



Financing Infrastructure in India – Issues and the Way Forward

Sebastian Morris

W. P. No. 2019-03-02

March 2019

The main objective of the working paper series of the IIMA is to help faculty members, research staff and doctoral students to speedily share their research findings with professional colleagues and test their research findings at the pre-publication stage. IIMA is committed to maintain academic freedom. The opinion(s), view(s) and conclusion(s) expressed in the working paper are those of the authors and not that of IIMA.



INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD-380 015
INDIA

Financing Infrastructure in India – Issues and the Way Forward

Sebastian Morris¹

Abstract

Optimal approaches that recognize the specific kind of market failure/s, in the policy and design of infrastructure, greatly reduce the financing costs and improves the ability of to attract finance in the private provisioning of infrastructure. When state systems are weak organizationally it is first best to strengthen the state capacity so that it can minimally perform the roles of design, regulation, development of frameworks, and of monitoring, for the private provisioning of infrastructure. This is particularly so in the case where there are dual market failures arising out of both the natural monopoly and the appropriability failure aspect. Thus sewerage and water, city roads, multimodal facilities, solid waste, public health care, the challenges have proven beyond the current ability of the state, despite its large commitment to the use of private capital. The challenges in design and policy are large and with many false starts it is only now barely beginning to be considered in India. Thus infrastructure design rather than debilities in financial markets remain the key problem.

The need to develop capital markets and institutions to lend long is vital, but much of the challenge is really in having good projects that are financed keeping in mind the capacity limitations within banks and financial institutions. The potential to use of foreign capital to finance infrastructure is often overstated. Reform of financial institutions (FIs) and banks is vital today, as also the necessary incorporation of interest rate (change) risks into the project cost to overcome adverse selection. The forces leading to the current mess-up of the Indian banks and FIs in lending to infrastructure are brought in perspective. The key issues in developing state capacity, and the changes required for getting the design of infrastructure right, as also to bring functionality to the role of financial institutions in the private development of infrastructure are highlighted.

¹ Professor, Indian Institute of Management, Ahmedabad 38015.

Email: morris@iima.ac.in

INTRODUCTION

The movement from the public sector as the leading element in investments to the private sector is now more or less complete. Prior to the reforms of 1991-92 and 1992-93 of the Narashima Rao government, the public sector as whole invested as much as 52% of the total investments (gross capital formation –GCF) taking place in India. The highly successful reforms brought that down to under 25% over the reforms. Although cold privatization of public sector units was not a success, the slew of measures including delicensing, abolition of the Industrial Policy Resolution of 1956 – that had reserved many sectors for state enterprise – openness on foreign investments, and a general movement towards a laissez faire economy were factors in this relative decline. Unlike what was believed by many commentators including those supportive of the reforms this relative decline in public investments was very important to the success of the reforms since public investments were known to be very inefficient in terms of both cost and time overruns¹.

MACROECONOMIC PERFORMANCE AND INFRASTRUCTURE

The NHDP and economic revival

From 1997-98 with the slowdown, there was little further fall in the share of public investments despite the many measures to increase private investment in infrastructure. While in areas requiring little regulation or any recast of subsidies – oil refining and mining, airlines, courier services, telecom (where the regulatory and licensing approaches were essentially right), private investment continued, after having completely dominated the manufacturing sector over the period since then. Private investments in infrastructure require detailed second generation reforms (appropriate regulation, public private partnership (PPP) formats, legal changes making possible private ownership and holding of public assets, non-distortionary ways of subsidization), given the market failure/s in these sectors. That kind of second generation reforms being deeper and requiring a more specific understanding of sectors have yet to take place in many sectors – urban and municipal infrastructure sectors, city transportation, electricity among others. The slowing down of private investments in the period after 1997-78 was one of the causes of the overall economic slowdown. Reforms in the right direction in infrastructure have been few and far between since then, but when they have taken place the impact has also been large.

Indeed the revival of the Indian economy from 2003-04 can in a large measure be traced to the National Highway Development Programme (NHDP) – also popularly called the Golden Quadrilateral (GQ), which because of the essential correctness of approach, resulted in very large private investments in the highways. These were instrumental in lifting the economy out of the recession from 2003-04 onwards. The setting up of a road fund which was nearly ring fenced, instituting a new land acquisition act specific for highways, an improved EPC format for procuring roads, a build operate and transfer (BOT) format for PPPs, and most importantly a workable annuity model for PPPs, besides the strengthening of the organization to drive the programme – the National Highway Authority of India (NHAI), the focus on the Quadrilateral, and allocative efficiency being upheld, all together created the framework for large private and public investments to take place into the highway sector. Such strategic action that could effectively create public and social value on the scale of the GQ has not been witnessed by the country since the early 2000. Indeed, it was quickly followed by the programme of building village roads – the Prime Minister’s Gram Sadak Yojna (PMGSY) which also saw administrative and contracting innovations to liberate Indian villages from

poor last mile connectivity. Indeed these two programmes have remained the major conduits for state spending in a way that is not wasteful.

The period over which growth was maintained at a high level through fiscal action saw larger than before investments in the infrastructure structure. The growth of 8.5% achieved over 2003-04 to 2007-08 saw the capital formation rise to as high as 37% of GDP, before it declined somewhat with the monetary tightening that took place as the RBI acted against a supply side inflation from 2007 onwards by raising the cash reserve ratio, and the last two/three quarters before the GFC when it did not any more accommodate the pressure for inflows into the economy. However this period of growth was led by service exports, the rise of manufacturing and with “normal” demand from the infrastructure sectors although the high growth had been kick started by the spending on the GQ as mentioned before. Since the fiscal stimulus after 2008-09 saw a large part of counter action take the form of investments in infrastructure, the share of infrastructure in gross capital formation rose in the period from 2008-09 onwards till 2011-12 after which growth has slowed down considerably.²

The 12th Plan

The 12th Plan (2012-17) laid out a programme for infrastructure including in areas of dual (natural monopoly and appropriability) market failure (sewerage, city roads, municipal water, sanitation) that was to have a large part of the same provided through private investments. The role envisaged for PPPs was considerable, and had the Plan (with an assumed growth rate of 9%) materialized, the target for PPPs would be larger than for any other country in the world.

However the fiscal stimulus was withdrawn, and as growth slowed down, the targets did not seem achievable and the Plan itself was scaled down. With growth fall from 2011-12 onwards, the infrastructure sectors especially those that had been privately financed went into deep trouble, and the problems hurt the banking sector as well – especially the PSU banks, with their non-performing assets (NPAs) rising very rapidly.

The fiscal stimulus

The large fiscal stimulus to counter the demand recessionary effect of the Global Financial Crisis (GFC) has generally been blamed for the banking crisis from which the country has still not overcome. However it is not the act of the counteraction of macroeconomic demand fall, through the fiscal mode including through enhanced infrastructure spending that was per se the cause of the problem, as much as the fact the lending to infrastructure projects was based on ritualized assessment by the banks, and there were crucial deficiencies in the format for PPPs and their structuring. Also in the specific case of electricity generation, there were large risks to the state arising out of the bidding formats³. Of course some increase in the NPA levels is only to be expected when there is a slowdown, with the fiscal stimulus having been withdrawn. Inherent organizational and governance weaknesses of the public sector banks made them particularly vulnerable, and as we will argue bids by developers in many sectors may have been made to exploit this vulnerability as well.

Since 2011-12, when growth fell off sharply to under 6%, the rate of capital formation also fell to reach 30% or over the next three years. Infrastructural investments also suffered. But from 2016-17 onwards as the government enhanced the investments on highways now calling it the “Bharatmala” Project, with a hybrid annuity model (HAM), since in its reckoning the earlier annuity model was limiting. Indeed, the NHDP and the PMGSY have been the only programmes that have allowed the government to enhance spending without sacrificing public and social value, since the core aspects of

the design, bidding and other arrangements under the NHDP that had been developed during 1999-2002 in the Vajpayee era remains essentially functional and value creating.

Other large investments that took place which cannot be said to be successes when the important aspects are considered are the investments related to the two metro airports at Delhi and Mumbai. Since our focus is on financing we will not go over the experience sectorally, but would bring out the experience of financing private infrastructure and the lessons from the same.

The Maharashtra State Road Transport Corporation's (MSRDC's) much commented success in the excellent design and construction of the Mumbai-Pune expressway is remarkable for its near uniqueness. The personal involvement and leadership of the CEO of the MSRDC was responsible. MSRDC still retains some of the capabilities that it then had. However the experience of that highway has been exceptional. More generally the woes arising out delays and cost overruns have been typical. Cost overruns of the order of 40-60% and delays of the same order continue in government projects. That means a significant loss of value in capital formation and hence of the growth rate that is possible for the same savings rate. The shift of investments from the public to the private sector, while it would generate rents when with lax design or regulation, nevertheless in a large way avoids the social loss that happens when projects have large cost overruns due to extra spending to create the assets, and to the assets being delayed in being put to production.⁴

FINANCING GOVERNMENT INFRASTRUCTURE

Financing public infrastructure when built and owned by government should not pose large problems in financial design since the government as the sovereign, and as an entity that can operate beyond the tenure of the longest loan that can be raised in the market, is expected to have the lowest cost of finance, and could potentially take up projects with large gestation periods and long asset lives. However inefficiencies in implementation, pricing and management, and in the loss of social value, would only get partially reflected in the accounts of the government, that being usually on a cash flow (single entry) basis. The cost of delays for example would not get reflected, unless a notional interest during construction is incorporated. Similarly, the risks in returns to the project would not get reflected—at least not fully- if the project has recourse to government funds; so that the low financing costs for the project could underestimate the risks and the value created. Implicit “guarantees” or assurances which are always there even when without formal guarantees can keep the visible financing costs “low”.⁵

Implicit assurances can be exploited

Through SPVs it is possible to remove the benefit of recourse to government's budget as a whole for projects carried out through public SPVs. But then markets have a way of leveraging the implicit assurance by bringing projects to a situation where much public interest is involved to tie the government down to its debt commitments, even when the risks manifest much after the project is in place, but which could have been anticipated by debt markets.

Consider a risky project by government which is financed by raising debt in the market where the government—say of a tunnel or a special turnpike, and without government guarantees. If the project does not have cash flow to cover debt repayments, then the market instead of taking a loss

could lead to concentration among debt holders who could force the government to honor the debt payments of a project that was not formally guaranteed in the first place. This means that the initial premium that such finance would have attracted may systematically undervalue the risks, given such a probability of forcing the hand of the government.

FINANCING PRIVATELY OWNED /BUILT INFRASTRUCTURE

The challenges in private financing of infrastructure, especially in the case of PPPs, would require understanding of the issues in government financing as well, since the involvement of Government is active here as one of the parties. Even in the case of regulated entities where the ownership is entirely private, to the extent that there is asset specificity, and the industry is regulated, there would be an interface with government / regulatory / appellate authority that goes beyond what is the case in the case of industries without market failure. When, additionally, the goods /services are seen as being merit goods or necessities, there is always the additional aspect of government acting on behalf of consumer interest, which of course can affect the private financing through markets or otherwise in these sectors.

Governments are always involved in PPPs

PPPs do not take away the government. When annuities are involved, government is essentially creating contingent liabilities to cover these annuities while the private entity puts in the risk capital. Obviously governments need to constraint themselves on the amount of such contingent liabilities they can take. In the Indian case the RBI has put in place measures that limit the exposure of state governments in this manner⁶. As the fiscal squeeze was put on state governments to meet the expenditure reduction that was part of the reform of 1991-92, 92-93, state governments had responded with increases in expenditure made by their own state owned enterprise (SOEs) and by giving guarantees to other entities some of them in the private / municipal sectors. The RBIs measures which were put in place from around 1999 soon put a near stop to these approaches by the state governments, although they continue to use the losses of state owned enterprises to cover programmes whose budgets have not been technically assented to the legislative assemblies.⁷

Endogenous risks and PPPs versus EPC

Consider a PPP. For simplicity we would consider an annuity highway project. Let us imagine that the design, unit costs, methods and technologies are symmetric as between a government department constructing the highway and the same being done by a private entity that has to raise some part of the funds in the market or through institutions.

In bidding out projects the public comparator can easily be considered in terms of the annuity payable (or the annuity equivalent of tolls discounted at the cost of capital for the “prime” private party) vis-à-vis a reference annuity. Government can set up a reference or reserve annuity based on its unit costs, assuming a life of the asset that is realistic -30 years in this case, and a return that is say 3% above the yield of a 30 year bond that it could float. This is say 9% + 3% =12%. The annuity so determined now becomes the highest annuity that any private developer could bid for. This would serve as a public comparator. Even when governments and developers see the same unit costs, the failure of the state in construction of an experience good like roads would give enhanced value in case done by the private capital through PPPs. It is precisely because it is virtually impossible to have low maintenance costs by building a shoddy road, that gives value to a BOT/Annuity format for building roads.

EPCs can be first best sometimes

There is a large opportunity to correct the problems in EPC frameworks, which as yet is only partly addressed by the many authorities that procure roads in India. It is only the National Highways Authority of India (NHAI) which has a reasonable organization, and the requisite autonomy to support EPC. The improved EPC which was part of the NHDP was certainly helpful. Of course it could have been far more capable by developing skills and competencies in network design, and in integrating highways with regional and urban transport networks, which are almost entirely absent. The necessity of sound organization at the operational level is because roads (as much as many other assets) are actually experience goods. Their quality cannot be assessed after the top surface has been laid. Only a responsible and incorruptible supervision that checks for the correctness, and functionality of each layer can ensure that what the procurer signs off on is a good asset. This capability having been virtually destroyed in Indian PWDs, compounded by archaic procurement formats, make them procure roads that are “guaranteed” to fail with the next monsoon. It is this inadequacy in supervision, compounded by the poor EPC formats that is common to most PWDs, that gives well crafted PPPs a great value over what is otherwise possible⁸.

The lack of financial resources with government is hardly an argument for PPPs since governments can always raise money cheaply if the same is used in efficiently creating social and public value. That PPPs are more in sync with government accounts which are on cash flow basis is of course more correct, and gives some advantage to PPPs. However, if there are ex-ante limits to how much of contingent liabilities governments can create, with the same being linked in some way to current revenues /outlays, (as in should be), then the financial argument disappears and only the arguments of better design, better construction and more efficient operations and lower prices through the ability to access markets not possible for the public sector⁹ would hold.

Duration of financial markets

Yet there may not be (or should not be) bids for the same by the private sector in case there are no sources of finance with a tenure of 30 years. If corporate bond markets do not go beyond¹⁰ say 15 years, then private firms would face interest rate (change) risk, which would not permit them to bid effectively for the project. Managing with loans of tenure of 15 years (assuming that the loan on the same terms can be rolled over after 15 years) exposes them to this risk. When financial institutions (FIs) are not supported by the state, loans from FIs would also have the same problem. Indeed FIs like banks would only offer term loans of much lower tenure. In this case because the concession period is say 30 years (being the life of the asset) which is much higher than the tenure of the finance available, worthy developers responsible to their shareholders would not be able to participate. However, some developers with little reputation and not answerable to their diffuse shareholders, but only to promoters, could bid “taking on this risk”, but with the intent to shift the same on to others in case the same materializes, thereby resulting in adverse selection. That would keep worthy developers out. This “risk taking” can result in a high probability of winner’s curse with abandonment risk being faced by the government. There are of course several possible solutions to the same.

The concession period

One is to limit the concession period to 15 years which matches the tenure of markets in which the developer can raise funds to result in financial closure. Then there is the problem of intergenerational pricing as when the tolls have to be higher than “cost” to reflect this shorter concession period over

which all costs are recovered. But this may not be very large as between a concession period of 15 years and 30 years. However it opens the door to what is to be done after 15 years. Of course there must then be a transfer clause necessarily, and in order to avoid the risk that the developer does not maintain the road well, over the last few years, it is imperative to either withhold payments for the last two years, to the year after the transfer (which is expensive); or to build in a clause where the current developer gets a handicap to bid for the same asset as an maintain operate and transfer (MOT) project after the concession period of 15 years. The “handicap” can easily be worked out knowing variances in costs across the private sector and acceptable “loss” to cover this risk. In most cases a 5% preference over the lowest annuity bid for the MOT after 15 years would be adequate since most of the costs after 15 years would be operational costs, which can easily be assessed and anticipated.

Covering interest rate (change) risk

Another way out is that the FIs who do the lending, then assess this interest rate risk and insist on equity well beyond those suggested as a norm by the government, to cover this risk. Then the bidder would have to bid beyond the reserve annuity, or above those who are not constrained by such assessment. This again would bring in adverse selection if there are players of the latter type in the market. However if development finance institutions (DFIs) can cover this risk (through instruments such as take-out financing), then there should not be a problem even if the concession period is well beyond the tenure of the market¹¹. Indeed this was acutely realized by the Infrastructure Development Finance Company (IDFC) and the instrument was created early enough to support private capital in infrastructure. However there being no compulsion to use the same, developers taking recourse to covering their interest rate (change) risk would be at a disadvantage, creating therefore an adverse selection problem despite the existence of a mechanism to cover this risk. There is therefore a need in the PPPs (in India most notably) to internalize the cost of covering the interest rate risk; i.e. the RFPs must lay down that the bidders must necessarily cover themselves if their bids are to be considered. That would of course raise the cost somewhat but would lead to large gains in terms of risk reduction, making for fewer failures of PPPs and hence of enhanced scope for private sector development. It would also allow for a somewhat lower level of due diligence required on the part of the banks, without exposing them to too large a mismatch between their assets and liabilities.

Annuities and tolls linked to cost of capital

Alternatively governments can cover this risk by linking a portion of the annuity to the interest rate on the debt instrument with the thickest market – a 10 or 5 year bond in the Indian case. Although the portion of the annuity to so cover is not very accurately determined, that is not important. Such an approach could for example make an irrigation or dam project efficiently financed by the private sector with additional benefits that come from efficient design and management. Or equivalently the cost of covering the risk can be compulsorily borne by the buyer, which is effectively the same as the previous one.

Role of BSFIs

Of course this limitation of the capital market need not result in adverse selection if the banks and FIs that lend to the developers without exception understand this rather simple problem and insist on covering the same either with an option like take out financing or through a higher equity contribution¹².

Failure of Indian PSU banks

Unfortunately the Indian public sector banks, having created a ritualized assessment process, and being subject to government suggestion, cannot be relied upon to have gone through the assessment diligently. Even if some particularly independent senior manager attempted to do so, he would have been overruled by the need for “objective” (ritualized and itemized) assessment, or of following each other, since most of the public sector banks would have lent without consideration of these risks. Indeed, most of the developers were borrowing at tenures of 5 to 8 years with interest being reset every one or two years! Since the equity to debt ratio was also as per the standard in the RFP, and the PPPs could only look to fixed annuities or to tolls whose rates were not in their control, the problems that the PPPs ran into in the period of rising interest rates was only to be expected. We may even suggest that many of the private developers took this risk knowingly since they always could pressure the government on one side to renegotiate the contracts. Additionally they could dump the negatives on the ever willing to be the losers that the public sector banks are¹³.

THE HYBRID ANNUITY MODEL

Subsequently at least, in the NHDP, the new “Hybrid-Annuity” Model (HAM) was put in place. This provided for a capital grant of 40% of the project construction cost (bid value of the project cost i.e. the NPV of the construction and operating costs since these are non-overlapping in time) to be paid out over the construction period. And the annuities subsequently (fixed) to cover the rest of the bid value over the concession period. Government may or may not toll. The annuities as well as the capital grant is adjusted upwards with inflation based on a weighted average of CPI and WPI. Thus in the HAM the traffic risk as in the annuity model is on the government. This is not a major deviation from good project structuring, since the alternative of lane availability based annuity would anyway have the same risk allocation. However since there is early recovery (given the 40% support that happens before revenues), there could be some addition to the project abandonment risk. Since there is also a deemed termination clause, which was not there in either the BOT or the annuity model that it replaced, that route could be used by making arguments that “force majeure” like conditions exist to quit early, in case of major difference between costs as estimated and as actually happens. These probabilities are apparently not very large. The indexation of both annuities and construction cost with inflation does reduce considerable the interest rate (change) risk that we mentioned earlier, since inflation over the longer period does track the interest rate.

Partial coverage of interest rate risk

However since the inflation has been lower than the interest rate by much over 2% (high real interest rate policy of the RBI), if the same approach to macroeconomic policy continues, the HAM is likely to result in higher costs¹⁴. The interest build up though during construction is on the bank rate + 3%. Since the bank rate is a dead rate in a regime where the repo is used it would have been better to use the repo rate. However since the repo window has often been not fully open, it is even better to have used the low end (1 yr) bond yield rates with a premium over the same. They could also be based on triple A corporate bonds with a term of around 5 years or more where the market is thick enough.

Since in the annuity model, there is no tolling by the developer, even when the tolls may be viable, but tolls could be levied by the NHAI, the framework provides an ample opportunity to move from cost based tolling to allocative use efficiency based tolling, even as in BOT projects the private sector does essentially cost based regulated tolling¹⁵. Even for the private sector, a congestion charge that is

negative or positive, and dynamically allocated, can be collected to accrue to the government with a view to manage traffic over a network.

Since it is well known that selective tolling can be distortionary, unless driven from the congestion angle, as the network develops (multiple paths for the same origin –destination (OD)), there can be major gains in both social use value, and in the cost by resorting to differential tolling that takes into account optimal traffic considerations as well. They could then move to being dynamic as well. Similarly on BOT projects, the private entity must have the option of tolling under the regulated toll to enhance traffic flow as the network develops.¹⁶

The operations period once the construction happens is 15 years. Since anyway much of the interest rate risk is covered through inflation linked payments, or can be covered through an explicit incorporation of the interest rates in the annuities, the concession period can be made long enough to match the actual asset life, and the same approach with modifications to suit the sector, can be used in other sectors such as irrigation, bridges, logistics, to name a few.

LOAD FLOW AND NETWORK EFFECTS

Efficient network design

Network effects can be very large when the network densities are very high as in the highway sector. In India where the central place densities are high, very high traffic on arterials (GQ and GCross for example) is less a reflection of the OD and more one of route availability. To “planners” going by demands over segments as they are visibly revealed and not by OD, the value of grids like networks, and networks with multiple paths gets obfuscated. In the long run though national grid networks, with spurs to major urban habitats would have to be the approach of the design rather than the current incrementalism of expanding capacity wherever the traffic visibly grows. Without such a change over the expected huge rise in intercity and long distance traffic would become completely unmanageable¹⁷, as these already have around the major metros.

From the point of view of finance the load-flow aspects of road networks makes for a lower traffic risk for a set of roads as compared to road segments being considered separately. The approach if BOT and tolling has to be maintained, is to either create a market for tolls¹⁸, and /or allow for SPVs over various segments to merge given their negative incremental traffic correlation. Listed companies that hold many segments in exists in China where toll roads are many¹⁹. Making the same possible only after construction would only allow for leveraging developers risk capital since the road once it completes construction and enters the annuity /toll phase can be offloaded on to markets, the latter if a market for tolls can be created. Of course if these possibilities are there even before construction (which would mean efficient accounting separation with strong audit of particular roads businesses from the point of view of the government), then financing costs could fall somewhat as well. In any case the value of mergers after construction would allow for capital markets – especially of long tenure investors like pension and mutual funds to participate²⁰.

Segments not commercialisable

Similarly in the case of gas pipelines the market failure arising out of the natural monopoly aspect enhanced by load flow characteristics would imply that if segments of the network are privatized then the risks emanating from load flow would necessitate that lenders (and developers) are protected from vast demand variation through take or pay contracts, which while it makes funding and construction

by the private sector possible increases the cost of the service of transportation. Ideally, the entire network should be considered as a single one with open access and common carrier principles being built in to, with incentive regulation covering the transportation costs, to allow markets in gas to emerge. Only this can keep the costs down, and pave the way for functional expansion of the overall gas business that included production as well with private capital.²¹

FOREIGN CAPITAL IN INFRASTRUCTURE

One of the important themes in the literature and in popular discussions, with the re-emergence of private sector in infrastructure, is the hope and belief that there is a large role for foreign capital both direct and portfolio. The reality is that the scope is highly constrained because infrastructure services being non-tradable would not typically be able to generate the foreign exchange to service debt and equity that is designated in foreign currency. One could counter this by stating that significant infrastructure creation by the private and municipal sectors in the late 19th century – railways, tramways, canal systems, sewerage systems had been so financed. The differences between the situation then and today though need to be appreciated. Most of the infrastructure sectors which raised private capital (including foreign capital) were still in the competitive phase of their evolution as natural monopolies and were unregulated²².

That means they were able to operate like competitive firms with the ability to raise prices to cover exchange rate changes as much as other costs variation. Equally importantly since the Gold Standard ruled, the currency values could not deviate much from their sustainable values (at which the balance of payments is in equilibrium), so that the adjustment process of the exchange rate was much quicker, and not of a situation of compounding disequilibrium which could last long in currency markets. In other words, borrowing in external markets then, would automatically lower the currency value if the current account proved unsustainable with those additional capital inflows.

Deviation from uncovered parity and resulting distortions

Today with fixed and dirty floats characterizing most exchange rate regimes, the implications of borrowing from abroad to take advantage of a seemingly lower overall cost of capital, may well mean that disequilibrium continues for long, with the pressure to get back increasing which then manifests with a large fall in the currency to render the original perceived lower cost of borrowing infructuous. In other words, the uncovered parity condition when off in a significant way by as much as 200-400 basis points²³, even for countries that are open to portfolio flows, suggests some seeming advantages to finance projects through international borrowings and capital flows. But this can be misleading²⁴ especially for long duration infrastructure projects, with fixed price services, and revenue being realized in dollars, since the positive deviation from uncovered parity can suddenly reverse to turn deeply negative when the much lagged adjustment of same takes place.

Pension and sovereign funds

Yet there is the limited opportunity that arises out of foreign funds from developed mature economies that face slower growth rates as compared to the emerging economy in question, are of very long tenure (pension and insurance funds for instance). To take advantage of the longer tenure of foreign funds, the local government would have to set in place adequate long term cover, and manage the exchange rate such as to adjust quickly to be as near as the uncovered parity condition. Even then, as agents who manage pension funds have sought significantly higher returns than what is possible for them in their own markets, the scope for such funds is limited. Sovereign wealth

funds too are increasingly managed with incentives for high returns. As a result the scope for foreign financing of infrastructure is limited as well.

ELG economies

Export led growth economies, undervalue their currencies from the very start of their strategy, and also have low real interest rate policies. This means that the deviation from uncovered parity is not as high as in other emerging economies, allowing for financing with low risks in infrastructure. However, since there is no ex-ante revealed difference in the cost of local and foreign funds then, the uncovered parity condition (also sometimes called the fisher open) being nearly met, little flows would actually take place, and a certain functionality in the pattern of the sources of financing would emerge. Competitive entities with dollar revenue streams having more foreign capital inflows, and non-competitive entities having no dollar revenue streams being almost exclusively funded from local sources, which is what should be. As such in these economies much of the infrastructure would, as is should, get funded locally²⁵.

Government to government credit

Government to government credit given on long tenure, and at low rates, may have a functionality though. Often such credit being linked to sourcing of equipment for the construction could raise the price of equipment above that of suppliers without such linked finance. This was certainly the case in the 2000s and earlier. As World Bank has created frameworks for bidding in such cases of international funding, which are fairer to the recipient countries than what they would otherwise have been, it has helped to create an opportunity for such credit to supplement the IDA window of the World Bank. Relative to the needs of a large economy like India in its current phase of transition, such credit would be very small but not negligible.

INDIAN PSBs and DFIs

Indian public sector banks (PSBs) pose a particular threat to enhancing private sector participation in infrastructure. Their inability to truly understand risks (or more correctly the organizational difficulties in using the correct approach) negates one element that could have been a watchdog for ensuring that developers don't take on unwarranted risks. And they could have also nudged procurement and PPP formats to what is functionally desirable and in the interest of society. On the other hand, with a pure private banking sector, it is also unlikely that hidden rent opportunities in PPPs would get exposed either.

Reform of PSB urgent

Hence reform of the PSU banks is very much integral to the issue of private infrastructure development, especially in the enhanced use of PPPs for developing public infrastructure. As entities with their money in, and yet not having an objective of profit maximization under all circumstances (including partaking in rent generation), they could have played an important role in ensuring that rent opportunities are not there in PPPs, and could have prevented developers from taking risks that are beyond their control. Yet their managers do not speak out against the inadequacies in government policy or in regulation, the frameworks for PPPs all of which have a bearing on financing. Lacking autonomy, their senior managers not have courage to contend with bad or incomplete infrastructural policy.

Policy advisory roles

It is interesting that when one FI viz the IDFC had set up “policy advisory” sensing the need for the same if “good” projects were to be forthcoming, things really moved. The role played by the IDFC covering programme and organizational design of the NHDP, which was then adopted by the Ministry of Surface Transport, was crucial in the success of the both the NHDP and the PMGSY. But soon enough a variety of pressures emerged which forced the IDFC to withdraw from any such role. It also retreated from the developmental role even in the financial market and today is regrettably, no more than a vanilla universal bank.

Other organisations like the ILFS and the IIFCL reached nowhere near the expected role of a DFI in a liberal financial sector. They lend largely from its own pockets to private infrastructure (without the leveraging of flow of funds from the market that they could have). Indeed they may have been lax enough to have contributed in a major way to the banking crisis. Approval by ILFS was akin to a green signal for all PSU banks to jump in without their own real assessment²⁶. The tendency of PSU managers to never contest the views of government officials even when they were mistaken, removes all hope that the public sector banks (without dilution of their shareholding to below 50%), would be able to reform themselves on the crucial function of credit assessment.

Lack of autonomy results in failure of accountability

For some of the better PSU banks the problem was that they were “not allowed” to do correct credit assessment, since many of their managers were experts. The bigger tragedy of PSU banking is not that managers did not know (they could have learnt), but that the expertise which is so obviously there in PSU banks is not effectively brought to bear. This is due to the lack of autonomy which makes the interface with government dysfunctional enough for banks to ignore prudence, and be led by targets and other agenda brought in administratively by the government. The lack of autonomy²⁷ has allowed banks to, over a period, completely displace accountability to the primary task. The only “corrective” that can happen is to viciously punish managers who unluckily become the “fall” guys, as the crisis emerged and NPAs ballooned. This has today heightened the demoralization of the bank managers. It is only rational for them dissociate from any lending at all. The probability then that those willing to act are motivated by other considerations increases. “Internal” adverse selection then runs rife!

The RBI’s regulatory role is no way mitigates the situation either. In itemizing regulation, it forced banks to adhere, to the letter of regulation, and not the spirit. Thus credit assessment is holistic with a key role for private information, is therefore hardly amenable to a set of requirements which are considered independent of each other. Similarly regulating/controlling input and process measures, which was the penchant of both the RBI and the government is the best recipe for losing accountability to the primary task. In other words the RBI was “micro-regulating”, despite the many sound measures and advice that it has brought on to the issue of management and governance of public sector banks.

Poor organisations for the primary task

Resulting from the lack of autonomy, the PSU banks have not been able to create organisational structures and processes that are in keeping with the performance of their primary task. This of course keeps them from seizing the opportunity even when there are narrow windows of opportunity under the very rare benign and well-meaning minister and secretary who are able to differentiate the strategic

and policy from the operational and organizational. This is of a course a general problem that all PSUs in India face which is the single most important factor that has denied effectiveness to PSUs²⁸ in leading the economic transformation of the country; a role that they have well played in the countries that starting later have been successful – most notably the east Asian Tigers and China, besides Japan in an earlier period.

There are many other design and policy aspects that act against public sector banking. Loan ‘melas’ and such periodic loan forgiveness, and administratively direction banks to political and social goals (instead of stating them in policy terms) are well recognized as being perverse. However, the aspect of title to land being very weak and risky, reducing the effectiveness of collateral based lending is not recognized.²⁹ This hurts especially MSMEs. Similarly, the angularity between recovery laws and the lending portfolio of banks is only now beginning to be recognize.

Law and recovery

Indian law modeled on the Anglo-Saxon banking practice where banks only lend short with the stock as security. But in India, banks actually lend long term as well, like the continental banks. However in recovery the option to change the management is not considered, which in the Indian context would mean getting rid of the promoter, and bringing in a new management. This option is very much part of the banking law in the continent, Japan and Korea, where term lending by banks is common. When lending long the functionality of this option being available to lenders is very important in the efficient direction and use of deposit resources that would be available to the banking system in a large measure. This lacunae is particularly limiting when lending to private infrastructure owing to the long tenure of the debt and the limitations in price adjustment than come with regulation.

The large amounts of capital that gets locked up in SLR assets (today about 22% of deposits) creates the need for higher interest margins in lending, which has brought about a disintermediation. This of course hurts the MSMEs in manufacturing most since they have a comparative advantage in borrowing from banks. The smaller infrastructure players too would be “unfairly” affected by this disintermediation.

“GOOD” PROJECTS

Adequate returns, not rents

The problem of bringing more private capital into infrastructure is much more that of the sector not having many good projects, and less that of limitations in financial markets. The markets of course recognize “good” projects to be those which are profitable, even when some of the “profits” take the form of rents. But from a social and public point of view, “good” projects are not those that allow private developers to make abnormally high returns arising out of them taking high risks (that governments should mitigate), or because of rent opportunities that arise due to ill-designed PPPs and/or regulation. Such perversities would unnecessarily raise the direct and indirect cost of the services provided by the developer. The demand to that extent would then be far less than otherwise. But perhaps more importantly the rents and super-normal profits inevitably attract the hostile attention of the public, opposition parties, and other civil society organizations, and media to take PPPs more than a step backward.

While financial markets and analysts may have incentives to not talk loudly of such rent creating instances, the government as the upholders of the larger social interest and especially of value to the

public, cannot but put its best foot forward in the design of infrastructure. Since government action ultimately is action by civil servants, capability of the senior civil servants is most vital. Of the importance of legal covenants, and indeed an overarching legal frameworks for private infrastructure and especially for PPPs becomes necessary. Hence “good” projects are necessarily those that allow known returns ex-ante, while avoiding rents.

Legislation and legal frameworks

When PPPs are pushed through pure executive action, since a change of the executive is always possible in democracies, the framework for the award of contracts has to have justification in law and in value, if not through objective assessment, then at least through well laid out processes that lead to choice, including that of location, shortlisting and final award of the contract. In countries like India where programmes of political parties are both fickle and populist³⁰ – in part arising out of the need to oppose - the risks due to change in governments, is very high.

The risks can be reduced through laws that specifically provide for PPPs and private sector participation and the attendant requirements that go with it, which override other possible legal barriers. The hurry of politicians to get through with PPPs through executive action without waiting for the cumbersome legislative processes is usually a recipe for failure. And that gets reflected in the very high premiums for financing such projects, or in risk shifting behavior. Here the role of the civil servants become important, since they are in a position to point to such risks and of the need to mitigate these³¹. Having laws and frameworks and independent institutions that have defined roles, in place mitigates this risk to an extent.

MCAs

There is general agreement that model concession agreements (MCAs) are important to take PPPs further. One argument in favour is the savings in time. Also that in following the MCA closely, the government promoting the project would have gone through a well analysed and developed framework. After all there is no point in reinventing the wheel. There being many hidden risks the MCA provides a path where these have apparently been identified and addressed. An added benefit is that it provides a way to take forward PPPs to the civil servant who is otherwise harried to give the attention to the detail which is required for PPPs. Also in a situation of little or no organizational capability, and where the embedding of learning within government departments is low, which is very much the case with government departments in India, and where “mistakes” can invite punishment on the “fall guy” ex-post, civil servants are in a better position to push for PPPs within the ambit of the MCA. These are all valid and MCAs are very important for countries like India that seek to provide much of their public infrastructure through private capital.

Beyond MCAs

However it is a mistake to believe that there are no significant or crucial differences between PPPs in the same sector, and with the same objectives. Not only those differences due to geography, but those emanating from the nature of demand especially in the differences in willingness to pay, the current condition of the publicly owned network, differences in the nature of the organizational situation, all imply that with hardly any exception PPPs have special characteristics which need to be addressed, even if a good starting point is the MCA. In other words the task of ex-ante subjecting the PPP (in the detail of all its agreements) to analysis (of risks and incentive compatibility) by putting oneself in the shoes of all stakeholders (developers, lender, consumers, ordinary citizens, the relevant public,

governments –local, state and national, other authorities with the power to approve infrastructure (defense establishment, town planning authorities, cantonments, safety authorities, etc), land owners and user of land, besides the interests that are likely to adversely affected has necessarily to be gone through. Highways may be the sector, where MCA would encompass more of the risks as compared to other sectors where the specificities tend to be high. In the case of sewerage systems, ports, multimodal facilities, water systems, airports, etc, even with a standard approach the specifics would almost always have to be deeply considered to anticipate the risks and potential points of dispute/misunderstanding ex-ante as much as possible, even though we know that no contract can be completely specified.

Expert PPP organisation

A good answer especially in India is to have a neutral expert body of lawyers, economists, finance and market experts, besides those with sectoral knowledge, which could whet proposals sent to it on a voluntary basis. Such an organisation should have independence and no executive or recommendatory powers, and must avoid any developmental role³². Its reputation gets built on its expertise, although it is funded by government. Its purpose is really to point of lurking risks and anomalies in a project, to the parties that approaches it. Over a period, whetting by the same organisation would become a way by which sincere civil servants, lenders and developers (who seek genuine profits but not rents) could get their agreements and proposals double checked. The cost of such an organisation would be very small vis-à-vis the social value it could render through PPPs and such modes of infrastructure development. Key to the success of such an organisation is non-interference from the government, and no influence of the private sector either. Having a budget that is not voted, and having the right stakeholder structure is most important to the ability of such an organisation to contribute to “good” PPPs.

Administrative and civil service reform

Given the specific constraints and debilities that civil servants face in India,³³ the Indian system of decision making, especially with regard to PPPs and infrastructure can be highly problematic, and could lead to situations of large risks and/or rent opportunities, or to inaction. Having recourse to an organisation of specialists of the kind described above should result in a flood of “good” projects. This is especially so, since governance and organizational reform, (which involves both civil service reform and administrative reform in the Indian parlance) in the right direction, is hardly round the corner.

Similarly, enabling senior civil servants to have recourse to “owner’s consultants” –who are unattached experts – could go far to develop a critical evaluation of the approach and strategy laid out by main stream consultants, who are who keep out of processes consultation that would typically follow the “framework or design” consultation. In other words, there is conflict of interest between the framework consultation and process consultation - the latter being large in size – which has the potential to distort the framework consultation recommendations.

Modes of intervention

Recognizing the nature of the core market failures in particular sectors is paramount if they have to be addressed correctly. Thus while electricity has only the failure of being a natural monopoly, the city road sector is both a natural monopoly and suffers from appropriability problems due to lack of excludability as well. However, the sewerage sector is a natural monopoly but its excludability may not

be of much meaning in a poor economy. This is because the very large positive externalities of use (actually the very large negative externalities of non-use even by a few) would keep the door open for avoidable infectious diseases which would hurt all. Therefore it would be necessary to include everyone and this implies subsidization as well.

With modern developments in contracting, measurement, data acquisition and analysis, it becomes possible to unbundle the electricity sector into generation, supply, ancillary services, transmission, and the wires part of distribution of which only the latter two segments are natural monopolies since the show sub-additivity of costs. Today we need only regulate these two to set free the other sectors. This means designed markets, the efficacy of which lies in the correctness of the design. For the approach relevant to the country³⁴. The financing options would therefore follow such desirable change in the industrial organization the leads to markets.

	Inadequate appropriation	No problem of appropriation
Competitive	Education Public health services Tertiary health care Inoculation services Extension services for agri. Solid waster collection <i>Efficient State, subsidies, contracting</i>	Domain of markets Generation in electricity Supply in electricity Mobile (growing NM) Airlines (contestable NM) <i>Markets, designed markets, oversight/ interconnect regulation, bids</i>
Natural Monopoly	Sewerage networks Water supply City roads Multimodal switches Highways (<i>overappr. Possibilities</i>) <i>State, PPPs</i>	Telecom (wires) Electricity (transmission, wires distribution), gas pipelines Market yards <i>Incentive regulation</i>

Similarly, sectors like city cleaning have only appropriability problems. Efficient regulation would mean taking advantage of market creation as well as use of contracting. The modes of intervention that are appropriate are indicated schematically in the Figure 1 alongside.

Electricity

Approaches to financing would have to recognize this optimal market structure and mode of intervention, and be in tune with the same. Thus in a regulated industry, market like electricity generation market borrowings to finance investment to cover a large part of the capacity when generation is unregulated would imply that the generation company pre-sells a large part of its capacity in long term contracts, which could of course become financial contracts in a world where the delivery of power is based on day ahead markets etc. Where the design of the markets necessarily involves the pre-selling of capacities prior to participation in the energy markets the financing risks are clearer since demand imbalances manifest quicker and capacity creation is quickly signaled without large gaps. When the market bundles capacity and energy cost recovery into a single price bid, capacity addition may get bunched together to create periods of low and high prices, with the risks that these can put on an individual firm. The large generation capacity additions in India under Case I and II that took

place in electricity without the deregulation of the sector in the right direction, was problematic. With competition for the market (bidding under Case I and II) being unlinked to completion in the market (there being no substantial designed markets), generation was cast as PPPs, when it could have been competitive in operation as well³⁵.

Municipal water and sewerage

Similarly, in recognizing the vast social and public benefits of total inclusion in sewerage and water systems, and the physical interaction of one with the other, bids would be for both sewerage and water together with strict penalties for non-coverage below nearly 100%, and with support if need be if some people are too poor to pay. The PPP structure and design would have to reflect this aspect and viability gaps to be covered by the state would be in order. Also being natural monopolies the tariff would have to be set, with increasing block to both allow for the judicious use of water, and to have access for all. Access subsidization rather than use subsidization would be functional. With the tariffs fixed and incentive regulation chosen it makes sense to have bids on the basis of the viability funds demanded. Since good i.e. to cost to serve tariffs may be higher than the initial willingness to pay (given the incredulity that people have with regard to the capability of the system to reform) a staged rise from tariffs that are no higher than the present to full cost recovery to all except the poor may be called for.

Volumetric metering and strict penalties against non-achievement of quality standards³⁶, and coverage would be called for. One necessary standard among others is that water supply has to be 24*7 since there is no way to ensure potability of water, and control leakage with anything less than 24*7. Indeed given the massive wastage of water, most PPPs if correctly structured should see humungous rise in social value, and also make most projects be financially viable with the support being bid for turning negative if the RFP is in the direction suggested. This is only by way of example. The risk reduction that is thereby possible with upfront clarity would crowd in private finance.

Similar sector / service specific considerations are there in almost all areas of infrastructure. Major dysfunctions emerge if the tenets that follow from the schema in the figure are ignored. Thus, setting up of a regulated /unbundled industry like electricity which clearly has no appropriability problems as PPPs (as in the Case I and Case II or IIP models) are per se problematic and their financing would reflect these risks. Besides these, there are of course many other sector specific aspects which would need to be considered.

False comfort of cost plus

Regulatory modes also influence the financing decisions. Thus in natural monopolies, when the regulation is cost plus, the “comfort of cost plus” reduces the cost of finance. However this comfort comes with all the attendant failures and distortions brought about by cost plus regulation that greatly subtracts from consumer and social values. The somewhat higher cost of financing investments when the regulation is of the incentive type is more than compensated by the vast gains in social efficiency and the lack of massive distortions that cost plus brings. This is well known in the literature, but neither associations of developers, nor the financial institutions would be inclined to highlight this aspect. If government officials are unaware of the nuances of regulatory modes on the financing costs then expensive errors are possible. The choice of cost plus which regulation which has slowly moved to “norms based” regulation instead of having used incentive regulation directly is one of the reasons for the problems in the sector.

Covering vast price changes in major inputs

Similarly if prices of significant inputs are expected to fluctuate much and can only be anticipated very weakly, then the private sector cannot be expected to bear the risks from these large movements in prices, since they intrinsically lack the capacity. They would have to be pass thru, but be based on prices in the markets which are thick. The regulation ought to recognize the need for such defined pass thru ex-ante. This for example would be case of generation bids invited through competition for the market, where the fuel cost would have to be pass thru. It is only in the case where there are well developed market for energy (competition in the market) where the pass-thru arrangements need not be part of the ex-ante regulation, but result from the bid and market process that regulators can leave the cost of generation to the market.³⁷

BROWNFIELD INFRASTRUCTURE*Completing projects*

The Ministry of Finance has been actively considering the potential of “brown-field investments. Essentially there are two possible types of such projects. An asset that is probably not in adequate use, or in disuse which could be brought on stream with marginal capex and with opex to give high social value in such reworking. Examples would be highways not in good use because the surface is bad, or because in the interconnect was earlier ignored, city railway systems (Chennai’s broad gauge old metro, Ring Railway in Delhi) which by marginal opex focused on access and interconnect could greatly create social value. Past incomplete irrigation projects (earlier done with much cost and time overruns by the department) but now could be completed by an appropriate PPP, canal systems (which is to be completed) of irrigation projects where the dams are in place would also fit this category. Herein the value to incremental expenditure is very high, provided there is a break from the past in terms of the framework. The scope for such investments is high given the poor performance of public investments, and of many mistakes made in the past that have prevented PPPs from being able to create social and economic value. Of course the challenge is to get the RFP right given the requirements and the true status of the asset keeping uppermost the social and public value that can be generated.

Operational stage

Another class of brownfield projects would be projects that have gone past their construction and start of commercial operations, and now face far lower level of risks. This would be the case in the operational phase of most road projects on annuities or tolls. They can be offloaded on to markets to free up entrepreneurial capital.³⁸ This would lead to enhancement of the space for private capital in infrastructure, and could push the development of long term bond markets. Indexation of annuities and tolls to the interest rates would help to speed up the process.

CONCLUSION

The approaches to financing infrastructure must arise out of the regulatory and design of the framework for private sector involvement, and these when they are derived from optimal approaches to overcoming the many market failures that are possible do result in better outcomes and lower overall cost of financing.

Having a commercially oriented banking sector is vital to the flow of funds to the infrastructure sector and to the exercise of due diligence in funding projects

The role of DFIs in crafting instruments and approaches for overcoming the large interest rate (change) risks is very important.

The cost of covering interest rate risks over the entire concession period from the date of financial closure has to be internalized and PPP formats must incorporate this provision. It would help to reduce adverse selection.

Contracts and PPPs have to improve much before there are a larger number of “good” infrastructure projects into which private capital can flow. “Good” projects are not those through which rents can be sought, but those where profits are adequate and private capital does not bear risks that it is ill equipped to bear.

In networks like pipelines casting private projects out of individual segments of the network means that the risk of load flow would be enhanced inviting take or pay contracts and hence larger cost and lower social value. The better approach would be to have a few network players who are subject to incentive regulation who act as common carriers to competitive businesses in gas production, storage, and consumption. The financing requirements for the network would then fall.

The scope for use of foreign capital in infrastructure is limited. With limited technological and real advantages, there can only be the seeming “advantage” of a positive fisher open (deviation from uncovered parity being positive) only open the door to major exchange risks when debt inflows are contemplated.

The Indian public sector banks need to be reformed, and the mess has gone far enough that nothing short of disinvestment would now work. The government cannot be relied to keep from its dysfunctional interference, that necessarily results in the banks being able to displace their accountability.

Ultimately it is the weakness within the government (non-learning organisations, lack of a systems approach, little ability to coordinate across many government departments, mind space of decision makers being too busy with fire fighting, procedures, and the mundane, and person centricity) that results in enhancing risks and in failure. Correction of the same would require civil service and administrative reform on lines that are yet to emerge.

REFERENCES

- Barua, S.K. (2004), “The Disinvestment Story”, Chapter 4.1, in Morris, Sebastian (ed.) (2004), *India Infrastructure Report 2004 –Ensuring Value for Money*, 3inetwork. Oxford Univ. Press.
- Barua, Samir K and T. Madhavan (2001), “At the Crossroads: Pipeline Infrastructure for Oil Products”, in Morris, Sebastian (eds.) (2001)
- GOI (2001), “Report of the Expert Group on Restructuring SEBs”, Chaired by Dr. Montek Singh Ahluwalia, Government of India.
- GOI (2002), “Report of Expert Committee on State-Specific Reforms - Structuring of APDRP, Reform Framework and Principles of Financial Restructuring of SEBs”, Ministry of Power, Government. of India, September. Government of India.
- Kindleberger, Charles P. (1969). *American Business Abroad*. New Haven. Yale University Press.
- Mohanty Nirmal, Runa Sarkar and Ajay Pandey (eds.) (2009), *India Infrastructure Report -2009: Land a Critical Resource for Infrastructure*, 3iNetwork and Oxford University Press, 2009.
- Morris, Sebastian (1990) “Cost and Time Overruns in Public Sector Projects”, *Economic and Political Weekly*, Vol. 25, No. 47 (Nov. 24), pp. M154-M168 . <https://www.jstor.org/stable/4397023>
- Morris, Sebastian (1990), “Cost and Time Overruns in Public Sector Projects”, Author(s): *Economic and Political Weekly*, Vol. 25, No. 47 (Nov. 24), pp. M154-M168. URL: <https://www.jstor.org/stable/4397023>
- Morris, Sebastian (1991), “Holding Companies, Performance Contracts, and Task Orientation in Public Sector”, *Economic and Political Weekly*, Nov 30. M-137-144
- Morris, Sebastian (2002), “The Challenge to Governance in India”, in Morris, Sebastian and Rajiv Shekhar (eds.) (2002).
- Morris, Sebastian (2003a), “Public Investments in India: Delays and Cost Overruns”, chapter 5.1, in Morris, Sebastian.(ed), (2003).
- Morris, Sebastian (2003b), “Expenditure Accountability in India – The Interlinkages”, in Morris, Sebastian (ed.) (2003)
- Morris, Sebastian (2005), “Understanding Export Led Growth and Late Industrialisation to Explain the Differences in the Post Reform Performance of India and China”, WP No 2005/03/02. March, Indian Institute of Management, Ahmedabad
- Morris, Sebastian (2012), “”, in Hirway, I., A. S. Shah, and G. Shah (ed.) (2012) *Growth or Development: Which Way is Gujarat Going?* New Delhi. Oxford Univ. Press.
- Morris, Sebastian (2014), “A Comparative Analysis of Gujarat's Economic Growth”, Chapter 2 in Hirway, I., Shah, A., & Shah, G. (2014). *Growth or Development: Which Way is Gujarat Going*. Oxford University Press.
- Morris, Sebastian (ed.) (2003), *India Infrastructure Report 2003 –Public Expenditure Allocation and Accountability*, 3iNetwork, Oxford Univ. Press.

- Morris, Sebastian and Rajiv Shekhar (eds.) (2002), *India Infrastructure Report 2002- Governance Issues for Commercialisation*, 3iNetwork, Oxford Univ. Press.
- Pandey, Ajay (2003), “Public Procurement and the Private Sector”, in Morris, Sebastian (2003).
- Pandey, Ajay (2014), “Adani Power Ltd (A,B and C): Renegotiating Long term Electricity Contracts”, IIMA/PSG0114(A, B and C), Indian Institute of Management, Ahmedabad
- Pandey, Ajay and Sebastian Morris (2009), “Electricity Reforms and Regulation – A Critical Review of the Last 10 Years Experience, March 25, Indian Institute of Management. (http://forumofregulators.gov.in/Data/Reports/FOR_IIMA_STUDY%20ON%20ELECTRICITY%20REFORMS%20AND%20REGULATIONS%20-%20A%20CRITICAL%20REVIEW%20OF%20LAST%2010%20YEARS%20EXPERIENCE-%2017.06.2009.pdf)
- Pandey, Ajay et. al. (2010), “Structuring PPPs in Aviation Sector: Case of Delhi and Mumbai Airport Privatization”, W.P. No. 2010-11-03 November, Indian Institute of Management, Ahmedabad.
- RBI (1999), “Report of the Technical Committee on State Government Guarantees”, Reserve Bank of India.
- Robert Z. Aliber (1993). "[The Multinational Paradigm](#)," [MIT Press Books](#), The MIT Press, edition 1, volume 1, number 0262511517, January.
- Sarabhai, Vikram (1969), Control and Management of Public Sector Enterprises, mimeo Administrative Staff College of India, Hyderabad
- Thomas White (2010), “Bric Spotlight Report – Toll roads in China: Speeding up Growth”, August. <https://www.thomaswhite.com/pdf/bric-spotlight-report-china-toll-roads-expressways-august-10.pdf> accessed 01-28-2019).
- Tilotia, Akhilesh and Swapnil Pawar (2004), “Traffic-Risk Management – Derivatives in the Transport Sector”, Chapter 11.6 in Morris, Sebastian (ed.) (2004), *India Infrastructure Report 2004- Ensuring Value for Money*, 3iNetwork, Oxford Univ. Press.
- Varma, Jayanth R. (2001), “Regulatory Dilemmas in Infrastructure Financing”, chapter 4, in Morris, Sebastian (ed.) (2001), *India Infrastructure Report 2001- Issues in Regulation and Market Structure*, 3iNetwork, Oxford Univ. Press.
- Varma, Jayanth R. (2002) “Private Finance to Private Entrepreneurship”, Chapter 6.1, in Morris, Sebastian and Rajiv Shekhar (2002) (eds.), *India Infrastructure Report 2002 – Governance Issues for Commercialisation*, 3iNetwork. Oxford Univ. Press.
- Varma, Jayanth R. (2003), “Putting ‘Private’ Finance Back into Private Finance Initiative”, Chapter 7.1, in Morris, Sebastian (2002), *India Infrastructure Report 2003 – Public Expenditure Allocation and Accountability*, 3iNetwork. Oxford Univ. Press.
- Varma, Jayanth R. (2004), “Development Financial Institutions and the Development of Financial Markets”, chapter 6.1, in Morris, Sebastian (ed.) (2004), *India Infrastructure Report 2004- Ensuring Value for Money*, 3iNetwork, Oxford Univ. Press.

World Bank (2007), 'India: Land Policies for Growth and Poverty Reduction', Report No. 38298-IN.

¹ Morris, Sebastian (1990, 2003).

² Morris, Sebastian (2014).

³ Pandey, Ajay (2014)

⁴ Morris, Sebastian (2003a)

⁵ Morris, Sebastian (2003b)

⁶ RBI(1999)

⁷ One of the reasons for the governments' reluctance to divest out of electricity, despite all the state systems being ready for divestment is that then they would not be able to bad but populist policy unless they took the cost on to their own budgets. The ability to pile up the deficits, and then pressure the central government to debt forgiveness continues. It was hoped that the debt forgiveness instituted once in 2002, (GOI, 2001, 2002) would not have to be done again. But then that has not been the case since now after nearly 15 years the state DISCOM's balance sheets have been muddied with another similar dispensation now being proposed, without real reform on the distribution and subsidization side, by the government. Clearly reform has to be real. Similarly, large investment heavy sectors like irrigation, sewerage, bus transport, which could be easily divested from to reform and enhance public value, continue to be used wastefully, even when reform could actually have been politically rewarding.

⁸ Public procurement has its frailties and cannot be replaced by procurement that is akin to procurement by private parties. See Pandey, A. (2003) to for a discussion on the issues of relating to the private sector in public procurement.

⁹ As for instance to access cheaper labour markets, given the "schism" in labour markets that is widely observed in many late industrializing countries.

¹⁰ Markets that go beyond this tenure are very thin, and /or are very heavily discounted in India

¹¹ For the role of DFIs in a liberalized market that leads to development of financial markets, see Varma, Jayanth R. (2004).

¹² It is important to realize that in competitive industries where revenue streams can rise due to price changes, as in the cases where there are no market failures, lending can be over much shorter tenure, and equity proportions can adjust, or be made to adjust to reflect these risks.

¹³ An insight due to Prof. Ajay Pandey, shared with me over several discussions. See also Pandey, Ajay (2014) for risk shifting behavior more generally by the private sector.

¹⁴ Many of the UKs PPP were contracted for during the period of high interest rates. Since then rates have fallen, especially so after the quantitative easing that followed the GFC. That has made annuity out payments very large to the chagrin of those arguing for PPPs. Had the annuities been indexed to bond rates, this should not have happened.

¹⁵ Unfortunately the NHAI has not recognized the opportunity that is there even now (despite low network densities and alternatives today). Thus on the Ahmedabad Baroda stretch, the very large 6+ lane national highway sees very little traffic because the tolls are higher than on the Expressway (4+ lane). Had the tolls been rationalized to giver trucks a lower relative toll on the Highway, and cars a relatively lower toll on the Expressway, the separation of truck and car traffic, would have improved the value to both (including safety), and enhanced the revenue as well.

¹⁶ Today though this would only be of academic interest, since the tolls are very high in India constituting a significant part of cost to operators and road users. Equally importantly when a highway is being expanded, or in part redone to provide for underpasses or service roads, tolling continues without the value to road users, which actually could be challenged in a court of law. It is important that tolling is carried not carried out when the road is broken, under construction, or under large scale traffic diversion.

¹⁷ Already the limitation of the current approach of by-passes, ring roads, (which all get quickly ribbonised and to become part of urban system) with regard to urban transportation, and radial (star) arrangements on highways, which come close to or intersect urban/rural habitats to bring about conflict between local and regional/long distance traffic takes away much public value in contrast to system design in almost any other

country. The sacrifice of safety that the current approach entails is the reason for the almost 10-15 times higher loss of life due to road accidents that is there in India over the advanced countries, when correctly measured in terms of fatalities per vehicle km.

¹⁸ See for instance Tilotia and Pawar (2004)

¹⁹ Though most are in the public sector, the listing of such companies allows for secondary market participation. Cf. Thomas White (2010).

²⁰ See also Varma, Jayanth R (2002).

²¹ Barua, Samir K and T. Madhavan (2001).

²² “Regulation” in the form of Antitrust had just come into the railways in the US. This was by no means price regulation but actually kept the competing “natural monopolies” from merging into a few dominant monopolies. For a discussion on the evolution of natural monopolies (industries with sub-additivity of costs) from competition to the textbook natural monopoly with pricing power see Morris, Sebastian (2001).

²³ Aliber(1993) argues that multinationals (MNCs) could have an advantage in being able to take advantage of the uncovered parity being positive, even as portfolio capital is not able to close the gap. In other words the so-called “country risk” when used to denote this deviation from uncovered parity, could be penetrated in part by MNCs.

²⁴ However for MNCs in host countries from where exports take place (operating in areas with no market failure), the positive deviation from uncovered parity becomes an “advantage” allowing it to finance /take over local firms, using foreign sources of funds, even when these are otherwise on other real factors like technology, organization and management no inferior to the MNC.

²⁵ An additional consideration is the so-called “real economy” advantage that MNCs have which arises out of imperfections in the technology and product markets, and in organizational structure and practice. Kindleberger (1969). When the advantage that MNCs have is of such kind and especially when technological, rather than arising due to the Fischer open (positive deviation from the uncovered parity), then the spillovers would naturally be large to benefit the host economies. Infrastructure sectors do not show large technological differences, which are also not appropriable. Hence foreign direct investments too into infrastructure tend to be low if these are not dysfunctional.

²⁶ One’s own experience being on the board of a PSU bank during this period of lax lending was that it was almost impossible to argue against lending to infrastructure. If ILFS had cleared a particular infrastructure project, for the managers of PSU banks, who behaved more like bureaucrats over long years of an abused interface between the government and the bank, there was no question of seriously re-examining the proposal. Even if glaring risks like in the case of a power project projecting revenues with no firm PPA but through sales in the market at assumed prices based on past prices for short term deals, were pointed out, they could be easily overruled because “another PSU bank” had already taken the decision. RBI representatives would not typically be critical enough to look closely at endogenous risks being much more concerned about any ticks as laid out in the assessment procedure not being met.

²⁷ Government for example, carpet bombs the banks with office memos and Government Orders (some compulsory others advisory) and there could be as many as a few score over quarter, swamping the boards of the weaker banks (with very little countervailing power), so that response to these, as well as credit assessment much of which should have taken place lower down, uses up all the top management time. Most of these are internal and pertain to operations rather than strategy or policy, which leads to PSU banks being not able to maintain their boundaries – a necessary aspect of any “living” firm or system. Indeed the bane of government in India, is that it is singularly unable to distinguish strategy, plan and policy from operations.

²⁸ Sarabhai, Vikram (1966), Morris, Sebastian (1991).

²⁹ The importance of a security of titles in land can go a long way to improve the lending by banks and FIs to especially MSMEs, since it would enhance the role of collateral based funding. The need for a Torrens based system which has the potential to overcome the current mess in titles is vital to the country but has got scant attention. See World Bank (2007). See also Mohanty et al (eds.) (2009) for a survey of the various distortions in land allocation, regulation and use.

³⁰ Pure populism without either a developmental or inclusion aspect is also partly the result of the state not having the capacity to strategise and pursue developmental goals. The lack of ability then makes politicians turn to the quickies that populist measures are.

³¹ One of the major plus points of the NHDP was that it had its own legislative basis both in the NHDP Act and in the special provision for land acquisition that the NHA could use. As the Congress came to power

displacing the Vajpayee led NDA government under whose leadership the NHDP happened, the initial reaction of the Congress government was to critically examine the NHDP. But finding the same to be successful in creating public value and being well entrenched in law, the new government actually enhanced the investments! On the other hand poorly crafted private investment arrangement for generation in the electricity sector under the IPP policy c.1995 which allowed returns up to 32% (much of it in the form of rents), invited a severe backlash, from which a partial recovery could happen only after 10 years with much change, and new policy in the form of the “Ultra Mega Power Policy” (Pandey, Ajay 2010). Similarly, the two metro airport privatisations which involved much rents that were hidden in the earlier format. This is because the bid criteria was the share of revenue when the revenue was ill defined. There were other issues as well. (Pandey, Ajay et. al. 2010). These, inter alia led to a period of retreat from privatization of other airports. And it is only now that the matter is back on the burner with an attempt to overcome the vast rent seeking opportunity created because of the bid criteria being the share of revenue, when revenue itself was ill defined. However since public value was enhanced considerably by the professionalization of design and management that these privatisations brought about, there was no adverse public reaction as such, and the realization of the mistake is confined to official and academic circles. Also the intervention of the court to deny a part of the rents, much after the project was completed, took some part of the sting away. But the matter can still be brought on into the public domain if the same is seen to provide a political opportunity.

³² In the budget of 2014-15 government proposed an organization called 3PIndia with these roles but was unfortunately also saddled with a developmental role, which would negate the primary purpose of being an expert organization!

³³ Not being experts, and having less than desirable experience in any particular function or department-given the frequency with which transfers are made- and the ethos of the generalist as the king-pin in decision making, non-learning departments in which there can be very little embedment of knowledge other than of the procedural variety, the person dependence rather than system dependence that is ubiquitous to the way the bureaucracy is organized, are all contributors to this perverse but rather situation. In most LDCs with poor governance the reasons more often like in a politics that misdirects resources, or in a undertrained civil service, not in the kind of organizational failure that become the hall mark of Indian administration.

³⁴ For example, Pandey and Morris (2009) lays out the framework for the design of electricity markets most appropriate to the needs of the country.

³⁵ See Pandey, Ajay (2014).

³⁶ The standards too have to be realistic. For sewage disposal a BOD of 10 ppm would be very expensive, while 30 which is very good would allow most cities have near 100% coverage via PPPs.

³⁷ The core difficulties with both Cases I and II of the UMPP has been this. See Pandey, Ajay (2014). Also being cast as PPPs with demand risk being completely taken off their backs, the policy has resulted in the ballooning of the capacity created to well above the realistic demands.

³⁸ Varma, Jayanth R. (2002, 2003).