabilities could be better performed than under traditional public debt management rules. Allocating projects to a separate entity allow for a greater transparency on project costs and by avoiding the commingling of cash flows deriving from different government projects, give a greater reassurance to lenders of their repayment.

The Agency delegated to run and finance public investment in infrastructure necessitates of the following ingredients:

1. *Political support.* The Agency should be construed having in mind long-term objectives of the government on infrastructure development. Taxpayer should know why the agency is set up, what are its operating costs, and what are the country benefits from its establishment, as well as the cost of its failure⁹. The Agency should be independent though from political interferences.

2. *Government coordination.* Central and local administration should cooperate to outline a national contingent obligations list on a yearly level to be used as an attachment to the budget, or if the present value of expected losses deriving from contingent liabilities is computed, incorporated in the budget and monitored and reviewed each year¹⁰. Particular importance should be given to the autonomy of local administrations as, an excess of local contingent guarantees, could be devastating at national level, if not properly monitored and managed. Ceiling or limiting the issuance of such guarantees could be imposed by central government or negotiated with the central government in relation to the infrastructure program to be implemented and the financial return of such implementation (likelihood of the guarantee being called). The Agency should review government programs and verify their compliance with the underlying contractual obligations. If, for instance, an increase in tariff is required, in order to maintain the financial viability of a public transportation system, the Agency should impose to the administration to allow such measure or to design alternative measures, to avoid the guarantee being called¹¹.

⁹ This requirement could also mitigate some of problems of credibility of fiscal policies in Latin America, as the ones described in section 2.

¹⁰ On this point see also section 3.2 on the reform of public accounting and budgeting.

¹¹ Note that this is one of the reasons why the political support is a crucial issue.

3. *Risk management.* Agency should assist local and central administration in defining their risk profile and tolerance by setting up appropriate risk management techniques¹² to assess expected losses under their contingent liabilities. Setting up reserve provisions under stress scenarios should also be envisaged, but should be continuously reviewed, and the adequacy of the reserves in the yearly budget should reflect this dynamic revision. In this sense, a review of different contractual obligations under different policy options should enable policy makers for instance, on a cost/benefit or financial analysis basis, to maintain the contingent guarantees versus alternatives such as direct subsidies or repurchase of the asset. Certainly adopting reserve funds may imply the abandonment or postponement or other investment expenditures, but this is the price to avoid undue and unexpected pressure on the budget finances, which will ultimately imply curtailing of expenditures.

4. *Information.* Disclosure of information on public investment program in all the phases of design, bidding, construction and operation is essential to get taxpayer supports and to minimize the increased costs deriving from the asymmetric information management between the public and the private sector¹³. Moreover this type of scrutiny will enable taxpayers and administration to assess the probability of liabilities being called and the usefulness and adequacy of the required measures taken to avoid such call on the contingent guarantee. At the end, disclosure of information should help reducing investment costs and benefiting infrastructure users.

5. *Adequate staff.* The Agency should be supported by qualified technical, legal and financial staff to assist local administrations, SOE, and central government in analyzing project proposals and whether contractual obligations comply with the long run fiscal objective of the administration. Particular attention should be given to the project design and the design documents to be bided. Appropriate design is a key element to minimize project costs and cost overruns. Also the legal documentation should be actively considered in order to reduce legal costs and to minimize opportunistic behaviours under the contracts.

6. *Public Private Partnership.* The Agency should help designing the proper framework for an efficient public-private partnership, where risk are effectively allocated on who is in control of them, and avoiding that the risk transfer is not accompanied by the transfer of public sector inefficiencies¹⁴. It would be recommendable as well that the Agency set up procedures and benchmarks for the PPP options versus alternative public financing ones.

7. *Reform.* A Project Financing and/or a PPP framework does function only if an appropriate institutional, legal, judiciary framework can be accounted for. The more this system is in place the less guarantees will be requested from the public sector in project implementation. Guarantees should not be free but the beneficiary should pay for them in order to reduce the amount due if the guarantee is called. The Agency should assist that those prerequisite are in place or help in their implementation.

¹² See Currie (1999), Currie and Velandia (1999), Magnusson (1999) and Velandia (1999) for an analysis of modern portfolio management techniques of contingent liabilities.

¹³ A sound body of literature has been growing over the last years of the impact of asymmetric information on project profitability and business conduct of concessionaire. See Cohen and Percoco (2003), Guasch et al. (2002) and Laffont (2001).

¹⁴ On this point see also Section 3.

8. *Public funds*. In several countries, the government sets subsidies or grants to meet part of the project costs. One problem that the Agency should help solving is the adequacy of the public funding to the current requirement of the project once it is ready for bidding. Project design, regulatory approvals, environmental clearances, etc., may require years from when the preliminary project cost assessment was designed and the amount of public subsidy approved on that particular project specification. After several years, once the project is out for bidding, public funds may no longer be adequate to the project costs and therefore the amount of private financing may be greater than anticipated, implying the impossibility to go ahead with the project unless more public funds are available or tariff increase to cover the greater exposure of the private sector is allowed. The use of public funds as subordinated debt should be contemplated, to allow the flow back to government at the very end of project life.

9. *Infrastructure funds*. One of the reasons of delay in starting investment projects is the lack of proper definition of the financial package under the project financing agreement. The Agency could sponsor the creation of infrastructure funds to cope with the lack of project equity as well as to provide for other project specifications such as feasibility studies, engineering studies and maintenance programs on existing infrastructure assets. Equity infrastructure funds on new projects could solve the under-capitalization of some project and inject true equity in the project, avoiding the misleading equity provided by concessionaire/contractors/operators. Certainly this will imply a thorough evaluation of an attractive equity return of the project but would probably set up clearer procedures in case of contract renegotiation, compared to the conflicting behaviour implied by renegotiations with concessionaires or contractors. Another type of infrastructure fund, that the Agency could sponsor, is the one investing in existing assets: these funds allow for a way out for project sponsors once the construction phase is terminated and the operation of the project prove its profitability. As well, they may contribute to cross subsidize new projects. In addition to the above funds, there is a necessity to attract public capital for feasibility studies, preliminary design, preparation of bidding documentation as well as maintenance specification. In fact if the administrations could tap to these types of funds, project costs and risks will be better specified and controlled; the awarded price, accordingly, will be lower.

While it is clear that contingent guarantees are useful, it is necessary to reduce the “fiscal overhang” implied by those guarantees. The amount of the guarantees at stake could be defined once simulations have been done on alternative scenarios of project development (anticipating the fact that liabilities can be endogenously triggered). As we believe that the key to avoid contingent guarantees being called depend on *ex ante* proper project costs assessment, and *ex post* project monitoring, the Agency should identify and record the contingent liabilities arising from local or central government commitments; calculate where possible the expected losses using private sector risk management tools such as options, hedging techniques or econometric models; and valuing expected losses and incorporating them in the national or local budget.

Through a dynamic monitoring system it is possible for the policy makers and local/central administrators to avoid reaching the point when a guarantee is triggered by taking the appropriate policy actions (for instance, changing transportation ticket price in a public transit project). Otherwise they should take the full political implication of their behaviour. In other words, contingent guarantees in infrastructure investments are

endogenous to the system and could be properly managed through suitable design, supervision, continuous monitoring and regulation of public administration programs. We would stress the point on “continuous monitoring”, because very often, once a project is off the ground and running, the public administration tends to disregard its operational supervision.

In addition, it should be noted that the Agency should give technical assistance to local administration and central government entities on detailed design, project costs, and implementation programs. Technical, financial and legal know how as well as advanced design are essential in minimizing increased costs deriving from asymmetric information between the public and the private sector in all the phases of the project cycle. Reducing asymmetric information will lower investment costs (Cohen and Percoco, 2003). The Agency should review the project economics (costs, return, etc) and technicalities (design) and suggest the appropriate funding techniques, i.e., from the budget, through a public-private partnership, or through long term funding of government investment vehicles.

CAPITAL ACCOUNTING AND BUDGETING REFORM

The creation of an Agency delegated to public investment in infrastructure would be optimal if associated to a reform in public Capital Accounting and Budgeting (henceforth denoted as CAB). In fact, as shown in Blanchard and Giavazzi (2003), such an Agency will result as a *de facto* separation between capital spending and recurrent public expenditure, thus a complete reform of public balance, as suggested in Easterly (2001), would be recommended especially for infrastructure (or, in general, public assets) already in the portfolio and needing to be just managed and valorized.

The ideal of public sector balance sheet we have in mind should have the following characteristics:

1. *Improving information.* Adequate information about the real economic situation of the public finance is useful to manage efficient fiscal policy. In particular, if we assume the ISA Accounting rules to be operating also in a public context, assets should be accounted for at their current values¹⁵.
2. *Separate plans for current and capital spending.* The separation between investment and recurrent expenditure should reflect their different economic significance, consistent with fiscal discipline¹⁶.
3. *Capital charging.* Charging departments for the public assets the effectively use will result in a more efficient allocation of resources inside the Public Administration, this, in turn, will change the internal financial equilibrium making it more efficient in terms of (economic and financial) cost rationalization.

¹⁵ As stated in Tanzi and Prakash (2000), a number of governments recognize just the assets with an unambiguously established value. However, in recent years, several governments have made an attempt to account for the monetary value of public assets, as Australia, New Zealand, UK and USA.

¹⁶ It should be noted that the difficulties in dividing the two categories should not be considered as a valid argument against the logical separation and the correct calculation of the fiscal deficit. For a complete review of the cons see Buti et al. (2002), whilst a review of the pros is in Blanchard and Giavazzi (2003).

4. *National Asset Register*. The *cadastre* of public assets is obviously an important issue in compiling a reform of public balance sheets because it prepares the ground for a correct CAB and provides information on possible management of government assets for PPP. In addition it would help rating agencies (see what stated above about ISPA) and extend accrual accounting to include the use of capital charges.

5. *Identify and quantify fiscal risks deriving from contingent liabilities*. The risks from infrastructure investment and the consequent contingent liabilities (in terms of public implicit/explicit guarantees) should be clearly stated in the public balance sheets, as well as their quantification, through the calculation of the expected loss.

The introduction of resource accounting actually applies to central government the financial reporting practices of the private sectors. Capital accounts should be accruals accounts, capturing the full costs of resources consumed during the reporting period, including capital costs as measured by depreciation and the opportunity cost of capital. They are similar to those prepared for private sector companies but contain two additional features:

- A statement showing use of public assets (particularly relevant in order to identify the most productive potential uses of the assets).
- A statement analysing spending by objective.

Fiscal discipline is not only consistent with the CAB but reflects the same underlying accruals principles. In particular, both are designed to achieve a more rational framework for the planning and management of investment. Because of this, and to ensure that the reforms reinforce each other, CAB should be implemented to support the “fiscal constraint”. A key feature of CAB is that the focus of decision making for capital is over its lifetime, through capital charges, rather than only when purchased. This puts capital costs on a “level playing field” with current costs. Making managers more aware of the assets they employ encourages good maintenance and provides incentive to maximize use.

In contrast, under the current budgeting framework of most of developing and industrial countries, by identifying the cost in full in the year of acquisition but not depreciating or recognising subsequent opportunity cost, will result in an initial bias against capital spending (if no external constraints apply), and no ongoing incentive to manage capital properly once purchased.

Concerns with the fiscal risk deriving from contingent liabilities imply management measures such as (Polackova, 1998a; 1998b):

- Assessing fiscal performance beyond the budget and debt.
- Determining government’s optimal risk exposure and relative reserve.
- Monitoring risks and regulating eventual renegotiation.
- Calculating expected value of loss via quantitative methods and case studies.

In addition, the costs and benefits of setting up a monoline facility backed by the Multilateral Lending Agencies (MLA) should be valued. Monoline insurers have entered the European Market and are active also in some Asian and Latin American

countries. A MLA-backed monoline would enable various projects to tap the capital markets –at a cost. It would also give investors a reassurance of great transparency and continuous scrutiny of the project development, and the guarantors the ability to step into the projects in the event that the monoline insurance is triggered.

5. Concluding remarks

The descriptions of the issues outlined above show the need to establish control mechanisms to reduce the impact of government contingent liabilities on a country fiscal stability program. On the other hand, issues related to the need to increase country net worth by new investment and investments in maintenance of existing assets are becoming a growing field of research and concern for many government both in developing and developed countries. Externally imposed constraints under current budget definition prevent the development of needed public expenditures for infrastructures, and favour the search for off-budget vehicles and increasing use of contingent liabilities (meaning government guarantees). Contingent liabilities not being recorded in annual budgets, are a preferred-by-government (but a double-edged sword) form of supporting investment in infrastructure, rather than direct subsidies or other means which are politically more expensive and under scrutiny of the public opinion.

As discussed, contingent liabilities could be explicit or implicit. In explicit contingent liabilities, the liability will arise if certain future events will or will not occur. The implicit ones are based on the perception that government will not or cannot back out of certain obligation if a major disaster happens such as an earthquake, but also financial crises involving failures or bankruptcy of banks and major corporations (for instance the Enron or Parmalat cases). For the latter type very little could be done except setting up proper rules of corporate governance or banking/financial markets regulations and supervision. Credible policy actions of government are necessary to show the market that the government is not backing bailouts of private corporations, banks or local administrations. Building credibility in this area requires time, and it is not so easy to implement given the political implication of such actions.

The most relevant types of liabilities for the infrastructure investments are endogenous to the system and are primarily based on avoiding demand shortfalls, regulatory risks, exchange rate and inflation rates risks as well as other projects specific risks. These types of risks can be covered and the expected losses, if the liabilities come due, could be calculated by simulating different probability scenarios.

We suggest to assess the creation of a politically independent entity (Agency), which on one hand should help local administration and central government in identifying projects risks, evaluating project costs and design, and their compatibility with government funds approved and with the investment program of the local or central administration. In this sense the Agency will address issues such as the correct funding mechanisms for the project and the cost and benefit of the proposed solution (i.e., under a Public Private Partnership arrangements or through budgetary funds or government borrowing).

The second task of the Agency should be to layout a series of monitoring guidelines and procedures on project selection and implementation. A continuous monitoring system

aiming at assessing the compatibility of project realisation and performance with the administration investment program and objectives. Continuous monitoring will imply a closer control on the events leading to the triggering of the contingent guarantees. The Agency becomes a pivotal reference point to both government macroeconomics actions, (for instance decision on devaluation affect strongly contingent liabilities on exchange rates or on tariff, if indexed to a foreign currency) and project specific actions, (implementing a urban transportation policy that will enable to sustain the required demand for a transportation project).

These Agencies cannot be created overnight: they require special assistance and funding to structure them in a correct way. We believe that MLA should be involved directly or through outside consultants. As we mention in this paper there is a need to reduce asymmetric information between the public administration and the private sector: this require technical, financial and legal expertise in order to succeed. Particularly relevant is the definition of the legal context under which the public administration enters into infrastructure contracts with the private sector. The private sector has more financial means than the public sector to use legal counsellors and to structure contracts that in case of renegotiation or cancellation turn out in favour of the private sector¹⁷. In England, under their PFI program, government has set out detailed procedures (from bid submission to contract signing). Contracts tend to be standardized, avoiding therefore excessive changes by the private sector and above all minimizing legal costs around a project financing initiative.

MLA could help redesigning budgetary definition reform to allow for public expenditures in infrastructures maintaining fiscal stability, without jeopardizing the country long-term growth objectives. Recently the debate in the European Union is in fact on how to derogate the Maastricht stability pact, and on the other hand allow for measures to stimulate the lagging infrastructure sector. The suggested solutions are based on creation of special vehicles that could borrow, and control the proposed EU infrastructure program in addition to the funds available by each national budget. The European Investment Bank has been empowered to structure such framework and to use his borrowing capacity to fill the financing gap on the EU priority list of infrastructures projects, particularly the trans national projects. There is a subtle wish that the private sector will come in to fill the financing gap and add its efficiency and entrepreneurial to accelerate the project implementation. There is no evidence that the private sector will in fact come in, before a proper definition of the timing of the project coming into force, and a clear picture of the public money available.

Most of the trans-national projects require substantial public finance contributions: there is no well defined model to finance trans-national projects, as they may involve different legal framework ranging from private concessions to competitive contracting under a public concession. For large trans-national projects we do favour a solution where the countries involved set up a Trans-National Corporation (TNC) and contribute to its equity in proportion to the expected benefit arising from the project in each country.¹⁸ Additional equity contribution may be raised from local entities that will get indirect benefits from the project. We do not see a participation in the equity of private investors at this stage, nor we believe that the equity capital market is a viable solution

¹⁷ The legal trust fund suggested by García, Benavides and Reitzes (2003a; 2003b) might be worth pursuing.

¹⁸ See Conthe, Mañueco and Nogueira (2003).

for complex projects (see the Eurotunnel experience!). It is better to float the company once the project is completed and a profitable operation has started. In this way initial country investment will get a greater return.

MLA could participate as debt providers or catalysts to attract institutional money via equity-linked debt or via the development of long-term infrastructure funds. In addition, MLA could coordinate the countries' Agencies to assess that the contingent liabilities taken in by the countries government in respect to TNC are consistent with each country long term fiscal stability program. If such "Agencies" are not yet set up, MLA could assume that role or create their own supervising agency with the precise scope to advise on the construction and monitor the implementation of the trans-national projects, while supervising the accountability and transparency of the TNC. In this sense TNC should be politically independent, with a Board including independent directors to assure appropriate corporate governance. TNC will be the project concessionaire and will initially be in charge, eventually with the assistance of MLA, of designing the project framework, clear all required authorizations, prepare the bidding documentation. Then TNC will contract out the construction and/or the operation (unless the project is directly operated by TNC). Complementary financing to the funds committed or raised from public finance and MLA will come by use of Financial Special Purpose Vehicles (SPVF) to whom the project revenues and guarantees will be assigned.

In order to raise finance, the Agency should follow on the development of alternative financing techniques ranging from securitization of future revenues, to sponsoring of infrastructure funds, to cross subsidize existing assets (for instance the New York transit system is heavily subsidized by the toll collections at the Triborough Bridge). In the Latin American trans-national projects there is room for cross subsidies applying tolls or special earmarked taxes for the development of the project. Experience in the United States tax exempt municipal and revenue bond markets show the extensive use of securitization of future revenues or of cross subsidies revenues to finance local infrastructure projects.¹⁹ Most of the issues in Revenue Bonds are done via Development Authorities or Agencies with no taxing power, and the issue is rated and sold to the market based on the underlying project expected profitability. The rate of default under Revenue Bond has been quite low, also because the Agencies or Authorities closely monitored the project implementation and performance and the rating on the bond is given to the underlying project capacity to serve the debt obligation. A monoline sponsored insurance company should be considered to facilitate project financing and implementation.

A related issue, involving also the solvency of developing countries, is the valuation of government existing assets. These assets are recorded in the country accounts at historical costs, but their identification and market valuation, could the country net worth. Moreover these assets could be used for other purposes, such as the capitalization of the above mentioned international monoline insurance company, or cross subsidize priority projects. Recently the Italian Government has set up a special company Patrimonio SpA, to identify and value the real estate and other public assets. Moreover in the same line of actions one should consider the launching of several securitization issues in the real estate and other government receivables area, to reduce

¹⁹ At the domestic level there exists the interesting possibility of deploying hydroelectric generation rents -currently used mostly to subsidize median voter consumption- to fund the expansion of service coverage in Latin American countries.

the debt/GDP ratio, but also to start a privatization and valuation of assets, which under public ownership and management were underperforming as compared to private sector market practice.

The implementation of an Agency for enhancing and monitoring infrastructure projects may require a phased strategy. We suggest starting on a sample of potential liabilities above a certain threshold and confined to specific sectors. The country should verify whether the fiscal adjustment path is consistent with the possible losses arising from the triggering of a guarantee. A sample exercise could be started with a small local government provided that there are enough available data. Alternatively a sample could be taken from a country projects financed or co-financed with MLA (IADB, World Bank, CAF, and others): data should be readily available also on the country external adjustment constraints if any, and a track record on whether the contract contained contingent liabilities and whether they have been called could be easily designed and used to make some simulation on how those liabilities affected or did not affect the country fiscal adjustment and growth prospects.

As budgetary definition reform will take some time to be implemented, we believe that utilization of off-budget vehicles or entities to finance infrastructure investments should be undertaken on a case-by-case basis and with utmost caution. The concentration of project related contingent liabilities under one vehicle would facilitate control, monitoring and evaluation of such liabilities for prudential fiscal policy management. However, certain stringent conditions must apply:

- Immunization from political pressures.
- Management of the vehicle should decide which project to finance and set up the level of profitability required based on the nature of the project (level of social content).
- Avoidance of crowding out of private financing: the vehicle should be seen as a complement to public and private financing, particularly supplying funding in the long tail of the financing. Private sector should not see that vehicle as a substitute for private financing or as a surrogate of public funds. Management attitude and political behaviour are determinant to avoid the perception of such situation.
- Transparency in project selection and financing.
- Independent Board of directors to ensure suitable corporate governance.
- Management accountability and remuneration criteria.

References

- Alesina, A. and R. Perotti (1996). "Reducing Budget Deficits," *Swedish Economic Policy Review*, May.
- Alesina, A., S. Ardagna, R. Perotti and F. Schiantarelli (2002). "Fiscal Policy, Profits and Investment," mimeo.
- Aschauer D. (1989). "Is Public Expenditure Productive?" *Journal of Monetary Economics*, Vol. 23, No. 2, 177-200.
- Benítez, D., O. Chisari and A. Estache. (2000). *Measuring the Fiscal-Efficiency-Distribution Trade-Offs in Argentina's Utilities Privatization*. Washington, DC: World Bank Institute, Mimeo
- Blanchard, O. and F. Giavazzi (2003). "Improving the SGP through a proper accounting of public investment", mimeo.
- Buti, M., S. Eijffinger and D. Franco (2002). "Revisiting the Stability and Growth Pact: Grand Design or Internal Adjustment?" *European Commission*, mimeo.
- Conthe, M., P. Mañueco and J. Nogueira (2003). "Financial Structures for Transnational Infrastructure Projects in the IIRSA Context. Inter-American Development Bank. IFM Review. <http://www.iadb.org/sds/doc/IFMReview-Vol9No3-2003.pdf>
- Currie, E. (1999). *The Potential Role of Government Debt Management Offices in Monitoring and Managing Contingent Liabilities*, mimeo.
- Currie, E. and A. Velandia (1999). *A Risk Quantification Model for Public Debt Management*, mimeo.
- Calderón, C. and A. Chong. 2001. "Volume and Quality of Infrastructure and the Distribution of Income: An Empirical Investigation". Inter-American Development Bank RES Working Paper 450, April.
- Calderón, C. and L. Servén (2003). "Macroeconomic Dimensions of Infrastructure in Latin America", mimeo.
- Calderón, C., W. Easterly and L. Servén. 2003a. "Latin America's Infrastructure in the era of Macroeconomic Crises". Forthcoming in: Easterly, W., Servén, L., eds., *The Limits of Stabilization: Infrastructure, Public Deficits, and Growth in Latin America*. Stanford University Press and the World Bank.
- Calderón, C., W. Easterly and L. Servén. 2003b. Infrastructure Compression and Public Sector Solvency in Latin America. Forthcoming in: Easterly, W., Servén, L., eds., *The Limits of Stabilization: Infrastructure, Public Deficits, and Growth in Latin America*. Stanford University Press and the World Bank.
- Cohen, R. (2003). *Partenariato Pubblico Privato e Sviluppo delle Infrastrutture in Italia*, Mimeo. Ministero dell'Economia.
- Cohen, R. and M. Percoco (2003). "The Economics of Project Finance". Bocconi University, mimeo.
- Cronin, F.J. et al. (1991). "Telecommunications Infrastructure and Economic Growth: An Analysis of Causality". *Telecommunications Policy* 529-535.
- Easterly, W. (1999). "When is fiscal adjustment an illusion?" *Economic Policy* 57-86.
- Easterly, W. (2001). "Growth Implosions, Debt Explosions, and My Aunt Marilyn: Do Growth Slowdowns Cause Public Debt Crises?" World Bank Policy Research Working Paper.
- Engel, E., R. Fischer and A. Galetovic (2001). Least Present Value of Revenue Auctions and Highways Franchising, *Journal of Political Economy*, vol. 109, n. 5, 993-1020.
- Estache, A., J. L. Guasch and L. Trujillo (2003). "Price Caps, Efficiency Payoffs and Infrastructure Contract Renegotiation in Latin America" The World Bank, mimeo.
- García, A., J. Benavides and J. D. Reitzes (2003a). "Incentive Contracts for Infrastructure, Litigation and Weak Institutions". Inter-American Development Bank. SDS mimeo.
- García, A., J. Benavides and J. D. Reitzes (2003b). "Incentive Contracts in Transport Concessions, Litigation and Weak Institutions." Inter-American Development Bank, Sustainable Development Department. Working Paper.

- Giavazzi, F. and M. Pagano (1990). "Can Severe Fiscal Adjustments Be Expansionary?" in O. Blanchard and S. Fisher, eds., *NBER Macroeconomic Annual 1990*, MIT Press
- Giavazzi, F. and M. Pagano (1996). "Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience". *Swedish Economic Policy Review*, May.
- Giavazzi, F. and M. Pagano (2000). "Searching for Non-Linear Effects of Fiscal Policy: Evidence from Industrial and Developing Countries". *European Economic Review* 7: 1259-1289.
- Guasch, J.L, J.-J. Laffont and S. Straub (2002). Renegotiation of Contracts in Latin America, The World Bank, mimeo.
- Harris, C., J. Hodges, M. Schur, and P. Shukla (2003). Infrastructure Projects. A Review of the Canceled Private Projects, *Public Policy for the Private Sector*, Note Number 252, January 2003.
- Laffont, J.-J. 2001. "Enforcement, Regulation and Development". University of Toulouse IDEI Working Paper.
- Magnusson, T. (1999). *Sovereign Financial Guarantees*. mimeo.
- Mody, A. (2000). *Contingent Liabilities in Infrastructure: Lessons for the East Asian Crisis*. The World Bank, mimeo.
- Polackova, H. (1998a). *Government Contingent Liabilities: A Hidden Risk to Fiscal Stability*. The World Bank, mimeo.
- Polackova, H. (1998b). "Contingent Liabilities – A Threat to Fiscal Stability". *PREM notes*, n. 9, November.
- Perotti, R. (1999). Fiscal Policy in Good Times and Bad. mimeo.
- Tanzi, V. and T. Prakash (2000). The Cost of Government and the Misuse of Public Assets, IMF WP/00/180.
- Trujillo, J., R. Cohen, X. Freixas and R. Sheehy (1998). "Infrastructure Financing with Unbundled Mechanisms". Inter-American Development Bank.