

## Financialization and the Road Sector in Mexico

José Enrique Mendoza<sup>1</sup>

<sup>1</sup> Faculty of Political and Social Sciences, National Autonomous University of Mexico (UNAM), Mexico. E-mail address: jemend@hotmail.com

### Abstract

Financialization<sup>2</sup> has transformed public spending into the guarantor of financial profit. One of the expressions of this process is the partnership between public spending and private capital, which has underpinned the securitization of public assets. In the road sector, structured financing constrains the availability of public resources, permits the emergence of new sources of profit for financial monopolistic capital, and drives up the cost of infrastructure. The objective of this paper is to analyze how public-private partnerships (PPP) operate in the Mexican road sector.

**Keywords:** Infrastructure, road sector, private capital, public assets, Tenango-Ixtapa de la Sal highway.

Date received: August 8, 2016.

Date accepted: December 4, 2016.

### INTRODUCTION<sup>3</sup>

The past three decades have ushered in liberalization, deregulation, and trade openness, and seen the transformation of the State's role in the economy, all of which comprise the backbone of the neoliberal model. The backers of these processes brandish arguments trumpeting the "efficiency, quality, and superiority of private capital management" in the public sector in a context of austerity. Public-private partnerships (PPP) are an expression of the reorganization of the state apparatus and the monetization of public goods and services.

PPPs began in the United Kingdom with the Private Finance Initiative (PFI) in 1982. The idea behind the PFI was to capitalize on private funding to build and renovate public infrastructure. In projects of this sort, the private partner is responsible for designing,

financing, building, operating, and maintaining the infrastructure, pursuant to quality standards set by the public administration.

In Latin America, PPPs have played a major role in nations like Chile and Mexico. In the former case, this set-up has been used to develop transportation, airport, prison, and irrigation projects, to name a few. In the latter, PPPs have mainly been involved in highway concessions and electricity, natural gas, railroad, water and sewage, airport, port, and social infrastructure works.

Generally speaking, governments implement PPPs under the argument that public resources are insufficient to build infrastructure works. In this type of scheme, administrations relinquish some of the flow of future public revenue, either by committing portions of the public budget in the long term or foregoing the right to the revenue generated by the asset under concession.

A substantial portion of infrastructure is funded through bond issuances. For example, bonds can be issued whose source of payment will come from federal participations, contributions, payroll tax, revenue from highway tolls, etc.

Accordingly, this paper proves the following hypothesis: the securitization of public assets, as a means of support for roads built or operated via PPPs, constitutes a new source of profit for financial monopolistic capital, tying up available public resources and making infrastructure more costly.

This paper begins with a literature review of the academic and scientific research on PPPs and the securitization of assets. Then, a series of indicators are used to weigh the importance of these variables for the road sector, amounts of public-private investment in the sector, which types of projects are being carried out, and the issuance of highway bonds, both private and state. Finally, this paper outlines the concepts and how they connect with one another through a concrete case study: the Tenango-Ixtapa de la Sal highway.

This paper consists of six sections. The first two introduce a conceptual approach to PPPs and the background of the securitization of public assets. The third addresses the debate swirling around the implementation of these schemes. Next, the importance of road PPPs in building infrastructure is weighed. Then, the Mexican road sector as a whole is analyzed, and finally, this paper provides an examination of PPPs in the Mexican road sector using asset securitization, with an example to illustrate how they operate.

## PPPs: A CONCEPTUAL APPROACH

According to Engel, Fischer, and Galetovic, "...a PPP is defined as an agreement by which the government hires a private enterprise to build or upgrade infrastructure works, and to maintain and operate them for a long period of time (for example, 30 years). During the operation of the project, the private partner receives a stream of payments as compensation..." (Engel *et al.*, 2014: 16).

Klijn defines a PPP as "...a more or less sustainable cooperation between public and private actors in which joint products and/or services are developed and in which risks, costs, and profits are shared" (Klijn, 2010: 68).

In these schemes, the private sector can supplement funding for investment in diverse ways:

- a. If the services are sold to the public, the private sector can issue debt using the concessions' forecast revenue as collateral;
- b. If the government is the main purchaser of the services, this income stream can be used as collateral;
- c. The private sector can directly contribute to the costs of the project or to collateral backing government loans (FMI, 2004: 9).

The government's role in PPPs can come in many forms: *i*) resources in addition to tolls or user fees; *ii*) shadow tolls;<sup>4</sup> and *iii*) ceding use of land or equipment, purchase pledges, etc.

Broadly speaking, PPPs tend to operate under the project financing scheme, pursuant to the following principles:

- a. A special purpose vehicle (SPV) is set up. SPVs acquire the assets or fee-collecting rights and in turn finance the purchase by issuing securitized bonds.
- b. These projects are highly leveraged, where between 50% and 100% of the funds come from financial entities in the form of debt.
- c. The project's cash flows serve as collateral for the lenders.
- d. Complex contractual agreements are required to handle the risk of the various participants in the project, including: developer partners, operator, financial entities, construction company, public administration, etc.
- e. Finally, these projects are subject to the analysis of independent financial, legal, and technical advisors (Díaz, 2011: 17).

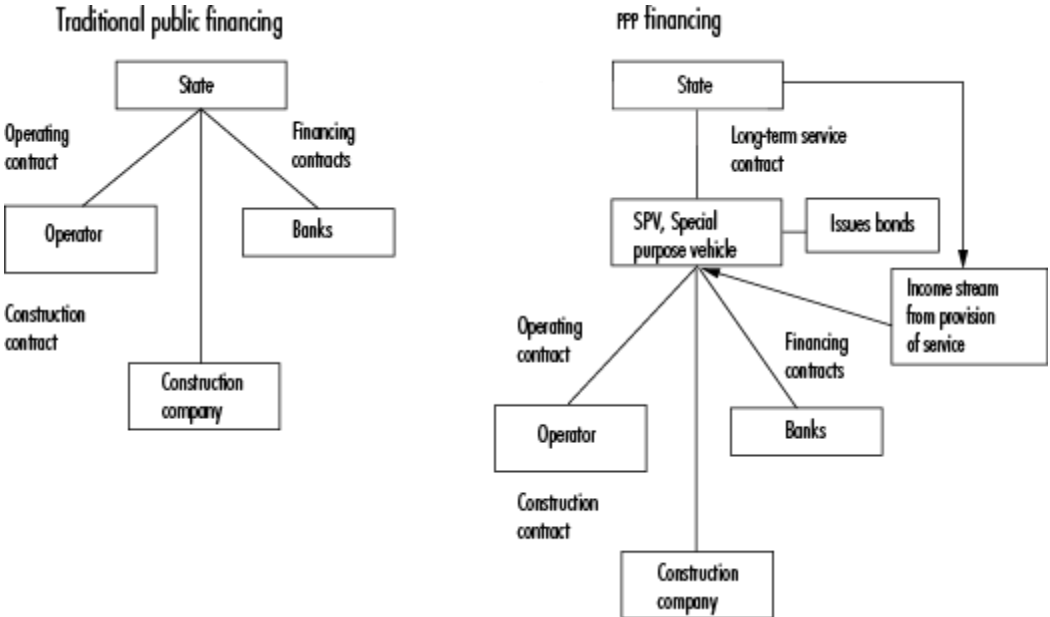
Thus, the project finance structure permits developers to work on large projects with a relatively small investment, but also entail high debt levels and require rigorous oversight of

management and risk control. Nevertheless, these financing schemes are constrained by their contractual and financial complexity, the high cost of financing as compared to direct public financing, and the costs tied to financial closing and the studies needed in advance (Díaz, 2011: 17).

Figure 1 compares how traditional public works hiring schemes work against PPPs:

- a. In the traditional scheme, maintenance, operation, and public works costs are paid by the government from the very beginning of the provision of the service. The government obtains funding from banks and sets up contracts with the operators and builders. Subsequently, it pays the debt and manages the asset or good, either directly or through concessionaires.
- b. The cornerstone of a PPP is the SPV, which acquires assets, issues bonds, and coordinates the builders and operators. All of this is protected by the revenue flow generated by the public asset. Each of the participants in these contracts has different objectives, whether that be creating profit or preserving power, and they all take on risk.

Diagram 1. Comparison of Traditional Public Works Schemes and PPPs



Source: Based on Hana Palockova Brix, Nina Budina, and Timothy Irwin, "Managing Fiscal Risk in PPPs," in *Current Issues in Fiscal Reform in Central Europe and the Baltic States 2005* (Washington, Banco Mundial, 2005: 135-156).

Risk in a PPP contract falls into one of seven categories, according to Engel, Fischer and Galetovic: *i*) construction risk; *ii*) operation and maintenance risk; *iii*) performance risk, including the availability of the service or infrastructure; *iv*) residual value risk, mainly uncertainty about the value of the assets at the end of the PPP contract; *v*) policy risk (macroeconomic and government actions that may affect the project); *vi*) demand risk; *vii*) financial risk (interest rate, exchange rate, and other financial factors) (Engel *et al.*, 2014: 12).

In this sense, it is important to define as part of a PPP's scope which actor will assume which type of risk. When concessionaires are not held liable for the risks under their control, the state often has to intervene with a massive bailout. Such was the case of the Mexican road bailout, which will be examined below.

It bears remembering that risk management is another source of business for high finance. Accordingly, the International Finance Corporation (IFC), which is part of the World Bank Group, offers loans in local currency to Latin American infrastructure projects to hedge against currency mismatch<sup>5</sup> and interest rate risks (Cheikhrouhou *et al.*, 2007: 71).

Likewise, there is a lot to be said for the role played by the World Bank in promoting PPPs through the IFC and the Public Private Infrastructure Advisory Facility (PPIAF). This institution offers financing and partial guarantees for risk and credit in the development of these projects.

In this framework emerges the opportunity to invigorate funding for PPPs via the capital market. Asset securitization transforms public finance because it requires a stable framework, permits long-term restructuring, and serves as an alternative to bank financing (Díaz, 2011: 23).

The section below deals with asset securitization.

## **THE BACKGROUND OF THE SECURITIZATION OF PUBLIC ASSETS**

Asset securitization is a process that raises resources by issuing asset-backed bonds that generate a future flow of income. Vis-à-vis securitization, financial or non-financial enterprises can externalize assets and future fee-collection rights, allowing them to raise funds.

Asset securitization can entail the issuance of off-balance sheet bonds through SPVs or trusts that acquire the assets or fee-collection rights and, in turn, finance the purchase through the issuance of securitized bonds.

The securities bond market clusters in the hands of institutional investors (investment banks, speculative funds, pension funds, and insurance companies).

Specifically, when public assets are securitized, the government foregoes an income stream, either directly, relinquishing the revenue stream generated by the asset under concession, or indirectly, by pledging certain portions of the budget in the long term. Based on said public resources, bonds are issued, which serve as the financial underpinning of the infrastructure works.

Certain academic sectors view the securitization of public assets as a mechanism to solve the problems of efficiency "inherent" to public administration.

Andreas Jobst's (2006) arguments are striking in this regard. He asserts that securitization "...implies greater control over public assets and facilitates the divestment of the government function in order to make infrastructural investments self-financing at a fair market rate and independent of the sovereign balance sheet" (Jobst, 2016: 16). He affirms that assigning a market value to public goods and services facilitates more efficient management than conventional financing via fiscal revenue and traditional credit.

What the author of this paper does share with Jobst is the importance placed in the securitization of public assets as the bedrock of public finance. As he wrote:

Over the recent past, federal, state, and local authorities (municipalities and provinces), as well as government agencies in various emerging market countries, have securitized future revenues to domestic and/or retail investors. In most cases, public sector agencies have enlisted securitization in order to monetize tax receivables (federal tax participations), deferred sales tax revenue, oil and gas royalties, future water receivables, toll road revenues, sovereign lease receivables..., and more (Jobst, 2006: 6).

As such, the securitization of public assets, as a form of financial backing for PPP schemes, transforms how public finance operates. Public sources of revenue are compromised in the long term as a system of subsidies for large private corporations is consolidated.

The securitization of public assets has served as a vehicle for privatization. Using structured financing for public assets exposes governmental operations to the pressures of the stock

market. This is evident, for example, in analyzing the reports filed by debt-raters of local governments in Mexico.

Public asset securitization as a financing mechanism has gained ground in recent years for building infrastructure projects in Mexico, specifically when it comes to constructing, operating, and maintaining the road sector. But before delving into these themes, it's time to take a look at some of the stances for and against PPPs, to elucidate the opportunities and perils involved in these projects.

### **DEBATE SURROUNDING THE IMPLEMENTATION OF PPPs**

Debate regarding PPPs abounds. On the one hand, advocates claim that private-sector management is more efficient and able to furnish higher-quality services and products than the public sector. On the other, administrations tend to argue that these schemes are an opportunity to build infrastructure and procure public services without increasing debt or putting any major pressure on the budget.<sup>6</sup>

There is also an argument that PPPs are a mechanism by which: *i*) capital spending can be divided into a series of small and annualized expenditures; *ii*) value for money (VFM) is enhanced for taxpayers; *iii*) risk is diminished for government projects; *iv*) accounting is improved; and *v*) innovation thrives (Hodge, 2010: 86).

Following the arguments in favor of PPPs, Fitzpatrick sustains that they: *a*) improve the price-quality ratio and the private sector's operational and management skills in the provision of public goods and services; *b*) deliver services and infrastructure that otherwise would not be supplied; *c*) bolster risk management; *d*) allow private-market competition to act as a vehicle for efficiency; *e*) reduce public spending, redirecting the budget to other priorities; and *f*) speed up the delivery of goods and services (Fitzpatrick, 2006: 11).

In general, along these same lines, PPPs are an opportunity to deliver public goods and services when governments are short on funds. Similarly, there is an expectation that the competition in private markets will make the public sector more efficient.

On the other side of the argument, some would cast doubt on the benefits described above. For example, one criticism of PPPs is found in Engel, Fischer, and Galetovic, who argue that PPPs do not alleviate fiscal budgetary restrictions:

“The resources saved by the government by not paying the upfront investment under a PPP should be equal, in present value to user fee revenue foregone to the concessionaire. That is, from a financial viewpoint, what PPPs do is borrow from the future with no net gain in discounted terms (Engel *et al.*, 2014: 31).<sup>7</sup>

For example, the government can save in the present on investing in hospitals and roads, but in the long term, it will have to pay the rent and administration of these hospitals or forego the toll road fees. Whatever governments do not spend in the present is equal to the stream of future public revenue they forego by relinquishing the public asset.

In addition to the above, there are a series of limitations that constraint PPPs:

- i. Governments and public authorities enter into irrevocable long-term payment commitments, which can impair credit ratings or erode spending on public services;
- ii. PPPs are a way to conceal public debt and turn the government into a bank teller;
- iii. The costs of financing PPPs are higher than those of traditional financing, because the state has better capacity to obtain credit;
- iv. In times of recession, PPPs create the effect of controlling spending, when countercyclical public spending would be better; and
- v. Special purpose vehicles can be used to hide government debt and the inherent risks in these schemes.

Jean Shaoul (2010) posits that government assertions as to the value of private financing disregard the competitive demands of numerous shareholders and the characteristics of transportation projects: the highly capital-intensive nature of public assets, which makes it impossible to obtain the return on capital that stock markets require without affecting taxpayers or users.

In general, PPPs deepen the state’s fiscal crisis and dismantle the capacity of public investment to influence economic growth. Over the past two decades, these schemes have spread to Mexico.

The next section ponders the importance of PPPs in the road sector.

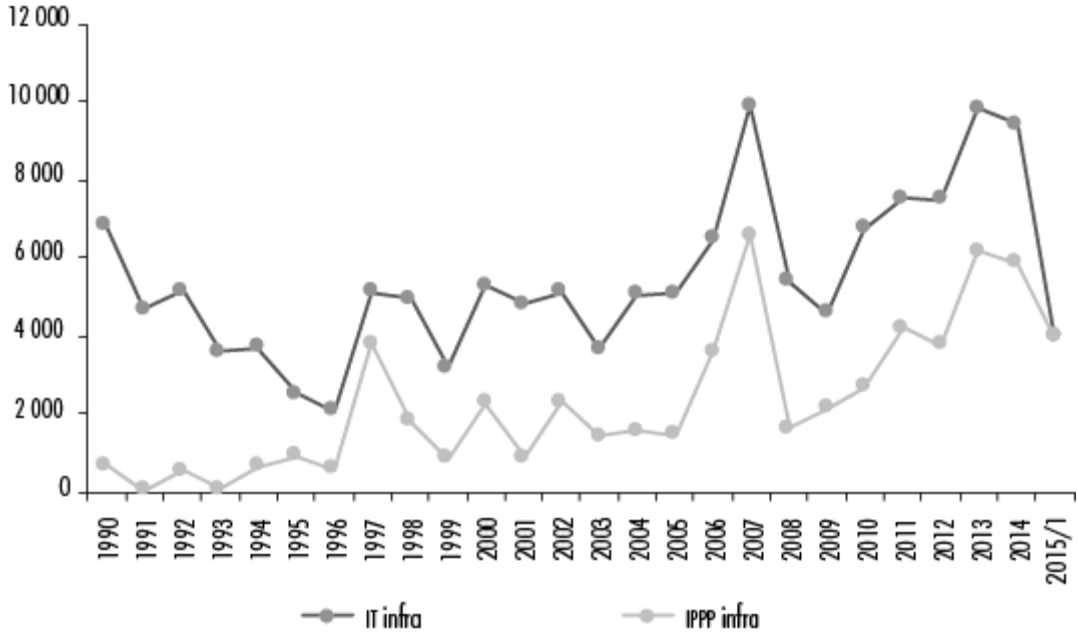
## **PPPs to BUILD ROADWAY INFRASTRUCTURE**



To analyze PPPs in Mexico, a sample of 297 active infrastructure projects in the private sector, performed between 1990 and 2015, was obtained. The source is the Private Participation in Infrastructure (PPI) Database kept by the World Bank.<sup>8</sup>

Figure 1 shows PPP investment and exclusively private investment in infrastructure projects. The gap between the two variables is explained by investment in the information and communication technologies (ICT) sector (including businesses like cell phone services and the Internet market), which are generally profitable enough for private investors to go at them alone, with no need for public resources.

Figure 1. Private and PPP Investment in Infrastructure, 1990-2015  
(Millions of dollars, sample of 297 PPP schemes)



*1/Preliminary data.*

*Sources: Created with data from the Private Participation in Infrastructure (PPI) Database, World Bank.*

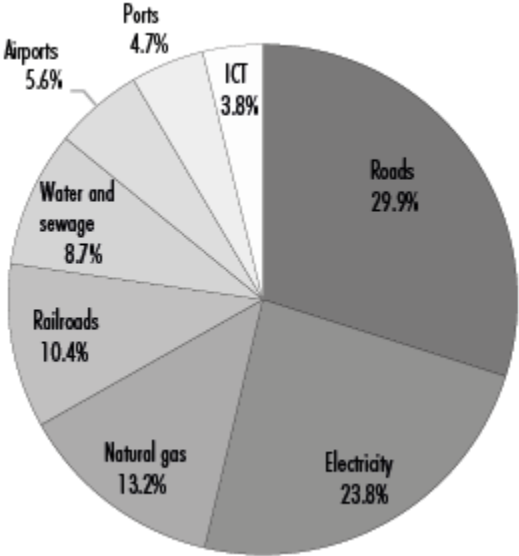
In line with Figure 1, it emerges that economic crises have historically served as the preamble to private investors getting more involved in infrastructure building. A dearth of public revenue paves the way for the transfer of infrastructure services to the private sector.

Roberto Soto (2010) maintains that in the wake of the international financial crisis of the aughts, PPPs became a new way for banks to obtain profits, allowing them to diversify risk by offsetting losses in the derivatives market.

Figure 2 portrays investment in PPPs by physical infrastructure sector. It appears that most of this capital is destined for roads, electricity, natural gas, and railways, which together comprise 77.2% of said funds.

There are 44 active road projects in the sample, with public-private investment amounting to 17.673 billion dollars, accounting for 29.9% of total PPP investment. If to this figure are added the 16 road projects reported as cancelled in the World Bank database, as a result of the road bailout, investment in said sector would climb to 25 billion dollars, representing nearly 40% of all of the resources involved in PPPs.

Figure 2. PPP Investment by Physical Infrastructure Sector in Mexico, 1990-2015 Sample of 297 active projects (100%=59.178 billion dollars)



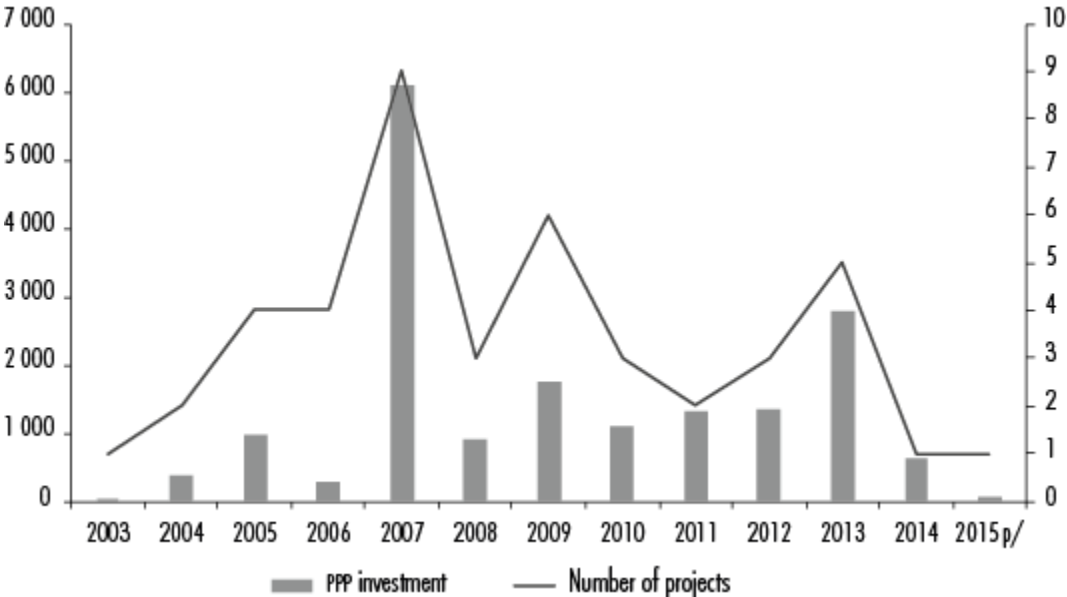
*Note: The database reports information on investments made per PPP project, which are in some cases public and privately owned. Accordingly, the database does not report private investment alone. Investment amounts represent total investment pledges entered into*

*by the project developer in the signing of the contract.*

*Source: Created with data from the Private Participation in Infrastructure (PPI) Database, World Bank.*

Figure 3 introduces PPP investment in road projects between 2003 and 2015. The most dynamic period for these schemes was between 2006 and 2012, when the resources invested reached 12.797 billion dollars (bd).

Figure 3. PPP Investment in the Road Sector, 2003-2015  
Millions of dollars and projects



Source: Created with data from the Private Participation in Infrastructure (PPI) Database, World Bank.

In the Mexican road sector, PPPs tend to run on one of the following models: 29 of the projects are on the build-operate-transfer (BOT) model, followed by 13 projects with the build-rehabilitate-operate-transfer (BROT) model, and two projects on the rehabilitate-operate-transfer (ROT) plan. Also of note is the Public-Private Partnerships Law (LAPP) enacted in 2011 in Mexico.

Sandoval (2015) affirms that the LAPP makes the body of law related to privatization more flexible, while at the same time doing away with public rights and giving up governmental powers and public resources. This allows large corporations to gain direct control over the creation of infrastructure and strategic areas of development in the country. For example, Article 21 of the LAPP stipulates that "...in planning their budget, contracting agencies and

entities shall prioritize the obligations set as part of a public-private partnership agreement” (Sandoval, 2015: 108).

In the road sector, the securitization of public assets as a way to finance PPPs has been associated with long-term road concessions, the dismantling of public highways, subsidies for large corporations via infrastructure funds, high toll road fees, restrictions on public funds for building roadway infrastructure, and more. The following section analyzes Mexican roads.

## **GENERAL OVERVIEW OF THE MEXICAN ROAD SECTOR**

In 2014, the national road network amounted to a total length of 389,345 kilometers (km), consisting of four types of roads: *i*) major federal highways (*redes troncales*), referring to the highways that crisscross and connect Mexico’s states, under the care of the federal government, representing 12.9% of the country's roads; *ii*) state roads that connect the county seats within each state and connect to the major federal highways, 24%; *iii*) rural roads, which are of lower quality and connect to far-removed communities, under the care of the municipalities, 45%; and, finally, *iv*) what are referred to as *brechas mejoradas*, rugged dirt or gravel roads, also under the auspices of the local authorities, 17.7%.

In 2000-2014, the road network grew at an annual average rate of 1.3%. In particular, the major federal highway network grew at a rate of 0.3%. This was the result of, on the one hand, the expansion of private toll roads, growing at 2.6% annually, and, on the other, a 0.2% diminishment in federal freeways.

In spite of the burgeoning role of major corporations—both national and foreign—in construction, when it comes to providing highway services to the federal network, the Federal Roads and Bridges and Related Services (CAPUFE) agency held on to around 40% of the length of toll roads, as of 2014. That year, the portion of the toll network owned by the state enterprise amounted to 3,870 km, backpedaling 1.4% annually on the figure reported in 2000.

At the same time as CAPUFE’s ownership has been dismantled, so too has its revenue. The figures show that revenue reached 3.051683 trillion pesos in 2015, which in real terms represents a decline of 0.8% over 2000.

The expansion of the federal highway network has been underwritten by private investment, first through the privatization of roads, at the end of the nineteen-eighties, and then by the PPP push since 2003.

The cancelled projects referenced above were related to an episode in which the federal government privatized 52 federal highways in 1989, awarding concession contracts for 50-year terms. Later, when the concession operators ran into financial trouble, the choice was made to bail out 23 of the highways, at a highway bailout cost of 57.7 million pesos in 1997, run through the Mexican Toll Road Bailout Fund (FARAC) (CEFP, 2007).

In 2015, public investment in road infrastructure amounted to 64.3609 billion pesos, entailing a drop of 1.9% annually over 2010 in real terms. The paucity of public spending has laid the groundwork for PPPs to get involved in the most lucrative portion of the highway network: the federal toll roads.

In the road sector, the institution charged with creating, implementing, and regulating the PPPs is the Secretariat of Communications and Transportation (SCT), which since 2001, has been working with three types of PPPs to attract capital to invest in the road sector:

- i. Concessions, which may or may not require public financing, granted for 30-year terms, in which the SCT sets maximum rates and rules for updating rates;
- ii. Road Service Provision Projects (SPP), which are contracts through which the SCT and a private company partner up to design, finance, construct, maintain, and operate a road. The private company provides the services in exchange for periodic quarterly payments with a contractual term of 15 to 20 years. This model has been used for freeways.
- iii. Exploitation of assets, where the Secretariat of Finance and Public Credit (SHCP) and the SCT agree to divest highway assets from the National Infrastructure Endowment (FONADIN) in exchange for a compensation payment or for the SCT making bundles composed of the FONADIN network and new toll roads (SCT, 2010).

The new method of road privatization—announced in July 2016—operates through multi-year contracts with CAPUFE for the maintenance and rehabilitation of freeways.

Through PPPs, the toll road market has consolidated, with the involvement of major construction companies like Promotora y Operadora de Infraestructura Pínfra), Ingenieros Civiles y Asociados (ICA), Impulsora del Desarrollo y el Empleo en América Latina (IDEAL), Obrascón Huarte Lain (OHL México), Compañía Contratista Nacional (Coconal), Grupo Carso, Grupo Azvi, Compañía Española de Financiación del Desarrollo, and Grupo Omega, to name a few.

Concession operators also receive support from various public funds to promote investment in infrastructure, like FONADIN, whose main task is to provide subordinated debt, guarantee

against certain risks related to the projects, and, in some cases, contribute capital to the infrastructure works.

Below is an analysis of the highway bonds market.

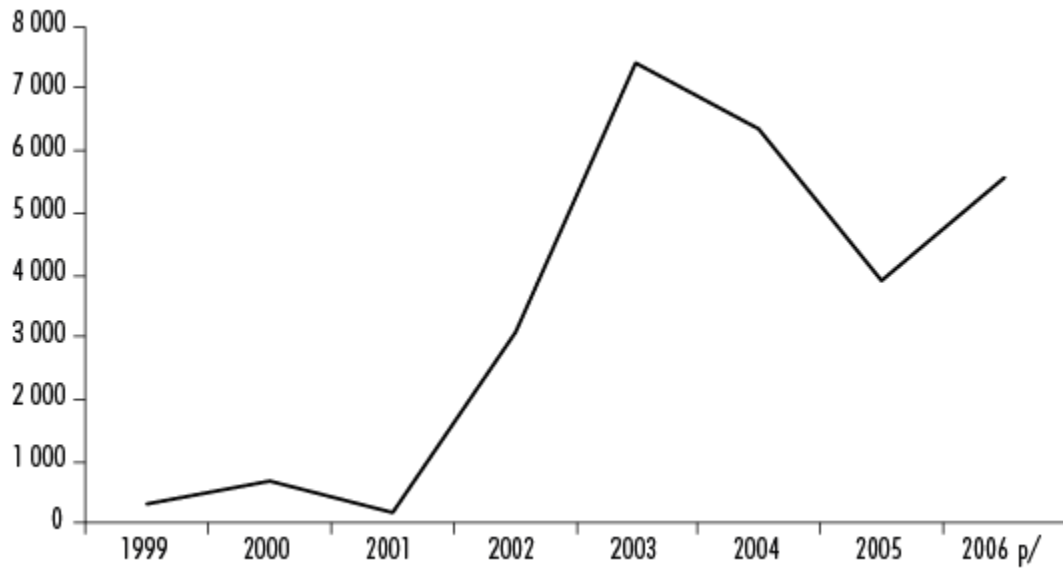
## **THE SECURITIZATION OF PUBLIC ASSETS IN THE MEXICAN ROAD SECTOR**

Concessionaires and some state governments have issued bonds whose collateral consists of the future revenue on fee-collection or toll road rights. This has been primarily done through two instruments: Ordinary Participation Certificates (*Certificados de Participación Ordinaria*, CPOS) and Stock Certificates (*Certificados Bursátiles*, CBS) (Suárez, 2006: 72).

The first highway bond issuances were for the Libramiento Oriente project in San Luis Potosí in August 1999, the Tijuana-Tecate highway in October 2000, and the Acapulco Tunnel in March 2001.

Figure 4 introduces the bonds issued in the roadway sector between 1999 and April 2006. Matilde Suárez (2006), analyzing information from the Mexican Stock Exchange (BMV), found that in this time period, 25 issuances were made with a value amounting to 27.514 billion pesos, with an average term of 15 years. Especially remarkable was the two-year period 2002-2003, when nearly 40% of these issuances happened.

Figure 4. Securitization of Toll Collection Rights, 1999-2006



*Note: p/ preliminary data.*

*Source: Data taken from Suárez Rosas, Matilde (2006), La bursatilización de activos en México*

*y su aplicación en el Sector Carretero del país, Mexico, ITEM, pp. 72-73.*

Another way to approach the magnitude of the market is by analyzing the credit-rating agency Fitch Ratings' highway bonds portfolio, which at year-end 2015 contained 24 stock issuances backed by the revenue of 31 stretches of highway with a value of 69.9237 billion pesos and a balance of 122.9165 billion pesos (see Table 1).

Table 1. Portfolio of Highway Bonds Rated by Fitch Ratings, December 2015 (millions of pesos)

<i>Highway projects</i>	<i>Code</i>	<i>Issuance date</i>	<i>Term (years)</i>	<i>Amount in millions of pesos</i>	<i>Balance a/</i>
Peñón-Texcoco	CPACCB 04	Dec-04	17	1 850.00	2 052.00
Monterrey-Cadereyta	YCTA 04U	Jan-04	25	2 249.50	1 593.70
Libramiento Plan del Rio	PLANRIO 05U	May-05	15	321.7	125.1
Libramiento Plan del Rio	PLANRIO 05-2U	May-05	25	178.7	189.4
El Altar-Santa Ana	ZONALCB 06U	Dec-06	27	800.9	544
El Altar-Santa Ana	ZONALCB 06-2U	Dec-06	28	321.1	256.9
El Altar-Santa Ana	ZONALCB 06-3U	Dec-06	28	479.8	468.5
Amozoc-Perote (2 tramos)	GANACB 11U	Apr-11	20	1 698.30	1 574.40
(2) Arriaga-Ocozocoautla/ Tuxtla Gutiérrez-SCC	CASCB 11U	Oct-11	26	3 514.40	3 320.70
Guadalajara-Zapotlanejo	RCO 12	Sep-12	15	2 841.00	2 841.00
León-Aguascalientes	RCO 12U	Sep-12	20	7 104.70	7 099.90
Kantunil-Cancún	MAYACB 12	Oct-12	22	1 195.00	1 161.00
Kantunil-Cancún	MAYACB 12U	Oct-12	22	3 303.80	3 207.50
Monterrey-Salttillo	CAMSCB 13U	Feb-13	24	4 186.30	4 083.40
Monterrey-Cadereyta	AMCCB 13U	Apr-13	34	2 500.70	2 753.80
Conchos-Camargo (8 tramos)	CHIHCB 13U	Aug-13	25	12 003.80	11 756.40
Camargo-Jiménez	CHIHCB 13	Sep-13	15	1 500.00	7 187.30
Chihuahua-Sacramento	CHIHCB 13-2	Sep-13	15	1 300.00	6 181.60
Libramiento de Saltillo	CAMSSCB 13U	Oct-13	26	826.6	826.6
Tenango-Ixtapan de la Sal	TENIXCB 14U	Feb-14	29	810.5	723.3
Circuito Exterior Mexiquense	CONMEX 14U	Aug-14	32	7 536.80	7 536.80
Maravatio-Zapotlanejo (2 tramos)	RCO 14	Dec-14	16	4 400.00	23 135.70
Libramiento Norte de Cd. de México	ARCONCB 15	Jun-15	20	6 500.00	34 297.60
Apizaco-Huachinango (4 tramos)	PAQPCB 16	May-16	10	2 500.00	

Note: a/ Amounts issued in millions of MXN as of December 2015 from the National Banking and Securities Commission.

Source: Created by data from Fitch Ratings (2015); *Autopistas de Cuota en México. Actualización del Desempeño al Cierre de 2015*



If the issuances in the Fitch Ratings portfolio are added to the data published in the Suárez (2006) study, highway bond issuances would amount to 95.0877 billion pesos between 1999 and 2015. These resources account for 107.4% of the public budget allocated to roadway infrastructure in 2015. Accordingly, the securitization of road assets has become widespread to furnish financial support to roadway infrastructure development projects.

It bears mention that it is not only construction companies that have issued highway bonds. State governments, although to a lesser extent, are also diving into the market. For example, Nuevo León has made issuances for an amount of 2.550 billion pesos. Chihuahua, through its road trust, has completed three issuances for an amount of 14.800 billion pesos (*El Economista*, July 13, 2016).

The value of state government-issued highway bonds amounts to one third of all issuances analyzed in this document.

To examine with greater precision the process of public roadway securitization and some of its implications, this paper turns now to a concrete example, aiming to reflect on the pertinence of these schemes.

#### **AN EXAMPLE OF ROADWAY ASSET SECURITIZATION: AUTOPISTA TENANGO-IXTAPA DE LA SAL, S.A. DE C.V. (ATISA)**

The Tenango-Ixtapa de la Sal highway is a state highway located in the south of the State of Mexico, running for 40 kilometers. The concession opened in December 1994, and was initially awarded to the company Tribade, a subsidiary of Promotora y Operadora de Infraestructura (PINFRA) (formerly known as Triturados Basálticos, Tribasa).

The project operates under the COT scheme. When the term is up, the concession rights return to the State. The concession was initially set to expire in 2013, but following various renegotiations, was extended by the Secretariat of Communications of the State of Mexico to December 2054.<sup>9</sup>

In 2003, PINFRA ceded the concession to its subsidiary ATISA. Two years later, on August 23, 2005, ATISA liquidated the obligations it had acquired from the Banco Nacional de Obras (Banobras) and was able to set up as an issuing trust for the highway. The companies

Pinfra Sector Construcción (Pinseco) and ATISA established a stock certificate issuance program backed by the toll-collection rights for the highway.

ATISA is the concession operator for the Tenango-Ixtapa de la Sal project, but Opervite performs operations. Both are subsidiaries of Pinfra. So there is a revenue stream on toll fees coming from the highway, which support the stock issuances.

It is important to mention that the State of Mexico government receives an amount equivalent to 1.5% of the gross monthly income (excluding VAT) generated by the highway as part of the concession.

On the other hand, Pinfra is one of the leading companies working on infrastructure project development in Mexico. The company has 16 road concessions and a port terminal. The former include 25 tollways and a bridge. Moreover, it produces asphalt and additives. In 2015, Pinfra operated a length of 989 roadway and bridge kilometers driven by 58.8 million vehicles (Pinfra, 2014: 16).

In 2014, nearly 70% of Pinfra's revenue was derived from the transportation infrastructure concession division. The rest of its revenue was from its own operations in the construction branch. In particular, the Tenango-Ixtapa de la Sal highway contributed 2.2% of its total income.

Pinfra has five securitized highways,<sup>10</sup> which account for one third of its income. It becomes clear that these financing schemes are intimately bound up in the company's high profitability.

In 2014, operation and maintenance costs per kilometer of Pinfra's securitized highways were nearly double the costs for the non-securitized highways it operates. This is a sign that securitization raises the financial costs for companies who hold road concessions.

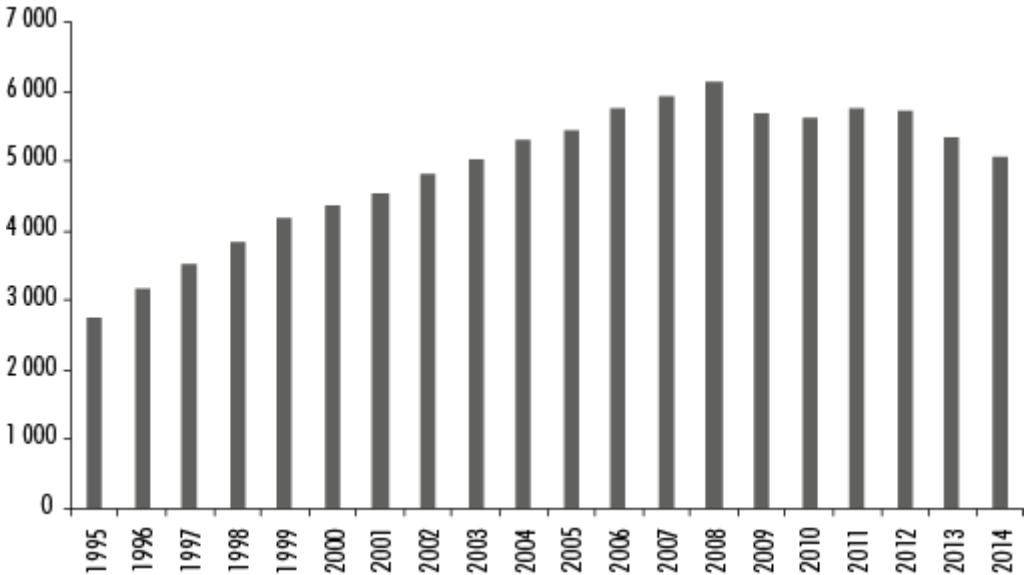
As an example of the dynamics of stock issuances in the development of roadway infrastructure, the Tenango-Ixtapa de la Sal is a useful case study. Pinfra, through the SPV, issued a series of 1,949,812 preferential stock certificates for a total amount of 195 million UDIS (equivalent to 575.2 million pesos) with a 17-year term on October 4, 2005, which are traded in the BMV under the ticker symbol "TENANCB 05U."

For at least the last five years, Fitch Ratings has rated ATISA issuances AA+ (very high security) with stable prospects, considering factors such as traffic and income performance, additional traffic, structural strengths, and the nature of the highway.

This rating is granted in spite of the fact that vehicle traffic on the highway has fallen over the past five years (see Figure 5).

In short, the case of the Tenango-Ixtapa de la Sal highway demonstrates that PPPs that enlist asset securitization have not been efficient. On the contrary, companies seek to manage more public assets so that the scheduled profits on the project will materialize, at the cost of user income. In other words, private does not make public more efficient. If it's securitized, it actually makes it more expensive.

Figure 5. Tenango-Ixtapa de la Sal Highway, 1995-2014  
(Average daily traffic in vehicle equivalents)



Source: Created with data from the Pinfra Annual Report, various numbers.

Another fundamental concern is the highway tolls charged, which generally rise faster than inflation (see Table 2).<sup>11</sup>

Table 2. Average Toll per Vehicle Equivalent on the Tenango-Ixtapa de la Sal Highway (2009-2014)

<i>Year</i>	<i>TPDV</i>	<i>Average toll per vehicle equivalent</i>	<i>TCPA of the average toll</i>	<i>Annual inflation rate</i>
2009	5 691	59.44	-	-
2010	5 622	60.94	2.5	4.4
2011	5 766	63.67	4.5	3.8
2012	5 724	66.56	4.5	3.6
2013	5 344	72.67	9.2	4.0
2014	5 067	80.25	10.4	4.1

Source: Created with data from the Pinfra Annual Report and the INEGI Database of Economic Information.

## FINAL REFLECTIONS

Over the past three decades, financial monopolistic capital has imposed budget austerity, and with it, opened the door to the privatization and/or concession of public infrastructure assets in Latin America.

Between 1999 and 2015, highway bond issuances in original amounts rose to 95.0877 billion pesos, equivalent to 107.4% of the public budget allotted to road infrastructure in 2015. One third of these bonds were issued by state governments.

The securitization of public assets as a financing mechanism for PPPs has led to new sources of profit for financial monopolistic capital in: *i*) the financing itself; *ii*) bond issuance; *iii*) building and operating projects; *iv*) rating the issuances; and *v*) risk prevention. The profit stream involves large construction corporations, both Mexican and foreign, and global banking and institutional investors. Moreover, governments gain legitimacy—to a certain degree—by “fostering” the creation of public infrastructure and keeping “healthy public finances.”

The share of private investors in the road sector took off at the end of the eighties with the awarding of concessions for 52 federal highways. Later, in 1997, with a view to the financial

problems facing the concession companies, the choice was made to bail out 23 concession operators through FARAC.

Subsequently, PPPs would revive the push for private investment in the road sector. The SCT also fueled this process by way of concessions, SPPs, and bundled assets. Of a sample of 297 private-sector infrastructure projects analyzed in this paper, nearly one third were road projects.

Through PPPs, a private toll road market has emerged in which large construction companies like Pinfra, ICA, IDEAL, OHL Mexico, and Coconal, to name a few, are involved. The administration and operation of road concessions is one of the cornerstones of income stability for large construction firms.

At the same time, CAPUFE has witnessed the dismantling of its infrastructure and income, as the highway network under its care has fallen at an annual rate of 1.3% over the past five years, Revenue has followed suit, at an annual rate of 0.8% in real terms.

In light of the above, the securitization of public assets in the road sector is bound up in the reduction of sources of public income. The same is true of state issuances, because toll road revenue or public budgets allocated to maintaining and refurbishing roads end up pledged for the term of the issuances.

This brings us to the matter of cost. Picking up where Shaoul's (2010) argument left off, public assets are capital-intensive and it is impossible to obtain returns that satisfy the capital markets without affecting taxpayers or users. Moreover, the state has the capacity to secure credit at a lower cost than private capital.

Making infrastructure services profitable requires tax exemptions, public financing (for example, FONADIN), long-term guarantees and contracts, share in venture capital, facilitation of rights for land usage, and favorable rate structures. Accordingly, the securitization of assets makes road infrastructure works more expensive.

The case of the Tenango-Ixtapa de la Sal highway was used as an example to illustrate how road PPPs work. This case study led to important findings: a drop in vehicle traffic over the past six years; the growth of toll road fees above inflation in 2011 and 2014; the extension the term of the concessions originally agreed to end in 2014 until 2054; stock issuances with an AA+ rating (very high security) and stable prospects over the past five years; and highway operations constitute 2.2% of Pinfra's revenue. However, the government of the State of Mexico only cops 1.5% of the gross monthly revenue (excluding VAT) from the highway.

Finally, when financialization happens, the major construction companies' goal is to maximize profits in the short term, so they opt for the securitization of road assets, which mitigates their risk, but drives up the cost of access to said assets. On the other hand, governments are willing to jeopardize various sources of public revenue in order to hold on to power, but they step away from providing low-cost public assets, which could improve the living conditions and productivity of their citizens.

## **BIBLIOGRAPHY**

Akitoby, Bernandin, Richard Hemming and Gerd Schwartz (2007), *Inversión pública y asociaciones público-privadas*, Washington, D.C, Fondo Monetario Internacional, Temas de Economía, no. 40, 30p.

Banco Mundial (2016), *Private Participation in Infrastructure (PPI) Database* (consulted August 22, 2016), available at: <<https://ppi.world-bank.org/>>

\_\_\_\_\_ (2006), *México: Revisión del gasto público para infraestructura*, World Bank, Washington, D.C, Department for Mexico and Colombia, Latin American and Caribbean region, November, 35p.

Cepal-PNUD (2002), “Financiamiento para el desarrollo sostenible: Asociaciones Público Privadas para la Inversión Ambiental en América Latina y el Caribe”, Monterrey, Mexico, Comisión Económica para América Latina y el Caribe, Conferencia Internacional sobre la Financiación del Desarrollo, March 18 to 22, 15p.

CEFP (2010), “Aspectos Relevantes de la Cuenta Pública por Ramos Presupuestarios, 2003-2009”, Mexico, Centro de Estudios de las Finanzas Públicas, Cámara de Diputados, document 011, July.

\_\_\_\_\_ (2007), “Programa de rescate carretero. FARAC”, Mexico, Centro de Estudios de las Finanzas Públicas, Cámara de Diputados, July.

Cheikhrouhou, Hela, Britt Gwinner, John Pollner, Emanuel Salinas, Sophie Sirtaine and Dimitri Vittas (2007), “Structured Finance for Infrastructure”, in Hela Cheikhrouhou *et al.*, *Structured Finance in Latin America. Channeling Pension Funds to Housing, Infrastructure, and Small Businesses*, Washington DC, The International Bank for Reconstruction and Development/The World Bank, pp. 83-120.

- Correa, Eugenia (2008), “México: la crisis fiscal del Washington Consensus”, in Red Eurolatinoamericana Celso Furtado < <http://www.redcelsofurtado.edu.mx/>>
- Díaz Pérez, Jaime (2011), “Retos de la colaboración público-privada para el desarrollo de infraestructuras públicas”, in *Boletín Económico de ICE*, Spain, no. 3012, June 1 to 30, pp. 15-31.
- El Economista (2016), “Estados desaprovechan bursatilización de carreteras”, *El Economista*, July 13, 2016. Available at: <<http://eleconomista.com.mx/estados/2016/07/13/estados-desaprovechan-bursatilizacion-carreteras>>
- Engel, Eduardo, Ronald Fischer and Alexander Galetovic (2014), *Economía de las asociaciones público privadas. Una guía básica*, Mexico, Fondo de Cultura Económica, 255p.
- Fondo Monetario Internacional (IMF) (2004), *Public-Private Partnerships*, Washington, DC, Fiscal Affairs Department, International Monetary Fund, March, 48p.
- Fitch Ratings (2015), *Autopistas de Cuota en México. Actualización del Desempeño, al Cierre de 2015 Special Report*, Mexico, December, 14 pp.
- \_\_\_\_\_ (2014), *Autopista de Tenango-Ixtapa de la Sal, S.A. de C.V., México, Reporte de Calificación, Infraestructura y Financiamiento de Proyectos*, Mexico, February, 13p.
- \_\_\_\_\_ (2004), *Asociaciones Público Privadas: la próxima generación en financiamiento de infraestructura*, Mexico, Special Report Financiamiento de Proyectos/Finanzas Públicas <[www.fitchratings.com](http://www.fitchratings.com)>
- Fitzpatrick, Sean (2006), *Asociaciones público-privadas: principales aspectos económicos y directrices básicas*, Madrid, Consejo Económico y Social, collection of working documents, no. 4, 40p.
- Hodge, Graeme (2010), “Reviewing Public-private Partnerships: some Thoughts on Evaluation”, in Graeme Hodge, Carsten Greve and Anthony Boardman, *International Handbook on Public-Private Partnerships*, Cheltenham, UK, Northampton, MA, USA, pp. 81-114.
- Jobst Andreas, A. (2006), “Sovereign Securitization in Emerging Market”, in *Journal of Structured Finance*, vol. 12, no. 3, FMI, Washington, D.C. USA, pp. 68-79.

- Klijn, Erik-Hans (2010), "Public-private Partnerships: Deciphering Meaning, Message and Phenomenon", in Graeme Hodge *et al.*, *International Handbook on Public-private Partnerships*, Cheltenham, UK, Northampton, MA, USA, pp. 69-80.
- Lapavitsas, Costas (2011), "El capitalismo financiarizado. Crisis y expropiación financiera" in Carlos Morera and Costas Lapavitsas (coords.), *La Crisis de la Financiarización*, Mexico, UNAM-Instituto de Investigaciones Económicas, pp. 33-90.
- Pinfra (2015), Reporte Anual de Promotora y Operadora de Infraestructura (Pinfra), Mexico, Comisión Nacional Bancaria y de Valores, 141 p.
- Promotora y Operadora de Infraestructura, S.A.B. de C.V (Pinfra) (2014), Informe Anual, Mexico, Mexico City, 175 p.
- Rodríguez Padilla, Víctor (2010), "Contratos de Servicios Múltiples en Pemex: eficacia, eficiencia y rentabilidad", in *Revista Problemas del Desarrollo*, 163(41), October-December, pp. 119-140.
- Secretaría de Comunicaciones y Transportes (SCT) (2015), *Informe sobre las acciones relevantes de la SCT, enero 2013 junio 2015*, Mexico, Presidencia de la República, 40 p.
- \_\_\_\_\_ (2010), "Asociaciones Público-Privadas para el desarrollo carretero en México", Mexico, Dirección General de Desarrollo Carretero, October 2010, 96pp.
- Soto Esquivel, Roberto (2010), *Especulación e innovación financiera. Mercado de derivados y consecuencias macroeconómicas en México*, Mexico, Miguel Ángel Porrúa, 227p.
- Sandoval Ballesteros, Irma (2015), "Opacidad y nula rendición de cuentas en asociaciones público-privadas", in Irma Sandoval Ballesteros, *Interés público, asociaciones público-privadas y poderes fácticos*, Mexico, UNAM, Instituto de Investigaciones Sociales, pp. 97-122.
- Shaoul, Jean (2010), "A Review of Transport Public-private Partnerships in UK", in Graeme Hodge *et al.*, *International Handbook on Public-Private Partnerships*, Cheltenham, UK, Northampton, MA, USA, pp. 549-565.
- Suárez Rosas, Matilde Guadalupe (2006), *La bursatilización de activos en México y su aplicación en el Sector Carretero del país*, Mexico, ITEM, 148pp.



## Notas

<sup>2</sup> Costas Lapavitsas asserted that financialization "...is the result of the systemic transformation of the capitalist economy, which revolves around the financial system and implies the creation of new sources of profit" (Lapavitsas, 2011: 75).

<sup>3</sup> This research was made possible thanks to a grant from Conacyt for a post-doctoral stay at the Academic Unit for Development Studies of the Autonomous University of Zacatecas.

<sup>4</sup> In this scheme, the government pays the concessionaire an amount for each user vehicle on the road under concession.

<sup>5</sup> Referring to the exchange rate exposure to dollars in the project foreign exchange market.

<sup>6</sup> These were basically the promises made by John Roy Major, the Finance Minister in the Margaret Thatcher administration and Prime Minister of England from 1990 to 1997.

<sup>7</sup> However, it is important to mention that Engel, Fischer, and Galetovic also assert that the private sector is more efficient in operating and maintaining infrastructure works and that this justifies PPPs. For these authors, the prime argument in favor of PPPs is derived from the efficiency of competitive private capital, and not from savings on public resources.

<sup>8</sup> Sample collected August 22, 2016.

<sup>9</sup> On May 8, 2003, the term of the concession to Tribade, S.A. de C.V. was extended to March 2026. Subsequently, on September 5, 2008, Pinfra paid the government of the State of Mexico 180 million pesos to extend the concession to 2054 and raised rates by 20% (PINFRA, 2015: 56).

<sup>10</sup> The Mexico-Toluca, Peñón-Texcoco, Tenango-Ixtapa de la Sal, Atlixco-Jantetelco, and Santa Ana-Altar highways.

<sup>11</sup> It should be clarified that the terms of the concessions provide for the possibility of raising toll fees above inflation when highways are under expansion or require additional investment.