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THE FOURTH GENERATION OF ROAD CONCESSIONS IN COLOMBIA AND THE NEW PPP LEGAL MODEL: WHAT HAVE WE LEARNT FROM OVER-RENEGOTIATION AND OVER-LITIGATION TRENDS?

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Artículo de reflexión

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Abstract

This document analyzes and assesses the new PPP legal model adopted in Colombia in 2012 using the framework of the governmental program Fourth Generation of Road Concessions (4G). The principal objective is to establish whether the new model responds to or reflects the principal criticisms, problems, risks and recommendations collected throughout 20 years of concession experiences and disclosed in economic studies. Such concerns are mainly dominated by costly and increasing renegotiations, delays in the provision of roads, high rates of litigation and a cumulative gap in transport infrastructures. This paper uses economic theories such as the principal-agent problem and game theory to expose the solutions to previous mistakes presented in the new PPP model and reveal the potential risks that remain for the model in relation to implementation that could lead to the failure of the 4G Program. Overall, it aims to provide recommendations for the minimization of misleading information and the breaking down of a transcendental central government program of public works provision for the competitiveness of Colombia.

Key words: Public-private partnerships, PPP, Ps3, concessions, renegotiations, public procurement, principal-agent problem, game theory, transport infrastructure, incomplete contracts.

La cuarta generación de concesiones en Colombia y el nuevo modelo de APP: ¿qué hemos aprendido sobre las múltiples renegociaciones y la alta litigiosidad?

Resumen

Este documento analiza y evalúa el nuevo modelo legal de app adoptado en Colombia en el año 2012, a partir del Programa "Cuarta Generación del Concesiones" (4G). El principal objetivo es establecer si el nuevo modelo responde o acoge las principales críticas, problemas, riesgos y recomendaciones recolectadas en los distintos estudios y análisis económicos, durante 20 años de experiencia en concesiones. Las principales preocupaciones están principalmente relacionadas con el número creciente de renegociaciones, entregas tardías de las carreteras, alta litigiosidad y una brecha en el desarrollo de la infraestructura de transporte. Este documento utiliza teorías económicas, como el problema de agencia y la teoría de juegos, para exponer las soluciones adoptados en el nuevo modelo de APPs, a los errores identificados . Adicionalmente, el texto revela los riesgos potenciales que persisten en éste y representan un potencial fracaso del Programa 4G. En general, el texto pretende proveer recomendaciones para minimizar los problemas de información y el colapso de una política pública trascendental para la provisión de obras y la competitividad del país.

Palabras claves: Asociaciones público privadas, APP, concesiones, renegociación, licitación pública, teoría de juegos, infraestructura de transporte, contratos incompletos.

The fourth generation of road concessions in Colombia and the new PPP legal model: What have we learnt from over-renegotiation and over-litigation trends?*

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SUMMARY

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Introduction

[I]n all public spending, behind the apparent good there is an evil more difficult to discern. [...] I should like to get my reader into the habit of seeing the one and the other and of taking account of both.

Frédéric Bastiat (1948)

Public-private partnerships (henceforth PPPs) are a trending topic in Colombia today. Indeed it is difficult to open a journal, listen to prospective politician, or scan a policy statement about public sector planning without finding a reference to it.

A consequence of this expanding interest is that serious research attention should be given to the Colombian PPP model and, more specifically, its regulatory framework, institutional arrangements, standard contract conditions, and selection and evaluation of projects. This will facilitate a better understanding of PPPs in Colombia and allow for the identification of conditions that will make them safer and more efficient and effective instruments of economic and social development.

There is nothing new about mixing public-private collaboration in order to provide or organize public services, although the supporters and enthusiasts of PPP in Colombia may state otherwise. As this dissertation shows, the supposedly new PPP model falls far from representing legal innovation in Colombia. This new model could bring some institutional changes and regulatory adjustments, but its foundation cannot be disconnected from two decades of experience with concessions.

It must also be clarified that this thesis is not concerned with whether the PPP model is a more appropriate, effective or legitimate method of public procurement when compared to traditional methods of public procurement, like public works contracts. Nor does it detail the efficiency gains that PPP arrangements can bring over traditional forms of procurement. However, it is recognized herein that international evaluations of PPP arrangements have, in reality, delivered contradictory evidence as to their effectiveness. The citizens paying for these projects thus face considerable uncertainty (Hodge & Greve, 2010).

This analysis starts with the Colombian government's implementation of a PPP model with its Fourth Generation of Road Concessions in Colombia (henceforth 4G Program), a public program estimated to be worth more than 24 billion US dollars (47 billion Colombian pesos) in investment in road infrastructure. It is to be executed over a period of eight years after its procurement, and the operation and maintenance of the infrastructure will occur at periods of between 25 and 30 years, according to official data (CONPES 3760/2013).[2] In essence, PPP is a new and increasingly popular method

2. CONPES 3760 of 2013.

of public procurement in Colombia that will remain central to government policy across the country in the short, medium and long term.

This paper also departs from the importance of infrastructure for sustained economic growth and poverty alleviation in developing countries, in particular for Colombia, because roads constitute the most important component of the transport infrastructure network and thus represent an important piece in the development puzzle (Nieto-Parra, Olivera & Tibocha, 2013).

Also departs from a standard and broad definition off PPPs as "cooperation of some sort of durability between public and private actors in which they jointly develop products and services and share risks, costs, and resources, which are connected with these products" (Hodge & Greve, 2007).

Once again, the need to truly understand the implications of the PPP model according to previous experiences of renegotiations and high rates of litigation in concessions is crucial. Several economic studies conducted by World Bank consultant and PhD professor José Luis Guasch, as well as OECD papers, provide evidence that renegotiation has played a pervasive role in Colombian concessions. According to their calculations, in 25 road concessions applied in Colombia since 1992, "there have been 430 contract changes representing fiscal costs worth USD 5.6 billion and 131 years of additional concession term. These have also added around 1000 km of road to concessions contracts. On average, each concession contract has been changed around twice a year." (Bitran, Nieto-Parra & Robledo, 2013)

In this context, concessions contracts represents the procurement of public works or services, where the execution of those are subject to specific requirements defined in the terms of the contract, and the consideration of which consists in the right to exploit the works or services that implies the transfer to the concessionaire of an operating risk of economic nature.

However, as the OECD states, renegotiation is to be expected in any concession due to their longevity, irreversible investments and difficulties in foreseeing and considering all contingencies (Bitran, Nieto-Parra & Robledo, 2013). The nature of incomplete contracts fosters renegotiation and the endogenous effect of PPP agreements. These questions must be discussed in order to distinguish between desirable renegotiations and opportunistic/undesirable renegotiations.

Equally, this paper does not seek to provide a guide for designing or implementing PPPs; this is the duty of the public domain and multilateral organizations, consultants and international advisors. Instead, it comprehensively explains and assesses the economic issues involved in the complex relationship between public bodies and the private sector.

This paper aims, therefore, to open a discussion about the implementation of the PPP model in Colombia by asking, has Colombia fixed what went wrong?

The basic scientific methods of analysis and synthesis are used, alongside statistical, comparative, inductive and deductive methodologies. The analysis is also based on personal experience and direct knowledge of the organizational procedures and internal practices of the National Agency of Infrastructure (henceforth ANI), given that the author worked as a public servant in the transport and infrastructure sector from 2012 to 2014.

The document is organized as follows. Section I explains the Colombian context and includes a description of Colombia's history of concessions, as well as presenting relevant data about the economic dimensions of the 4G Program. It explains the main findings regarding the failures and problems of the three previous generations of concessions.

Section II contains a legal study of the Colombian PPP model adopted in 2012. Following the main discoveries of professor Francois Lichère's Report of the XVIII Congress of the International Academy of Comparative Law, it describes the PPP model introduced in the legal system. This section aims to answer some of the questions proposed by Professor Lichère in his Report: Is the PPP model a real legal novelty in the Colombian legal system? What does the new legal PPP model imply in terms of changing administrative law practices? What are the consequences of distinguishing, if possible, traditional public procurement, such as concessions and public works contracts, from the PPP model (award procedure and contract)? Is the PPP model an evolution, and to what extent, of traditional public procurement in terms of legal techniques and capturing needs and experience? This section follows the order, titles and subtopics used in Lichère's questionnaire: i) legal concept, ii) award procedure, iii) performance and iv) termination.

Section III contains an economic analysis of the PPP model in Colombia. It assesses the magnitude of regulatory and institutional reform, project preparation and contract design in correcting or amending previous failures, mitigating risk and reducing or weakening opportunistic behaviors among the parties in the contract. It presents a positive analysis that describes and highlights the big achievements of the 4G Program and the weaknesses that remain, making the reform narrow and limited and its implementation risky.

Section IV concludes with a summary of the results of the analysis and recommendations.

This document aims to serve lawyers and public servants in the better understanding of the economic logic and business cycles of the PPP model. Any PPP contract contains a delicate and fragile balance between private interests and public interests, while a scheme of incentives must be preserved. However, a PPP is also a long-term dynamic process that must be adapted and adjusted to guarantee efficacy and the efficient provision of public works and services. Most importantly, private rent-seeking interests, political interests and corruption must be avoided in all PPP contracts.

As both history and economic studies attest, despite 20 years of experience in road infrastructure concessions, Colombia's diagnostics, planning, institutional arrangements and international and private consultancy investments could fail again. The odds must be changed to favor success.

I. THE COLOMBIAN CONTEXT: FOURTH GENERATION OF ROAD CONCESSIONS

There exists a high demand for infrastructure in Colombia due to growing city populations and industrialization far from the ports where imports and exports happen, thus increasing the need for integration into global supply chains and directly impacting upon the competitiveness of the country. The transport costs of moving cargo through the country are sometimes higher than international shipments costs for some transatlantic journeys.[3]

The country has used road concession contracts for the providing of roads for more than 20 years. An analysis of this process throughout the years shows that concessions are characterized by persistent cost overruns, construction delays, shortfalls in operational performance (Bitran, Nieto-Parra & Robledo, 2013), politicized decision-making, a tendency towards excessive renegotiation and high rates of litigation.

Insufficient project preparation on the government's side has been identified as the principal cause of unsuccessful public policy; this goes against economic theory predictions of problems due to the incompleteness of long-term contracts.

In the "Report of Infrastructure Experts" (Angulo, Benavides, Carrizosa et al, 2012), specialists hired by President Juan Manuel Santos to advise him on how to start a "locomotive of infrastructure" took over a year to provide a gap analysis of the sector and detect its main issues and problems. This report proposed several solutions that would bridge well-known "bottlenecks" and enable the State to execute infrastructure transport projects: land acquisition procedures, transfers of public network utilities, indigenous communities consultations, and environmental licenses. All bottlenecks linked to a lack of expertise in project planning impact upon the pre-operational implementation, early implementation and mature operation phases, as well as the financial equilibrium of the contract and optimal social welfare of the project.

Renegotiations in Colombia follow a cyclical pattern, with peaks in 1998, 2005 and 2014, and these peaks are consistent with re-election or electoral periods. Moreover, governments have in the past failed to enforce contracts and projects have been abandoned. Adverse institutional conditions also matter (Iossa & Martimort, 2015). Public servants often suffer from selective memory and between changes of government much is lost from one generation

3. For more Information see: CONPES 3489 of 2007.

to another, or certain details are strategically omitted in the process. Such evidence not only questions the value of PPPs but also calls for a better understanding of the incentives present in PPPs.

Parties' behaviors would thus perhaps better explain the failures evident during 20 years of concessions that have led to pervasive renegotiations and still represent potential risks. Such behaviors may even have enhanced the presence of planning mistakes or a lack of capacity on the government's side, no matter the new trend of encouraging the PPP model in Colombia that arrived with Law 1508 in 2012.

In order to study the concessions applied to date and to distinguish between development processes, a literature review is conducted and divided across the four generations of PPPs.

A. History of concessions

Below the OECD's main findings in Working Paper No. 317/2013 are systematized and complemented with other literature. The period, number of road projects, principal characteristics, risk allocations, and the main design failures are presented for each generation of concessions.

First Generation of Concessions

From 1994 to 1997, a total of 11 projects were contracted by government entities. These contracts were characterized by the following features: private firms made all the initial investments; the government guaranteed a seed minimum toll revenue; and each contract spanned an average length of 17 years. In addition, seven projects were procured and the tender process was avoided, before awarding without competition. Public roads were disconnected, disperse (not part of a network) and devoid of clear delimitations.

With regard to risk allocation, general negligence was seen in terms of measuring and sharing risk, and public parties retained most of the project risks: traffic demand, tolls, tariffs, construction (except for cost overruns), land acquisition and environmental licenses.

As a matter of fact, a critical observation of this contract period might begin by saying that minimum revenue guarantees were calculated using traffic estimates from preliminary studies and were positively biased, leading to excessive guarantees for concessionaries.

Furthermore, auction processes were non-competitive and did not include international roadshows. The absence of a full definition for and planning of the projects, including exact routes, before signing the contracts was a repeated mistake.

In addition, environmental permits were not obtained and the expropriation of land was not completed before the contracts were awarded; a major problem that even today causes enormous delays in infrastructure delivery.

Contracts also lacked important clauses like resolution mechanisms and rules for the payment of guarantees, while a lack of financial assessment of the bidders left the public budget at risk.

The financial crisis of the late 1990s prevented the government from fulfilling its contractual obligations under the guarantee payment. This resulted in numerous renegotiations before the economic equilibrium of the concessionaire could be re-established (Neves, 2012)

The government did not require turnkey contracts and paid up to 30% more than originally planned for capital expenditure (Neves, 2012)

Second Generation of Concessions

For the years 1997 to 1999, only 2 projects can be identified for this generation of concessions.

The main characteristics of this period of contracts were developed along the idea of learning from the mistakes of the first generation, that is, to make progress in public procurement and concessions deals. The concept of rate of return was introduced and each bidder was required to propose an expected future level of value revenue. The bid of the lowest value won and once revenues reached the expected amount the contract would end.

A yearly minimum toll revenue was guaranteed and the provision of more detailed documentation during bidding processes was implemented.

Furthermore, the protection of investors through contractual mechanisms and the inclusion of a step in for lenders were stipulated.

Regarding risk allocation, a more detailed consideration of risk allocation was applied, and both demand traffic and construction risks (excluding geological risk) were transferred to private parties. However, land acquisition and environmental licenses remained a government risk and responsibility, causing delays.

At this point, we can state that a much simpler formula for choosing winning bids was introduced, but that its manipulation was easy and led to predatory offers. Indeed, only one contract completed the construction phase (Malla Vial del Valle del Cauca and Cauca) – the other was breached by conciliation because the economic operator entered into default (Commsa). Even worse, the Administrative Council annulled the conciliation and a long litigation process followed.

The absence of an integrated vision remained, as did a lack of infrastructure constructed in the form of a connected net. Each project was considered on a stand-alone basis, rather than as part of an integrated network.

Finally, the roads were planned according to a 20-year-old traffic study and built in three years, thus quickly resulting in overcapacity.

Third Generation of Concessions

A new government and an economy finally moving out of years of recession provided space for

a new wave of concessions from 2001 to 2007 with 10 projects.

New concepts such as expected rate of return were introduced, and by varying the length of the concession and introducing the concept of a "road corridor" (to connect the consumption and production centers – connecting between each, as well as to ports) important changes were introduced.

A move towards performance-driven contracts, with the introduction of key performance indicators and a minimum projected revenue amount proposed by each bidder as the only criterion of the tender, and a maximum contract length comprised the contracts' principal characteristics.

With reference to risk allocation, despite ongoing academic and public debate, this still remains a fundamental aspect of PPP contract renegotiations and litigations today. For this third generation, all construction risks were transferred to the private sector, and both environmental licenses and land acquisition management risks were transferred to private parties.

As a result, the winning bid was chosen solely on the basis of rate-of-return and demand risk was handled by varying the duration of the contracts, which were extended over time. In other words, incentives to deliver and finalize construction were absent, resulting in delays.

In addition, environmental and social assessments, including consultation processes with indigenous groups, were not performed rigorously and efficiently or established before granting contracts, thus causing major delays.

On top of these problems, land acquisition and environmental licenses caused long interruptions and caused overruns for road concessions.

The one-criterion tender evaluation led to exceptionally aggressive bids, and the idea of reopening contract negotiation further down the line to allow for the addition of more construction work led to the massive renegotiation of concession contracts during this period.

Some academics identify a "3.5 generation" of concessions, in which the well-known Ruta del Sol parts I, II and III projects belong. This umbrella project connected the capital with the sea is considered to be the foundation for the fourth and current generation of Colombian road PPPs.

In fact, the Ruta del Sol introduced international best practices (IFC consultancy) and was financed through Colombia's financial market, so it can be said that the Ruta del Sol was a pilot for the fourth generation of concession – it also contains a mix of other characteristics from the 3 and 4 generations of concessions.

Fourth Generation of Concessions (on-going)

In 2014, the government officially launched the fourth and current generation of concessions, which includes the PPP award procedure and is slated to last for 25-30 years. It is clear here

that the planning process of the government began almost 3 years early and that the ambitious plan reveals almost 30 projects in this generation.

The new PPP law (Law 1508) outlines this generation and in fact strongly distinguishes it from predecessors. Key changes are evident since the law limits additions of up to 20% of the total value of the concessions contract, as well as introducing a prequalification stage and a standardized contract. Furthermore, payments are made according to an index of quality of service. Availability of the infrastructure and maximum contract length of 30 years are analyzed in chapters 2 and 3.

The concept of risk allocation has evolved and private players will have to assume an important part in land acquisition, environmental and social risks, with demands being made that traffic risks are shared with the government.

Leaving behind the description and analysis of the four generations of concessions, another important finding for concession contracts is that project selection and budget assignment for roads in Colombia are highly political tasks, rather than technical tasks that preserve connectivity within the transportation network and stimulate competitiveness within the country (Nieto-Parra, Olivera & Tibocha, 2013).

Similarly, information problems affect the monitoring and evaluation of concessions. Projects designed without specific physical goals make it difficult to monitor the physical execution of a project (Nieto-Parra, Olivera & Tibocha, 2013).

Despite this difficult history of concessions, the Colombian government has launched the Fourth Generation of Concessions, using the new PPP law, a fresh regulatory framework and institutional transformations for the first time.

This fourth generation aims to achieve: 8000km of new high-quality roads, 40 new road concessions, high-quality specifications and climate-change adapted roads, a saving of 20% on transportation costs, and a saving of 30% on time spent travelling on roads as a result of infrastructure intervention. But with an investment of 47 billion Colombian pesos (24 billion US dollars) in public works it is expected that development will be brought into 24 of the 32 total departments, directly generating 180,000 jobs. In the long run a potential growth of GDP from 4.6% to 5.3% will be seen, while the unemployment rate will decrease by 1% and an eventual increase in competitiveness will occur.

With the historical development of concessions and the ambitious goals of the 4G Program in mind, at this point it is necessary to review the cyclical pattern of renegotiations in order to fully comprehend the previous mistakes made in governmental plans.

B. Renegotiations

From the very beginning it must be clarified that PPPs are not renegotiation proof. However, iden-

tifying desirable renegotiations that fulfill an important role given the incompleteness of PPP contracts, their long-term nature and unforeseen events, should be a governmental goal.

Good renegotiations comprise select adjustments made to the initial contract that do not add new stretches of road, increase revenues or alter the risk allocation; they may tackle issues such as repairing works following natural disasters, for example. They respond to truly unforeseen events (not inaccurate accountability) and make alterations to long-term relations: "given the incomplete nature of long-term contractual arrangements, a successful renegotiation (that leads to revising the terms of trade within the contract) can be welfare-enhancing rather than welfare-reducing." (Domingues & Zlatkovic, 2015)

Alternatively, bad renegotiations are symptomatic of deficient design projects, rushed projects, predatory bids and rent extractions by interested parties: "contractual renegotiation has typically been seen as undesirable and reflecting the inefficiencies of contracts since it imposes high transaction and social costs and may induce opportunistic behavior of both private and public parties."(Domingues & Zlatkovic, 2015) Accordingly, bad renegotiations are characterized by adding new stretches, adding complementary works (such as pedestrian bridges, road lanes and cycling routes not included in the initial contract), prolonging the contract term, altering revenue caps, increasing tolls or tariffs, altering risk allocation due to inaccurate estimations, and changing certain conditions within the contracts. As economic theory explains, explanations are possible for the tendency towards bad renegotiations that are founded in the opportunistic behaviors of parties. These are the hold-up of risk and moral hazard for the private party in order to extract rents or political and electoral bias from the public party, thus breaking the financial equilibrium of the contract and altering its value towards one of monetary analysis.

Unfortunately, in Colombia a tendency towards over-renegotiation exhibits a sequence of undesirable agreements early in the lifecycle of a project, on average two years after the awarding of the process and the contract's completion term, with between 10% and 15% of renegotiations increasing the concession term (Bitran, Nieto-Parra & Robledo, 2013). As an example, 25 concession contracts adopted in Colombia have been renegotiated 430 times. Furthermore, in Colombia all projects signed before 2010 have experienced significant renegotiation costs, which in most cases represent more than 40% of total costs (Bitran, Nieto-Parra & Robledo, 2013). In addition, 15 contracts (out of 25 concessions in total) have been lengthened to extend their initial term by an average of 70% (Bitran, Nieto-Parra & Robledo, 2013).

One famous case of extension in the concession duration by 35 years occurred with the Malla Vial del Valle and Valle del Cauca (MVVC) concession. This renegotiation was challenged in an arbitration process by the subsequent government due to extreme financial assessments that double the expected revenue of the concessionaire.

In some cases, concession contracts suffer from local opposition. A lack of local community support generally implies that surrounding communities resist the use of tolls, demand complementary works for towns that have been neglected by local governments and demand job opportunities during the public works. In such cases, the "government has the incentive to provide additional infrastructure services to surrounding communities with the goal of obtaining political benefits, taking advantage of having a concessionaire with machinery working at the site that could deliver the work quickly, in other words economy of scale." (Bitran, Nieto-Parra & Robledo, 2013)

With regard to opposition to tolls, three examples support the previous findings. The Rumichaca-Pasto-Chachaguí, Ruta Caribe and Córdoba-Sucre concessions experienced local opposition to tolls. The location of the tolls had to be negotiated with local community leaders and special discounts for local residents were allowed. These negotiations impacted upon the financial equilibrium of the contract, which had to be adjusted to the circumstances. Despite extensive efforts by the National Government to fix an arrangement with local communities, one part of the Rumichaca-Pasto-Chachaguí concession had to be re-taken by the state and the public works are now being performed by standard procurement, namely a public contract.

In most cases, the main cause behind renegotiations that increase the initial costs of the project is that of changes made by the public administration. Complementary works are frequently the result of demands from stakeholders affected by the projects, including local governments and communities, leading to a more complex project than initially envisaged in the planning documents (Carpintero, Petersen & Helby, 2014).

In the aforementioned cases, changes in the original designs of the concessions were accepted by the parties, which were motivated by opportunism; private parties were able to extract more rents and public parties obtained political and electoral revenues. The resulting cost overruns were thus assumed by the extension of each concession's duration or future payments (fiscal transfers). In addition, other cost overruns occurred due to deficiencies in the projects, largely caused by a lack of identification of the public services affected (such as electricity, water, telephone and gas), or environmental and land acquisition underestimations. The Contingency Fund of the Ministry of Finance covered these additional costs.

Historically, renegotiations in Colombia have used future funds to pay for new concession agreements, meaning that fees are paid in fiscal years that differ from those in which the renegotiation is made, thus postponing the fiscal gap and passing the problem to future governments. Indeed, "between 2008 and 2010 their use to pay renegotiations became commonplace, allowing for costlier renegotiations. In 2010, the average renegotiation had a fiscal cost equivalent to 65% of the average ini-

tial value of the contracts being renegotiated." (Bitran, Nieto-Parra & Robledo, 2013)

In addition, the correlation between renegotiations of concessions and reelection or electoral periods cannot be denied. In Colombia, the presidential reelection period lasted for 10 years (2005 to 2015). During these years, both President Alvaro Uribe and President Juan Manuel Santos ran for re-election and won, in 2008 and 2014 respectively. The years after and before a reelection campaign are consistent with peaks in renegotiations. The OECD demonstrates this in its study (Working Paper No. 317/2013) into increased renegotiations between 2008 and 2010 (reelection period of President Alvaro Uribe), while 9 renegotiations were conducted by ANI from 2014 to 2015 (reelection period of President Juan Manuel Santos). Presidential re-elections were abolished by the most recent constitutional reforms.

In light of its analysis of statistics regarding renegotiations, the OECD argues that in Colombia it is the public party that often prompts renegotiations, indicating political opportunistic behavior by the government in a way that dominates the hold up risk presented by the private party. This also suggests that contract renegotiations are principally driven by a lack of adequate contract designs and studies or by opportunistic behaviors (Bitran, Nieto-Parra & Robledo, 2013).

Overall, several key conclusions have been made about past renegotiations in Colombia that can be used to improve future outcomes:

First, renegotiations imply high fiscal costs and an increase in the duration of contracts, making it essential to modify the fiscal accounting of concessions through an on-sheet balances policy to first, reduce the risk that fiscal deficit is postponed and second, facilitate accountability transparency.

Secondly, prioritizing and planning in infrastructure projects should not be the result of opportunistic behavior on the part of the public party (politics and electoral motivations), but rather must be governed by serious technical studies about competitiveness and road system networks, as well as cost-benefit analyses.

Thirdly, the institutional and regulatory framework for the transport infrastructure must fix two mistakes: first, insufficient project preparation and deficient environmental, social and technical design, and second, the opportunistic behaviors of the parties.

With the undesirable renegotiation panorama of Colombia now exposed, we turn to look at further elements required to correctly assets the real impact of the new PPP legal model and analyze litigation cases to illuminate this issue in the next section.

C. Statistics of on-going litigation

Both Guasch and OECD studies have not yet analyzed litigation cases for the 25 concessions in Colombia. Yet several relevant observations

confirm opportunistic behavior and project preparation failures within the over-renegotiation tendency.

In total, according to the ANI database, 24 litigation procedures have been undertaken for arbitration clauses in contracts for 25 concessions:

First, three arbitration processes went (Consorcio Vía al Mar, Santa Martha Paraguachón and Autopista de los Llanos) against the public parties and ordered payments of less than $40,000 million pesos (US$ 16 million dollars). But the economic expectations of applicants were about $262,500 millions pesos (US$ 105 millions dollars)

Second, two litigation cases were finished by conciliation (Devinar and San Simon) and the public party agreed to make payments of $8,500 million pesos (U$ 3.4 million dollars)

Third, 19 on-going litigations by arbitration procedure on concessions contracts still remain. But for the six concession contracts, two or more arbitration tribunals are active, signaling more than one lawsuit per contract.

The causes of litigation, extracted from the lawsuit texts, are almost homogeneous and can be split into four groups:

Financial equilibrium principle: In 100% of cases, applicants claimed a breach of the financial equilibrium principle of the contract as a principal or even residual argument of the case.

Extreme weather conditions: Most of the cases argued that the climate had changed as a particularly rainy period (2010-2012) impacted projects and generated significant cost overruns. This was presented as an unforeseen event of *force majeure*.

Risks allocations: The misallocation and incorrect assessment of environmental, social and land acquisition risks created overruns.

Unilateral decisions: Concessionaries challenged the authority outlined in the contract of the public party to adopt monetary retentions or fines against the concessionaire.

Given these circumstances, it can be said that:

Hypothesis 1: The determinants of litigation are repeatedly related to deficient studies and contract design rather than being caused by the incomplete nature of PPP contracts.

Hypothesis 2: Financial equilibrium is a general and residual legal ground for any claim and can be the scope of opportunistic behavior for concessionaries. Furthermore, the existence of these disputes serves as a reminder that at an early stage in the life of the project any judgment in overall merit is inherently speculative (Hodge, 2004). At early stages of the contract life, the judge's role in identifying financial disequilibrium is essentially still out. This hypothesis is analyzed in detail in the third section.

As presented above, the history of concessions in Colombia, the spread of renegotiations and

the proliferation of litigation are all relevant in an analysis of the new PPP legal model in Colombia. Accordingly, two main premises are prompted by this section regarding concessions failures in Colombia: First, project design defects should be corrected and second, the opportunistic behaviors among parties should be controlled, avoided or mitigated.

II. LEGAL FRAMEWORK OF PPP IN COLOMBIA

So far, concession contracts and PPP contracts have been treated as synonymous, but in legal terms they need to be distinguished between because the new PPP law has introduced a new contractual model and the government has launched a new corresponding program. It is important to differentiate which new features have been adopted in the legislation and analyze if these legal innovations actually amend or adjust the concessions failures outlined above. In the next section a legal study of the PPP model introduced by Law 1508/2012 is conducted.

An important point noted in the literature is that some countries that claim to implement PPPs in fact only use PPPs in a limited way to deliver certain functions, and not as a structured program (Abdel, 2007), as is the case for Colombia.

Colombia is experiencing the rhetorical power of a new slogan, namely the public-private partnership (PPP) slogan, but lawyers, public servants and contractors need to remain aware of the fact that the idea on which it is based is far from new (Wettenhall, 2003); indeed, it has been described by some as the reinvention of an old wheel (Wettenhall, 2003). It perhaps represents a novelty for citizens due to its catchy name (Hodge & Greve, 2007).

Since the early 1990s, Colombia has used private (contractors to provide public) infrastructure through regular (competitive bidding arrangements for public procurement contracts or concessions contracts. So the use of private firms (to provide public infrastructure (is not new (Hodge & Greve, 2007). Concessions contracts are based on the tasks of building, operating and transferring a risk-allocation structure, just as the PPP model predicts.

With this in mind, this section is divided into four subsections to facilitate a study of the framework of PPPs in the Colombian legal system: the legal concept of PPPs, the award procedure, performance and termination. Special attention is given to the legal concept in order to detail the PPP system that Colombia is using.

A. Legal concept

The international phenomenon of PPPs was fitted into public policies and business plans within the private sector before legislators could define and regulate it. In fact, a tendency towards convergence and harmonization in PPP best practices is present, but a unified concept remains absent from any international agreement or international and legally binding docu-

ment. The general rule follows that every country should create its own PPP model.

Most authors recognize that the PPP phenomenon started in the United Kingdom in 1992 under the Private Finance Initiative. PPPs appeared as a public management tool used to finance public works when public budget deficits meant that further money could not be invested into the building of public infrastructures. Insufficient public funds motivated the entrance of the private sector into the provision of public services and works, bringing fresh equity and capital to investments, along with private expertise regarding risk management for delivery times and cost efficiency.

As a consequence, the accessibility of private finance for major infrastructure projects has provided governments with a huge credit card. PPPs are simply a 'buy now, pay later' scheme (Hodge & Greve, 2010), and indeed the accountable management that a credit card should come with is a first-order concern.

Furthermore, this new flow of capital into public projects represents fresh opportunities for new business and a renewed support scheme for boosting business in difficult times, hence political incentives for the government can be high: "voter acquiescence, quicker promised delivery of infrastructure and more positive relationships with finance and construction businesses." (Hodge & Greve, 2010)

As Lichère (2012) notes, PPPs stand half way between privatization and classic public provisions – PPPs are considered the mid-point between interventionism and liberalism. Indeed, the PPP concept brings with it new ideas for public management: extend the participation of the private sector in traditional public duties, more private sector participation in the design of public projects and increased benefits due to the partially private financing of public works and services.

Professor Francoise Lichère also sustains that, given the difficulty of finding a precise definition of PPPs in the literature, a set of characteristics should instead be identified. Most authors recognize four main features: (i) task bundling (build and operate), (ii) risk transfer, (iii) long-term contracts, and (iv) preferential use of private finance arrangements.

Green Paper COM (2004) 327 of the European Commission, On Public-Private Partnerships and Community Law on Public Contracts and Concessions, confirms the well-known features of PPPs:

"*The relatively long duration of the relationship, involving cooperation between the public partner and the private partner on different aspects of a planned project.*

The method of funding the project, in part from the private sector, sometimes by means of complex arrangements between the various players. Nonetheless, public funds – in some cases rather substantial – may be added to the private funds.

The important role of the economic operator, which participates at different stages in the

project (design, completion, implementation, funding). The public partner concentrates primarily on defining the objectives to be attained in terms of public interest, quality of services provided and pricing policy, and it takes responsibility for monitoring compliance with these objectives.

The distribution of risks between the public partner and the private partner, to whom the risks generally borne by the public sector are transferred [...]. The precise distribution of risk is determined case by case, according to the respective ability of the parties concerned to assess, control and cope with this risk." (Green Paper, 2004)

After the Commission launched the Green Paper in 2004, other documents on the same topic followed in 2005 (EU Commission, 2005a), (EU Commission, 2005b), along with Interpretative Communications on the topic of Institutional PPPs, Concessions and public procurement (EU Commission, 2008) a Communication on Public Private Partnerships in November 2009 (EU Commission, 2009b), and so on. However, EU member states are essentially responsible for determining their own PPP approach and regulation, as long as it complies with the basic EU rules of procurement and does not infringe on other functions of the internal market (Samuel Colverson Summit Consulting Group & Perera, 2012).

Thus, "it is clear that the EU Commission has the role of PPP promoter, that is, the role of a 'catalyst' (generating ideas and promoting feasibility studies), a 'broker' (brings together institutional and national actors), a 'target setter' (defines guidelines, goals, etc.)." (Peric, & Dragicevic, 2011). It appears that it will continue to perform its role of promoter, rather than regulating the field.

Some of the conclusions about the PPP concept made in the General Report should be mentioned before detailing the specific concept adopted by the Colombian legal system:

First, PPP contracts are not a legal innovation for legal systems. In fact, different forms of public-private collaboration have been presented for decades and have evolved with diverse denominations, such as concessions. The real novelty of PPPs is the weight given to the private finance function of the private party in the PPP contract. The users (tariff-tolls) and the public budget will pay for the project in the long run and the private party will invest in and finance the entire works.

Secondly, it can be said that PPP contracts are a renovation of concessions contracts but with more similarities than differences with traditional procurement processes or public works contracts. It is not possible to make a total distinction.

Thirdly, it is not feasible to distinguish between concessions, public works and PPP contracts in light of an economic element, that is, by asking 'who pays?', because for both the answer is users and the public budget (taxes). The question is rather 'who provides the financing?'

Finally, Much of the literature sustains that one differentiated element among standard procurement systems is risk distribution. While the private party should assume internal risks, like construction, operations, finance and economic risks of work or service, the public party should retain external risks, like stability of the regulatory framework, force majeure and tariff regulation.

i. What are PPPs in Colombia?

Law 1508 of 2012 introduced a definition for PPPs in Colombia. Article 1 presents the following elements of the concept:

Function: Instrument for involving private capital in public projects.

Mode: Public contract.

Parties: Public entity (public authorities) and natural or legal private person.

Purpose: Provision of public goods and related services.

Special features: Risk allocation among parties and payments attached to the availability and level of quality service of the infrastructure and/or services.

The Colombian definition uses the finance approach as the principal element of the PPP model. Since PPPs present a solution to insufficient public funds for public infrastructure and services investment, so the new Colombian PPP Law follows this logic, presenting PPP as a public management tool to boost investment from the private sector for public works.

Interestingly, the payment associated with availability and quality of service represents a legal innovation in the legal system and a new mandatory element in PPP contracts that was not present in public works contracts or concessions contracts; it is presented in article 5º as the retribution right. Payments in public works contracts are made monthly according to quantities of works executed and supplies used. Concessions are paid in relation to the achieved goals or boundary posts reached in the project and checked by contract supervisors, no matter the connectivity or functionality of the infrastructure.

In article 2 of Law 1508/12 another interesting feature of the Colombian Legal system is evident. This article establishes that concession contracts are understood as PPPs. Hence concessions are a kind of PPP, but the law does not specify other kinds, giving freedom to legal operators in its creation. Traditional models of PPP are well known: DBFM (Design, Build, Finance, Maintain), DBFO (Design, Build, Finance, Operate), and BOOT (Build, Own, Operate, Transfer).

It must be pointed out that in Colombia PPPs are legally allowed to design and build or only build public infrastructures, but that operations and maintenance are mandatory (art. 3) as part of the project. The scope of application for this is directly targeted at public services provision. This legislation does not mention any specific activity that cannot be considered a PPP proj-

ect, but other laws like Law 498 provide legal limits for the delegation of public duties, while various judicial precedents have created specific rules. It can be affirmed that all the activities excluded from Law 80/93 (General Statute of Public Procurement) do not fall within the scope of application, for example, military or security facilities. Another limit is the value of the project, which should exceed 6000 times the minimum monthly wage in Colombia (1.5 million US dollars).

Additional elements that the PPP law incorporates and which differ from those of public contracts or concessions are: contract length requires a maximum of 30 years, including prorogations (art. 6); additions have a cap of 20% of the initial budget (arts. 13 and 18). Under Law 80/93 there is a 50% limit of addition for standard public procurement. Also, the new law stipulates a new prequalification period in the award procedure.

One specific provision deserves attention at this point. Article 7 stipulates a freeze period for renegotiations of three years and up to three quarters of the total length of the project. This article represents a great tool for avoiding opportunistic behavior among parties. It holds back predatory bids and changes in contracts because of political or electoral motivations. It is a strong instrument by which to protect the incentive balance and the equilibrium of the contract, but is still not as flexible as many argue it should be. In any case, for the level of progress made in Colombia with PPPs it is appropriate at this particular moment. However, some public figures wish to file a bill in congress to deactivate the freeze period for renegotiations. Great consideration should be given to this transcendental legal rule.

Article 3 determines that all other matters about award procedures, completion and performance of the contract, termination and remedies that have not been discussed or regulated in the PPP law, should be ruled by the General Statute of Public Procurement, Law 80 of 1993 and its modification Law 1150 of 2007. Law 80 of 1993 regulates all government acquisitions of public goods and services. In article 32 the right to concession for the provision of public services is established.

Further legislation applicable to PPPs or infrastructure projects still remains,[4] since the administrative regulation issued by the Executive Branch is extensive, diverse and changing. The regulatory framework of Colombia is complex, unclear and unstable; it is formed not only of laws but also decrees, resolutions, jurisprudential rules and interpretative communications among public oversight bodies. The regulatory framework has allowed for the manipulation of the rules of public procurement and contracting in topics such as fines and other sanctioning methods (Law 1474/11 sets the legal discussion for a new due process) and

4. See: Law 105/93, Law 1474/11, CONPES documents for 4G Program.

limits additional contracts or complementary works (Law 80/93 (50% of initial value), Law 1150/07 (60% of initial term, no longer valid) and Law 1508/12 (20% of initial value)). It also addresses the number of times the administrative regulation of Law 1150 has been modified (Decrees 066/08, 2474/08, 734/12 all overruled by Decree 1510/2013).

As a result, this complex set of rules generates a complex world, and "one which only lawyers can understand and navigate at very stiff fees," as Richard Epstein (1995) would say. Incentives are also available for opportunistic behavior on the part of public entities, private parties and stakeholders in PPPs projects. In essence, the Colombian legal system suffers from hypernormative inflation.

After the evolution of such regulations, since Ley 1150/07 was issued 8 years ago, it should be clear that simple rules can contribute to a better outcome in any public duty. In opposition to this, complex rules reinforce conflictive contractual relationships with suboptimal welfare results for citizens. Unclear, unstable and complex rules provide fertile land for opportunistic behavior.

An unstable regulatory framework also has some economic consequences for contracts as "the main source of regulatory risk, affecting levels of investment, costs of capital, and tariffs, because additional premiums are required to cover that risk. Credible and stable regulation and transparent rules reduce that risk." (Guasch, 2004)

In conclusion, the framework must be clarify that PPPs are: a) business project, b) contractual in form, and c) a type of procurement award.

ii. Pros and Cons of PPPs

A comprehensive evaluation of the PPP phenomenon requires an understanding of all the literature related to favorable and unfavorable economic, management or business arguments about the PPP model. These positive and critical opinions enlighten the subsequent comments, recommendations and remarks that this paper proposes.

a) Main advantages of PPPs:

The main value-creating mechanisms in public-private partnerships are:

- PPPs bring efficiency from the private sector, combining private sector managerial abilities and proprietary know-how with public sector assets (Kivleniece and Quelin, 2012).
- Reduced fiscal pressure on government budgets, allowing a greater capacity to spend on other policy priorities because of the use of private funding for infrastructure (Hodge and Greve, 2007).
- The risk transfer golden rule specifies that risks are transferred to the party best equipped to deal with it, both in terms of expertise and costs, for the stability and benefit of the project.
- The PPP component of private financing has produced better-defined contracts, better

contract management, design innovation, and effectively commits contractors to long-term contacts (Spackman, 2002).

- On-budget projects, because the design of PPPs lasts for the entire lifecycle of a project, allow the private sector to introduce its expertise in investment planning and efficiencies throughout the management, operation and maintenance phases of the project.
- Bundling activities like construction and operation provides higher-powered incentives and encourages the private sector to choose the most appropriate technology for the long term and adequately maintain it (Samuel Colverson Summit Consulting Group; Perera Oshani, 2012).
- Significant cost saving compared to traditional procurement: better value for money in the provision of public infrastructure (Iossa and Martimort, 2015). Resulting in either lower costs or a superior product for the same investment.
- Privatization of the finance function in PPPs, captures the monitoring expertise of lenders and enhances incentives for private developers to complete projects on time and on budget (de Bettignies and Ross, 2008).
- Increase the service quality of public works by linking payments to performance targets, thus providing an incentive to perform that is absent from public standard provision.
- PPPs represent a political advantage for politicians. There is strong political leverage to be claimed, as projects are delivered on time with less impact on the budget, while providing superior quality infrastructure or services (Samuel Colverson Summit Consulting Group et al, 2012).
- A competitive auctioning process can result in the selection of the most efficient operator, as well as in optimal pricing, given that competition takes place before firms commit to investment (Guasch, 2004).
- PPPs can be seen as ways out of a financial crisis and opportunities to boost industry; they generate growth and provide stability for 25-30 years in written government contracts. They ensure private capital flows, provide investment opportunities, and stimulate local industry and job markets (Samuel Colverson Summit Consulting Group et al, 2012).

b) Main criticisms:

The potential disadvantages are:

- PPPs have lengthier tender processes than standard procurement. PPPs require longer terms to prepare tenders due to multi-party agreements, financial intricacies, and long-agreement terms inherent in the relationship (Samuel Colverson Summit Consulting Group; et al, 2012).
- An inaccurate estimation of risk transfers from the public to the private sector, meaning that risk is not transferred to the private sector but taken on by the public, creating several refinancing negotiations or unsuccessful PPP projects for the public sector (Hodge and Greve, 2007).
- PPPs have a high tender nature and transaction costs, thus reducing the pool of private sector companies with the capacity to apply

for certain projects, while decreasing both government choice and competitive tender processes (Samuel Colverson Summit Consulting Group; et al, 2012).

- Risks involved in the manipulation of value-for-money methodologies biased in favor of PPP policy expansion is a big concern, since the value-for-money case rests almost entirely on risk transfer, for which the amount of risk transferred can be almost exactly what is needed to tip the balance in favor of undertaking the PPP mechanism (Hodge and Greve, 2007).
- PPP might generate monopolies in favor of economic groups, supported by exclusivity agreements, the locking in of guaranteed profits and the controlling of long extensions of land or regions. Such companies can control (within their projects) job creation, construction supplies, land acquisitions, environmental impacts and transport of supplies (Samuel Colverson Summit Consulting Group et al, 2012).
- The use of inaccurate discount rates for time and value-of-money estimates of net benefit predict the superiority of the economic partnership mode over traditional delivery mechanisms. Hence the PSC results dependent on the discount rate adopted in the analysis (Hodge and Greve, 2007).
- PPPs as a business might cover costs plus make a return on investment, which could lead to higher consumer prices than traditional procurement. There is a potential source of abuse for user fees (Samuel Colverson Summit Consulting Group; et al, 2012).
- If predicted benefits are estimated at the early stage of a long-term contract, optimism and political sensitivity might both increase (Hodge and Greve, 2007).
- PPP projects suffer from reduced accountability and transparency because of the difficulty in accessing private sector information. Furthermore, data is spread over numerous sources, compiled differently, and not always available to the public (Samuel Colverson Summit Consulting Group et al, 2012).
- PPP offers limited flexibility, capacity and opportunity to governments in the making of future decisions/investments in the public interest because governments are locked in with contracts of up to several decades. Future needs cannot respond to their individual circumstances but must adhere to outdated operations from previous PPP contracts (Hodge, 2004).
- PPP investments have the added political advantage of being treated as “off balance sheet” so that heavily indebted or fiscally conservative governments could invest in large infrastructure projects without increasing the reported level of public debt (Siemiatycki, 2011).
- High rates of litigation, delays and hold ups in PPPs are the result of complex and multi-task agreements. Disputes take longer to be settled and any unforeseen eventualities that take place in future years involve a lengthy renegotiation of the contract (Samuel Colverson Summit Consulting Group et al, 2012).
- The private sector is not impervious to project stoppages. The start of projects is also

delayed by the political debate and public opposition (communities) that can surround PPP projects (Samuel Colverson Summit Consulting Group et al, 2012).

- An overreliance on external consultants also leads to an expertise-scape, where any knowledge gathered throughout projects is not retained by public bodies, making it difficult to build knowledge and lessons for other projects or other phases of the project cycle, such as contractual management (Samuel Colverson Summit Consulting Group et al, 2012).

B. Award procedure

PPPs are characterized by a longer procurement process and higher costs of bidding than traditional procurement (Iossa &Martimort, 2015).

As mentioned before, article 3 determines that all other matters about award procedures, completion and performance of the contract, termination and remedies that have not been discussed or regulated in the PPP law, should be ruled by Law 80 of 1993 and Law 1150 of 2007.

However, Law 1508/12 does stipulate a new prequalification period in the award procedure with the objective of forming a shortlist of tenders. This stage has been criticized because it adds more time to the award process (7-9 months are required instead of 4-6 months). Potential tenders in the 4G Program were not fully informed of the scope of PPP projects because all technical studies, environmental risks and other critical elements of information were not fully available upon initiation. The law has thus brought transparency to the process.

Furthermore, Colombia's legislation does not introduce the negotiation stage during the award procedure for public initiatives, but several public hearings are accommodated for in the regulation before and after the award procedure officially begins, for example, risks hearing. In these spaces, potential tenders and stakeholders are listened to by the public administration in a constructive process.

Also, it is necessary to clarify that Colombian law brings a particular division to types of PPP: public initiatives and private initiatives of public-private partnerships contracts. Regulations separate the origins of the project, whether private (arts. 14-21) or public (arts. 9-13). Hence when a project is conceived, project preparations (engineering studies, environmental and social impact and risks assessments are calculated) made by the public entity will contain some provisions in order to be launched into the public procurement contest. But when the opposite occurs, a private party will propose one specific project to the public entity, conduct all the studies and calculations, and the public party will evaluate the pertinence of the project. Its financial structure will have severe restrictions in terms of asking for public funds (cap of 20%). If the project is accepted it will remain published for a period of waiting during which new tenders and bids from third parties can be submitted. In case another bid should appear, a contest procedure will open and the

original tender will be given some advantage, otherwise, with no new tenders the PPP contract will be awarded directly to the original tender.

An enormous effort has been made for the standardization of procedures, documents and contracts in the 4G Program, generating progress in the creation of transparency in public procurement. It is argued that the results of this success can be seen in the awarding of more than 20 PPPs for road concessions by ANI so far. Another component is also important, namely the selection and formation of public servants. Investment in the formation of qualifications and salaries for public agents involved in PPP projects it sculpted in a new positive image in the award procedures for the national government along with its potential investors.

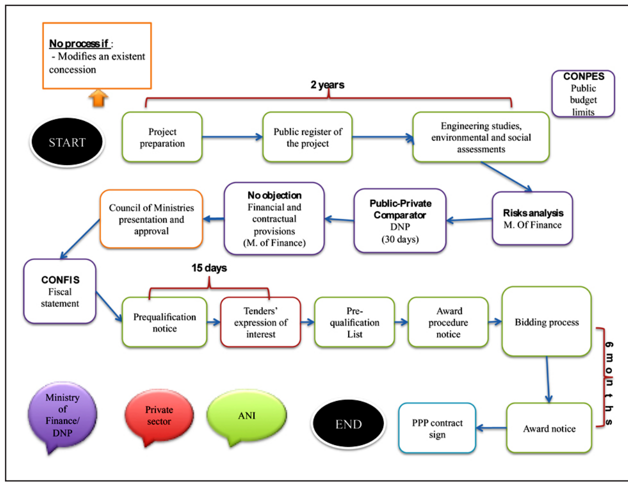
However, before continuing to talk about the award procedure, some words need to be said about the previous stage, the preparation of the project and its selection as a PPP.

Several institutions are involved in Colombia's selection and evaluation of PPPs for transport infrastructure. These include the Ministry of Finance, the National Planning Department (DNP), the National Council for Economic and Social Planning (CONPES), the Superior Council of Fiscal Policy (CONFIS), the Ministry of Transport and the National Agency of Infrastructure. This chain of approval is in fact a chain of checks and balances for the PPP model.

As mentioned, the principal criticisms of the PPP model relate to an inadequate or biased use of the value for money method that prefers PPPs to traditional procurements, without taking into account real costs, potential delays and the risks of renegotiation. Hence PPP Law 1508/12, with some unpredictable wisdom, has created a multipart arrangement for PPP approvals.

The next graphic is an illustration of a public initiative process of approvals according to PPP Law and Decree 1467/12:

Figure 1. PPPs public initiative procedure



Source: Author

Actually, the most important task for PPP approval is performed by the DNP (Department of National Planning) and Ministry of Finance. The DNP looks at the coherence of the infrastructure and road investments in relation to the overall needs of the country, it conducts a cost-benefit analysis of the projects and applies the PSC comparator by comparing the project under both PPP procurement and public

sector traditional delivery in order to establish PPP viability (Resolution No. 3656/2012). The Ministry of Finance reviews the numbers, ensuring coherence with the budget, checks that the risks are covered and well allocated, and the contractual conditions reasonable.

For its part, the National Infrastructure Agency (ANI) was created to develop and run the 4G Program and all infrastructure concessions like ports, airports and railways, with better administrative capacity, qualified professionals and technical expertise in the design, awarding and monitoring of public contracts. However, the ANI performs, at the same time, functions related to project structure, allocation and monitoring, producing an overlapping of responsibilities and conflict of interests, or, at least, perverse incentives (Nieto-Parra, Olivera & Tibocha, 2013). Independent project preparation in the monitoring and regulating of activities is necessary in the checks and balances of the PPP chain.

Despite the recently improved institutional and regulatory framework of PPPs, which brought some satisfactory results and transparency in award procedures for the 4G Program, the challenge of preserving good intentions in the model remains in five particular ways:

i) The leadership of political figures, like the vice-president of Colombia, in the 4G Program should not bias the selection of projects and value for money analysis towards electoral targets and preferences (a latent risk). However, this statement does not deny the importance of clear political support for PPPs expressed by the main political figures and parties, with some stability over time being crucial (Verhoest et al, 2015). The consequences of unstable rules have already been mentioned.

ii) The efforts and investments of professional and capable teams in ANI will not end in paying electoral debts due to these strategic positions. As the OECD recommends, "it is necessary to follow hiring schemes that encourage professionalization, specialization, and the development of a civil service that is independent from the political cycle and is capable of using sophisticated tools for planning, evaluation and monitoring." (OECD/ECLAC, 2013)

iii) The independence and technical approach of ANI policy cannot be compromised, therefore project preparation, contractual management and monitoring among the regulatory functions should be separated since there are different roles that cause conflicts of interest: business seller, commercial partner and authority. This points to the recommendation of the existence of a dedicated PPP unit as one crucial element to support PPP success (Verhoest et al, 2015).

iv) Lower participation in the bidding process (two or three tenders) not only attests to complex contractual arrangements, but also represents an example of how PPPs limit competition. The role of SMEs as stakeholders in PPP projects deserves deeper analysis from public entities.

v) The selection of projects for PPPs should be guarded because it is a guarantee of limits on the opportunistic behavior of the parties. Since in Colombia private initiatives for PPPs are reinforced by the PPP law, the stringency of value for money should be maintained in order to avoid regulators capturing risk by economic groups of interest or undesirable influence in project selection priority. So far, 10 private initiatives have been approved using the new PPP law.

C. Performance

According to the literature, during the execution or performance stage of the contract, several phases can be distinguished: contract completion, financial closure, operation and maintenance. But since this stage has not been reached yet for the 4G Program, not many comments can be made.

Perhaps the most important remark is related to forming good teams familiar with or capable of performing the appropriate contractual management within the role of commercial partner, thus foreseeing optimal public results. The learning process for the project preparation and tendering processes must be transferred via a bidirectional communication channel.

Special attention and monitoring should be given to bottleneck circumstances that have traditionally paralyzed important projects, such as social opposition, land acquisition processes, environmental licenses, and transference of public service networks (gas, telephone, energy or oil tubes). A micromanagement implementation for these specific and sensitive circumstances could be a recommended strategy and one extracted from the experience of working with nine problematic concessions. A weekly chart report and multidisciplinary teams are being used in the ANI to solve smaller difficulties.

Most of the authors question the accountability of PPPs. The quantity and quality of information available for concessions performance is characterized by being disperse, imprecise, undisclosed and deficient in critical aspects like on-time execution and on-budget execution. An ANI public hearing in the regions of the projects with all the local authorities and leaders is the ideal mechanism for overcoming this problem. Local leaders and communities will follow the track of the project and not forget or miss environmental impacts, increases in tariffs and quality of services, which are usually forgotten when governments change.

Moreover, information about renegotiations would have to be placed in no less than three years, unless the PPP law is changed before by the actual government as recent news suggests; information should be disclosed and explained to stakeholders, including directly affected communities, before signing. Otherwise, the opportunistic behavior of public and private interests will break down the PPP financial model and the logic of using this type of contract. The communities' reasonable opposition is a useful instrument in avoiding the repetition

of the perverse renegotiations of concessions in Colombia and their overruns and delays.

On the other hand, the community consultation process (indigenous and Afro-Colombian) is a pending regulative duty to be fulfilled by the government in the short term. The unclear regulatory framework not only causes litigation and project paralysis (Ruta del Sol III) but also produces an undesirable incentive for rent extraction from communities to PPP projects. However, it requires a whole new study to cover all the constitutional principles and rights involved in the community consultation process and its practical difficulties for implementation.

D. Termination

The termination of the PPP project is projected to occur 30 years from now, and so policy makers or legislators barely consider it.

Probably the most important activity is the transference of infrastructure operations to the public administration or a new private party. Terminating a PPP project is like closing an enterprise after three decades: all bills must be cleared up and paid among the parties, and all the goods delivered to the right party and workers released and settled. It could be a slow struggle and long administrative process. Hence the new PPP law foresees this situation and article 31 establishes a mandatory provision for PPP contracts: a specification of goods (movable or immovable properties) to be transferred to the state when the partnership is over.

The new PPP law makes it compulsory in PPP contracts to stipulate a specific mathematical formula in case of mutual or unilateral termination. However, Law 105/93 limits this unilateral power for concessions during the operation phase; this article cannot been overruled because it represents a guarantee for the private party's recovery of its investment in this phase. As the final point of the legal study, it is necessary to mention that the natural judge of PPP contracts according to the Colombian legal system is the administrative judge. However, due to judicial congestion a delay of more than 10 years exists for unresolved disputes. Public policy adopts an arbitration clause as an alternative mechanism for dispute resolution, which is internationally recommended because a costly justice is preferable to delayed or absent justice.

III. ECONOMIC ANALYSIS OF THE PPP LEGAL MODEL IN COLOMBIA

Viewed from a critical perspective, policy makers should be careful about how they approach the analysis of PPPs. Consumers, users and citizens must be aware of how governments deliberately change discourse in the pursuit of obtaining policy votes from more supporters and how this new practice is introduced through the construction of meaning (Hodge & Greve, 2007). In Colombia, in governmental terms, PPPs represent the promise of an infrastructure

revolution, economic prosperity and the reversing of the infrastructure lag.

Indeed, PPPs can be an effective and efficient model if well adjusted to the context. In other words, every country should tailor its own set of PPPs. Hence this document aims to analyze if the new model transplanted into the legal system and public rhetoric has learnt from previous mistakes.

Failures in previous generations of concessions in Colombia amount to: i) deficient project preparation/contract design, ii) opportunistic behavior-renegotiations, and iii) unstable, complex and inadequate regulatory and institutional frameworks. This section will center on ii).

The government has made important improvements in the regulatory framework and the institutional framework of PPPs. PPP Law No.1508/12 has been analyzed in section II and its principal features highlighted, and a stable and simple set of rules recommended.

The National Infrastructure Agency (ANI) has been transformed to support the 4G Program, with greater administrative capacity and technical expertise in the design and monitoring of contracts, better salaries and professional personal and business-oriented strategies, guided by Luis Fernando Andrade, former McKinsey Country Director.

Project preparation has undergone a big transformation in a positive sense: better engineering and traffic studies and efforts to make better assessments of environmental, social and land acquisition risks. Other improvements include the rigorous analysis of risk allocations and a well-constructed chain of value for money analysis for PPP projects that does not favor concessions over traditional public projects. Hence adequate project planning and design would indicate that some causes of concessions deficits, higher than expected costs along with lower-than-expected traffic (Guasch, Laffont & Straub, 2008), are being threatened by the reforms.

Remarkable work has been done with the tendering process, today recognized by the private sector as transparent and trustworthy. The standardization of procurement procedures and documents, especially the standard contract and prequalification stage, has transformed administrative practices in Colombia and reduced corruption.

There are incentives present in terms of the tendering process that are used to avoid predatory bids: an inferior limit (80-90%) of the official value of the project and each bidder is required to propose an expected future public payment with a superior limit for the public budget. According to the number of bidders, a formula is applied to assign points in the economic proposal. Also, winning a bid requires a technical offer and a commitment to the use of national industrial supplies.

By law, concessionaire payments are tight in order to meet the quality index and the availabil-

ity of the service as a correct incentive to guarantee the adequate execution of public works.

However, an evaluation of PPPs would logically touch upon the renegotiations issue. If ANI repeats the pattern of weak governance in the contract – a lack of monitoring, the absence of a fiscal accounting system, a failure to honor the terms of concession contracts and introduce unilateral changes (regulatory risk), and pursue electoral interests – the 4G Program will generate catastrophic overruns and delays since 4G investment is superior to that seen for the 1G, 2G and 3G concessions taken together.

Economic theory suggests that agency costs, transaction costs and contract incompleteness will be present in the 4G Program and will impact the social outcome. Also, both moral hazard and adverse selection problems may arise.

As a matter of fact, in a world of 'incomplete' contracts, where it is difficult to foresee and contract for uncertain future events, it is important to get the incentive structure right (Hoppe & Schmitz, 2013). At the planning stage, the agent must be motivated to create better (designed projects. At the implementation stage, public and private parties must be incentivized to efficiently manage and use disclosed information (Iossa & Martimort, 2012). The incomplete contract dynamics of PPPs are thus related to the cost of flexibility and adaptations over the life of the contract – it is a trade-off between incentives to perform as planned and the likelihood of flexibility through renegotiations (Iossa & Martimort, 2015).

Following this argument, it is argued that the root of the problem arises with the multiple role that public partners play in the contract since these are intrinsically contradictory roles: representing a contractual counterpart to the private actor and, simultaneously, from an institutional perspective, a political authority shaping the overall context of economic activity through a variety of legislative, normative and administrative means. This dual role besets the public agents with an uneasy choice between value creation and capture, because they simultaneously face the contradictory incentives of securing wider collective interests and maintaining the overall institutional "rules of the game" while maximizing political benefits, such as reelection or extended control over public resources (Iossa & Martimort, 2015).

The separation of commercial and governance roles for the public party is not easy, and is clearly a challenge for the 4G Program implementation process. ANI could not continue to confuse the roles of PPP policy advocate, project promoter, manager, planner, legislator, contract developer, contract regulator, financial supervisor, project assessor (Hodge, 2004), and electoral source of governmental image and regional resources.

In the case of a private partner, the private contractor enters into a long-term relationship with the public sector and simply wants to raise maximum revenue by granting the right to act as a monopolist (Bovaird, 2004), which may create scope for the private party to engage in rent-seeking behavior (Hoppe & Schmitz, 2013).

In such a context, the relationship between the public party and private party is highly complex and covers several private interests that incentivize deviation from the public interest or service provisions that a PPP project represents. It becomes a social dilemma in which individual efforts to capture higher payoffs undermine a socially optimal outcome, leading to potential partnership failures (Ilze & Bertrand, 2012).

But there is a third part that completes the structure of a PPP's basic or primary relationships: users or citizens. They should be considered as individuals and as communities directly affected by the project.

When citizens perceive private parties as transgressors, that is, they disagree with the contract conditions, tolls or scope of the project, they are likely to suffer from diminished community or local support and threatened access to resources, as well as unofficial punishment, such as public shaming, boycotts and negative press coverage, leading to further stakeholder pressure, loss of reputation and potential stigmatization (Ilze & Bertrand, 2012).

It could also be that communities foresee an opportunity to capture rents from the private party, for example, job creation opportunities and additional local works. A higher degree of citizen mobilization and increased pressure for local benefits are therefore more likely.

As a consequence, firms anticipating important external third party mobilization and involving behaviors prior to engagement may decide to forgo the partnership opportunity altogether or may opt for a governance structure of least hazards, even if it means choosing a less optimal arrangement in light of other contextual requirements surrounding the collaboration (Ilze & Bertrand, 2012).

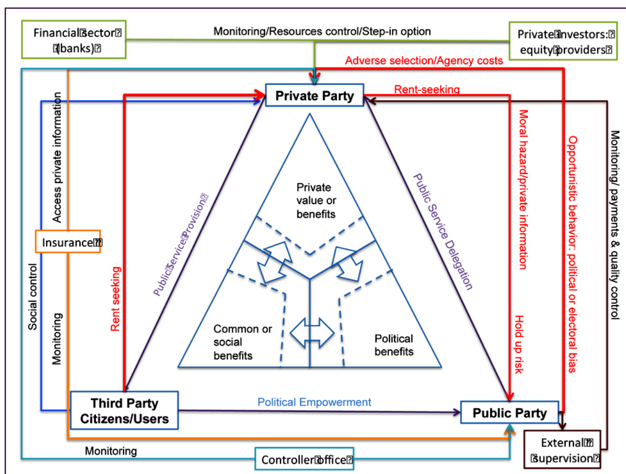
Despite the tripartite approach that the PPP approach can offer, an appreciation of value captures tensions in PPP projects and might lead to renegotiation. The PPP model goes beyond such a composition and a better comprehensive understanding will reveal how many others actors play a specific role within a check and balances structure, in order to guarantee the real goal of the PPP project: optimal welfare and the provision of public services.

Consequently, the next graphic comes from Kivleniece and Quelin's Tripartite Model of Value Tensions (2012) and captures the intricacy of agent behaviors when seeking to maximize private revenue or political benefits (red lines: rent extraction, political or electoral bias, moral hazard, private information, risk of hold ups), rather than looking to the public interest inherent in public service provision (purple lines).

Since this behavior is expected from the parties and will dominate performance during the contract period, a whole set of instruments and players is put in place to act as behavioral boundaries. Insurance guarantees, equity investors, financial lenders, controller public authorities, external supervision and stakeholders thus appear at the contractual scene

in order to offer monitoring activities to money investment, reveal private information or asymmetric information, cover solvency risks, reduce adverse selection and moral hazard, offer social control and take disciplinary measures.

Figure 2. Opportunistic behavior in PPPs: a multipartite model of constraints



Source: Author based on Kivleniece and Quelin's Tripartite Model of Value Tensions (2012)

The above figure illustrates the design order of the PPP model adopted in Colombia and rests on the simple idea that self-interest, personal or political ambitions and individual benefits are perfectly predictable in any contract dynamic.

All the regulatory, contractual and institutional instruments are settled to avoid this dominant private interest in the behavior exhibited by the parties, however, there is still scope for perverse renegotiations, as game theory indicates.

Game Theory

Moving further into an analysis inside economic theory, the methodology selected is that of game theory, which relates to a usual agency problem.

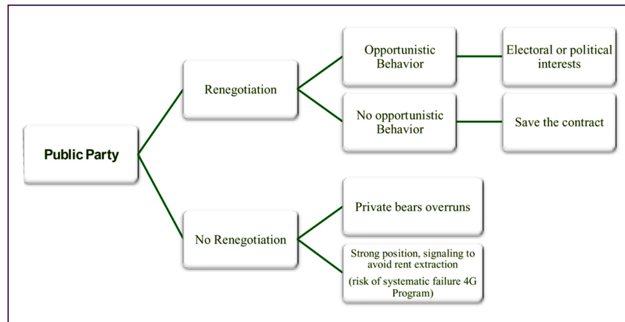
Diverse principals, bundles in the public party position (e.g. Ministry of Transport, Ministry of Finance and other local authorities, such as governors or mayors and the National Agency of Infrastructure) look for their duties in providing public works or services that should be executed by one agent (private concessionaries, actors in charge of the implementation BOT of public works).

Information, private incentives and enforcement problems cause different transaction costs that affect political relations and outputs for public provisions.

The following game studies the interactions between agents (private concessionaires) and the public authority (ANI) during the performance period or post-completion stage of the PPP contract when renegotiation is allowed and overruns emerge. The parties have two options: renegotiation or no-renegotiation.

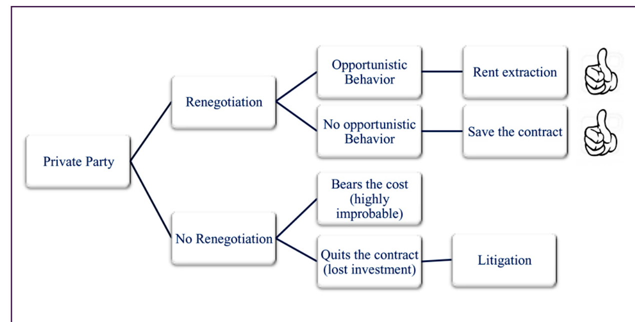
The decision-making process of the public and private parties is shown in the following figures, with two different results emerging between the public and private parties; the first does not have a dominant preference while the second goes for renegotiation and establishes the dominant strategy in the game.

Figure 3. Public party decision-making process



Source: Author

Figure 4. Private party decision-making process



Source: Author

The public party cannot easily identify legitimate or illegitimate intentions (opportunistic behavior) in the private party in relation to renegotiation. It could run the strategy of signaling itself as a strong party with little space for renegotiation, as Guasch (2004) suggests, while fear of rejecting legitimate renegotiations will end in the systematic failure of the 4G Program.

On the other hand, renegotiation opens opportunities for public opportunistic behavior in pursuit of electoral and political interests, such as adding strategic stretches or complementary words not present in the initial scope, all without public contest, or altering risk allocation to gain concessionaire support and thus financial power: electoral cycles may induce incumbents to invest in order to guarantee their election or re-election (Domingues & Zlatkovic, 2015). In the renegotiation decision a good and sincere renegotiation may occur.

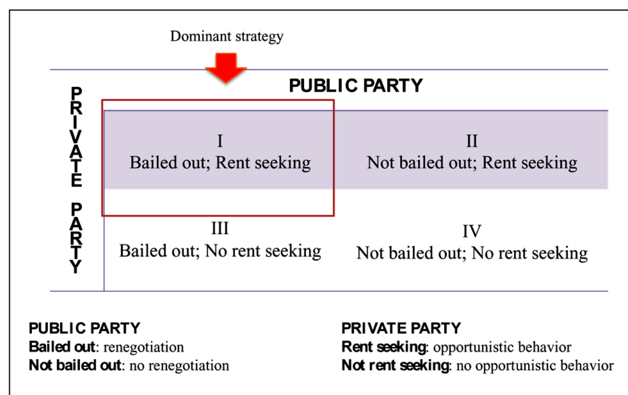
For the private party the analysis is similar but the outcome will determine a dominant strategy for renegotiation. Non-renegotiation seems improbable because it suggests a quitting of the contract and the initiation of a litigation process. On the other hand, renegotiation implies a rent extraction opportunity or the rescuing of the contract from truly unforeseen circumstances.

The private party would expect opportunistic behavior from the public party, but it has a stronger bargaining power due to asymmetric information (it controls the project information and development) and can predict that the public party will fear the systematic failure of the 4G Program, preferring to renegotiate. In other words, "once the contract is signed, governments usually cannot afford the political cost of letting the concession fail, which generates hold-up risk." (Bitran, Nieto-Parra & Robledo, 2013)

As Guasch (2004) argues, “renegotiation is a strategic and rational response to the concession environment and to the costs and likelihood of renegotiation success. The friendlier the environment and the less costly such action is, the more likely are claims for renegotiation.”

The following Figure 5 integrates an independent strategic analysis of the parties, which ends with a dominant strategy for the private party of renegotiation and opportunistic behavior for both.

Figure 5. Game theory analysis



Source: Author

Furthermore, in this analysis, the third party (citizens or users) would not oppose renegotiation if the additional works would benefit them directly. Only arrangements that increase tolls or tariffs or do not benefit local communities would suffer from social opposition. Furthermore, if the quality of information about renegotiations is deficient or secret, future fiscal impact cannot be perceived as providing a counterbalance by controllers public authorities.

Similarly, private equity investors and lenders could encourage opportunistic behaviors for private parties in any renegotiation process because this would provide a source of income that would lead to the quickest recovery of investment.

As a result, even when the design of the PPP model tries to withhold the opportunistic behavior of parties, but the inherent self-interests of parties involve a public-private partnership, undesirable renegotiations may occur. It is thus possible to bridge the gap of opportunistic behavior but never close it and this is indeed inherent to the nature of the public-private partnership.

Therefore, in order to keep constraining the opportunistic behavior of parties in PPPs, some recommendations that Colombia needs to fully implement are as follows:

In the first place, the release and publication of renegotiation information to stakeholders to reveal opportunistic interests and control good faith in new arrangements.

In the second place, adopt ex-post and accurate evaluations of PPP projects at the executive level to improve accountability and disclose the welfare outcomes of the 4G Program. Standard and periodical evaluations by independent parties should be implemented and discussed with authorities, parties and stakeholders.

In the same way, “renegotiation can be seen as ‘a possibility of Pareto improving deals to

account for changes in the environment or in agents' preferences'; effective contractual agreements must provide strategic goals and the tools to achieve them." (Domingues & Zlatkovic, 2015).

Accordingly, some strategies that public entities may apply to the pursuit of welfare-based renegotiations are:

First, build trust-based relations among all the actors of the PPP model: public-private parties, investors, lenders, users, citizens, controller authorities, and external supervision parties. Then communication between agents must improve and information must flow.

Second, a priori programmed renegotiations. Programmed renegotiations are related to contract duration, formalizing moments of partner discussion for adjustments that can thus be budgeted for to avoid unexpected transaction costs (Ribeiro et al, 2015), with the possibility of identifying and defining triggers for renegotiations beforehand(in the contract. The freeze period of Law 1508/12 should be keep as an important instrument for the avoidance of depredatory bids.

Third, fewer advance payments from the state. The fact that concessionaries stopped receiving advance payments from the state is considered a success in the 4G Program; it means that the concession is financially viable and provides a correct incentive for investing equity and private finance in public works.

Fourth, traffic forecast update (with real data from the first years of operation). Updating traffic forecasts with real data from operations is also a positive feature for renegotiation since the financial performance of the concession depends on demand (Ribeiro et al, 2015).

Fifth, revenue risk transferred to a private partner. A positive result from renegotiation should be that revenue risk is transferred to the concessionaire. Colombia needs to limit and better define the financial equilibrium principle and the guarantee of utility in public contracts (Law 80 of 1993).

The equilibrium principle has been misunderstood and perhaps badly applied, since in economic terms the private party is able to manipulate it to transferred -back the commercial risk:

> "Another element that needs to be very clearly stated in the financial equilibrium clause of the contract is the period of application. The period of application refers to the period of time over which the financial equilibrium is evaluated, and in principle it could range from one year to the life of the concession. Both of these extreme points are inappropriate; a three-to-five-year period seems more appropriate. **If that period is not clearly stated, operators will choose the shortest period when the financial results have been deficient, and the longest period when the financial results are very good**. The choice of the relevant period has been a source of conflict when it was not properly specified. Finally, the principle of financial equilibrium should

be an ex ante consideration and not ex post market out- come, in the sense that **it should not bail the operator out for adverse realizations of normal commercial risk"**. (Author's emphasis.) (Guasch, 2004).

Lastly, the claw-back mechanism allows for the sharing of the upside of revenues between the state and concessionaires and must be considered a logical economic principle in public-private arrangements (Ribeiro et al, 2015). Not only when the contract is in deficit should the State bail out the concessionaire, but surplus must be distributed or reintegrated into the public budget.

IV. CONCLUSION AND RECOMMENDATIONS

PPP road infrastructure projects in Colombia have been discussed extensively herein, pointing out that major drawbacks include the risk of perverse renegotiations that would benefit private companies and politicians using public resources. Traditional mechanisms and instruments like improved project preparation and contract-design incentives, or improved institutional and regulatory frameworks, serve as powerful constraints on opportunistic behavior but are unable to erase the underlying dynamics.

The PPP model is a "mega credit card" onto which governments charge infrastructure deals and bills are collected through taxes or tolls. In the end, users and citizens will pay for any excess in the management of credit card purchases.

Furthermore, it is difficult to judge whether PPPs are the next chapter in the privatization wave, a new set of rules and norms for the standard contract, the correct path to bridge the infrastructure gap, or another promise in our continuing search to improve public sector service performance. What can be said is that the PPP model has larger implications for the legal, economic and political contexts of the country.

It should be encourage in lawyers and civil servants and even in foolish citizens to abandon the idea that new regulatory frameworks or transplant models will automatically disappear and deter undesirable behavior of contract parties and will avoid inefficient outcomes. There is not magic potion or logic predetermined operation to install in the legal system in order to contracting out public services with optimal welfare outcomes.

As Hayek (1945) sustained in his economic analyses, new contracting models for public procurement are not problems of logic with predictable solutions. A country cannot gather in legal box best practices, recommendations of international consultants and organizations, standard documents, public policies, and a set of regulations in order to easily create a suitable and reliable outcome. Most likely, when you open the box, you let free all the evils of public procurement, resembling a Pandora Box.

An understanding of the complexities, dynamics and synergies of public-private partnerships is better suited to protecting and enhancing the public interest in public procurement. This is so because the interactions of several actors and their self-interests and ambitions will emerge in a spontaneous order rather than following a strict PPP design.

Public service ethics and public service motivations must be defended and strengthened, so that the public sector can hold back political pressures and act in the public interest. The key message is that PPP projects involve long-term relationships. Success can only be achieved if the public authority and the contractor approach the project in a spirit of partnership, understanding each other's business and interests, and holding a common vision as to how best they can work together (Spackman, 2002), but while being respectful of the provision of a public service as the main goal.

There exists some scope for general recommendations made in addition to those present in each section of this thesis. These touch upon the main threats and challenges of the 4G Program:

First, it is critical that, with the huge financial resources at stake in the 4G Program, the priorities of democratic debate, transparency and clarity are provided for. With contract decisions covering dozens of future government terms (2015-3038) these contracts also need to be optimal in the technical sense (Hodge, 2004).

Secondly, citizens have the right to clear and explicit project and finance details, and increased transparency, including the interest rate under which the government signs any contract, along with a clear specification of 'the deal' endorsed. In the absence of this, the political purchase of huge infrastructure projects will continue to leave citizens open to opportunistic renegotiations hampered by political and commercial trade-offs (Hodge, 2004).

Thirdly, Colombia needs a pipeline of PPP projects that give coherence to the network of transportation and separate planning stages free from political bias. A PPP unit is one alternative that might contribute to unmixed ANI multiple roles (policy advocate, economic developer, steward for public funds, elected representative for decision-making, regulator of contract life, commercial signatory to the contract and planner) (Hodge & Greve, 2010) within the 4G Program.

The PPP unit that the literature recommends for countries in the early stages of the development and implementation of PPPs represents a real center of expertise, with the gathering together of knowledge and provision of the capacity to improve PPP operations via the points listed (SCS Consulting Group & Perera, 2012):

Policy guidance: Developing and advising on policies, procedures, guidelines and legislation. Key function for the development of new PPPs in regional and local governments.

Technical support: Assisting government authorities throughout the PPP project cycle. Relevant task of transferring and teaching contract management theory to diverse and disperse public authorities.

Capacity building: Training and education of public sector servers through professionalization or specialization courses.

Promotion: Ensuring awareness and understanding of PPPs within the private and public sectors and the wider (community (SCS Consulting Group & Perera, 2012).

Fourthly, environmental and social sustainability have yet to be implemented in PPP contracts. It is necessary to ensure that the public sector maintains a reasonable level of control and influence over the impact of projects. Unless environmental, social and development safeguards are enforced in PPP contracts, the private sector may seek to act only in its own interests, which may not necessarily be those of the society (SCS Consulting Group & Perera, 2012).

In addition, it should be examined whether the PPP model reduces the flexibility of current and future planning for the government because PPP contracts imply 25-30 years of a fixed project. Planners should develop strategies that preserve government flexibility to plan for future community needs or incoming innovations for public transportation without violating the terms of the contract (Siemiatycki, 2010).

Furthermore, public agencies should better collect and disseminate data on the outcomes of large transportation infrastructure projects as a way to support learning from past experiences and systematically identify the strengths and weaknesses of delivering large infrastructure projects through PPPs. National government should develop databases that compile both financial and nonfinancial information on project performance (Siemiatycki, 2010).

Besides, the dominant optimism (biased or not) in the 4G Program is overwhelming and should be systematically followed and examined by civil society: academics, NGOs, and so on. If the 4G Program is contaminated by political opportunism or by inadequate contractual renegotiations, or by inflated traffic demand forecasts, a severe misallocation of governmental funds would occur to the detriment of education, health and peace policies (Domingues &Zlatkovic, 2015).

Finally, PPPs are vulnerable to economic cycles. PPP transport contracts, given their inherent dependence, are exposed to exogenous risks. Fluctuations of a few percentage points in macro-economic growth, interest or exchange rates can all have an important impact on a project, moving from success to failure: the oil price drop that the world is facing represents a public income deficit for Colombia since the majority of rents come from the oil and gas sector or the revaluation of the US dollar (part of the private finance debt is in USD). Although both public and private partners have little control over macro-economic shocks, “under-

standing the degree of volatility of the uncertainty around these shocks may help limiting the downside and benefiting from the upside in case those risks materialize." (Domingues &Zlatkovic, 2015).

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