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**Brazilian Federal Road Concessions:
New challenges to the regulatory framework**

LARA CARACCILO AMORELLI

ADVISOR: CÉSAR QUEIROZ, Ph.D.

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1. Introduction

This paper shows the evolution of the Brazilian road concessions program, its improvements and what is still missing according to the international best practice. The analysis uses the Public Choice Theory in order to bring the political decision process and governance issues to the debate.

The Public Choice Theory is an economic theory that analyzes the behavior of politicians and civil servants facing the social system and their own self interests rather than the rules and the public interest. Another approach defines it as the analysis of Government imperfections and of the decision making process in democratic regimes. As Pereira (2008) states it represents the seeking for a State best performance, instead of to less State role.

Special attention will be paid to Governance aspects, as a crucial variable. “Generally, one can expect that good governance would facilitate more firm participation and foster a competitive marketplace, hence lowering public procurement costs. For instance, more bidders might enter the competition if government officials are competent and implement the public procurement system effectively. Given the stable political climate, more firms may be induced to participate in the public auctions.” (Estache and Iimi, sep. 2008, p.14)

The infrastructure sectors need great investments that must compete with scarce public resources for sectors as health and social security. There are different designs of private participation, such as a concession and total privatization. Private participation is an option that, under certain circumstances, can help improve the quality and the levels of infrastructure service in the developing countries.

In Brazil, the initial objectives of the privatization process were to reduce the public debt and the size of the State, by removing it of the activities that can be performed by the private sector, allowing that these companies retook its investments and growth, despite the conjuncture of fiscal crisis (Pires and Giambiagi, 2000; and Cechin and Amorelli, 1999).

Continuing with the objective to reduce the state intervention in the economy, and in line with the new objective to restart the investments in some sectors, ports,

railroads and highways were included in the privatization or concession process. At that moment, revenues concessions were less important than obligations of investment and the necessity to charge minimum tariffs: in several of these processes, the winners of the tenders were the ones that offered the lowest public tariffs (Pires and Giambiagi, 2000).

Nestor and Mahboobi (2000) give several reasons to justify the concession of public services: i) as a way to make the public service companies economic decisions not influenced by political issues; ii) to facilitate measuring the performance of the companies, without the presence of the State in their administration; to clarify enterprise objectives of profits maximization; iii) to create benchmarks of performance for the companies who remain state-owned; and iv) to separate the regulated firm from the producer of goods and services.

In this public services concession context, this paper highlights the federal road example. It is defined as a service as long as the concessionaire must maintain and operate the road. It is also a monopoly market after the bidding process. Hence it needs an efficient regulation to enforce the quality of service provided by the concessionaire (Castro, 2000).

As in other infrastructure sectors, the road maintenance investments decreased in the eighties, leading to the deterioration of federal roads. As tolls were charged by Government agency, it became an economic policy tool to finance the non-toll roads minimum maintenance as well, and this financing system collapsed.

This paper is organized as follows. Firstly, it describes the context of the road concession program and a brief review of the Public Choice Theory. Secondly, it shows for each of the three phases of the federal road concession program, their main contract characteristics, their regulatory and political decision issues and their improvements. Then, it brings examples of the international experience, in order to compare and make some suggestions for enhancing the Brazilian concession program.

2. Federal Road Concessions Context

2.1. Road Concessions Program

In the Seventies, the Brazilian government installed toll plazas on five federal highways under the responsibility of the National Department of Highways (DNER), an executive agency under the Ministry of Transport, in order to finance the maintenance of all the federal highways.

The Federal Constitution of 1988 instituted the principle of tax and the administrative decentralization. Thereafter the only tax that still was in force for the maintenance of the highways was transferred to the states (under the denomination of Tax on Vehicles - IPVA). Thus, with the deterioration of the network and the inexistence of specific funds for its conservation, the Ministry of Transport created, in 1993, the Program of Concession of Federal Roads (PROCROFE), with the justification that it was necessary to invest in the recovery and expansion of the road network and to improve the efficiency in the management of the maintenance of the infrastructure (Castro, 2000).

The first road concessions were launched in 1995 and 1996, with five federal highways that were previously directly under the Federal Government, in a total of 854.5 km. The bidding was ruled by the Federal Procurement Law (8.666/1993), as if road concessions were just like any other good purchased or sold by the Government. The resulting six concession contracts are showed in Table 1:

Table 1: First Phase Federal Road Concessions

Highway	Concessionaire	Length (km)	Term of Concession
Rio de Janeiro-São Paulo – BR 116/RJ/SP	NOVA DUTRA	402.0	1996 (25-year contract)
Ponte Rio/Niterói – BR101/RJ	PONTE S.A	13.2	1995 (20-year contract)
Rio de Janeiro-Juiz de Fora – BR 040/MG/RJ	CONCER	179.9	1996 (25-year contract)
Rio de Janeiro-Teresópolis-Além Paraíba – BR 116/RJ	CRT	142.5	1996 (25-year contract)
Osório-Porto Alegre – BR 290/RS	CONCEPA	121.0	1997 (20-year contract)
Polo Pelotas – BR 116, 392 and 293/RS	ECOSUL	623.8	1998 (27,3-year contract)

Source: ANTT

Such concessions were also established by DNER, the agency then responsible for regulating, maintaining and building all the federal highways. The exception was the concession of BR 116, BR 392 and BR 293/RS, named “Polo Pelotas” complex. In 1998, those roads were delegated to Rio Grande do Sul state to be concession under state law. As political issues did not allow the concessionaire to charge the contract tolls, the delegation instrument was terminated, the term of the concession extended, and the concession returned to the Federal Administration.

In that occasion, the Brazilian bidding system was very similar to the sample reviewed by Estache and Iimi (Dec 2008, p.6):

“In our sample, the majority of auctions adopted the two-envelope procedure, in which all (qualified) bidders are requested to submit both price and technical bids simultaneously and the auctioneer opens the price bid only if the corresponding technical bid is substantially responsive to the bidding documents and other technical requirements. As the result, the degree of competition tends to be rather limited at the very end of the auction process.”

DNER prepared the rules and the concession model, and then a special commission was formed to analyze the bidder proposals (commercial and technical). After technical and legal procedures the winners were announced. Those procedures benefited the experienced contractors which already had worked for the Government.

Besides, as a powerful interest group, the contractors created a pressure environment on Government and DNER trying to take advantages of the concession process.

As Stigler (1988, p.221) highlights:

“The financing of industry-wide activities such as the pursuit of legislation raises the usual problem of the free rider. (...) We can go no further than the infirmities of oligopoly theory allow, which is to say, we can make only plausible conjectures such as that the more concentrated the industry, the more resources it can invest in the campaign for legislation.”

As the following phases, until now, the federal road concessions have been designed as a Build-Operate-Transfer (BOT) toll model¹. Although, there is a difference between the original BOT concept and the used for the Brazilian road concessions: the Brazilian highways are already built, so it is not a Greenfield build, hence can be called a Brownfield build, as concessionaires usually have to build some or widen road sections, including structures.

In 1997, the federal government included the federal highways in the Privatization National Program (PND), with the objective to insert the Program of Concessions of Federal Roads (PROCROFE) in a perspective of logistic of transports, whose other subsectors already were in the PND (railroads and ports). Through Decree n° 2.444, of 30 of December of 1997, 20 sections of federal highways were included in the concession program, in addition to 14 sections to be delegated to the states. The Decree also determines that the Ministry of Transport is responsible for the execution and the monitoring of the privatization process of the federal highways. Since then, the road concessions have been ruled by the Federal Privatization Law (9.491/1997), under which previous state-owned companies were sold, and also the public service concept was better defined to fit concession programs. Therefore, new road concessions model is a kind of an auction that took place in São Paulo Stock Exchange in 2007, after ten years of studies and changes in the responsibility for the process. The program is already in its third phase, with public hearings carried through and auction foreseen for the first semester of 2009.

¹ In this model the private sector is responsible for construction, operations and maintenance for a concession tenor. The recovery of investments is ensured through levy of tolls by the concessionaire on the users of the project. The traffic risks are usually borne by the concessionaire.

Table 2 shows the roads that have been concessioned in the second phase of the program.

Table 2: Second Phase Federal Road Concessions

Highway	Concessionaire	Length (km)	Term of Concession
BR 153/SP	TRANSBRASILIANA	321.6	2008 (25 years contract)
Paraná- Santa Catarina -BR 116	AUTOPISTA PLANALTO SUL	412.7	2008 (25 years contract)
BR393/RJ	RODOVIA DO AÇO	200.4	2008 (25 years contract)
BR 101/RJ	AUTOPISTA FLUMINENSE	320.1	2008 (25 years contract)
Minas Gerais –São Paulo – BR 381/MG/SP	AUTOPISTA FERNÃO DIAS	562.1	2008 (25 years contract)
São Paulo - Curitiba – BR 116/SP/PR	AUTOPISTA RÉGIS BITTENCOURT	401.6	2008 (25 years contract)
Curitiba - Florianópolis – BR 116/376/101/PR/SC	AUTOPISTA LITORAL SUL	382.3	2008 (25 years contract)

Source: ANTT

Besides those, there is the BR 116/324/BA which process has begun as a PPP project, and as long as it has been reanalyzed it became a concession. Its bidding process took place in January 2009, as a part of the second concession phase.

The third phase was launched in November 2008 through public hearings. It includes BR 040/DF/GO/MG (936.8 km); BR 381/MG (301 km) and BR 116/MG (816.7 km). The auction will take place in the first semester 2009.

The success of the concession program leads Government to include more roads into it. National Privatization Council (CND) kept the minimum toll rate as the auction criterion to benefit consumers while seeks for more transparency, changing the procurement modality from bidding to auction. The auction however is still a sealed auction, when bidders' commercial proposals are opened in a public session at the São

Paulo Stock Exchanges (BOVESPA), and the winner is the firm or consortium that offers the smaller toll rate.

To increase competition by attracting more and new industries to road business, the Government also accepted different warranties by different competitors, allowing consortia participation and foreign enterprises.

2.2. Contract Design, Information Asymmetry and Regulatory Capture

A well designed concession contract is the first step to a successful concession. As Guasch (2004, p. 9) emphasizes:

“Barring major unforeseen events, and others that can be spelled in the contract as contingencies, the key issues are, first, the design of a proper concession, regulatory framework, and contractual arrangements and, second, how to increase the likelihood that both signatory parties to a concession contract comply with terms of the contract and avoid opportunistic renegotiation. A key start is the design of better contracts that do not facilitate renegotiation and that penalize noncompliance.”

Generally, regulation controls three variables: prices, quantities and number of firms. When Government is concerned about a high monopolistic price, the regulator fixes a ceiling price. Price and number of firms are key variables to allocative and productive efficiencies.

“Another variable that is sometimes (though infrequently) regulated is firm investment. In contrast to the other decision variables we have considered, regulation of investment entails government intervention into the production process; that is, a firm’s choice of technology and inputs.” (Viscusi, 1997, p. 311)

In the first concession phase, the regulation was upon toll rates and investments, by its costs and input quantities. Although prices are relatively easy to control investments are quite difficult. The regulator does not have the necessary tools to do it, becoming a source of constant renegotiation between the concessionaires and the Government. The Government may initiate a renegotiation, for economic policies requirements, it wants to set a smaller increase in the toll rate.

“On average, the outcome of renegotiations adversely affect the users. Renegotiation has occurred if a concession contract underwent a significant

change or amendment not envisioned or driven by stated contingencies in any of the following areas: tariffs, investment plans and levels, exclusivity rights, guarantees, lump-sum payments or annual fees, coverage targets, service standards, and concession periods. Standard schedule tariff adjustments and periodic tariff reviews are not considered renegotiations” (Guasch, 2004, p.12)

It is likely that the possibility of renegotiation was foreseen by the first phase bidders. Hence, the doubt remains: has the bidding selected the best service provider or the most skilled at renegotiations?

Regulation can be used to prevent the exploitation of the consumers by monopolies, and is made on behalf of the public interest. Actually, the level of enforcing regulation has correlation with the perception of the people on how the Government performs.

Regulation is necessary, even admitted by the most conservative theories when there are market imperfections (e.g., existence of natural monopoly, externalities), justifying the governmental intervention. Some regulated firms, however, are not natural monopolies nor they produce externalities. The positive Theory of Regulation does not explain the process of legislative decision or of the regulator to institute regulations assuming the market imperfections. If it always must consider that: “... in its role the regulator, government literally restricts the choices of agents.” (Viscusi et alii, 1997, p.307).

“Road concession contracts typically include required standards for construction, operation, maintenance, and toll collection. For monitoring the quality of the road during the life of the concession, several indicators of condition are usual, such as roughness, skid resistance, luminescence of pavement markings, and the presence and condition of signs, lighting, and other safety features. Performance on these indicators that falls outside the boundaries of acceptability may lead to penalties for the concessionaire.” (Queiroz and Izaguirre, p.9, 2009)

In this process, the information asymmetry can be a serious problem, once:

“An important avenue for regulated firms is to control the flow of information to the regulators. For example, in considering a ratemaking case, a regulatory agency usually depends on the regulated firm for estimates of costs and demand conditions. Although outside expert witnesses can be used, their information is simply not as good as that which

the firm has at its disposal. Another tactic is to coopt the experts, for example, by keeping the best law firms on retainer.” (Viscusi, 1997, p.322)

The obligation to control the amount of investment also creates an information asymmetry, since the Government does not have the means to monitor each planned investment technology neither the production function of the concessionaires. Then it has become a source of regulation failure and, consequently, agency capture by the dependency on the information provided by the concessionaires:

“Once a private enterprise has been granted a concession in an infrastructure sector, it may be able to “hold up” government – for example, by insisting on renegotiating the contract, seeking more favorable terms, or using regulatory capture. An enterprise’s extensive information advantages over government (and, in most cases, over other potential operators) and perceived leverage in negotiations can give it strong incentives to renegotiate a contract and secure a better deal than the original bid. The resulting regulatory arrangements may be less effective in protecting customers from monopoly abuses. Thus the design of regulations, concession and privatization contracts, and implementation agreements can significantly affect sector performance and the incidence of renegotiation.” (Guasch, 2004, p.8)

As investments are variables difficult to monitor by quantities and costs, the regulatory agency must believe in the concessionaires’ information with all the risks to do so. “Regulatory capture means the operator or concessionaire unduly secures influence – overt or covert – over the regulatory process to bias the regulator’s decisions in favor of the interests of the operator or concessionaire” (Guasch, 2004, p.8 – footnote).

The Capture Theory states that the agency created to regulate an industry will be captured, for problems in the design of the regulation or not. The trend is to promote profits of the regulated ones more than the consumers’ welfare.

In the Brazilian road concession, the capture risk was bigger at the DNER period, because it had too many conflicting roles: the first phase concessionaires are engineering firms with whom the DNER also had public works contracts on public roads. Furthermore, the DNER also hired engineering firms to assist in its monitoring role of the concession roads, in view of its shortage of staff to do it.

As Government is the only stakeholder able to grant concessions and licenses, it generates monopoly revenues that attract rent-seekers. It causes the transfer of consumers' welfare to monopolist at a social cost the amount which depends on the interest groups market. Furthermore, the interest groups are not a competitive market. There are large groups (consumers, unemployed, pensioners, etc.) with no action or voice proportional to the number of their members or with the impact that their collective action could produce. (Pereira, 2008)

2.3. An Overview of the Brazilian Public Decision Making Process and the Public Choice Theory

The Theory of Public Choice is one of the opposite theory to an essentially economics theory based on the intervention of the State on the economy - the Welfare Economics. While this is centered in the analysis of the "failures of the market" that justified the intervention of the State, the Theory of Public Choice demonstrates the "failures of the government" and the limits of the government intervention. Public choice was used ideologically by all those that defend a lesser intervention of the State in the economy, in particular for the neoliberal ones (Pereira, 2008).

The Theory of Public Choice uses economic methods to solve political science problems. The unity of analysis is the individual, and the process of collective choice begins at the individual preferences of rational and selfish individuals.

The democratic method is an institutional arrangement for political decisions making derived from a competition for votes (votes maximization would be the objective of the politicians in the formal political market while represents the aim of groups of interest in the informal political market), according to Schumpeter (*apud* Pereira, 2008). Theory of Public Choice evaluates the situations where the politicians take care of preferences of the voters and those when the preferences of the elites are predominant in the decisions. (Pereira, 2008)

This theory has an important component, economic regulation, that arises with the George Stigler article "The Theory of Economic Regulation" (first published in 1971), where he expressed his concerning about the Government failures in regulation

actions “The central tasks of the theory of economic regulation are to explain who will receive the benefits or burdens of regulation, what form regulation will take, and the effects of regulation upon the allocation of resources.” (Stigler, 1988, p.209)

Stigler (2008, p. 210), focus on the public choice analysis at regulation discussion, states that:

“... indeed the problem of regulation is the problem of discovering when and why an industry (or other group of like-minded people) is able to use the state for its purposes, or is singled out by the state to be used for alien purposes.”

The actors can choose fair rules, if its implementation will last a long term and when it will not have certainty on the position of these actors in the social political game (Pereira, 2008).

“It is well to summarize the results of this formalization of Stigler’s model:
 1. (...) losses of regulatory decisions and of costs of organizing for political favors are to restrict the size of the winning group.
 2. but this winning group will not obtain even a gross gain through political action as great as is within the power of the political process to grant it.
 3. moreover, even if groups organize according to an economic interest (producers v. consumers), political entrepreneurship will produce a coalition which admits members of the losing group into the charmed circle.” (Peltzman, 1988, p.245-246)

Comparing market and politic system, Stigler points out:

“The costs of comprehensive information are higher in the political arena because information must be sought on many issues of little or no direct concern to the individual, and accordingly he will know little about most matters before the legislature. The expressions of preferences in voting will be less precise than the expressions of preferences in the marketplace because many uninformed people will be voting and affecting the decision.” (Stigler, 1988, p. 219)

The premise of the analysis of Stigler is that the base of the government is its power of coercion, which group of interest can convince it to use it in its favor. The agents are rational and maximize its utility, thereafter regulation will attend to demands of the groups of interest in maximizing their incomes, due to the redistributive power of the government. (Viscusi et alii, 1997). Shortly, the Public Choice Dilemma is: what rules shall be used in political decisions and collective choices determining public interests.

Gary Becker introduces a new model under the Public Choice Theory. The Becker’s Model concentrates in the pressure groups despite bureaucrats, politicians and voters. However he assumes the pressures aims are different for each interest group: over bureaucrats to implement policies, and over votes and politicians to pass legislation (Becker, 1988).

“Taxes and subsidies are influenced, but not fully determined, by constitutions and other aspects of political systems. A crucial assumption of my approach is that they are also influenced by taxpayers and recipients who exert pressure on voters, legislators, and others involved in political decisions to further their own interests through the political process.” (Becker, 1988, p. 87)

Becker’s assumption that each group chooses to make political pressures where action will maximize their member utilities, under a political budget constraint and pressure production function, agrees with Guasch (2004) thought about bidders proposals on faulty contracts. Guasch points out that it is the source of constant renegotiations. This is true for the Brazilian first road concession phase and even perhaps to the second one also, since there were a new entrant with a much lower toll rate proposal than the others bidders.

In this context, Peltzman Model (1988) tried to separate the purely political effects of changes in the underlining economic conditions, and

- “Among the empirical implications of these forces would be:
 1. Regulation will tend to be more heavily weighted toward “producer protection” in depressions and toward “consumer protection” in expansions.
.....
 2. Government intervention and regulation are both normal goods.
.....
 3. The tendency of regulation to change prices infrequently, sometimes called “regulatory lag”, ought to be stronger when demand changes than when costs change.” (Peltzman, 1988, p.252-253)

This debate can apply to the Brazilian decision making process, especially under road regulation history. At the beginning of the road concession program, DNER played the role of regulatory agency. This fact was inappropriate as there were conflicts of interest among its many roles: regulatory agency to concession roads; public road builder; responsible to modeling the concessions and the agency which contracted the

engineering firms to monitor the concessionaires. This process happened against all the theoretical recommendations, by which before concessions take place, a regulatory framework, with much independence as possible in order to enforce the quality of service and to minimize political opportunism (Guasch, 2004). Only in 2001, the independent regulatory agency was established – almost six years after the first concession contracts were signed. By that time, the second phase program was still under Government analysis and within the responsibility of Ministry of Transport. However, the Ministry of Transport must submit all the propositions to the National Council of Privatization (CND), which is composed by the Ministers of Finance, Planning, Development and Foreign Trade and of the Presidents Cabinet Chief.

Firstly, the intention was to separate the regulatory branch from the concessions preparing activities. However, when the Brazilian National Agency for Land Transportation (ANTT) was finally created, the DNER² model was transferred to it and the new agency became responsible for all the concession process, by concessionaires influence and also because the new agency employees did not have time to think in a new management model, since the contracts were already in force.

Becker's Model has foreseen it, as described here:

“Aggregate efficiency should be defined not only net of dead weight costs and benefits of taxes and subsidies, but also net of expenditures on the production of political pressure (...) since these expenditures are only “rent-seeking” inputs into determination of policies. Therefore, efficiency would be raised if all groups could agree to reduce their expenditures on political influence. Restrictions on campaign contributions, registration of and monitoring of lobbying organizations, limitations on total taxes and public expenditures, and other laws may be evidence of cooperative efforts to reduce “wasteful” expenditures on cross-hauling and political pressure.” (Becker, 1988, p.91-92)

In 2002, there were federal and states elections, then it was difficult for any politician to approve new toll roads between important cities, besides the fact that on CND there wasn't a consensus about the concession model. It can be argued as Pereira (2008) that, by the Theory of Public Choice, Governments political and economic decisions are made under different power pressures of many stakeholders with several

² Some of DNER employees were transferred to ANTT, when DNER was extinguished.

roles in the political arena. The President, the executive branch, the Legislative, judiciary, bureaucracy, political parties – all interferes at policy. On the other hand, Governments have those terms and are frequently submitted to elections, and that influences the decision process.

If the rule of the collective choice will be of the absolute majority there is no proposal invincible, as coalition is possible and these also are breached by outsiders. As through the public expenditures gain votes and as with increases (visible) of taxation generally they lose votes, has a trend that democracies have a cycle political-economic cycle characterized by the increase of the public expenditures in pre-electoral period followed by inflation tensions and restrictive politics in the post-electoral period. The perspective of the Theory of Public Choice is that the rules of game of the democratic process determine the policies and not (only) the ideological trend of the Government party (Pereira, 2008).

When the CND decided the concession model, the Brazilian Court of Audit (TCU)³ asked for more detailed information and gave suggestions to change it, especially regarding the minimum toll rate.

Although, in 2003, the new president and governors were installed, only in 2007 concessions of second phase went to auction - 10 years after CND asked a review of DNER studies.

Even so, there are some regulatory issues that remain. Gomes (2004) states that the regulatory agency should only regulate the pos-concession period, instead of preparing contracts and modeling the concessions. By doing that, the agencies don't have the necessary impartiality among concessionaires, Government and consumers, to monitor the contracts and to eventually punish the concessionaires.

The more recent movement at the decision making process was to transfer the design of the third phase to the Brazilian Development Bank (BNDES), with the advice

³ Once a privatization or public service concession process has been included at the National Privatization Program (PND) all the processes are analyzed and monitored by the TCU in different stages, before and after the bidding take place.

of International Finance Corporation (IFC). However the ANTT also had worked on the design. The final decision from the CND was much in favor of BNDES proposal

In view of the above, and the Government's decision to transfer responsibility for road concessions design to an independent agency (BNDES), it seems that the Brazilian Government agrees with Estache and Iimi (set. 2008, p.20):

“In order to encourage competition, good governance needs to be established. Political stability and government effectiveness are of particular importance, and the sound rule of law may also help inspire firms to enter. To the extent that these governance aspects can promote firm entry, auctioneers may have to pay particular attention to the importance of new entrants in the tendering. Inviting a broader set of prospective bidders will be conducive to drawing low bids and curbing government procurement costs...”.

3. The First Concession: Phase I

3.1. Political Factors and Agents: The Timing of the Concession and the Regulatory Practice

As there was no regulatory agency, the first phase of road concessions was set up by the Ministry of Transport, independently, through its executive agency, DNER, as an ordinary procurement bid. In 1997, when the concessionaires were already charging the tolls, the federal government was concerned about macroeconomic issues, including minimize logistics costs, and then it tried to promote competitiveness among the different means of transport. One of the measures to do that was the decision to include the federal roads in the PND, sharing the process responsibility among the CND members, to maintain and to extend the federal highways. The regulatory role as well as the second phase modeling remained under DNER responsibilities, until the end of 2001, when the ANTT was established.

Before the establishment of ANTT, the monitor of the road concessions was carried out by engineering companies contracted by DNER. At the restricted market of contractors those previous contacts represent source of political pressures, in order to maintain the status quo by using postponement tactics on the regulatory procedures as pointed out by Viscusi:

“An important property of regulatory procedures is that they are biased towards maintaining the status quo. By replacing market forces with administrative processes, regulation imposes due-process requirements on any changes. In some sense, producers and consumers have legal rights to the status quo and it can only be over thrown through due process.” (Viscusi et alii, 1997, p.321-322)

When contracts passed to ANTT responsibility, in 2002, the necessity to improve the management of contracts and to review the Road Exploitation Plan - PER (which are not standardized at the five roads) urged. Also need regulation: the use of alternative revenues, the opening of new road accesses, the use of the right-of-way by different business, the application of penalties, and use of Resources of Technological Development, foreseen in contracts of first concession phase.

After ANTT get acquainted with the account and financial mechanisms used by concessionaires, the Agency reduced the asymmetry of information with a regulation project, funded by the World Bank. It not only standardized the set of accounts for concessionaires to register their operations, but, mainly, it established the way as each register must be made in an extensive Manual of Accounting, creating a structure of data standard for all the future regulation processes (BRASIL, 2007).

So far, the ANTT has been managing the first phase concession contracts.

3.2. Model and Contracts Characteristics

The first contracts were basically engineering works contracts, allowing the concessionaires to do the maintenance and the expansion of the highway. This concession program followed the model of the DNER activities in those highways where toll collection is financially and economically feasible.

The rules of the tender were biased toward the big engineering firms, by requirements of previous experience and other parameters. There were accounting clauses representing truly entry barriers to others enterprises.

The main contractual obligations are about the public works and specify even input quantities per work and their costs (as for concrete and asphalt) in a specific period; if those quantities will not use, penalties could be imposed on the concessionaire. Those obligations are detailed at the Road Exploitation Program (PER), a kind of engineering basic project with work schedules, inputs and technologies to be implemented.

Regulatory issues are present in the first contracts but, they are mainly focused on public works rules. There is also a clause about research and developing expenditures that the concessionaires have to do otherwise the amount will be discounted in the next tariff revision. The objectives of the research, however, are not fixed at the contracts and as a consequence it was non-transparency expenditure in its use in the past.

Those contracts, under the Procurement Law (Law 8.666/1993), do not express any concerning about the negative externalities of a renegotiation process.

“In principle, renegotiation can be a positive instrument when it addresses the inherently incomplete nature of concession contracts. Properly used, renegotiation can enhance welfare. Although some renegotiation is desirable, appropriate, and to be expected, this high incidence exceeds expected and reasonable levels and raises concerns about the validity of the concession model. It might even indicate excessively opportunistic behavior by new operators or by governments. Such behavior undermines the efficiency of the process and the overall welfare, because renegotiation takes place between the government and the operator only, so it is not subject to competitive pressures and their associated discipline. When used opportunistically or strategically by an operator or government, to secure additional benefits, and not driven by the incompleteness of a contract, renegotiation can undermine the integrity of a concession, reduce welfare, and threaten the desired structural reform program in infrastructure. The high incidence of renegotiation reported here should indeed be a cause of concern.” (Guasch, 2004, p.19)

Under the Brazilian law, each contract revision represents a renegotiation, since the contract changes (with some additional and removal works from the original scope, for example), and a contract addendum, mutually agreed upon by the parties of contract, must to be signed. As there is no determined term to revisions, the concessionaires can claim a revision process whenever they suppose there is disequilibrium either economic or financial, as several have been occurred into all the first concession phase contracts.

Concisely, the first phase concession contracts are faulty designed, very difficult to monitor, and they represent a source of asymmetric information. All those factors increase the possibility of renegotiations, allowed by the regulatory agency attempt at adapt them to reality of the highways conditions and of the Brazilian economy.

4. Phase II Concessions

4.1. Case description: Actors and Political Scenario

After ten years of studies, the second phase of concessions was intensified in 2005, already by the orientation of the new federal government (which took office in 2003). In September, 2005, the ANTT became responsible for the studies to model the bidding process, previously under the Ministry of Transport (BRASIL, 2007). After the decision that the ANTT would redesign the model, its contracts and the bidding rules, the agency hired external consultants to help with the required review. However, the consultant was an engineering firm with almost the same bias as DNER. Hence, when the revised model was presented to the CND, the Council asked more details and new changes were made. This process last two more years, and then, in October 2007 the bidding took place at the São Paulo Stock Exchange (BOVESPA).

The Ministry of Finance played an important role in the definition of the rules of Second Phase. Its technicians analyzed the ANTT model, and then made suggestions with a fiscal perspective.

The main topics that the Ministry of Finance raised were: i) share of risks, trying to transfer the risk at the agent who can manage it; and ii) the Internal Rate of Return (IRR) as a guarantee to the financial-economic equilibrium of the concession. The degree of competitiveness is also a constant concern of the Ministry of Finance. As road concession is a monopoly, just after the bidding, it is necessary to have rules to minimize barriers to entry at tender process. Hence, the contract value should be determined by the total required investments instead of by the total concessionaire

revenue. The concessionaire revenue is bigger than the required investments, representing an initial barrier for many firms to join the competition process.

So, the DNER model still have influenced on the design of the contracts. Although the risk of quantities to the concessionaire represents an improvement, the PER remains the strategic piece to road concession. In this phase, however, the engineering works are less detailed than at the first phase. There are flexible clauses about quality specifications of equipment, material and methods as standards of minimum quality: different techniques and inputs can be used since they have been previously submitted to the ANTT approval.

4.2. Improvements on the Concessions Contracts

The second concession phase innovates in some aspects, among them: the improvement at the contract design provides a better environment to the regulatory activity; the quotation of the services by global value, with transfer of the risk of quantities for the concessionaires and greater flexibility in the conditions of tender, to increase the competition. Besides that, in order to the toll rates were fair for both: investors (for the maintenance of the economic-financial equilibrium) and for users, it instituted a five-year revision, requested for the Agency, that will be certified the balance between toll rates and the costs of the concessionaires.

The choice of IPCA (Amplified Consumer Price Index) as the index to adjust the toll rates corresponds to an advance compared to the methodology of price adjustment used in the first phase concession contracts. The formula of previous adjustment was based on the weighed variation of the relative indices to the main components of costs, amongst which: pavement index, index of special structures and index of consultant services.

The substitution of this methodology of price adjustment for a retail index stimulates the efficiency of the sector; therefore the firm has an incentive to reduce the production costs, as this reduction is appropriated until the next toll rate revision.

By adjusting the key variable into the Ministry of Transport and ANTT projects, the WACC (Weighted Average Cost of Capital) to different standards, the concession became even more feasible. Government officials pointed out some premise of the studies, although in the public hearing the Internal Rate of Return (IRR) was set in 15.08%, already less than the calculated by the first studies (between 18 and 19%). Those factors lead to the decreasing of the maximum toll rates. The main factors were: to modify the used series to measure the Brazil risk and to remove the instability of the end of 2002 and beginning of 2003; to diversify the sample for the beta of the sector, that was based on China; to use spread practiced by the BNDES for financing of infrastructure projects. As the result the IRR for the second phase was set at 8.95%.

The IRR of the second phase road concession represents the half rate of the first phase concessions, although many roads are in contiguous sections to these. If bidders came to auction with this IRR ceiling must mean this is a feasible business or that the bidders are expecting an incomplete contract of concession that permits revision claims and consequent revenues bigger than the one bid in the auction. If the last is true, the ANTT has to inhibit such demands to sustain the fairness of the tender process.

The private sector complained about the reference IRR set by the Government, but it was a parameter over what the project feasibility has been calculated. The tenders could do their own design and won the ones whose proposal was the smallest tariff.

Concerning risks share, the Government knows risk still needs a detailed analysis and a special treatment in the contracts. The Public-Private Partnership Law included, as obligation clause in contracts of PPP, the forecast of particular division of risks between the private and public partners (art. 5º, III of Law 11079/2004). Anyway, there was an improvement also about it. The rules are more explicit, unless about the traffic risk: a) risk of quantities: the concessionaire takes all the risk of miscalculation of input quantities used at the road engineering works; b) risk for inspection: the concessionaire assumes the risk for the inspection of the condition of the highway, before the delivery of the concession; c) risk of damage in the highway is a concessionaire risk, whether there is an insurance for it or not; d) risk for the variation of costs is concessionaire risk; e) risk for the indemnities for administrative

expropriations or servitudes: imputed to the concessionaire once it is responsible for the negotiation of the indemnities, even in Court.

“Renegotiation was also much more likely when concession contracts contained investments requirements (70 percent) than when they included performance indicators (18 percent)” (Guasch, 2004, p.16). It demonstrates why the second phase of Brazilian road concessions had improved by not requiring investment obligations as in the first phase. The Road Exploitation Plan - PER became a definition standard and obligation piece rather than an engineering project: traffic flow, costs, investments and discount rates are established by the cash flow of the successful bidder.

5. The Beginning of Phase III Concessions

5.1. The Moment of Decision: Changing Paradigms

With the changes in the decision making structure within the Federal Government, it was easier than before to determine a new responsible agency for the studies of the concessions of the third phase, even because it would use the process of the modeling the PPP of the BR116/324/BA. Thus the BNDES became the manager, in fact, of the concession process (this change has been suggested by technicians at the beginning of the studies of second phase, in the late 90's).

Because the government has uncertainty in relation to the preferences of the citizens it needs a mediator, and these mediator are just not the groups of interest, but also the decentralized agencies of the public administration. Both supply information (certainly biased) and charge a “price’ represents by the power of each agency to influence the definition of the policies (Pereira, 2008).

There were already doubts about the ANTT role, once by the Law 10233/2001, which created ANTT, the regulatory agency can design the concession model within parameters previously approved by the Ministry of Transport, under the guidelines of the Transport Integration Policy National Council. Hence, the ANTT model will just be used if it matches with the political Government directives, as pointed out by Gomes (2004).

The model of third phase changed without assessing the effectiveness of Phase II model. Before the toll charged has begun, the Government set, to the third phase, an IRR even smaller than the second phase. Although technicians have warned that was almost half rate of the first phase. Nevertheless, the Ministry of Finance reviewed the sector Beta and reduced the IRR to 8.5% to the BR116-324/BA and third phase concessions.

Although the BR 116/324/BA proclamation has been published almost at the same time of the third phase road, it considers by ANTT as a second phase project. Even so, the third phase model is very similar to the BR 116/324 one.

There is an ANTT working paper (ANTT, 2008) expressing the ANTT technicians point of view about the BR 116/324/BA concession design, that would be similar to the other third phase roads, coordinating by BNDES.

Firstly it needs to emphasize that under the Brazilian laws a Public-private Partnership (PPP) and a concession are two different things. The definition of PPP in Brazil refers only to those projects which include public investments, in order to guarantee the feasibility to the private sector, as it is states by PPP Law (11.079/2004). Concerning concession, the term is only used when Government transfers the operation rights of a public service to the private sector, and the revenues come from the exploitation of this particular business, in other words, the concessionaire does not receive public money, the concession business is economic ally and financially feasible.

There were criticisms about the third phase concession model because of PPP characteristics', would not be applicable to concession contracts. Specifically about the lack of necessary instruments, within the regulatory agency, to calculate the marginal cash flow of each new event not included in the PER by the time of the tender process.

The traffic risk still remains an unfinished debate: some technicians stood up for to impute traffic risk on the concessionaire, even for new events, others hold forth some events could not be foreseen at the proposal traffic flow. The quality parameters remain

the same already monitored by ANTT, such as standards for safety; user's services; pavement roughness; traffic signs; and lighting.

Another unsolved concept was the rate deduction by unavailability. Some technicians stood up for deduct only the non-available part of the work, while the draft of the contract establishes the discount of the whole work, which is correct once the user has no benefits from a partial work.

So, the agencies must agree that what is missing is a more precise definition of unavailability (i.e. the types and, in particular, causes of unavailability: the latter being key to the extent of risk transfer to the Concessionaire); and perhaps improve the weighting (or severity) of deductions for different timing or degrees of unavailability.

Despite the internal power disputes, the Government coordination prevailed on the third concession phase model, representing a step ahead into the federal road concession program.

5.2. The New Hybrid Concession Model: Public-Private Partnership and Concession

The BR 116/324/BA concession process is considered to belong to the second concession phase by ANTT. Instead, for the purposes of this paper, it will be considered as part of the third concession phase, taking into account, historical and modeling issues: it is much similar with the third concession phase design than with the second concession phase design.

The BR 116/324/BA was first designed to be a PPP by the studies developed under a Cooperation Agreement among Ministry of Planning, BNDES and the IFC, signed in November 2005. A task-force composed by members from Ministries of Finance, Planning, Transport, The Civil Household of the President and ANTT monitor the works.

Hence, when the PPP project of the BR 116/324/BA has showed feasibility to turn to a concession, regulatory agency was concerned about the necessary changes into

the model. The analysis begun with a PPP modeling, but considering that the trucks will pay the tolls, the concession became feasible.

The BR 116/324/BA concession model mainly characteristics are: i) auction by the lower tariff; ii) concession period of 25 years; iii) lock boxes can be installed in toll plazas and their location may change; iv) care services to the user; annual toll rate adjustment by IPCA; v) focus on service quality – concessionaire investments are made by the most efficient way to achieve the contract performance criteria (quality of pavement and signaling; conditions of the works subject to the volume of traffic); vi) the economic-financial equilibrium is assured by adjustments in marginal cash flows projected to cover events not foreseen in the concession contract (each event will bring a reviewed revenue according to the marginal difference between the actual and projected traffic, established during the concession - which increases the need for supervision by the ANTT); vii) availability discount mechanism - there are discounts in the annual rate if it is inconsistent with any planned works or not finished according to the schedule; viii) there is no requirement of proof of minimum financial indicators of bidders, which is an improvement on the first phase, in which these requirements biased the bid for contractors, given the requirements of the capital required; ix) bidding by auction on BOVESPA, with reversal phases – first is the economic proposal, and then the winner has its technical proposal opened; x) there is no need of prior consent from ANTT when concessionaire give emergent rights to finance as a collateral (as in the second phase).

Almost at the same time the rules of the BR 116/324/BA concession has been published, the ANTT has launched the third phase concession process by inviting the interest groups to public hearings to get acquainted and to make suggestions for the new model. The public hearings took place in November 2008. Firms made suggestions for the contract and the competition process. In February 2009, the ANTT published the answers to the public considerations in its website. Since then, the mainly characteristics of the third phase remain the same of the BR 116/324/BA.

The third phase concession brings some innovations in risk share. The traffic risk is partial - concessionaire is not responsible for the risk of new roads different not foreseen on the time the contract will sign, besides there is no risk in the re-equilibrium

processes since these are based on the real traffic. Risk of the environment liabilities - passive it is not of the concessionaire if it will not be able or it could be foreseen by deep environmental investigation, carried through in accordance with best international practice. As in the second phase, risks of costs and inputs quantities foreseen in the PER, of financing, and damages object of insurances are imputed on the concessionaire. The risk of public and or social manifestations that hinders works the concessionaire to carry through works or services, (longer than states on the contract), or judicial measure that hinders charging the toll rate or to readjust it (except when the concessionaire has given to cause the decision) is Government risk.

There are very explicit the events that demands a revision of the Basic Toll Rate (TBP): a) Ordinary revision: marginal cash flow calculated for new events; difference of charging from rounding up the toll rate in the previous year; share of alternative revenues in the previous year; b) five-year revision: project adjustments to road and economics reality; c) extraordinary revision: occurrence within risks assumed by public to partner that needs to assure the concession economic-financial equilibrium.

In this phase, instead of the obligation to expend some amount in R&D, the model imposes the rule that intellectual rights over studies done through the concession belongs to ANTT.

It is prescribed that unsolved questions among stakeholders will be taken to International Trade Council Arbitrage Court.

There is a new rule about the work schedule. The lanes enlargement has to be done when the traffic flow reaches the transit level C to D, as measured by the Highway Capacity Manual (HCM 2000). When the vehicles density approaches this standard, the concessionaire will have twelve months to do the enlargement work.

The new model also introduces the availability deduction. By this tool, the tariff can be proportionally reduced if works or services will not be available at the planned schedule. It will occur at the ordinary revision process and it counts until the next revision period, when ANTT will verify the work or service availability to recalculate the tariff with the respective share.

It should also be noted that the concept of unavailability does not necessarily require that the entire road is unavailable for use, or even that a specific section of the road is fully unavailable. Defined unavailability can also be triggered by partial lane closures or matters of “deemed unavailability”, such as a failure to meet minimum road condition measures.

Deemed unavailability covers circumstances where the road may be notionally open for travel, but is of a standard where such travel is either hampered or unsafe. The purpose of this mechanism is to prevent a Concessionaire from not closing a section of road for necessary works in order to avoid incurring deductions to its availability payments.

Concerning the PPP payment mechanisms, the United Kingdom new model is very similar to the model proposal by BNDES and the IFC consulting to the third phase of the Brazilian concessions. It is the “Active Traffic Management”, or congestion based, payment mechanisms are the most recent development in the international market, used at the United Kingdom concessions.

Clearly, the structuring of the availability criteria is relatively flexible and able to be tailored to the specific objectives of the State in relation to the road (subject to the overriding principles that the payment mechanism must be based on clear, measurable and objective measures).

The traffic projections of the concessionaires are not part of the contract, just the projections calculated on the studies by the BNDES and IFC. Hence, the risk can be transferred to the public sector. On the first phase, the public sector got around the traffic risk issues as the prohibition of trucks traffic on the Rio-Niterói Bridge during rush hours, or the new toll cabins in the BR 116/SP/RJ to stop the escape of toll plazas.

The quotation of the costs of the works and services not foreseen by market prices is more realistic than ones of the proposal which were established by the concessionaires. However, if it cannot affirm that the agency will have conditions

and/or information on the market prices to confirm the costs presented also by concessionaires.

Some technicians believe that it will take much time to evaluate the unfinished work share. It would be unproductive. ANTT concerns about the concessionaires ability to over evaluate their costs to charge higher toll rates and make extraordinary profits. Even if the agency put limits on the works costs, it will not forbid that the concessionaire claims administrative or judicially, as ANTT were imposed it under evaluated prices, demanding contract service quality.

Although, the ANTT proposal to consider market prices just to new investments and services does not represent a solution to the asymmetric information problem neither to the difficult of evaluation. If the agency has the capability to do a cost research, it could fit on new investments or on the previous contract investments.

Given the experience to regulate by proving the public interest in installing auxiliary cabins tolls, ANTT kept the possibility to build them by a specific analysis instead of become a contract permission clause.

At last, the arbitration problem come to a solution in this phase with the adoption of the International Court of Arbitration of the International Chamber of Commerce to judge the unsolved claims into the Government jurisdiction as an independent judge.

After the suggestions of the public hearings, the third phase concession seems to get closer to the quality standards contracts brought by the international experience benchmarking, shown in the next session.

6. The International Experience

6.1. Highlights

The problems of the concessions of Brazilian highways are not the only ones in the international experience. Pires and Giambiagi (2000) had made a summary of the experiences of some countries in the concession of highways.

At the United Kingdom, concession aims to finance the maintenance of roads, and in low traffic flow sections, British Government subsidized the concessionaires investments (this design is considered a PPP model below the Brazilian law). Most of them are paid by the availability approach. Otherwise, the availability criteria can be structured to incentivize the Concessionaire to manage unavailability in a manner which is consistent with the State's priorities. In the UK it is not uncommon to see deductions to availability payments weighted according to: i) the duration of the period of unavailability, in order to incentive the Concessionaire to minimize delay in taking remedial action; ii) the specific section of the road which is unavailable, in order to incentivize the Concessionaire to focus remedial efforts on those sections of road upon which the government places the most importance; iii) the time of the day or week, in order to incentivize the Concessionaire to manage unavailability (e.g. planned closures) around periods when the availability of the service is of most importance (e.g. avoiding peak periods); and iv) a 'ratchet' mechanism based on what portion of the road capacity within a section is unavailable and/or the frequency of unavailability, in order to incentivize the Concessionaire to minimize the overall impact of unavailability on the level of service provided to users (e.g. by aiming for progressive reopening of the road as an issue is remedied or making an investment in significant new works to overcome a persistent design fault).

Also the UK recently begins to use the "Active Traffic Management" payment mechanism model. This model has only been adopted on two projects that have achieved financial close, neither of which has as yet commenced operations. Both projects are located in the UK (the most advanced market for Service Payment based PPP roads projects).

Holland adopted a seasonal toll charge, while France raises its tolls in days of week, with the same objective: promotes other forms of transport, reducing traffic flow at rush hours. Furthermore, in France, there was nationalization of the road concessionaires in the Seventies. The French Government used the tolls as an economic policy tool; hence the concession became infeasible, with subsequent bankruptcy of private companies (Pires and Giambiagi, 2000). Between 2002 and 2006, France did new procurements to privatize again the road operators (Gauthier, 2007). However,

figures of 2004 show that from the 7,840 km of highways under concession in France, 6,940 km (88.5%) were managed by Government-owned concessionaires (Fayard, 2004).

In Spain, the highways had been constructed by private trusts, and some had been also expropriated by the State for the same reason that the French concessionaires.

In Mexico, the criterion to win the concession on greenfield highways was bid the lesser period of exploration, with toll rate settled by the Government. Investors did works with higher costs to negotiate the extension of the concession (Pires and Giambiagi, 2000).

“The toll road programs in Mexico and Hungary in the 1990s (where relatively high toll rates led a significant part of the vehicles to divert to secondary roads), for example, failed to address these issues. But Mexico’s new program of public-private partnerships in roads, which started in 2006, does address them.”(Queiroz and Izaguirre, p.5, 2009)

The Chilean concession model, from 1998, foresees a concession stated period flexible: when the intended revenue will be gained by the concessionaires, the concession locks up; but this was also an experience without a regulatory agency, what it makes it difficult the conflict resolution between public and private interests. In Argentina, the criterion of the biggest payment of grant for the concession was adopted; the Government unilaterally reduced the values of the tolls, and the concessionaires had installed more toll plazas, leading to the manifestations of protest on the part of the population (Pires and Giambiagi, 2000).

Portugal followed the UK PPP programs: there are concession toll highways and the SCUT⁴ where the Government pays shadow tolls to the concessionaire. The main objective of the shadow tolls was to promote the regional or local development. The traffic flow in some regions, as at Porto city area, however, was underestimated; hence Portugal experiments a huge budget problem to pay the PPP private partner on the SCUTs.

⁴ SCUT means “Sem Cobrança dos Utentes” – without charging the users.

According to local experts, the mainly results of the Portuguese highways PPP program (Brasil, 2006) are:

- i) strong competitiveness with international players involved;
- ii) more than 1,300 km BOT contracts and more than six billion Euros to be invested;
- iii) risk transfer acceptable;
- iv) standards concepts used in other services and utilities – water, sewage, hospitals, prisons, railways and airports;
- v) development of expertise in local firms foster their entry in other markets.

Generally, Asia adopts the BOT model. The operation term varies from twenty-five to thirty years and then the road will come back to public administration.

As in India, there were legal and policy reforms to become easier to bring the private partner to the project. Indian PPP is under the National Highway Development Program, by National Highway Authority of India which design and implement the program.

The Indian Government is still improving its concession model, specially concerning about: tolling per kilometer and vehicle category; additional fee for overloaded vehicles; traffic risk mitigation by increasing in concession period; independent engineer with a clear role in monitoring PPP.

6.2. The Finnish PPP Case

In Finland, the concession of Muurla-Lohjanharju Highway was launched in 2005 and it is considered a benchmark. It links the urban centers and the southern coastline of Finland and the goal is to build the highway in two stages until 2015. The PPP model is based on quality levels measured by performance and road availability. Depend on both, the payment mechanisms defines the amount has to be paid by public sector to service provider. In this example, the availability is an important variable, since it was a road to be constructed – totally new. They have a traffic forecast upon

which they calculate the maintenance compensation – another share of the payment mechanisms, once toll is not charged in this road.

The traffic monitoring system has to be installed on the road and provide information between five and ten minutes to Finnish Road Administration - FINNRA system. Safety, environmental issues are regulated by references to specific rules. Quality issues are guarantee by an Activity and Quality Plan, still as part of the tender phase, where it will show what the service provider intend to do and the necessary procedures. This plan includes construction design; periodical maintenance and routine maintenance, based on the technical requirements previously provide by the Finnish responsible agency (FINNRA) in a Tender Invitation Document named “Technical Requirements”, similar as the Brazilian PER, but only with the project standards and enforcement rules.

Tender competition, however is completely different from the Brazilian process. The tender begins with an invitation to candidates to know the project and make presentations about their comments, and suggestions. After that there is a negotiation phase and then the bidders give their best and final offer for the PPP (FINNRA, 2005).

6.3. An Overview of the USA experience

The United States explore the highways by private partners and by the state governments, within a price-cap model (Pires and Giambiagi, 2000). The State of Florida will launch a PPP (median I-595) to be paid by the availability model (Orski, 2009).

The PPP highways are financing, in general, by the Transportation Infrastructure Finance and Innovation Act Program (TIFIA), private activity bonds, there is also State Infrastructure Banks (to be re-capitalized as a anti-crisis measure), and by the toll revenues (Orski, 2009).

There are, however, a huge range of concession models around the country: from direct operation by the states to a totally private business, where even the land is

private. Following the traditional American federalism, each state has its own rules to charge tolls, with different methods and technology.

Some have manual toll collection systems while in others toll plazas only accept credit cards or pre-paid toll cards. Some highways charge by the distance users passed through, others have a fixed toll rate based on the vehicle number of axles.

The remote charge technology requires a transponder on the vehicle filled with pre-pay credits. Differently from Brazil, there is no rent fee for those equipments, once they are used to increase the charging productivity, to warranty payments and to decrease concessionaire operation costs.

Despite the serious American financial crisis that has begun in 2008, experts believe that the highways PPP will play an important role to launch investments as a counter-cycle variable, given the economic recession, with increased public support to PPPs. On the other hand, the traffic and toll revenue have already decreased in 2009, but the private sector views this as a recession temporary phenomenon instead of a permanent trend and it considers highway PPPs as a good long term investment (Orski, 2009).

7. Challenges of the Regulatory Framework

7.1. What Is Missing in the New Concession Model?

Despite the improvements of the Brazilian road concession program, best practices exist and could be followed for further improvements of the concession contracts.

According to Guasch (2004, p.20):

“Good design includes the following concession contract elements:

- Concession contracts should be awarded competitively and designed to avoid ambiguities as much as possible. (...)

- Concession contracts should contain clauses committing governments to a policy of no renegotiation except in the case of well-defined triggers. They should stipulate the process for and level of adjustments. The contract should specify that the operators will be held to their submitted bids.” (...)
- Consideration should be given to making operators pay a significant fee for any renegotiation request. If the renegotiation is decided in the operator’s favor, the fee would be reimbursed.
- Detailed analysis of seemingly aggressive bids – or at least of the top two bids, particularly if they differ significantly – should be required before a concession is awarded. And if the financial viability of aggressive bids appears highly dubious, a mechanism should be in place to allow those bids to be disqualified or to increase the performance bond significantly in relation to the difference between the bids. In any case, operators should be required to post performance bonds of significant value.
- Claims for renegotiation should be reviewed as transparently as possible, possibly through external, professional panels to assist regulators and governments in their analysis and decision making. Any adjustments granted should be explained to the public as quickly as possible.”

Guasch recommendations seem to have been followed by the Brazilian Government, as the concession contracts of the second phase have the renegotiation clause in much more specific terms than in the first phase contracts. The regulation clause anticipates a revision each five years (as long as there will be no unexpected events). On the other hand, the third phase contracts forecast successive revisions by the time unforeseen works have to be done, by creating a new and parallel cash flow of that specific work. As stated before, this was a point of technical discussions, since the regulatory agency is foreseeing the difficulties to implement it. Besides, renegotiation is an agency internal process and the agency does not use to hire external consultants or even other agencies civil servants to help.

The definition of the economic-financial equilibrium has to be clarified; specially the one tied up with the IRR: the definition brings a misunderstanding between profit expectation and effective profits. The concessionaire must foresee the IRR to plan its investments, but it cannot be assured afterwards, otherwise it would be a business without risks (COPPEAD, w/d).

The quality measures approach of the third phase contracts is a regulatory improvement. On the other hand, the concessionaire has the obligation to inform ANTT, by periodical reports, about traffic flow. As there are some necessary works planned to be done when a determined traffic flow occurs, it will be necessary to the enforcement of the agency the foreseen of a direct link from the traffic counters to ANTT systems, as it was planned in the Finnish Highway example (FINNRA, 2005).

Furthermore, sometimes as Sunstein (1990) argues, overregulation produces “underregulation”. As an example of that, in order to guarantee the minimum standards of the pavement, the design specifies the model of the equipment which has to be used to measure its comfort level. Doing this, the regulation interferes with technological issues by imposing an equipment and do not allow the concessionaire to choose better and cheaper techniques. Furthermore, it can impose to the concessionaire to rent equipment supplied only by a few producers, creating an oligopoly or even a monopoly for this equipment market.

The risk allocation and the analysis of the factors that influences the Government decisions about it also need to be improved in the Brazilian concession model, mainly regarding to the traffic risk. See, for example:

“Each risk should be allocated, along with rights to make related decisions, so as to maximize total project value, taking account of each party’s ability to 1. Influence the corresponding risk factor. 2. Influence the sensitivity of total project value to the corresponding risk factor—for example, by anticipating or responding to the risk factor. 3. Absorb the risk.

This principle is in the spirit of advice to allocate a risk to those who can manage it best. The formulation is intended, however, to clarify what managing a risk entails and to specify a criterion—total project value—for assessing how well a risk is managed.” (Irwin, 2007, p.56)

As far as the regulatory risk, Government alleged that did not include it in the calculation of WACC, because the revision processes are predictable that decreases the information asymmetry, and by the fact this risk depends on the regulator actions. Since the regulatory agency is transparent and obeys the legislation, it becomes unnecessary to take into consideration.

As demonstrated before, the traffic risk remains a key-issue. There are concerns about overestimate traffic flow in the BR 116/324/BA proposal in order to claim for

renegotiations. The comparison is with the roads of the first phase, in which the real traffic flow is much lower than the bidders proposals, as well as in the ones of the second phase, whose winners toll rates are much smaller than the projected ones in the modeling of the Ministry of the Transports, by the optimism of their projections of traffic. What it is for backwards of these arguments is the bluff practice of the tender proposal, believing the regulatory agency cannot control the revision claims in order to raise the toll rate above of the proposal.

A tool that could be used by the Brazilian regulatory agencies is the “Regulatory Impact Analysis (“RIA”) that is prepared for economically significant regulations. Each RIA provides a rich source of data for examining the costs and benefits of regulation as well as the cost-effectiveness of selected regulations.” (Hahn and Sunstein, 2002, p. 21-22) This report is used at the American regulatory agencies, otherwise the majority is poorly filled, it can be a great source of data and analysis about the impacts of a regulatory rule. It is also an accountability tool, once allows the society to know what are the benefits and costs of every regulation proposal in a more objective way.

Alternative revenues⁵ are shared between the concessionaires and to the decreased of the tariffs, at revisions. The concessionaire can appropriate only the share of its costs of the business plus 15%. There was a suggestion to increase the share for 50% at the first year of exploitation of the alternative business, as an incentive to the concessionaire seek another revenue source and decrease the tariffs, but it became a pos- regulation issue.

Despite TCU suggested that ANTT adopted the value of the contract as the total required concession investments, in the proclamation it was calculated as total of the concessionaire revenues. Thus, the bigger demanded value as guarantee, the greater the barriers to the entrance of competitors in the tender.

⁵ Alternative revenues are earned by concessionaire from complementary business within the highway exploitation, but beyond the toll revenue. For example, revenues obtained by advertising on highway area or a road restaurant rent. However, there have been cases where advertisements are placed near curves with detrimental effect on road safety. Better enforcement by ANTT would prevent this and allows a smaller toll rate adjustment.

In Brazil, as the federal toll roads are not new construction, they have lots of access to cities located along the roads. Hence, there are many cities where the toll plaza divides blocks within the urban perimeter. This is an unsolved matter, so far treated by ANTT in specific analysis, allowing political influence.

The sequential bid⁶ is another important auction tool to promote competition. It was present at the first version of the third phase model, but the decision was not to use it. Furthermore, after the public hearing, the ABCR (Brazilian Road Concessionaires Association) suggestions about auction commercial proposals were accepted. This made the proposal impossible, once the tender judgment commission has to analyze the economic proposal, testing its consistency with the tender concession project. Then, just one proposal can be delivered in this kind of auction without sequential bids competition. It turns also effect less the compensation tariff mechanism to all the obligatory work includes in the project submitted with the commercial tender proposal.

Another aspect to be developed is about publishing concession data by ANTT. Investments, costs and revenues figures are available at the agency site, but they are expressed in each contract initial prices. The 2007 Annual Report was published in December 2008, without totals for the entire program: information is by concessionaire. The data from concessionaires must be obtained on line by ANTT, so the Annual Report would be a compilation of all the material already received.

Those are the main issues that yet need to be improved in the Brazilian road concession program.

7.2. Why Is It Missing?

In order to help to understand why some things are still missing in the Brazilian road concession program, it can be used the idea that in democracies, political decisions are taken within institutions, where individuals take collective

⁶ The sequential bid is an author free translation of “*leilão com repique*” to define an auction where the envelopes with economic proposals are opened at the Stock Exchange, and if there are 5% or less difference among the proposals, the auction continues with orally sequential bids.

decisions by specific rules, turning individual preferences into an unique collective choice.

Furthermore, the democratic ideal would be sovereign citizens and nation interest represented by politicians. As it is not the reality, the Theory of Public Choice named as Government failures: public administration inefficiency; institutional rigidity; politician party illegal financing; permitting lobby activity (Pereira, 2008).

The Brazilian public decision is not different from what Pereira (2008) described. In road concession program there are many interest groups involved, with distinct bargain power. Firstly, there are the potential tenders: they want to have the tender process as simple as possible, but they also expect to have an incomplete contract in order to ask for a renegotiation as soon as the contract has been signed. Second, there are the incumbent's concessionaires that try to win the new tender and also protect their contractor business⁷. Third, there are the users of the road – generally with no voice, with exception of truckers and owners of big transportation companies. And there is the Government, represented by few agencies and their own large range interests: from maintenance of decision power, through captured agencies⁸ until accountability by the local voters.

However, regulation was posed by some market failure and deregulation would not make it disappear (Stiglitz, 2003). The decision must consider each institutional structure before put in place – the market failure can be bigger than the Government one.

Besides, it is always difficult for governments to implement policies and reforms where people do not believe in government ability to solve problems (Pereira, 2008).

⁷ It is important to highlight that there is a concessionaire holding – CCR – that controls eight concessionaires of federal and state roads, besides the 10% participation in the Denver Northwest Parkway, in the USA, in a consortium with the Portuguese Brisa, which has 17,9% of CCR; joined by two largest Brazilian contractors – Andrade Gutierrez (17,7%) and Camargo Correa (17,9%). The remaining 28,6% are from the stockholders, once CCR is listed on the “New Market” of São Paulo Stock Exchange (BOVESPA). (www.groupccr.com)

⁸ Stiglitz (2003) pointed out that is difficult an industry captures an agency determining what would be its decisions, but it is easy to influence them.

“Yet despite the complaints of economists and others about the social cost of various regulations and programs, policies with high social cost would not survive competition among pressure groups unless those benefiting were exceedingly powerful politically.” (Becker, 1988, p.95)

The flexible determination about where to build the toll cabins represents an example of it, because there are, unless, two powerful interests groups in this dispute: the concessionaire that wants to maximize its profits by installing the cabins where the traffic flow is maximum; and the local community, represented by the local politicians, that does not want to pay tolls to cross its city. Besides, if someone tries to close the cities access to the highways, it would represent a battle among federal, state and local politicians, and no-one would want this.

Explaining the necessity to improve the use of Cost-benefits analysis into the American regulation process the authors affirm: “Either way, we believe that accountability and transparency would be enhanced if the head of an agency were required to explain why a regulation is being adopted.” (Hahn and Sunstein, 2002, p.6)

Transparency and accountability are governance issues that are continuously improving in the Brazilian public sector, but to go even better, organizational and bureaucratic cultures must be changed. Then,

“To make the process truly effective, however, greater congressional support will probably be required. This support will only come if the public sees a need for greater transparency and accountability in the regulatory process. The reality is that most of the public is (usually rationally) uninformed on many regulatory issues, including the issue of regulatory oversight. And legislators do not typically have a strong incentive to support regulatory reforms that promote accountability. Indeed, many members of Congress seem to prefer to pass laws and regulations that give the appearance of fixing the problem—leaving it to the executive and the judiciary to sort out implementation.” (Hahn and Sunstein, 2002, p.45)

Cultural problems often affect the acceptance of new ideas. Some rules are imposed by the fear that new non regulated variables lead to an “out-of-control concession” by the regulatory agency. Also there is concern about new rules to thwart the auction with no bidders in the process.

“While new entrants are eager to enter the market, they may not be trustworthy enough given their past experiences.” (Estache and Iimi, Dec. 2008, p.16). The Spanish company (Obrascon Huarte Lain Brasil S.A. – OHL Brasil) that surprised everyone in the second phase winning five of the seven auctions is still being seen as an out comer by public agents. It also explains the public works vision of the ANTT as an inheritance of DNER.

For a sample of road public works (not concessions) within thirty-one months of average project duration, Estache and Iimi points out that:

“Infrastructure procurement is still a challenging task for developing country governments. The limited degree of competition remains among the major concerns (...). A fundamental problem for auctioneers, namely executing agencies, is how to contain government procurement costs while ensuring the good quality of public work would be delivered. Even though the competitive bidding is now commonly required in the public procurement systems, participants are often limited because infrastructure projects tend to be highly valuable, complex and customized.” (Estache and Iimi, Dec. 2008, p.2)

That is the ANTT dilemma to argue and do not allowed sequentially bids in a road auction, in the same way DNER used to argue in the past: the bidders must be qualified through engineering and financial prerequisites before are able to participate in an auction. In this context, the auction will never be a perfect competitive tool.

The entry auction costs will always be high, since firms have to prepare documents to prove they can afford the high quality requirements'. Hence, just a little number of firms will be in condition to expand a huge amount in advance for those pre-auction costs, and, consequently, the competition becomes narrow (Estache and Iimi, Dec. 2008, p.14). Once again, the overregulation causes less competition and increase the expectation that no-one enters in the auction process.

About risks, Government bureaucracy has to try to persuade the policy makers in a better way to minimize conflicts between the agencies beliefs, but it is not easy when the political schedule pressures the technical one. In the third concession phase there was no more time to technical debates and, as was showed, it was launched before the second concession phase model has been proved efficient or showed its failures.

7.3. What Is the Meaning of the Improvements in the Regulatory Process?

The establishment of the regulatory agency was the greatest gain to the regulatory process of the road concessions in Brazil. The Government tries to hire specialists to regulate the sector.

“If the intent of public policies were fully known, I am confident that the public sector would be revealed to be a far more efficient producer and redistributors than is popularly believed.” (Becker, 1988, p.95)

Guasch (2004) highlights that infrastructure sector has investments characterized by “sunk costs”. Those costs difficult firms to leave the market, making easier for Governments to have opportunistic behaviors, breaking the contracts, mainly on election time. These happened at the first phase concession, in the roads delegated to the states, where the toll rates were not adjusted as set in the contract. Some of those roads were returned to Federal Government, as the ones from Rio Grande do Sul. The improvements at the concessions contracts, on the second and third phases, however, bring security clauses to the private sector, once they are more transparent and its easier to the regulatory agency monitors them.

Those tender concerns are related with governance concerns:

“Because road concessions have monopolistic features, good governance in managing them is essential to ensure that the private sector’s involvement yields the maximum benefit for the public. Good governance in this case requires (i) competitively selecting the strategic private investor, (ii) properly disclosing relevant information to the public, and (iii) having a regulatory entity oversee the contractual agreements over the life of the concession.” (Queiroz and Izaguirre, p.8, 2009).

In addition, the regulatory agency has another trade-off: it wants to foster competition, by attracting lots of bidders, but it only knows the quality of services provided by the contractors with whom they have already dealt with. Then, there is a probability this experience dictate the standards and the same contractors join the tender.

“Other than the backlog variables, it is found that larger road projects would attract fewer bidders. It is because firms that can undertake large-

scale projects are limited due to their (...). It is also because auctioneers have a propensity to put more emphasis on bidders' technical capabilities and past experiences when contracting out a large project. Thus, the probability that an auctioneer disqualifies an applicant would increase with the size of contract holding everything else constant." (Estache and Iimi, Dec. 2008, p.14)

Actually, the regulatory agency is not an autonomous body for the Federal Government, with its directors appointed by the Head of Executive power, do not have enough staff to oversee all aspects required. Besides, there is the asymmetry of information, natural on regulatory activity, which can lead to its capture by private agents. In this case, the weakest link is the users who do not have representatives organized, neither the arbitration commissions of the first phase contracts, that never became effective⁹, not only by the difficulty in electing their representatives (car load, car ride, frequent users, neighbors of toll plazas, etc.), but also by the inability and lack of interest of the public administration to promote this institution.

Then, the acceptance of an arbitration process due by an international and independent agency represents an improvement to the regulatory framework, since the arbitration commissions present in the first concession phase contracts are never been installed, and in the second phase contracts the ANTT is the last administrative instance before a judicial suit.

Estache and Iimi (Set. 2008) point out the governance indices from the Worldwide Governance Research Indicators: i) voice and accountability; ii) political stability; iii) government effectiveness; iv) regulatory quality; v) rule of law; and vi) control of corruption.

In Brazil, the political stability is guaranteed; laws and contracts are respected; the establishment of specialized agencies to control corruption has been succeeded. There are lots of programs to improve the Government effectiveness. In this federal road example, the regulatory framework can be better, but it has to take in account that is a brand new activity. Perhaps, voice and accountability are the two weakest variables

⁹ There is an example in the CONCEPA where the design and formation of a committee of users was done by initiative of the concessionaire itself.

for Brazilian road governance, because, despite the transparency has increased with the ANTT advent, the Brazilian public sector culture has yet to learn about both.

Also it is important to point out that:

“Full disclosure of concession agreements, an indication of good governance, helps ensure that the users know what to expect from the facility under concession, thus increasing transparency in the role of the regulator. Nevertheless, not all concession contracts are open to public scrutiny. (...) For example, in 2001 Brazil established the National Agency for Land Transport, which, inter alia, monitors federal road concessions.” (Queiroz and Izaguirre, p.8-9, 2009)

The introduction of the auction process was a governance factor which has been improved since the second phase. The opening of envelopes at and by BOVESPA rules brings more transparency and publicity to the process. The shared control of the process among the CND Ministers put the road concessions to the priorities of Federal Government growth debate.

The definition of the terms to the revision processes and the more detailed events for who can claim represent an improvement at the transparency of the concession contract. It makes easy the regulatory agency works, once it has written the events the concessionaires can or cannot claim for a revision program. At the first phase contracts, concessionaires can claim revisions for each event they imagine can cause a n economic-financial disequilibrium.

The third phase contract risk clauses are also more detailed (by who can bare the risk), so it turns either more transparency and enforceable by the regulatory agency.

Otherwise, about risk challenges:

“Regulatory risk is often cited as a problem experienced by private infrastructure companies in implementing agreed-upon tariff increases due to regulatory action or inaction. This has been an issue particularly in countries suffering from macroeconomic shocks where the contractually agreed increases would have been very large. Regulations for infrastructure projects are often included in concession or other key contracts between a government and a private company (so-called regulation by contract). In countries with a nascent regulatory framework and a regulatory agency without a track record, the government may opt to provide contractual certainty to regulations to attract private investment. When these regulations are defined contractually, the regulatory risk may be mitigated

using a partial risk guarantee (PRG), which could cover the government's contractual obligations, or by a breach of contract policy under political risk insurance (PRI)." (Matsukawa and Habeck, 2007, p.7)

The forecast of resetting to be done on the basis of the real traffic is only reasonable if would be had traffic counters by homogeneous section, sending information directly to the regulatory agency system, without possibility of any manipulation on the part of the concessionaire. That is the same for the second phase model, similar to the UK "Active Traffic Management" payment mechanisms are broadly an evolution of the availability payment mechanisms which aim to take the alignment of the Concessionaires' financial interests with the State's primary transport objectives one step further. The "Active Traffic Management" payment mechanism bases the level of payments from the State to the Concessionaire not only on a road being open and available for use, but on the road delivering a specified standard of transport service or performance. "Active Traffic Management" mechanisms link Service Payments to the level of congestion.

The ANTT hold forth the concession model with marginal cash flows for new events represents the elimination of the risks of the concession for the concessionaire. The risk that was precified in the tender proposal would be transfer to the user. This risk, which in current contracts in validity in the ANTT, is imputed to the concessionaire. Currently, when a frustration in the projections of traffic occurs, the concessionaire is remunerated by an inferior value from one of its toll rate proposal. On the other hand, in case that the real traffic is bigger than the traffic of proposal, the concessionaire gains the profits of this addition of demand beyond the projections. This is the risk concept for ANTT (ANTT, 2008).

Connected with traffic risk, the second phase contracts establish that concessionaire can propose auxiliary cabins tolls to close some undesirable road exit. In the third phase, however, there is nothing about it. This is a step in the right direction, since the liberty to propose auxiliary cabins goes against the road concession paradigm: to concession open built highways as they are and with the previous inspection of the tenders, instead of a close highway with controlled exits.

As suggested by Hahn and Sunstein (2002, p.25): “Agencies should post each regulatory impact analysis and supporting documents on the Internet before a draft proposed or final regulation can be considered in the regulatory review process”.

ANTT already do public hearings and post the supporting documents on the Internet, however the cost-benefits analysis is not common, and not even is an obligation by the Brazilian law. Otherwise, it just works on American model because it is linking with the budget appropriation process. If there is no cost-benefit analysis it will be no budget endowments for the planned actions of the agencies. As Becker (1988, p.97) highlights: “Consequently, the analysis implies that regulations and other public programs are moderated by their social cost in any political system, no matter how totalitarian, where groups lobby for political influence.”

This behavior can impact concessionaire obligations demanded by regulatory agency. In thirteen years of the federal road concession program, the Brazilian Government has tried to better specify the minimum quality standards to improve the reliability of this public service and to establish a more transparent public-private partnership, by diminishing regulatory risk and asymmetric information sources.

According to Viscusi (1997, p.310): “Regulatory agency may specify minimum standards will be reliability the service.”, and it was what the Government try to improve in these 13 years of concession of the federal highways - the minimum parameters of quality demanded to facilitate monitoring and regulation of the services. More transparency in the public-private relationship helps to reduce the regulation risk and the necessary information to the accompaniment of contracts, minimizing the occurrence of asymmetry of information. Also with the standardization of the countable demonstrations of the concessionaires, on the part of the ANTT with aid of the World Bank those aims are being attained.

The homogeneous regulatory accounting allows the regulatory agency to have the relevant information to monitor the concessionaire financial reports and performance.

On the other hand, the new contracts, based upon quality parameters require less cost data and more field investigation, however the contracts of the first phase still demand the quantities and costs data that are subject to a great asymmetry of information. The third phase PER references official and international rules and standards to be accomplished by the concessionaires, in the same way of the Finland example.

As long as the regulated variables have changed within the concession program developing, it contributes to the tendency of decreasing regulatory risk.

The contracts of first phase are almost impossible to be monitored once the regulated variables are engineering works inputs, measured by their quantities and unitary costs. Only if the regulatory agency had an agent by each work, twenty-four hours a day, it could certificate the used quantities. Even so, the risk of the agent capture by the concessionaire would extremely increase.

Consequently, the service level and quality parameters approach makes easier the monitoring task, once the regulatory agency can do it by periodic inspections, making quality tests to prove the existence of the required minimal standards.

Other key variable is the public admission tests to select the agency civil servants. This law obligation helps to hire interesting specialists to work with regulation issues and to reduce the regulatory capture risk. The ideal, however, is to have specialists by issues and not by concessionaire. This has also got better with the establishment of ANTT, because only the local monitors are fixed, but at the agency head quarter the work division is by means of transport (highways, railways and inter-states buses) and the economic analysis is in charge of a different division. Even so, seems important that people can have the notion of the entire organization, learn about the work of several divisions in order to realize that the Agency mission is to regulate the land transport sector and not only to approve public works.

8. Conclusion

To sum up: the Brazilian Program of Concessions of Federal Highways began by the initiative of the Ministry of Transport, in 1995, with the concession of five roads under Federal Procurement Law (first phase concession). Those contracts focus was engineering works, with obligations about input quantities for investments and costs. By that time, there was no regulatory agency to this sector, but the DNER which had many incompatible roles. Then, the Federal Government decided to bring highways to the National Privatization Program, under the Federal Privatizations Law, in order to make the process more transparent, within its priority projects, tied up with macroeconomics policy.

Although the studies for modeling and concede the second phase concession roads started in 1998, the auction of the seven roads included in the second phase only took place in 2007, already with the participation of the ANTT, established at the end of 2001. The new design of contracts has many more regulatory clauses, based upon the regulatory agency experience to monitor the first phase concession contracts and its difficulties. They have quality standards to be achieved instead of quantities to be measured.

The third concession phase was launched within a new context: the BNDES, which had done, by IFC partnership, the PPP design of BR 116/324 – BA (which became a concession later) assumed the responsibility for the third phase concessions, adopting the PPP analysis. The auction of the BR 116/324 – BA occurred in February 2009, while the bidding documents and contracts of the third phase road went to public hearing in November 2008. Both processes have begun before the second phase contracts started to charge tolls. The third concession phase is much likely to succeed as it includes best international practices on road concessions, more transparent risk sharing, governance concerns and sound regulatory clauses.

It is important to emphasize that there were tough economic and political decisions made along the process. As the political timing is diverse from the technical one, sometimes conflicts had to be solved for the road concessions program to continue. In this decision making process, the pressure of interest groups are determinant to the

policy choice, and it is reflected in the improvements and drawbacks of the concession design, as demonstrated along the paper, under the Theory of Public Choice assumptions:

“Until the basic logic of political life is developed, reformers will be ill-equipped to use the state for their reforms, and victims of the pervasive use of the state’s support of special groups will be helpless to protect themselves. Economists should quickly establish the license of practice on the rational theory of political behavior.” (Stigler,1988, p. 228)

However, despite the maintenance service/exploration of highways being a monopoly market, and the fact that the regulatory framework is very recent, the Program of Concessions of Federal Highways has succeeded by improving the condition of the concession roads; searching a fair toll rate for users and concessionaires; promoting innovation in the management of the sector; and stimulating the economic development of the regions near the concession roads. Furthermore, there is an effort to continue trying to improve the regulatory efficacy by a fairer transfer of the costs and risks among the concessionaires, the public sector and the users, so society can benefit of improved quality services.

Also, the Brazilian Government concerns about foster market competition and has realized that good governance is a key variable to stimulate it, by setting clear rules and laws, demonstrating political stability, and enforcing the agreements between the public and private sectors.

But the Brazilian Program of Concessions of Federal Highways has to get better. Pires and Giambiagi (2000) draw some lessons of the international experience, that can be used into the Brazilian model: adoption of simple criteria in the tenders, to reduce the occurrence of conflicts and to increase transparency; contracts of concession with fair distribution of risks, flexible clauses and with transfer of productivity gains for the users; besides, rules well defined and clear at the moment of the concession, and concerning about the definition of the attributions of the regulatory agency.

Certainly, there are so many contributions and this paper highlighted some of them. Perhaps, adopting the “Active Traffic Management” payment mechanisms can represent an improvement, since it focuses on the quality and standard of the service outputs from the road (i.e. standard of transport service), rather than on the quality and

standard of the input to the transport services (i.e. the road availability), like in the UK experience. Besides, the Government should allow (even if necessary, changing the law) to increase the concessionaire share of alternative revenues from 15% plus costs to 50% to the concessionaire, in the first year when it will be gained, to stimulate its capitation that leads to reduction of toll rates, within safety regulation concerns as well.

In order to give some objective evaluation of regulations, it can be adopted a cost-benefit analysis, as a regulatory tool that can improve the accountability of the regulatory agency. See, for example:

“Interest groups often manipulate policy in their preferred directions, sometimes by exaggerating risks, sometimes by minimizing them, and sometimes by mobilizing public sentiment in their preferred directions. An effort to produce a fair accounting of actual dangers should help to diminish the danger of interest-group manipulation. More generally, cost-benefit analysis should increase the likelihood that citizens generally, and officials in particular, will be informed of what is actually at stake. By itself, this is a large democratic gain.” (Hahn and Sunstein, 2002, p. 12).

It would be recommended that Brazil adopted the international definition of PPP in order to become easier to foreign investors to understand the contracts and their conditions, and, consequently, to invest more in the Brazilian highway concessions. The international concept of PPP refers to any project that has private and public sectors doing business in a long term project. “Government support is justified when an economically feasible project does not offer, without such support, the financial benefits required to attract private sponsors. The mixing of public and private funding to get projects completed is a way to leverage scarce public resources, not just replace them.” (Queiroz and Izaguirre, p. 6, 2009). Thereafter, the PPP definition would include the actual named concessions, which would be a kind of PPP.

However, this concept unification is not simple: it must have to pass a new legislation changing the concession and PPP law to state that a PPP project begins with studies as it would be a concession (as defined nowadays), and only if this project will not be financially feasible to attract private investors in its own merits, then the Government could analyze the possibility to extend public resources to the project through a public-private partnership.

Concluding, in general, the Brazilian Government has tried to do better contracts to reduce regulation distortions caused by asymmetric information. The regulatory agency has to be capable to monitor all the variables set on the contracts, and to penalize the concessionaire when it does not reach the minimum standards, so the concessions can be more efficient. More efficient road concessions mean decrease of transportation costs; increase in budget allocation to other State typical activities; more transparent public-private relationship – a way to improve economic development and social welfare.

REFERENCES:

ABCR – Associação Brasileira das Concessionárias de Rodovias. ABCR 2006 Annual Report. São Paulo: ABCR, 2006. (www.abcr.org.br)

ANTT - Agência Nacional de Transportes Terrestres. NOTA TÉCNICA Nº 066/GEREX/2008. Brasília: ANTT. 2008

AMORELLI, Lara Caracciolo. **As Rodovias Federais e o Programa Nacional de Desestatização**. Anais do Seminário ABCR, 2001.

BECKER, Gary. Public Policies, Pressure Groups, and Dead Weight Costs. In: STIGLER, George J. (ed). **Chicago Studies in Political Economy**. Chicago: The University of Chicago Press, 1988. p.85-105

BRASIL. Ministério do Planejamento, Orçamento e Gestão. Secretaria de Gestão. **Parcerias Público-Privadas: lições portuguesas para o Brasil**. Elaborado por Andre Bobroff, Lara Caracciolo Amorelli et alli. Brasília: MP, 2006. (www.planejamento.gov.br/secretarias/upload/Arquivos/seges/euro_brasil/publicacoes/080116_PUB_PPP.pdf)

BRASIL. Agência Nacional de Transportes Terrestres. **2002-2006: Aspectos de Transformação**. Brasília: ANTT, 2007. (www.antt.gov.br)

CASTELAR, Armando; GIAMBIAGI, Fabio. Os Antecedentes Macroeconômicos e a Estrutura Institucional da Privatização no Brasil. In: CASTELAR, Armando; FUKASAKU, Kiichiro.(Eds.). **A Privatização no Brasil: o caso dos serviços de utilidade pública**. Rio de Janeiro: BNDES, 2000. p. 13-43.

CASTRO, Newton. Privatização do Setor de Transportes no Brasil. In: CASTELAR, Armando; FUKASAKU, Kiichiro.(Eds.). **A Privatização no Brasil: o caso dos serviços de utilidade pública**. Rio de Janeiro: BNDES, 2000. p. 221-277.

CECHIN, Maria Elizabeth; AMORELLI, Lara Caracciolo. **Programa Nacional de Desestatização (PND): princípios, resultados e benefícios – 1995-98**. Brasília,1999. (workig paper)

COPPEAD. **Revisão Tarifária Quinquenal da Concessionária Opportrans S.A. Relatório Final**. Rio de Janeiro: UFRJ. w/d

ESTACHE, Antonio and IIMI, Atsushi. **Joint Bidding, Governance and Public Procurement Costs: a case of road projects**. Washington: The World Bank. September, 2008.

ESTACHE, Antonio and IIMI, Atsushi. **Bidder's Entry and Auctioneer's Rejection: applying a double selection model to road procurement auctions**. Washington: The World Bank. December, 2008.

FAYARD, Alain. **Analysis of Highway Concession in Europe**. Conference on Highways: cost and regulation in Europe. University of Bergamo, 2004. Available in: <http://dinamico2.unibg.it/highways/paper/FAYARD.pdf>

FINNRA – Finnish Road Administration. E 18 Muurla-Lohjanharju Project. Helsinki, 2005. (for more information also see: <http://alk.tiehallinto.fi/e18/english/index.html>)

GAUTHIER, Nicolas. **Toll Concessions and PPPs: The French Experience**. Freeway and Tolling Operations in the Americas. Houston, May 20-23, 2007. Available in: <http://tti.tamu.edu/conferences/ftoa/program/presentations/Gauthier.pdf>

GOMES, José Augusto dos Reis. **BR 163: Uma nova perspectiva para a concessão de rodovias**. Brasília: CAPES, 2004 (working paper)

GUASCH, J. Luis. **Granting and Renegotiating Infrastructure Concessions: doing it right**. Washington, D.C.: The World Bank, 2004.

HAHN, Robert W. and SUNSTEIN, Cass R. **A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis**. AEI-BROOKINGS Joint Center for Regulatory Studies, March 2002. Working Paper 02-4. Also available at www.aei.brookings.org

IRWIN, Timothy C.. **Government Guarantees: allocating and valuing risk in privately financed infrastructure projects**. Washington, DC: The World Bank, 2007.

JOHNSON, Bruce Baner et al. **Serviços Públicos no Brasil: mudanças e perspectivas**. São Paulo: Edgard Blücher, 1996.

MATSUKAWA, Tomoko and HABECK, Odo. **Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments**. Washington: The World Bank, 2007. (Trends and Policy options, n. 4)

NESTOR, Stilpon; MAHBOOBI, Ladan. Privatização dos Serviços Públicos: a experiência da OCDE. In: CASTELAR, Armando; FUKASAKU, Kiichiro.(Eds.). **A Privatização no Brasil: o caso dos serviços de utilidade pública** Rio de Janeiro: BNDES, 2000. p. 103-144.

ORSKI, C. Kenneth (ed.). The Prospects for Public/Private Partnerships in a Changing Market/Political Environment. In: **Innovation Briefs**. v. 20, n. 4, 16 Mar 2009. in: <http://www.innobriefs.com>

PELTZMAN, Sam. Toward a More General Theory of Regulation. In: STIGLER, George J. (ed). **Chicago Studies in Political Economy**. Chicago: The University of Chicago Press, 1988. p.234-266

PEREIRA, Paulo Trigo. **A teoria da Escolha Pública (public choice): uma abordagem neo-liberal?** in: <http://pascal.iseg.utl.pt/~ppereira/docs/analoc6.pdf> , acess in Oct. 6, 2008

PIRES, José Claudio Linhares e GIAMBIAGI, Fabio. **Retorno dos Investimentos Privados em Contextos de Incerteza: uma proposta de mudança do mecanismo de concessão de rodovias no Brasil.** Rio de Janeiro: BNDES, 2000. (Textos para Discussão n.81) (www.bndes.gov.br/conhecimento/td./Td-81.pdf)

QUEIROZ, Cesar and IZAGUIRRE, Ada Karina. **Road Concessions and Government Support: trends in transition and developing economies.** Paper presented at the TRB 88th Annual Meeting. January 11-15, 2009, Washington, D.C., USA <http://pubsindex.trb.org/document/view/default.asp?lbid=880575>

STIGLER, George J. The Theory of Economic Regulation. In: STIGLER, George J. (ed). **Chicago Studies in Political Economy.** Chicago: The University of Chicago Press, 1988. p.106-115

STIGLITZ, Joseph E. Regulation Run Amok. chapter 4, *The Roaring Nineties* (2003), pp. 87-114

SUNSTEIN, Cass R. **Paradoxes of the Regulatory State.** The University of Chicago Law Review, Vol. 57, No. 2, Administering the Administrative State. (Spring, 1990), pp. 407-441.

VISCUSI, W. Kip; VERNON, John M.; HARRINGTON Jr., Joseph E. **Economics of regulation and antitrust.** The MIT Press Cambridge, Massachusetts, 2nd edition, 1997. 3rd. printing

WORLD BANK GROUP. **Toll Roads and Concessions.** In: Roads & Highways: Toll Roads. Available on www.worldbank.org/transport/roads/toll_rds.htm