Regulatory reform in the Brazilian railway sector and concession valuation – a preliminary assessment

Edson Gonçalves
Center for Regulation in Infrastructure - FGV

Patrícia Sampaio
Center for Law & Economics - FGV

Florence School of Regulation
4th Conference on the Regulation of Infrastructures

12 June 15
Summary & Main Preliminary Findings

- In the paper we analyze, from the perspective of a firm that owns a concession, the potential effects on its value due to possible changes in the Brazilian railway regulation according to the Logistics Program launched by the Federal Government in 2012.

- The current regulatory model is vertically-integrated while the new model would provide unbundling and a new role for the state-owned company VALEC, which would act as a kind of intermediary, buying the whole capacity from infrastructure owners and offering it publicly to independent operators, assuring rights of way for trains throughout the railway.

- At the same time we try to understand the relationship among the stakeholders involved if changes in the regulatory framework occur - firms, the government and final consumers, and who would benefit from such changes.

- Our preliminary results indicate that the “new” model may damage both concessionaires, which shall have diminished the firm value, and the State/government, which shall bear major fiscal costs.
Overview of the Rail Sector and its role for Brazilian growth

Brazilian GDP has great dependence on primary commodities exportations; this cargo should be captive of railways

Main Exported Products Exported in 2014 (US$ Million)

<table>
<thead>
<tr>
<th>Products</th>
<th>Value</th>
<th>Δ % (2014/13)</th>
<th>% Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans and prods</td>
<td>31,408</td>
<td>1.4</td>
<td>14.0</td>
</tr>
<tr>
<td>Ores</td>
<td>28,402</td>
<td>-19.0</td>
<td>12.6</td>
</tr>
<tr>
<td>Oil and fuel</td>
<td>25,175</td>
<td>12.4</td>
<td>11.2</td>
</tr>
<tr>
<td>Transport material</td>
<td>20,374</td>
<td>-35.5</td>
<td>9.1</td>
</tr>
<tr>
<td>Meats</td>
<td>16,891</td>
<td>3.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Chemicals</td>
<td>15,051</td>
<td>2.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Metallurgic products</td>
<td>14,423</td>
<td>8.8</td>
<td>6.4</td>
</tr>
<tr>
<td>Sugar &amp; ethanol</td>
<td>10,357</td>
<td>-24.5</td>
<td>4.6</td>
</tr>
<tr>
<td>Machines and equipment</td>
<td>8,671</td>
<td>-3.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Paper &amp; pulp</td>
<td>7,218</td>
<td>0.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Coffee</td>
<td>6,616</td>
<td>26.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Footwear &amp; leather</td>
<td>4,287</td>
<td>10.8</td>
<td>1.9</td>
</tr>
<tr>
<td>Electrical equipment</td>
<td>3,965</td>
<td>-7.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Precious metals and stones</td>
<td>2,817</td>
<td>-12.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Textiles</td>
<td>2,536</td>
<td>7.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>
However, to date the railroad system has a small stake when compared to other means of transportation.

In the **Logistics** Performance Index – LPI 2014 (WB), Brazil stands in the **65th position** among 160 countries analyzed. When it comes to **infrastructure** in general, whereas in 2012 the country was ranked in the 46th position, it dropped to the **54th** in 2014.

Source: PNLT (2012)
Overview of the Rail Sector and its role for the Brazilian growth

Graphic 3 - Railways, goods transported (million ton-km)

Besides the unbalanced Matrix of Cargo Transportation...

Brazil also experiences low network density: **3.9m per km²**.
Brazilian Railway System & the Economy

- Until the 80s - State-investor model.

- 90s - privatization program under which the existing railways were divided in different geographic areas and had the exploitation of both infrastructure and services transferred to private companies under concession contracts preceded of public procurement processes.

- Consortiums have at least one party that is a client of the railroad (Venckovsky, 2005).

- The national regulatory agency was only set up (2001) after privatization of the railways had taken place (1996-1998).

- After almost two decades, there is great evidence that privatization succeeded in increasing transportation capacity in existing railways and significantly reducing accidents.

- However, there was little net expansion.
Brazilian Railway System & the Economy

2012 - Launching of the National Integration Logistics Program (PIL), which aimed to boost investments in the railway system by means of several changes in the regulatory framework, such as:

i. Unbundling infrastructure and service provision;

ii. Assigning to private parties the duties of construction and operation of new railways under concession agreements/public-private partnerships;

iii. Introducing the figure of Independent Railway Operators, which shall compete for freight clients; and

iv. Having the federal government, through a state-owned company, to purchase all transportation capacity from infrastructure concessionaires and to resell it in the market under public auctions.

2015 – Due to regulatory uncertainty and fiscal constraints, it is possible that the “new model” will not be implemented. Probability new concessions will be auctioned under the “old” vertically-integrated model.
Our Simulations / Case Study

- In order to assess the possible consequences of changes in the regulatory framework to private firms, we have performed an exercise that calculates the present value (PV)
  (i) Of an existing railway belonging to a real concessionaire today (Scenario 1);
  (ii) In case the concessionaire becomes an infrastructure provider for VALEC and, through the same economic group, remains as operator (Scenario 2); or
  (iii) In case the regulatory framework decides to set open access as a general rule without the intermediation of VALEC, allowing competition to be introduced in the railway (Scenario 3).

- Scenario 2 corresponds to the project valuation under the “new model”.

- We are assuming, to make comparisons reasonable, that railway O&M will remain with the firm (infrastructure provider) as well as services operations – the latter, however, through a new firm belonging to the same economic group.

- For coming versions of this paper, we shall perform simulations considering total unbundling and the situation faced by a new concession/project.
Our Simulations / Case Study

- Case Study based on “Malha Norte”, a vertically-integrated railway concession of América Latina Logística (ALL), the largest company in the Brazilian railway sector (publicly traded).

- Model uses Discounted Cash Flow Method (DCF) and sensitivity analysis to evaluate the Present Value (PV) of “Malha Norte” under the three scenarios described.

- Scenarios comprise different assumptions regarding transportation volume, prices, fixed and variables costs. These assumptions have direct relationship with the underlying situation.

- Revenues dependent on “pure rail products”, “agricultural commodities” and “intermodal products”.

- Discounted Cash Flow Method is based on Free Cash Flow to the Firm Model (FCFF), combined with WACC /CAPM (Weighted Average Cost of Capital / Capital Asset Pricing Model) approach for discount rate estimation.
Main Results
Vertically- Integrated x “Valec” Model

- Considering the role of VALEC as the sole capacity buyer, the value estimated for the concession reaches R$ 42,210 million.

- This result is 42% smaller than the scenario where the firm continues to operate vertically integrated— so, if regulation changes towards unbundling and with VALEC as intermediary, the firm would be seriously impaired.

- For example, in a situation where volume doubles and prices drop exactly a half – implying in the same level of revenues, the concession’s value becomes significantly small due to the impacts on variable costs, which are sensitive to the volumes, not revenues.
Main Results
Vertically- Integrated x Open Access

Joint Sensitivity Analysis – Volume Growth x Prices – Scenario 1
Valuation under “old” Vertically- Integrated model

The presence of a new competitor will affect more the concession’s PV when compared to scenario 2 (VALEC), reaching R$ 29,429 million.

In some scenarios, the best decision for the firm is to abandon the concession – this is the case if a very large competitor enter the market and get a share of 50%, with price war dropping prices in 35%.

Also, if we experience a growth lower than expected, which is a very reasonable possibility, a drop of 40% in price would be enough to turn the concession economically inviable.
Concluding Remarks / Questions

- According to the scenarios and simulations performed, we conclude that, from the point of view of a private concessionaire, the potential change in regulation may lead to a decrease in the concession’s PV, being a negative incentive to already-existing entrepreneurs or to newcomers when compared to vertically-integrated schemes.

- It is clear that, under some specific scenarios, the change may benefit the firm; however, these scenarios are potentially associated with higher costs to VALEC and, hence, to the Brazilian government.

- In the paper we emphasize the firm’s point of view. There are, at least two other visions about regulatory changes involved: VALEC (government) and final consumers (society). Some important questions remain:
  - Is the unbundling scheme proposed by the new model likely to foster investments in the railway system and lower logistics costs?
  - Would the current vertically-integrated model coupled with open access rules be capable of reaching the same or better results than the envisaged the new model?

- As future extensions to the discounted cash flow model used, we have Monte-Carlo Simulation and Real Options Approach, which are methods that capture the effects of less probable scenarios and managerial flexibility, which may be included in concession agreements as risk-sharing mechanisms.
Thank you!

Edson.goncalves@fgv.br
Patricia.pinheiro@fgv.br