POLICY BRIEF

IMPROVING BRAZIL S AGRICULTURAL PRODUCTIVITY BY TARGETING INFRASTRUCTURE

Over the next few years, the Brazilian government will roll out a large spending package to address chronic problems in the nation s infrastructure. A new Climate Policy Initiative / PUC-Rio[1] report identifies a key solution that policymakers should consider: Addressing inefficiencies in road, railway, and port regulation could yield large gains in infrastructure improvements and agriculture productivity.

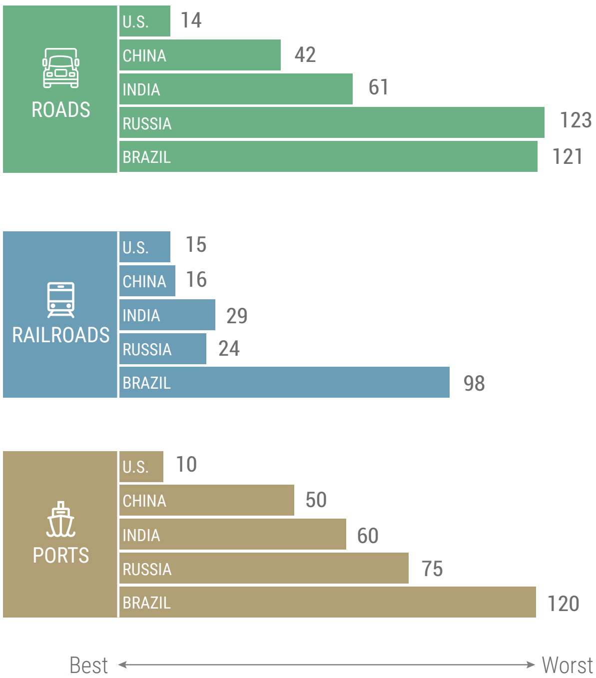
Since the late 1990s, the regulatory environment of Brazil s infrastructure has been in continuous flux, creating uncertainty in the marketplace. While the regulations have changed in different ways, the general trend has been clear, with restrictions that have prevented existing infrastructure concessionaires from making long-term profits on their investments and provisions that have aimed to incentivize private investment through hidden subsidies.

This shifting mix of incentives for private infrastructure investors has had dramatic, and mainly detrimental, effects on the natural dynamics of the marketplace. It has diminished the viability of infrastructure investments and led to the erosion of the infrastructure s overall quality. Brazil now ranks far behind geographically similar nations in infrastructure quality (Figure 1). **This inefficiency costs the nation time, reduces returns on agricultural production, and slows overall growth**.

Previous CPI/PUC-Rio[2] analysis shows that carrying a ton of soybean from one of Brazil s leading soybean production municipalities to its point of export is almost three times as expensive as it is to carry the same amount of soybean over a similar distance in the United States. In addition, a lack of adequate roads keeps much of Brazil s production from being exported from its most cost-effective ports - in some cases, this represents a near twentyfold increase in costs (Figure 2).

Figure 1: International Comparison on Transport Infrastructure

2015-2016 World Economic Forum Competitiveness Rankings for quality of:



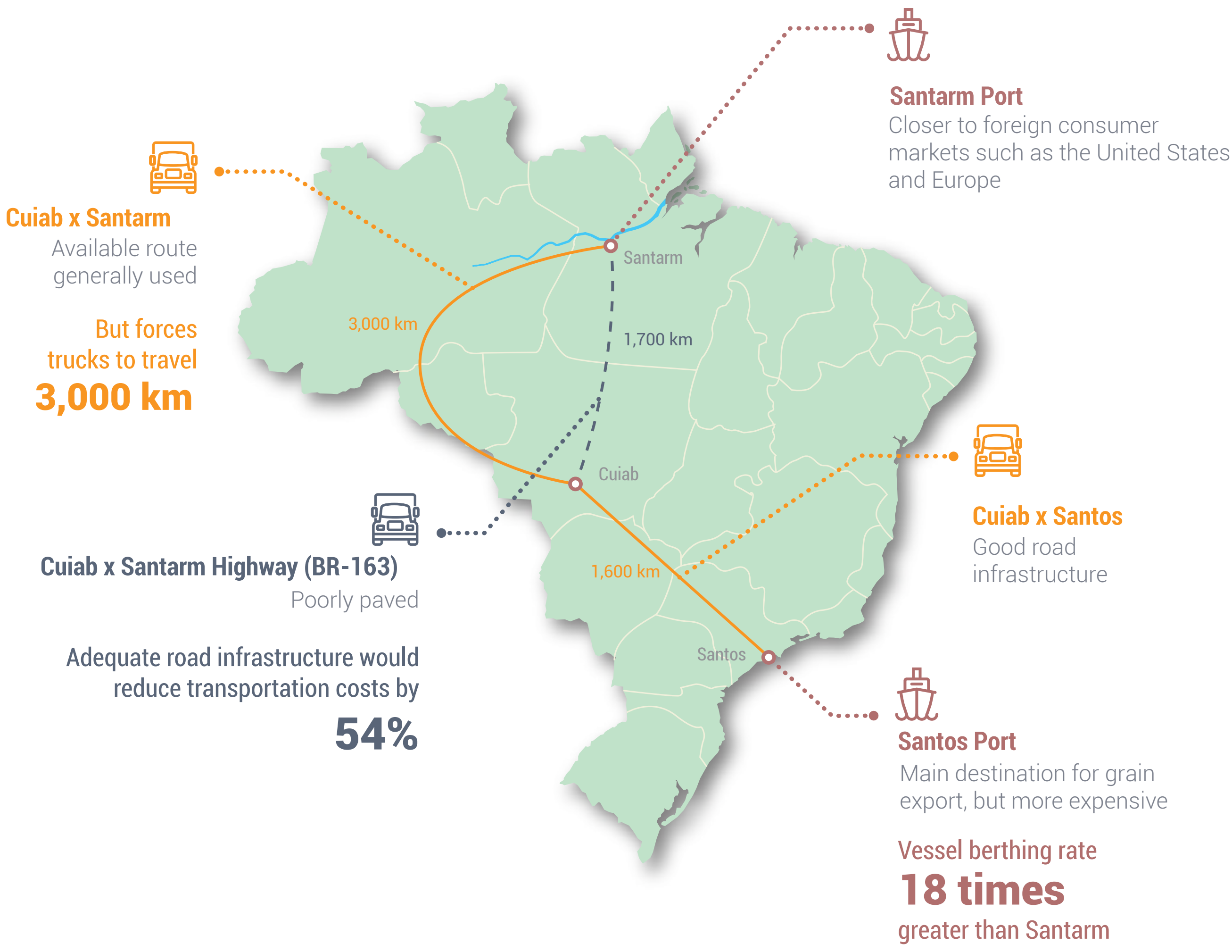
Source: Developed based on the data from WEF, 2015.

1 http://www.inputbrasil.org/projetos/infraestrutura-de-transportes-e-produtividade-agricola/?lang=en

2 http://climatepolicyinitiative.org/wp-content/uploads/2013/12/Production-and-Protection-A-First-Look-at-Key-Challenges-in-Brazil-executive-summary.pdf

This brief identifies key inefficiencies for the highway, rail and port sectors, and outlines solutions that can improve agricultural productivity in Brazil by way of improving these sectors.

Figure 2: Cuiab s Road Routes to Santar m and Santos Ports



KEY RESEARCH FINDINGS

The regulatory environment of Brazil s roads, railways and ports has been continuously changing since the late 1990s, creating a mix of incentives and uncertainty in the marketplace. This has been detrimental to existing infrastructure investment and has discouraged new investment.

Overall, the trend of new regulation has been to prevent existing infrastructure concessionaires from making long-term profits from their investments. Regulators have initiated complex tariffs in the highway system and new rules that eliminate necessary monopolies in the rail sector. These actions have often led to taxpayer-funded subsidies to motivate the concessionaires instead of marketplace incentives, to inefficient use of the infrastructure, and to the promotion of inefficient firms.

In the **highway sector**, the combination of subsidies and complex and demanding regulations has begun to erode the participation and effectiveness of concession auctions.

In the **rail sector**, the 2011-2012 regulatory framework unbundled the highly specialized industry, snarling its efficiency and diminishing private companies interest and willingness to invest in railways. This scheme is expected to accrue significant deficits for the state-owned Valec, even though the projects may end up being lucrative.

In the **port sector**, deregulation of independent facilities has been a positive step forward, but the still highly regulated public port approach creates persistent inefficiencies.

ANALYSIS FOR POLICYMAKERS

Understanding and addressing key inefficiencies in the regulation of roads, railways, and ports

Brazil s recent regulatory changes have been detrimental to infrastructure investment. In an attempt to address this problem, the government has scaled up taxpayer-supported subsidies to private investors, which have further skewed market dynamics and drawn down public funds.

By following the examples of geographically similar regions   such as the U.S., Europe, and Canada   Brazil can provide incentives to private infrastructure owners that more directly align with market needs. This will unlock more investment and allow for infrastructure improvement. CPI/PUC-Rio researchers examined specific trends and inefficiencies in Brazil's roads, railways, and ports, which are discussed below.

Trends and Inefficiencies in Highway Regulations

From 1996 through 2009, highway contract auction terms for concessionaires shifted. These changes included tax rates based on returns, toll adjustments based on a quality index of accident frequency and lane availability, and periodic toll adjustments to extract further profits.

These shifts have led to a mix of incentives that are beginning to erode efficient market forces. The many layers of contingencies that come with each phase of new laws negatively impact returns to concessionaires. As a result, it is difficult for concessionaires to identify how they will make a fair return on their investments.

In response, the regulator has gradually begun to provide incentives for concessionaires to remain engaged in the sector. The regulators are, in effect, taking on the role of the market. Concessionaires have become more accountable to meeting the terms of regulators as outlined in the auctions and less accountable for providing quality to users. Performance of highways has deteriorated. The auctions have become less effective as a means for vetting the most worthwhile projects and securing the best public-private partnerships.

CPI/PUC-Rio researchers suggest that policymakers revise the auction process so that incentives for concessionaires are realigned with providing users with quality, maintaining incentives for improving operations, and freeing concessionaires to make fair returns on their investments.

Trends and Inefficiencies in Railway Regulations

Railways provide efficient means of transportation for a narrow but important set of needs: shipping bulk freight by land over medium distances. Rail infrastructure regulations in Brazil had been working relatively efficiently until the introduction of new rules in 2011-2012. These rules allowed independent operators into the rail network and began unbundling the operational framework of the trains. But, because the rail infrastructure requires very unique and complex assets, like trains, to be fitted specifically to other parts of the infrastructure, like rails, the debundling of these assets may become very problematic to the efficiency of the rail system. Suddenly, concessionaires who invested in building and maintaining tracks may find they are no longer allowed to operate trains. Investors in trains may discover they are no longer guaranteed tracks.

Solutions to these regulatory issues can become complicated due to the complex mix of incentives. However, CPI/PUC-Rio researchers argue that a simple solution exists: return to the original regulatory framework of the existing concessionaires in Brazil. That is, the framework should move back to vertical integration with tariff regulation, which would grant access to small shippers and curb the railway s monopoly power.

Trends and Inefficiencies in Port Regulations

Regulation of port infrastructure is better than that of the highways and railways. Today, regulation allows private investors to open new independent port facilities with very few requirements. This has allowed investment in port capacity to grow, essentially bypassing the outdated regulation of public ports.

While deregulation of independent port facilities is a step forward, it is only a second-best solution to the inefficiencies present in public ports. The best solution would be to deregulate public ports, too. This will help increase public access, reduce redundant facilities, and promote competition.

CONCLUSION

It is clear that Brazil must work to improve transport infrastructure. And while improvements depend on a regulatory framework where both private and public sectors cooperate, recently, there have been some important changes in the regulation of transport infrastructure covering three key sectors (highways, railways, and ports) that erode this framework.

New regulations or changes to existing regulations should realign the balance between public-partnerships. In this way, market incentives that entice private infrastructure owners to build and improve upon the roads, rails and port systems can be restored, releasing the potential for significant improvements in infrastructure.

KEY RECOMMENDATIONS

Improve infrastructure to improve agricultural productivity. As previous CPI/PUC-Rio work shows,[3] access, or lack of access, to infrastructure directly impacts agricultural productivity in Brazil.

In general, new regulation or changes to regulation of infrastructure should focus on an appropriate balance between public and private cooperation, and incentives to private infrastructure owners to continue to build and improve upon infrastructure needed by the market.

In the **highway sector**, focus the auction process on re-aligning regulatory stability and incentives. Ensure private highway operators (concessionaires) are motivated to provide users with quality and to improve operations in exchange for fair returns on their investments.

In the **rail sector**, revise the regulations to allow for a return to the vertical integration framework that Brazil used to follow, and which was more efficient than the current, de-bundled regulatory approach.

In the **port sector**, deregulate public ports to increase public access, reduce redundant facilities, and promote competition.

3 http://climatepolicyinitiative.org/wp-content/uploads/2013/12/Production-and-Protection-A-First-Look-at-Key-Challenges-in-Brazil-executive-summary.pdf

AUTHORS

Joana Chiavari
Climate Policy Initiative (CPI) & Ncleo de Avalia o de Pol'ticas Clim ticas, PUC-Rio (NAPC/PUC-Rio)
joana.chiavari@cpirio.org

Leonardo Rezende
Department of Economics, PUC-Rio
lrezende@econ.puc-rio.br

Media Contact
Mariana Campos
mariana.campos@cpirio.org

www.inputbrasil.org

July 2016

*The **Land Use Initiative (INPUT Iniciativa para o Uso da Terra)** is a dedicated team of specialists who work at the forefront of how to increase environmental protection and food production. INPUT engages stakeholders in Brazil s public and private sectors and maps the challenges for a better management of its natural resources. Research conducted under INPUT is generously supported by the Children s Investment Fund Foundation (CIFF) through a grant to the Climate Policy Initiative. **www.inputbrasil.org**. The New Climate Economy project also generously funded this analysis.*