

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |                                          |                            |                                    |                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------|----------------------------|------------------------------------|-----------------------------------------------------------|
| REPORT DOCUMENTATION PAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                          |                            | Form Approved<br>OMB No. 0704-0188 |                                                           |
| Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                            |                                    |                                                           |
| 1. REPORT DATE (DD-MM-YYYY)<br>10-28-2011                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             | 2. REPORT TYPE<br>FINAL                  |                            | 3. DATES COVERED (From - To)       |                                                           |
| 4. TITLE AND SUBTITLE<br><br>Challenges to Public-Private Transport Infrastructure Development in Mexico                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             | 5a. CONTRACT NUMBER                      |                            |                                    |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | 5b. GRANT NUMBER                         |                            |                                    |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | 5c. PROGRAM ELEMENT NUMBER               |                            |                                    |                                                           |
| 6. AUTHOR(S)<br><br>LtCol John Bolt USMC<br><br>Paper Advisor (if Any): Professor Michael McGauvran                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             | 5d. PROJECT NUMBER                       |                            |                                    |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | 5e. TASK NUMBER                          |                            |                                    |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | 5f. WORK UNIT NUMBER                     |                            |                                    |                                                           |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)<br><br>Joint Military Operations Department<br>Naval War College<br>686 Cushing Road<br>Newport, RI 02841-1207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                             | 8. PERFORMING ORGANIZATION REPORT NUMBER |                            |                                    |                                                           |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             | 10. SPONSOR/MONITOR'S ACRONYM(S)         |                            |                                    |                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | 11. SPONSOR/MONITOR'S REPORT NUMBER(S)   |                            |                                    |                                                           |
| 12. DISTRIBUTION / AVAILABILITY STATEMENT<br>Distribution Statement A. Approved for public release; distribution is unlimited.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                                          |                            |                                    |                                                           |
| 13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                          |                            |                                    |                                                           |
| 14. ABSTRACT In order to develop and maintain its transportation infrastructure, the government of Mexico relies on private investment. Years of neglect of its roads caused Mexico to fall behind its regional economic competitors. The Calderón administration sought to reverse that trend by increasing public infrastructure spending to attract private investment. However, Mexico's transport infrastructure will lag behind its regional competitors unless the government of Mexico continues to implement transparent and efficient regulatory reform measures and improves the technical expertise of its infrastructure planners and regulators. The National Infrastructure Program supported the president's goal through public-private partnership, but it was built on a weak institutional foundation and private investment never materialized to expected levels. Mexico's infrastructure competitiveness stagnated due to underlying bureaucratic inefficiency and a weak legal framework. Changing domestic and economic conditions in 2009 exacerbated the situation. While private participation remained weak in Mexico, Chile and Brazil maintained a robust environment for infrastructure investment. Both had a sound regulatory framework and the institutional capacity to design viable, risk-sharing concessions. Mexico needs private investment in order to meet its infrastructure development goals. By continuing institutional and regulatory reform measures, it will reduce the bureaucratic impediments to private participation. |                             |                                          |                            |                                    |                                                           |
| 15. SUBJECT TERMS<br>Mexico infrastructure regulation, Mexico transportation infrastructure, National Infrastructure Program 2007-2012, public private partnerships, highways                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                          |                            |                                    |                                                           |
| 16. SECURITY CLASSIFICATION OF:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |                                          | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES<br><br>27      | 19a. NAME OF RESPONSIBLE PERSON<br>Chairman, JMO Dept     |
| a. REPORT<br>UNCLASSIFIED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | b. ABSTRACT<br>UNCLASSIFIED | c. THIS PAGE<br>UNCLASSIFIED             |                            |                                    | 19b. TELEPHONE NUMBER (include area code)<br>401-841-3556 |

**NAVAL WAR COLLEGE  
Newport, R.I.**

**CHALLENGES TO PUBLIC-PRIVATE TRANSPORT INFRASTRUCTURE  
DEVELOPMENT IN MEXICO**

**by**

**John A. Bolt**

**Lieutenant Colonel USMC**

**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature: \_\_\_\_\_**

**28 October 2011**

## **Contents**

|                                                               |    |
|---------------------------------------------------------------|----|
| Introduction                                                  | 1  |
| Background                                                    | 2  |
| The National Infrastructure Program 2007-2012                 | 4  |
| Examining Mexico's Competitiveness                            | 9  |
| Regulatory and Institutional Reforms                          | 11 |
| Two Counter-Arguments for Mexico's Lack of Private Investment | 15 |
| Conclusions and Recommendations                               | 17 |
| Bibliography                                                  | 19 |

## **List of Illustrations**

| <b>Figure</b> | <b>Title</b>                                    | <b>Page</b> |
|---------------|-------------------------------------------------|-------------|
| 1.            | NIP Investment Scenarios                        | 6           |
| 2.            | Public-Private Road Investment 2007-2010        | 7           |
| 3.            | Global Competitiveness Ranking – Infrastructure | 10          |

## **Abstract**

In order to develop and maintain its transportation infrastructure, the government of Mexico relies on private investment. Years of neglect of its roads caused Mexico to fall behind its regional economic competitors. The Calderón administration sought to reverse that trend by increasing public infrastructure spending to attract private investment. However, Mexico's transport infrastructure will lag behind its regional competitors unless the government of Mexico continues to implement transparent and efficient regulatory reform measures and improves the technical expertise of its infrastructure planners and regulators. The National Infrastructure Program supported the president's goal through public-private partnership, but it was built on a weak institutional foundation and private investment never materialized to expected levels. Mexico's infrastructure competitiveness stagnated due to underlying bureaucratic inefficiency and a weak legal framework. Changing domestic and economic conditions in 2009 exacerbated the situation. While private participation remained weak in Mexico, Chile and Brazil maintained a robust environment for infrastructure investment. Both had a sound regulatory framework and the institutional capacity to design viable, risk-sharing concessions. Mexico needs private investment in order to meet its infrastructure development goals. By continuing institutional and regulatory reform measures, it will reduce the bureaucratic impediments to private participation.

## Introduction

*Infrastructure is synonymous of economic, social and human development. Economic growth and opportunities for the well-being of Nations are clearly correlated with the level of development of their infrastructure, because they know that it is a condition for success in the global economy. Mexico cannot and should not fall behind.*<sup>1</sup>

*President Felipe Calderón Hinojosa*

President Calderón made infrastructure development one of the central agenda items of his administration, with good reason. A well-developed infrastructure network is an empirically proven driver of both economic growth and social inequality reduction.<sup>2</sup> Mexico has an advantageous geostrategic position; it links the Atlantic and Pacific trade routes and shares a border with the United States, the world's largest economy. These advantages should present significant growth opportunities, but two decades of neglect of its transport infrastructure sector has severely limited Mexico's economic and human development potential. According to Raul Rodriguez-Barocio, former Chief Executive Officer of the North American Development Bank, "Mexico is increasingly uncompetitive in an increasingly competitive world."<sup>3</sup>

The Calderón administration has the political will to comprehensively expand and modernize the nation's infrastructure, but the government of Mexico relies heavily on private investment to augment limited public resources. Despite a significant increase in public stimulus spending over the past three years, the private investment so vital to its transport infrastructure industry has been limited, demonstrating that public spending alone is

---

<sup>1</sup> *National Infrastructure Program 2007-2012* (Mexico City, D.F.: Government of the United States of Mexico, 2007), 3. <http://www.infraestructura.gob.mx/index9ef4.html?page=english-version>

<sup>2</sup> César Calderón and Luis Servén, "The Effects of Infrastructure Development on Growth and Income Distribution," *World Bank Policy Research Working Papers* 3400 (2004), 26. <http://econ.worldbank.org>

<sup>3</sup> Cecilio Garza-Limon and Raul Rodríguez-Barocio, "Two Notes on the Need for a China Policy in Mexico," Center for Hemispheric Policy, University of Miami, 26 April 2007, 7. <https://www6.miami.edu/hemispheric-policy/Garza-Limon-policypaper.pdf>

insufficient as a credible long-term solution.<sup>4</sup> Mexico's transport infrastructure will lag behind its regional competitors unless the government of Mexico continues to implement transparent and efficient regulatory reform measures and improves the technical expertise of its infrastructure planners and regulators. Only then will Mexico be able to successfully compete for the limited pool of private capital, infrastructure investors, and concession operators.

Three examples will illustrate the importance of institutional and regulatory reform to Mexico's ongoing efforts to stimulate private investment in infrastructure. First, the National Infrastructure Program was a bold measure to reverse Mexico's history of weak infrastructure development, but suffers from insufficient funding and lack of bureaucratic expertise. Second, the World Economic Forum's annual *Global Competitiveness Report* demonstrates an ongoing trend of institutional weaknesses that deters private participation in Mexico's infrastructure projects. Finally, the Calderón administration made significant improvements to reduce inefficiency in government, but has yet to implement an overarching infrastructure regulatory framework to share financial risks with investors and lower project finance expenses. It also has not implemented an independent regulatory capacity necessary to insulate infrastructure project oversight from political and monopolistic business influences.

## **Background**

To understand Mexico's current economic predicament, an overview of Mexico's two decades of public-private infrastructure partnerships is necessary. Mexico's initial experience with private participation in infrastructure in the 1990s, while necessary to sustain

---

<sup>4</sup> Mick Bowen, "Mexico's Infra Sector Tries to Sort out Failed Tenders." *InfraAmericas*. 17 June 2011. [http://www.widepr.com/press\\_release/15100/mexico\\_s\\_infra\\_sector\\_tries\\_to\\_sort\\_out\\_failed\\_tenders.html](http://www.widepr.com/press_release/15100/mexico_s_infra_sector_tries_to_sort_out_failed_tenders.html)

development in a fiscally constrained environment, was largely a failure. The 1995 Peso crisis undermined the financial viability of several concession operators because of poor contract design and reduced toll-road traffic.<sup>5</sup> Public dissatisfaction with the resultant high toll rates resulted in 33 government-initiated renegotiations out of 36 road concession projects. These renegotiations led to a government rescue of nearly half of the toll roads in 1997.<sup>6</sup> The Mexican government's intervention gave the private sector good reason to see risk and uncertainty in infrastructure investment.

From 2001-2006, Mexico invested an average of 3.2 percent of Gross Domestic Product (GDP) on infrastructure development and maintenance, of which only 1.8 percent went to the transport, telecommunications, water, and electricity infrastructure sectors. Over the same period, Chile and China invested an average of 5.8 and 7.3 percent of GDP in infrastructure, respectively.<sup>7</sup> Calderón and Servén illustrate the direct correlation between levels of public and private investment in infrastructure. In Chile, the private sector supported the government's impressive public investment in its infrastructure during this period with one of the highest levels of private participation in Latin America. Conversely, the private sector responded to the Mexican government's dismal infrastructure expenditure with an equally lackluster investment equivalent to 0.8 percent of GDP.<sup>8</sup> As one

---

<sup>5</sup> Public-Private Infrastructure Advisory Facility, *Private Solutions for Infrastructure in Mexico*, (Washington, D.C.: World Bank, 2003), 66. <http://go.worldbank.org/4Z5KZX5FA0>;

<sup>6</sup> Marianne Fay and Mary Morrison, *Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges*, (New York: World Bank, 2007), 39. DOI: 10.1596/978-0-8213-6676-9. See also Luis Guasch and Stephane Straub, "Concessions of Infrastructure in Latin America: Government-Led Renegotiations," *World Bank Policy Research Papers* 3749 (2005), 25. <http://econ.worldbank.org>

<sup>7</sup> *National Infrastructure Program 2007-2012*, 20.

<sup>8</sup> César Calderón and Luis Servén, "Infrastructure in Latin America" *World Bank Policy Research Working Papers* 5317 (2010), 24. <http://econ.worldbank.org>

transportation industry expert pointed out in 2007, “after two presidential cycles that spent parsimoniously on transportation infrastructure, Mexico's logistical backbone is in tatters.”<sup>9</sup>

According to Fay and Morrison, a developing Latin American nation would have to invest 4-6 percent of GDP in infrastructure annually for the next 20 years in order to compete with the rapidly growing East Asian economies.<sup>10</sup> Mexico brings in approximately 40 percent of its federal revenue from its state-run oil company *Petróleos Mexicanos* (Pemex).<sup>11</sup> Due to a large informal sector, Mexico receives approximately 12 percent of GDP in tax revenue, considerably below the 17 percent average across Latin America.<sup>12</sup> Mexico's weak revenue stream makes a six percent public investment an unsustainable goal without diverting federal funds from other necessary budget expenditures. Increasing public expenditure alone is not a panacea that will boost Mexico to economic leadership within Latin America.<sup>13</sup> Without the institutional and regulatory capacity to integrate infrastructure construction into a sustained investment and development program, private investors will continue to seek better risk-reward balances in growing markets elsewhere in Latin America and East Asia.

### **The National Infrastructure Program 2007-2012**

In 2007, the Calderón government published its National Infrastructure Program (NIP). The NIP was unprecedented in its scope and long-term vision, with a planned investment of U.S. \$37 billion over five years. The plan would set the foundation for

---

<sup>9</sup> John Price, President and Director, Transportation & Logistics Industry Practice, InfoAmericas, quoted in “Mexican Infrastructure: More Competitiveness?” *Latin America Business Chronicle*, 30 July 2007. <http://www.latinbusinesschronicle.com/app/article.aspx?id=1487>

<sup>10</sup> Fay and Morrison, 21.

<sup>11</sup> Lisa Loftus-Otway et al., “An Evaluation of Mexican Transportation Planning, Finance, Implementation, and Construction Processes,” Center for Transportation Research, University of Texas at Austin, October 2009, 15. [http://www.utexas.edu/research/ctr/pdf\\_reports/0\\_5985\\_1.pdf](http://www.utexas.edu/research/ctr/pdf_reports/0_5985_1.pdf)

<sup>12</sup> Ibid., 16.

<sup>13</sup> Ibid., 24.

Mexico's strategic infrastructure development out to 2030. Private sector civil engineers, rather than government bureaucrats and politicians, played a central role in the evolution of the NIP's infrastructure development strategy.<sup>14</sup> Professional infrastructure planners ensured a prioritization of transport infrastructure that would generate both an economic and social return on investment. This was a significant departure from earlier infrastructure modernization initiatives, such as "the world's most expensive highway per kilometer, Carretera del Sol ... which 15 years later still provides many an anecdote of graft and waste."<sup>15</sup> Mexico's 2006 Fiscal Responsibility Law supported the NIP by enabling multiyear funding authorization for infrastructure projects and mandating cost benefit analysis, isolating these public investments from the politicization of the annual budget process.<sup>16</sup> The program truly had the potential to transform Mexico's transport infrastructure network into a modern economic driver.

The NIP also demonstrated an understanding of the direct relationship between public and private sector investment lacking in previous development plans. To ensure viability of the NIP over its lifespan, private investment was projected to cover 58 percent of program costs, with the remaining 42 percent supplied from public means. Specific to the road transport subsector, the NIP planned for the private sector to invest over 80 percent of national highway corridor development and operating costs.<sup>17</sup> The program depends more than ever on private investment following the financial crisis, as Mexico's states lack the

---

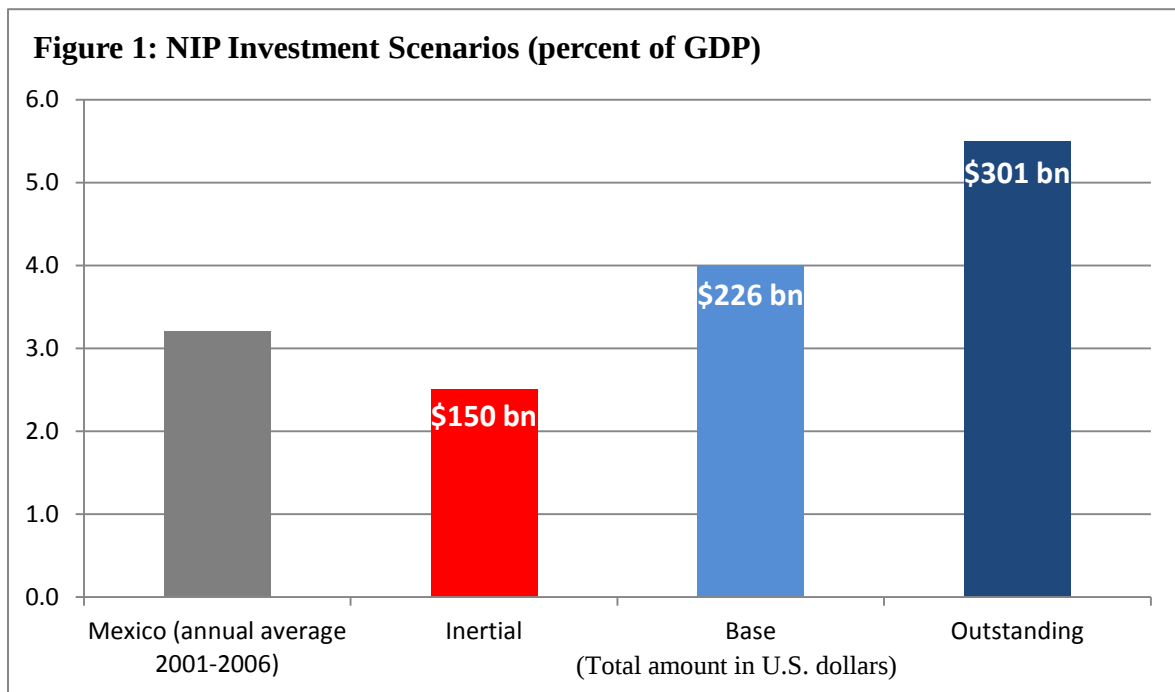
<sup>14</sup> Ibid., 25.

<sup>15</sup> John Price, quoted in "Mexican Infrastructure: More Competitiveness?"

<sup>16</sup> Ibid., 18.

<sup>17</sup> *National Infrastructure Program 2007-2012*, 56.

financial resources and access to credit necessary to sustain infrastructure development below the national level.<sup>18</sup>



Source: National Infrastructure Program

Despite its overall potential and impressive early performance in 2007, the NIP was overly optimistic and relied on too many resource assumptions. Figure 1 above shows the government's 2007 infrastructure investment scenarios, assuming a 42-58 percent mix of public and private funding. According to the NIP, the inertial scenario assumed no change in tax laws and a decline in state oil revenue. The base scenario assumed a 2 percent increase in federal tax rates, but no change to revenue from Pemex, the state-run oil industry. Successful accomplishment of the NIP goals assumed this base investment scenario.<sup>19</sup> The outstanding scenario required controversial regulatory changes to open up portions of Pemex to private

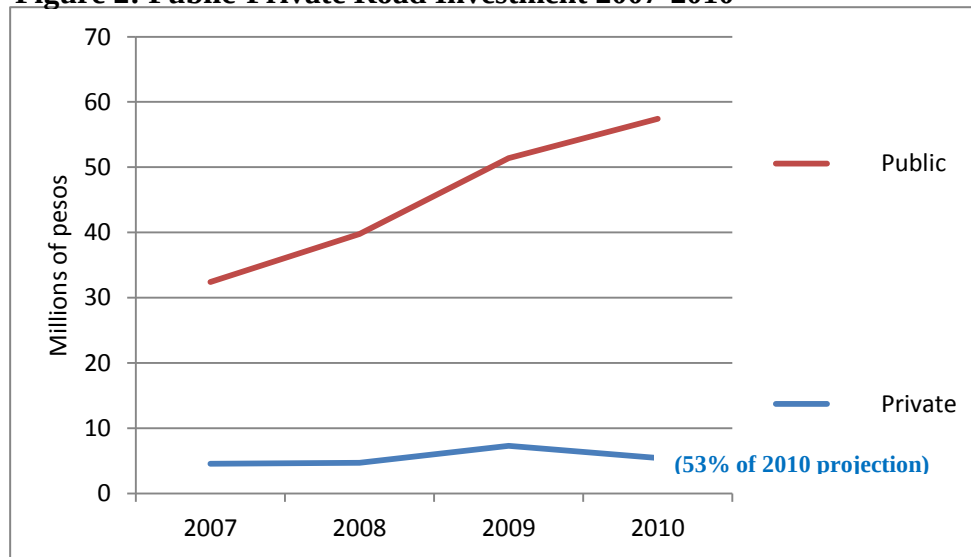
<sup>18</sup> BMI, "Mexico Infrastructure Report Q3 2011," *Business Monitor International*, 7.  
[http://www.businessmonitor.com/cgi-bin/request.pl?view=publicationsearch&file=SSMX06\\_20110701.pdf](http://www.businessmonitor.com/cgi-bin/request.pl?view=publicationsearch&file=SSMX06_20110701.pdf)

<sup>19</sup> *National Infrastructure Program 2007-2012*, 34.

investment.<sup>20</sup> These initiatives met considerable opposition from nationalists in Congress, with the first tender only recently published in March 2011.<sup>21</sup> Congress passed Calderon's tax reform initiative necessary for the base scenario in 2007, but the global economic crisis resulted in budget cutbacks and infrastructure funding authorization between the inertial and base levels.<sup>22</sup> The resulting funding limitations resulted in indefinite postponement of many of the NIP projects that would have opened up new international trade opportunities, such as multimodal logistics corridors or the flagship *Punta Colonet* port construction project.<sup>23</sup>

According to the Ministry of Communications and Transportation (SCT), the government of Mexico invested 180.9 billion pesos in roads and highways from 2007-2010, achieving 63.7 percent of the NIP goal. The Calderón government will likely not meet its target of 287 billion pesos. Total infrastructure investment culminated in 4.9 percent of GDP

**Figure 2: Public-Private Road Investment 2007-2010**



Source: SCT (2010)

<sup>20</sup> Loftus-Otway et al., 23.

<sup>21</sup> Jorge Guadarrama-Yáñez and Benjamín Torres Barrón, "Regulations or Legal Aspects Demanded by the Infrastructure Development in Mexico," *Inmobiliare*, accessed 7 October 2011. <http://www.inmobiliare.com/english-edition/industrial-and-office/regulations-or-legal-aspects-demanded-by-the-infrastructure-development-in-mexico.html>

<sup>22</sup> Loftus-Otway et al., 13.

<sup>23</sup> BMI, "Mexico Infrastructure Report Q3 2011," 7.

in 2010, although private investment fell well short of government goals.<sup>24</sup> As Figure 2 above illustrates, public funding increased continually from 2007 to 2010, and averaged 82 percent of overall infrastructure investment.<sup>25</sup> Private funding remained relatively flat, even as global credit availability and investor confidence improved in late 2009.<sup>26</sup> The global financial crisis did not appear to have an effect on the amount of private investment in Mexican road infrastructure.

In 2009, when the Mexican economy contracted by 6.5 percent, the government kept increasing public infrastructure investments in an effort to stimulate private participation.<sup>27</sup> The Mexican government utilized the National Infrastructure Fund (FONADIN) to supply a small portion (6 percent) of these investments, but it also committed to deficit spending to keep the NIP going during the recession. This is counter to “paygo” requirements of the 2006 Fiscal Responsibility Law.<sup>28</sup> In the name of counter-cyclical stimulus, the Mexican government deviated from the NIP without the fiscal means to do so, exceeding the base scenario funding levels without adequate private investment and approaching the outstanding scenario without the necessary regulatory reforms to open new public revenue streams.

Perceived political pressure to meet those 2012 goals and the SCT’s willingness to fund projects almost exclusively with public resources worry many private industry observers and potential investors.<sup>29</sup> Through infrastructure stimulus spending, the government of Mexico is addressing a symptom – lack of private investment – without fully

---

<sup>24</sup> Ministry of Communications and Transportation, accessed 7 October 2011. <http://www.sct.gob.mx/>

<sup>25</sup> Ibid.

<sup>26</sup> Benedict Clements, “The Impact of the Global Financial Crisis on Public-Private Partnerships,” Briefing to the Organisation of Economic Co-operation and Development, (12 April 2010), 6. <http://www.oecd.org/dataoecd/40/52/45037642.pdf>

<sup>27</sup> GDP values from Instituto Nacional de Estadística y Geografía (INEGI), accessed on 2 October 2011. <http://www.inegi.org.mx/default.aspx?>

<sup>28</sup> Loftus-Otway et al., 18, 21.

<sup>29</sup> Bowen.

addressing the cause. Unless it continues the process of comprehensive regulatory and legal reform to protect private business and creditors from undue risk, the government of Mexico will fail to attract the private participation vital to the long-term success of the NIP.

### **Evaluating Mexico's Competitiveness**

The World Economic Forum's annual *Global Competitiveness Report* defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country."<sup>30</sup> This makes the report well suited to evaluating Mexico's progress in developing the institutional capacity it needs to meet its goals. In addition to statistical data, the report also captures perceptions of the operating environment through the Executive Opinion Survey.<sup>31</sup> What the 354 Mexican business leaders represented in the latest survey think about their country has considerable influence. Foreign businesses or investment banks seeking investment potential in Latin America will look for attractive risk-reward balances. Domestic companies that perceive deteriorating local conditions will attempt to diversify or move their operations elsewhere. These views may negatively affect Mexico's attractiveness to private infrastructure investment even after comprehensive institutional reforms begin to take hold.<sup>32</sup>

Based on the rankings and scores in the *Global Competitiveness Report*, Mexico made little progress in improving its mediocre standing in Latin America.<sup>33</sup> Chile, on the

---

<sup>30</sup> World Economic Forum, *Global Competitiveness Report 2011–2012*, ed. Klaus Schwab (Geneva: World Economic Forum, 2011), 4. <http://www.weforum.org/reports/global-competitiveness-report-2011-2012>

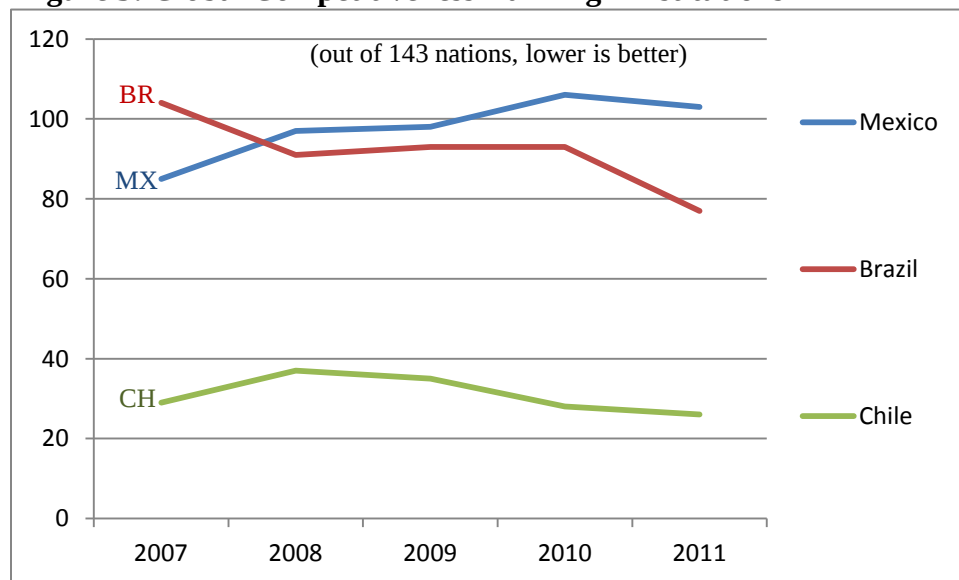
<sup>31</sup> Ibid., 75.

<sup>32</sup> Roberto Newell, "Restoring Mexico's International Reputation," Woodrow Wilson International Center for Scholars, Mexico Institute (June 2011), 34. <http://www.wilsoncenter.org/sites/default/files/Restoring%20Mexico%20Report.pdf>.

<sup>33</sup> *Global Competitiveness Report 2011–2012*, 258; World Economic Forum. *Global Competitiveness Report 2010–2011*. Edited by Klaus Schwab (Geneva: World Economic Forum, 2010), 238. <http://www.weforum.org/reports/global-competitiveness-report-2010-2011-0>; Irene Mia and Emilio Lozoya Martin. "Assessing the Foundations of Mexico's Competitiveness: Findings from the Global Competitiveness Index 2007-2008." Global Competitiveness. World Economic Forum (2008), 38.

other hand, continues to lead Latin America in terms of overall economic competitiveness, infrastructure quality and quantity, and attractiveness to private investment. Brazil, the leading Latin American economy, has many of the same institutional and infrastructure shortfalls as Mexico, but has consistently attracted a greater percentage of private investment and currently boasts the world's second-largest road concession network.<sup>34</sup> It also surpassed Mexico in 2010 in terms of both gross domestic product (GDP) per capita and infrastructure competitiveness.<sup>35</sup>

**Figure 3: Global Competitiveness Ranking - Institutions**



Source: World Economic Forum

Quality of institutions is a basic requirement for any market economy, and Figure 3 shows Mexico's decline in world rankings from 2007 to 2011. Out of the eight sub-pillars comprising the institution assessment, several points stand out. Mexico ranked 91st of 143 in the world the payments and bribes sub-pillar, and 70th in the transparency of policymaking

<sup>34</sup> Adrien Véron and Jacques Cellier, "Private Participation in the Road Sector in Brazil: Recent Evolution and Next Steps," *Transport Papers* no. 30 (Washington D.C.: World Bank, 2010), 11.

<sup>35</sup> *Global Competitiveness Report 2010-2011*, 106.

sub-pillar. These correspond with Transparency International's 2010 Corruption Perceptions Index, where Mexico ranked 98th out of 178 nations, tied with Egypt and Burkina Faso.<sup>36</sup> Mexico also ranked 101st in the efficiency of legal framework sub-pillar. As Mia and Martin state, government efforts to drive economic progress took priority over the development of the institutional capacity necessary for overall national growth.<sup>37</sup> As a result, the government remained weak and a minority of business and labor interests gained undue influence over bureaucratic decision making.

Despite steady GDP growth and increasing integration into the global economy, basic factors are holding Mexico back from meeting its economic potential. As a nation in transition from a efficiency-driven to an innovation-driven economy,<sup>38</sup> Mexico's weak institutional foundation undermine all of the pillars of national competitiveness that build upon that base, such as infrastructure, education, and labor market efficiency. The long-term relationship between the government and private infrastructure investors will give Mexico the opportunity to demonstrate the positive changes it is making in its institutions and regulatory framework, improving perceptions and attractiveness for further investment.

### **Regulatory and Institutional Reforms**

The institutional environment in Mexico has the most significant negative effect on Mexico's ability to develop and maintain its transport infrastructure in partnership with the private sector. Global credit constraints and the increase in Mexican drug violence are relatively new detractors to doing business in Mexico according to the World Economic Forum's Executive Opinion Surveys. Conversely, inefficient government bureaucracy and

---

<sup>36</sup> Corruption Perceptions Index 2010, Transparency International, accessed 15 September 2011. [http://www.transparency.org/policy\\_research/surveys\\_indices/cpi/2010/results](http://www.transparency.org/policy_research/surveys_indices/cpi/2010/results)

<sup>37</sup> Mia and Martin, 9

<sup>38</sup> *Global Competitiveness Report 2010–2011*, 11.

corruption consistently appeared as one of the top three detractors in each of the past five years.<sup>39</sup> An inefficient, corrupt, and inflexible bureaucracy, backed by an uncertain legal framework, is not conducive to a long-term, mutually supportive relationship with infrastructure business enterprises. A stable regulatory framework is critical to public-private partnerships (PPP) because a private investor needs low financing costs and a predictable return on investment over the life of the contract, through either user tolls or government subsidies.<sup>40</sup> Mexico faces significant challenges in reforming its institutions and regulations, but the reform-oriented Calderón administration demonstrates the political will to address these challenges.

The Organisation of Economic Co-operation and Development defines regulatory reform as “those actions that facilitate the functioning of the regulation, generate a net positive gain under a cost-benefit analysis of the regulation, or improve the legal quality of the instrument and its procedures.”<sup>41</sup> The Calderón administration introduced the *Base Cero* (Zero-Based Regulatory Reform) initiative to achieve an environment conducive to competitiveness and development, preventing regulation-induced cost overruns, and improving the interaction between the government and business sectors.<sup>42</sup> The Mexican government underwent a two-year review of its regulations, resulting in an elimination of nearly ten thousand redundant or restrictive internal procedures, replacing them with nine standardized handbooks.<sup>43</sup> The Public Works and Related Services Handbook provided increased transparency on the concession process, established guidelines for project

---

<sup>39</sup> Compiled from *Global Competitiveness Reports*, World Economic Forum.

<sup>40</sup> Edward Faquharson, *How to Engage With the Private Sector in Public Private Partnerships in Emerging Markets*, 16-17 (Washington, D.C.: PPIAF, 2011) DOI: 10.1596/978-0-8213-7863-2.

<sup>41</sup> Organisation of Economic Co-operation and Development, “Regulation Inside Government in Mexico: Policies and Framework,” *Towards More Effective and Dynamic Public Management in Mexico*, 30 June 2011, 49. DOI: 10.1787/9789264116238-6-en

<sup>42</sup> *Ibid.*, 85.

<sup>43</sup> *Ibid.*, 48.

development and execution oversight, and ensured synchronization of the federal budget process with planned infrastructure projects.<sup>44</sup> While it is too early to see the effects of this regulatory reform, it offers promise for improved efficiency and transparency, areas of concern for the Mexican government.

Mexico is also making progress in the regulatory reform necessary for infrastructure finance. The austere credit environment in the wake of the 2008-2009 global financial crisis necessitated new financing sources for infrastructure projects. In March 2008, the National Commission for the Pension System approved the participation of Mexican pension funds (Siefores) in infrastructure securities.<sup>45</sup> BMI estimates that the Siefores funds hold US\$ 75 billion in capital.<sup>46</sup> The long-term nature of a retirement investment account complements the typical term for an infrastructure concession project, and tangible results of investments in the nation's future can be an attractive option for fund participants. Chile's pension funds, the most mature and successful in Latin America, have invested in 14 infrastructure projects since 1995 and serve as a good model for what Siefores can accomplish.<sup>47</sup>

The Calderón administration's most sweeping regulatory reform effort is the Public-Private Alliances in Infrastructure (APP) bill, currently stalled in Congress.<sup>48</sup> Since the failed concessions of the 1990s, the private sector has needed a more predictable investment environment in Mexico. Chile and Brazil already have similar laws, and their well-developed PPP regulations are amongst the most conducive to private investment in Latin

---

<sup>44</sup> Ibid., 65.

<sup>45</sup> Liliana Castilleja Vargas, "Pension Funds and Infrastructure in Mexico," BBVA Economic Watch, Organisation for Economic Co-operation and Development (13 May 2011) <http://www.oecd.org/dataoecd/55/12/47896497.pdf>

<sup>46</sup> BMI. "Mexico Infrastructure Report Q3 2011," 8.

<sup>47</sup> Soledad Hormazábal Delgado, "Infrastructure Investment and Pension Funds in Chile," BBVA Economic Watch, 7 (27 May 2011). [http://serviciodeestudios.bbva.com/KETD/fbin/mult/110526\\_Pension\\_watch\\_tcm348-258232.pdf?ts=28102011](http://serviciodeestudios.bbva.com/KETD/fbin/mult/110526_Pension_watch_tcm348-258232.pdf?ts=28102011)

<sup>48</sup> Macías, Raúl Flores. "Infrastructure with a Long-Term Vision." *Presidency Blog*. 27 July 2011. <http://en.presidencia.gob.mx/the-blog/infrastructure-with-a-long-term-vision/#more-66327>

America, especially as the private sector has become more selective and risk-averse.<sup>49</sup> The APP Law would establish a more well-defined legal foundation for private participation in infrastructure, reducing the cost of contract enforcement for investors. It would also address many of the impediments deterring private investment by measures such as setting clear guidelines for risk allocation between the government and private sector.<sup>50</sup> Enacting this law will be a significant step for Mexico in improving its infrastructure regulatory framework.

A solid foundation of regulations, however, is only effective if carried out by an efficient and technically proficient infrastructure planners and regulators. The *Pacifico Sur* highway concession failed to generate interest at tender, resulting in SCT withdrawing the package multiple times. Planners lacked the foresight to address concession costs or size in a fiscally constrained environment, resulting in a project that was too large to generate competitive bids.<sup>51</sup> The government is also not yet using the Least Present Value of Revenue during the project selection and bidding process to guarantee concession income levels.<sup>52</sup>

Mexico lacks an independent regulatory body to oversee infrastructure projects. A single government agency, the SCT, is responsible for setting policies, creating projects, and regulating operations. This results in a lack of transparency, the potential for increased political manipulation of infrastructure project selection, and more risk to investors.<sup>53</sup> The overlap of responsibilities between the SCT and the Ministry of Finance also results in conflicting priorities and confusion. An independent regulatory body with professionally trained infrastructure regulators that does not depend on funding from one of the primary

---

<sup>49</sup> EIU, “Evaluating the Environment for Public-Private Partnerships in Latin America and the Caribbean: The 2010 Infrascope,” Economist Intelligence Unit, 17 November 2010, 13.  
[http://www.eiu.com/site\\_info.asp?info\\_name=2010\\_Infrascope&page=noads](http://www.eiu.com/site_info.asp?info_name=2010_Infrascope&page=noads)

<sup>50</sup> Guadarrama-Yáñez and Barron.

<sup>51</sup> Bowen.

<sup>52</sup> Economist Intelligence Unit, “2010 Infrascope Index for Latin America and the Caribbean.” Economist Intelligence Unit (October 2010).

<sup>53</sup> *Private Solutions for Infrastructure in Mexico*, 14

ministries would improve impartiality and transparency. Both Brazil and Chile have established similar agencies at least at the national level, resulting in the top two scores on the 2010 Infrascope. Chile also employs third party expert panels to arbitrate regulatory disputes between the government and private sector, successfully resolving 31 out of 45 claims.<sup>54</sup> Establishment of an independent regulator capability would be a clear message by the government of Mexico that it was committed to reducing risk to the private sector.<sup>55</sup>

Any long term infrastructure investment by the private sector incurs a degree of risk due to uncertainty of future income. Clear regulations create a predictable environment with a mutual understanding of public and private sector roles and shared risk. Competent planning and regulatory government agencies increase investor confidence through well designed contracts that stand the test of time without cost-incurring renegotiations. Chile and Brazil offer best practices for Mexico to improve its competitiveness for public-private partnerships.

### **Two Counter-Arguments for Mexico's Lack of Private Investment**

Some argue that the conditions hindering private investment in infrastructure are economic rather than institutional.<sup>56</sup> Mexico's infrastructure stimulus spending matched similar counter-cyclical methods in other countries as a response to the crisis.<sup>57</sup> Globally, the availability of credit to finance projects dropped considerably in 2009. A survey of European banks in 2009 found a general unwillingness to finance the long-term loans typical of

---

<sup>54</sup> Alejandro Jadresic, "Experts Panels in Regulation of Infrastructure in Chile," *PPIAF Working Paper* No. 2 (2007), 24. <http://www.ppiaf.org/ppiaf/publication/experts-panels-regulation-infrastructure-chile>

<sup>55</sup> Antonia Estache and Marianne Fay, "Current Debates on Infrastructure Policy," *World Bank Policy Research Working Papers* 4410 (2007), 28. <http://econ.worldbank.org>

<sup>56</sup> BMI Global Infrastructure View, "Infrastructure Finance in 2012: Déjà Vu?" *Business Monitor International*. 13 Oct 2011. <http://www.businessmonitor.com/cgi-bin/request.pl?view=articleviewer&article=530743&service=6&SessionID=2C57919EFB3211E0A963B7D73589BE98&iso=%2bG>

<sup>57</sup> Philippe Burger et al., "The Effects of the Financial Crisis on Public-Private Partnerships," *IMF Working Papers* WP/09/144 (2009), 3. <http://www.imf.org/external/pubs/ft/wp/2009/wp09144.pdf>

infrastructure concession projects.<sup>58</sup> Based on rising credit default swap rates in 2011, Business Monitor International (BMI) projected a reduced willingness by banks to finance risky infrastructure projects. Furthermore, BMI suggested that infrastructure projects that depend on utilization for viability, such as toll roads, will continue to see a decline in private investment.<sup>59</sup> However, International Monetary Fund data showed a sector-wide recovery by late 2009 and a significant increase in new infrastructure projects in 2010.<sup>60</sup> As SCT data showed in Table 2, private investment in Mexico remained equally low before and after the crisis, suggesting other causal factors unique to that country.

Others claim that the negative impact of drug-related violence and crime on private investment in Mexico is more significant than institutional or regulatory factors, as the World Economic Forum's Executive Opinion Survey 2011 concluded.<sup>61</sup> This year's *Global Competitiveness Index* ranked Mexico in the bottom ten nations in the world in the categories of organized crime, reliability of police services, and the business cost of crime and violence.<sup>62</sup> Roberto Newell highlights the predominance of negative reporting about Mexico in the *Wall Street Journal* and *New York Times*. Particularly since 2007, organized crime and similar negative social issues, rather than political or economic developments, dominated the Mexico narrative in these two influential publications.<sup>63</sup> Perceptions matter, regardless of the institutional reforms that the Calderón administration takes. Private investors seeking an

---

<sup>58</sup> Paul Davies, "A Review of Lending Appetite for Public Private Partnership Financings," *Talking Points*, January 2009 (London: PricewaterhouseCoopers). [http://www.pwc.co.uk/pdf/ppp\\_lending\\_review.pdf](http://www.pwc.co.uk/pdf/ppp_lending_review.pdf)

<sup>59</sup> BMI Global Infrastructure View.

<sup>60</sup> Clements, 3.

<sup>61</sup> World Economic Forum, *Global Competitiveness Report 2011–2012*, 258.

<sup>62</sup> *Ibid.*, 259.

<sup>63</sup> Newell, 23-25.

opportunity in the infrastructure market will certainly factor the crime-related uncertainty in Mexico into their reward-risk calculation.<sup>64</sup>

Despite the media attention of drug-related violence, investors remained confident in opportunities in Mexico. A recent report by Merrill Lynch-Bank of America assessed only a moderate impact of cartel violence on foreign investment.<sup>65</sup> A managing director at Morgan Stanley had a similar view, stating that foreign investment will likely prioritize economic factors such as the strength of Chinese currency over the fear of drug-related violence.<sup>66</sup> While crime is certainly a risk factor in Mexico, it did not become the top detractor to doing business until this year. Traffic and freight still move on Mexico's roads regardless of drug violence, and concession projects depend more on a stable regulatory framework to ensure long-term return on private investment.

## **CONCLUSIONS and RECOMMENDATIONS**

Mexico's ability to attract private investment in infrastructure depends on its ability to implement comprehensive regulatory reform and to develop the proficiency within its infrastructure-related agencies. The Mexican government is making important reforms in its laws and procedures, but development of the institutions responsible for infrastructure is still lacking. Without the presence of both of these factors, government is a less reliable and less capable partner. Private businesses and investment banks see excessive risk and uncertainty. This is why in a similar development stage and per capita GDP, Chile and Brazil continued to attract private investment when Mexico did not. The National Infrastructure Program showed great potential, but it was built on unrealistic expectations for private investment.

---

<sup>64</sup> Ibid., 29-30.

<sup>65</sup> Jose Arteaga, "EU Bank Sees Slight Damage to Investment Uncertainty," *El Universal*, 7 September 2011. [http://www2.eluniversal.com.mx/pls/impreso/noticia.html?id\\_notia=188734&tabla=nacion](http://www2.eluniversal.com.mx/pls/impreso/noticia.html?id_notia=188734&tabla=nacion)

<sup>66</sup> Gray Newman, quoted in Ronald Buchanan, "Business Unfazed by Drugs Bloodshed," *Financial Times: Mexico Infrastructure and Finance Special Report*, 31 March 2010.

President Calderón characterized his reform-minded administration as “the *sexenio* of infrastructure,”<sup>67</sup> with a vision of building a comprehensive national transportation network, reducing social inequality, and making Mexico a globally competitive economy. It is taking some of the right steps to get there, and the most important regulatory reform Mexico can address is the Law of Public-Private Alliances. If approved, this law will greatly reduce the investment risk and project finance costs for private concession operators and banks. However, this law cannot be the culmination of the government of Mexico’s reform efforts. With the 2012 presidential election approaching, many investors are sitting on the fence, waiting for more political certainty. No one knows yet whether the next administration will develop a new national infrastructure plan, continue the current one, or cancel all pending projects. Regardless of which political party wins the presidency or a legislative majority, they need to commit to continue the reform measures that President Calderón started. A robust and modern infrastructure network is not a political platform; it is an issue of global competitiveness, social and economic well-being that should transcend domestic politics so that Mexico can then leverage its geostrategic position to offer the most competitive reward-risk balance in Latin America.

---

<sup>67</sup> Felipe Calderón, Office of the President, Government of the United States of Mexico. [www.presidencia.gob.mx](http://www.presidencia.gob.mx)

## Bibliography

- Agenor, Pierre-Richard and Blanca Moreno-Dodson. "Public Infrastructure and Growth: New Channels and Policy Implications." *World Bank Policy Research Working Papers* 4064 (2006). <http://econ.worldbank.org>
- Andres, Luis, Jose Luis Guasch, and Stephane Straub. "Do Regulation and Institutional Design Matter for Infrastructure Sector Performance?" *World Bank Policy Research Working Papers* 4378 (2007). <http://econ.worldbank.org>
- Andres, Luis, Jose Luis Guasch, Thomas Haven, and Vivien Foster. *The Impact of Private Sector Participation in Infrastructure: Lights and Shadows, and the Road Ahead*. Washington, D.C.: World Bank, 2008.
- Arteaga, Jose. "EU Bank Sees Slight Damage to Investment Uncertainty." *El Universal*, 7 September 2011.  
[http://www2.eluniversal.com.mx/pls/impreso/noticia.html?id\\_not=188734&tabla=nacion](http://www2.eluniversal.com.mx/pls/impreso/noticia.html?id_not=188734&tabla=nacion)
- BMI Global Infrastructure View. "Infrastructure Finance in 2012: Déjà Vu?" *Business Monitor International*. 13 Oct 2011. <http://www.businessmonitor.com/cgi-bin/request.pl?view=articleviewer&article=530743&service=6&SessionID=2C57919EFB3211E0A963B7D73589BE98&iso=%2bG>
- BMI Industry Trend Analysis - Mexico - Infrastructure. "Private Interest In Infrastructure Could Wane In 2012." *Business Monitor International*. 19 Sep 2011.  
<http://www.businessmonitor.com/cgi-bin/request.pl?view=articleviewer&article=520290&service=6&SessionID=E814B82EF69D11E0A417A84B684434B1&iso=MX>
- BMI. "Mexico Infrastructure Report Q3 2011." *Business Monitor International*.  
[http://www.businessmonitor.com/cgi-bin/request.pl?view=publicationsearch&file=SSMX06\\_20110701.pdf](http://www.businessmonitor.com/cgi-bin/request.pl?view=publicationsearch&file=SSMX06_20110701.pdf)
- Bowen, Mick. "Mexico's Infra Sector Tries to Sort Out Failed Tenders." *InfraAmericas*. 17 June 2011.  
[http://www.widepr.com/press\\_release/15100/mexico\\_s\\_infra\\_sector\\_tries\\_to\\_sort\\_out\\_failed\\_tenders.html](http://www.widepr.com/press_release/15100/mexico_s_infra_sector_tries_to_sort_out_failed_tenders.html)
- Buchanan, Ronald. "Business Unfazed by Drugs Bloodshed." *Financial Times: Mexico Infrastructure and Finance Special Report*, 31 March 2010.
- Burger, Philippe, Justin Tyson, Izabela Karpowicz, and Maria Delgado Coelho. "The Effects of the Financial Crisis on Public-Private Partnerships." *IMF Working Papers* WP/09/144 (2009). <http://www.imf.org/external/pubs/ft/wp/2009/wp09144.pdf>
- Calderón, César and Luis Servén. "The Effects of Infrastructure Development on Growth and Income Distribution." *World Bank Policy Research Working Papers* 3400 (2004).  
<http://econ.worldbank.org>

- . "Infrastructure in Latin America." *World Bank Policy Research Working Papers* 5317 (2010). <http://econ.worldbank.org>
- Castilleja Vargas, Liliana. "Pension Funds and Infrastructure in Mexico." BBVA Economic Watch. Organisation for Economic Co-operation and Development. 13 May 2011. <http://www.oecd.org/dataoecd/55/12/47896497.pdf>
- Clements, Benedict. "The Impact of the Global Financial Crisis on Public-Private Partnerships." Briefing to the Organisation of Economic Co-operation and Development. 12 April 2010. <http://www.oecd.org/dataoecd/40/52/45037642.pdf>
- Corruption Perceptions Index 2010. Transparency International. Accessed 15 September 2011. [http://www.transparency.org/policy\\_research/surveys\\_indices/cpi/2010/results](http://www.transparency.org/policy_research/surveys_indices/cpi/2010/results)
- Davies, Paul. "A Review of Lending Appetite for Public Private Partnership Financings." *Talking Points*. January 2009. London: PricewaterhouseCoopers. [http://www.pwc.co.uk/pdf/ppp\\_lending\\_review.pdf](http://www.pwc.co.uk/pdf/ppp_lending_review.pdf)
- Delgado, Soledad Hormazábal. "Infrastructure Investment and Pension Funds in Chile." BBVA Economic Watch. 27 May 2011. [http://serviciodeestudios.bbva.com/KETD/fbin/mult/110526\\_Pension\\_watch\\_tcm348-258232.pdf?ts=28102011](http://serviciodeestudios.bbva.com/KETD/fbin/mult/110526_Pension_watch_tcm348-258232.pdf?ts=28102011)
- Economist Intelligence Unit. "2010 Infrascopes Index for Latin America and the Caribbean." Economist Intelligence Unit. October 2010. [http://www.eiu.com/site\\_info.asp?info\\_name=2010\\_Infrascopes&page=noads](http://www.eiu.com/site_info.asp?info_name=2010_Infrascopes&page=noads)
- . "Evaluating the Environment for Public-Private Partnerships in Latin America and the Caribbean: The 2010 Infrascopes." Economist Intelligence Unit. 17 November 2010. [http://www.eiu.com/site\\_info.asp?info\\_name=2010\\_Infrascopes&page=noads](http://www.eiu.com/site_info.asp?info_name=2010_Infrascopes&page=noads)
- Engel, Eduardo M. R. A., Ronald D. Fischer and Alexander Galetovic. "Least-Present-Value-Of-Revenue Auctions and Highway Franchising," *Journal of Political Economy*, 109 no. 5 (2001): 993-1020.
- Estache, Antonia and Marianne Fay. "Current Debates on Infrastructure Policy." *World Bank Policy Research Working Papers* 4410 (2007). <http://econ.worldbank.org>
- Estache, Antonio and Liam Wren-Lewis. "Toward a Theory of Regulation for Developing Countries: Following Jean-Jacques Laffont's Lead." *Journal of Economic Literature* 47, no.3 (2009): 729-770. DOI:[10.1257/jel.47.3.729](https://doi.org/10.1257/jel.47.3.729)
- Fay, Marianne and Mary Morrison. *Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges*. New York: World Bank, 2007. DOI: [10.1596/978-0-8213-6676-9](https://doi.org/10.1596/978-0-8213-6676-9)

- Federal Commission for Regulatory Improvement (COFEMER). Accessed 23 September, 2011. <http://www.cofemer.gob.mx/contenido.aspx?contenido=138>
- Faquharson, Edward, Clemencia Torres de Mästle, E.R. Yascombe, with Javier Encinas. *How to Engage With the Private Sector in Public Private Partnerships in Emerging Markets*, 16-17 (Washington, D.C.: PPIAF, 2011) DOI: 10.1596/978-0-8213-7863-2.
- Garza-Limon, Cecilio and Raul Rodríguez-Barocio. "Two Notes on the Need for a China Policy in Mexico." Center for Hemispheric Policy, University of Miami. 26 April 2007. <https://www6.miami.edu/hemispheric-policy/Garza-Limon-policypaper.pdf>
- Guadarrama-Yáñez, Jorge and Benjamín Torres Barrón. "Regulations or Legal Aspects Demanded by the Infrastructure Development in Mexico." *Inmobiliare*. Accessed 7 October 2011. <http://www.inmobiliare.com/english-edition/industrial-and-office/regulations-or-legal-aspects-demanded-by-the-infrastructure-development-in-mexico.html>
- Guasch, J. Luis and Stephane Straub. "Concessions of Infrastructure in Latin America: Government-Led Renegotiations." *World Bank Policy Research Papers* 3749 (2005). <http://econ.worldbank.org>
- Inderst, Georg. "Pension Fund Investment in Infrastructure." *OECD Working Papers on Insurance and Private Pensions*, No. 32 (2009). DOI:[10.1787/227416754242](https://doi.org/10.1787/227416754242)
- Instituto Nacional de Estadística y Geografía (INEGI) [National Institute for Statistics, Geography, and Informatics]. Accessed on 2 October 2011. <http://www.inegi.org.mx/default.aspx?>
- Jadresic, Alejandro. "Experts Panels in Regulation of Infrastructure in Chile," *PPIAF Working Paper* No. 2 (2007). <http://www.ppiaf.org/ppiaf/publication/experts-panels-regulation-infrastructure-chile>
- Jett, Alexander. PPI Data Update Note 58, Private Participation in Infrastructure Database. World Bank. August 2011. <http://ppi.worldbank.org/features/September-2011/2011-Latin-America-PPI-infrastructure-note.pdf>
- . Latin America and the Caribbean Regional Overview. Private Participation in Infrastructure Database. World Bank, August 2011. <http://ppi.worldbank.org/features/September-2011/Private-Infrastructure-2000-2010-Latin-America-Update.pdf>
- Kenny, Charles. "Infrastructure Governance and Corruption: Where Next?" *World Bank Policy Research Working Papers* 4331 (2007). <http://econ.worldbank.org>
- Loftus-Otway, Lisa, Hutson, Nathan, Alejandra Cruz-Ross, Rachel Niven, Leigh Boske, and Jolanda Prozzi. "An Evaluation of Mexican Transportation Planning, Finance, Implementation, and Construction Processes." Center for Transportation Research, University of Texas at Austin, October 2009. [http://www.utexas.edu/research/ctr/pdf\\_reports/0\\_5985\\_1.pdf](http://www.utexas.edu/research/ctr/pdf_reports/0_5985_1.pdf)

- Macías, Raúl Flores. "Infrastructure with a Long-Term Vision." *Presidency Blog*. 27 July 2011. <http://en.presidencia.gob.mx/the-blog/infrastructure-with-a-long-term-vision/#more-66327>
- "Mexican Infrastructure: More Competitiveness?" *Latin America Business Chronicle*. 30 July 2007. <http://www.latinbusinesschronicle.com/app/article.aspx?id=1487>
- Mia, Irene and Emilio Lozoya Martin. "Assessing the Foundations of Mexico's Competitiveness: Findings from the Global Competitiveness Index 2007-2008." Global Competitiveness. World Economic Forum, 2008. [https://members.weforum.org/pdf/Global\\_Competitiveness\\_Reports/Mexico.pdf](https://members.weforum.org/pdf/Global_Competitiveness_Reports/Mexico.pdf)
- Mia, Irene, Julio Estrada, and Thierry Geiger. *Benchmarking National Attractiveness for Private Investment in Latin American Infrastructure*. Geneva: World Economic Forum, 2007. <http://www.weforum.org/reports/benchmarking-national-attractiveness-private-investment-latin-american-infrastructure>
- Ministry of Communications and Transportation. Accessed 7 October 2011. <http://www.sct.gob.mx/>
- Miranda, Nicholas. "Concession Agreements: From Private Contract to Public Policy." *The Yale Law Journal* 117, no. 3 (2007): 510-549. ProQuest (198489777). <http://search.proquest.com/docview/198489777?accountid=322>
- Monroy, Jorge. "PRI and PRD Slow Associations Act." *El Economista.mx*. 4 October 2010. <http://eleconomista.com.mx/sociedad/2010/10/04/pri-prd-frenan-ley-asociaciones>
- Mourougane, Annabelle and Mauro Pisu. "Promoting Infrastructure Development in Brazil." *OECD Economics Department Working Papers*, No. 898, OECD Publishing (2011). DOI:[10.1787/5kg3krfnclr4-en](https://doi.org/10.1787/5kg3krfnclr4-en)
- Murphy, Russell Jr. and Andrew Feltenstein. "Private Costs and Public Infrastructure: The Mexico Case." *IMF Working Papers* WP/01/164, 2001. <http://www.imf.org/external/pubs/ft/wp/2001/wp01164.pdf>
- National Infrastructure Program 2007-2012*. Mexico City, D.F.: Government of the United States of Mexico, 2007. <http://www.infraestructura.gob.mx/index9ef4.html?page=english-version>
- National Development Plan 2007-2012*. Mexico City, D.F.: Government of the United States of Mexico, 2007. <http://pnd.calderon.presidencia.gob.mx/>
- Newell, Roberto. "Restoring Mexico's International Reputation." Woodrow Wilson International Center for Scholars, Mexico Institute. June 2011. <http://www.wilsoncenter.org/sites/default/files/Restoring%20Mexico%20Report.pdf>
- North American Transportation Statistics Database. Accessed 2 October 2011. <http://nats.sct.gob.mx/>

- Organisation of Economic Co-operation and Development. "Policy Brief: Competition Policy and Concessions." *OECD Observer*, May 2007.  
<http://www.oecd.org/dataoecd/12/47/38706036.pdf>
- . "Regulation Inside Government in Mexico: Policies and Framework." *Towards More Effective and Dynamic Public Management in Mexico*. 30 June 2011. DOI:  
[10.1787/9789264116238-6-en](http://dx.doi.org/10.1787/9789264116238-6-en)
- Pargal, Sheoli. "Regulatory Environment for Private Sector Participation in Infrastructure." In *Mexico: A Comprehensive Development Agenda for the New Era*. Edited by Marcelo Giugale, Oliver Lafourcade, and Vinh Nguyen, 377-405. Washington, D.C.: World Bank, 2001.
- Public-Private Infrastructure Advisory Facility. *Private Solutions for Infrastructure in Mexico*. Washington, D.C.: World Bank (2003).  
<http://go.worldbank.org/4Z5KZX5FA0>
- Ramirez Soberanis, Vladimir. "Improving the Practice of Cost Benefit Analysis in the Transport Sector: A Mexican Analysis." Joint Transportation Research Centre. International Transport Forum. Last updated 22 October 2010.  
<http://internationaltransportforum.org/jtrc/DiscussionPapers/DP201018.pdf>
- "Public-Private Partnerships for Highways in Mexico." General Road Directorate, Secretariat of Communications and Transport. Accessed 15 September 2011.  
<http://dc.sct.gob.mx/index.php?id=493>
- Sicilia, Jorge. "Role of Pension Funds in Economic Growth." 9 June 2011 Brief to the Insurance and Private Pensions Committee, Mexico City, Mexico. OECD. Accessed 16 September 2011. <http://www.oecd.org/dataoecd/36/8/48364541.pdf>
- Véron, Adrien and Jacques Cellier. "Private Participation in the Road Sector in Brazil: Recent Evolution and Next Steps." *Transport Papers* no. 30. Washington D.C.: World Bank, 2010.
- World Economic Forum. *Global Competitiveness Report 2010–2011*. Edited by Klaus Schwab. Geneva: World Economic Forum, 2010.  
<http://www.weforum.org/reports/global-competitiveness-report-2010-2011-0>
- . *Global Competitiveness Report 2011–2012*. Edited by Klaus Schwab. Geneva: World Economic Forum, 2011. <http://www.weforum.org/reports/global-competitiveness-report-2011-2012>