

gridlines

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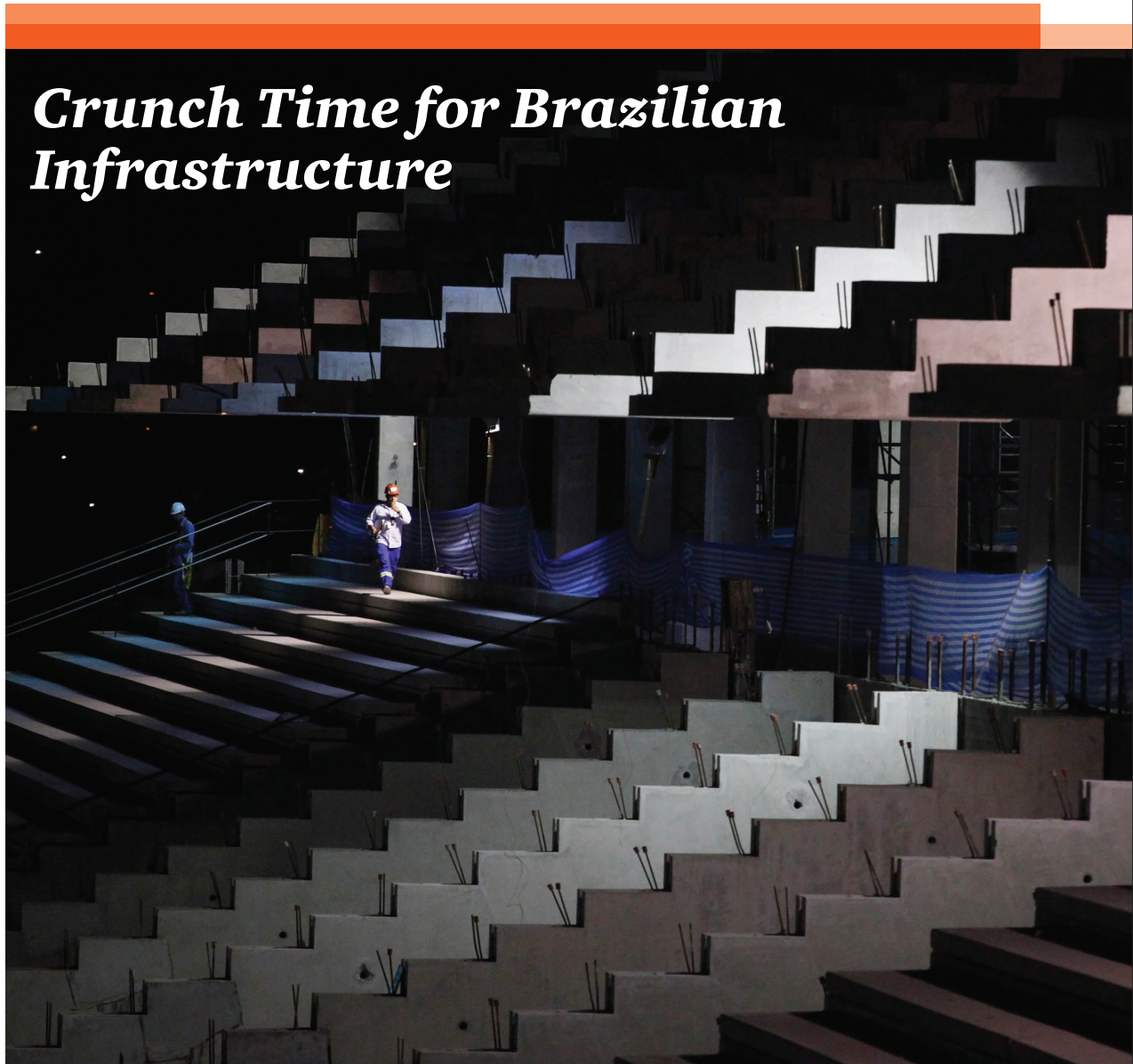
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As South America's biggest economy races to meet World Cup and Olympic deadlines, Brazil's long game also comes into view



By Carlos Biedermann and Hazem Galal

On cover: Laborers work at night on the construction of the new Corinthians stadium, which is being prepared to host matches during the 2014 World Cup, in the São Paulo district of Itaquera.

Above: Rio de Janeiro, Airport

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It's nearly impossible to overstate Brazil's commitment to developing its infrastructure. Last year, Dilma Rousseff's government awarded concessions to redevelop and operate three major airports. Between six and seven more airport concessions are anticipated. This "second wave," with a bolstered and improved concessions bidding process, is expected to boost private investment confidence in the air passenger and air freight sectors. In December of 2012, the administration announced a \$US 3.5 billion regional airport infra-

structure program that includes, among other things, \$US 1 billion dedicated to 64 regional airports in the country's remote northeast and nearly billion to 67 airports in the north, with an overall goal of having 96 percent of the country living within 100 kilometers of an airport.¹ In mid-August 2012, the Brazilian government announced a new round of transport concessions, including \$US 45 billion for 10,000km of railway expansion slated to begin early this year.² It's all part of an attempt to make up for lost time — a decades-old pattern of

¹ "Brazil Announces Regional Aviation Expansion," Center for Aviation, December 21, 2012, http://centreforaviation.com/news/brazil-announces-regional-airport-infrastructure-investment-plans-196166?utm_source=BenchmarkEmail&utm_campaign=Jan_03_2013_Email&utm_medium=email.

² "Company Returns Assured by Government in Rail Expansion," Christiana Sciaudone, January 11, 2013, Bloomberg, <http://www.bloomberg.com/news/2013-01-11/all-vale-break-up-amid-assured-returns-corporate-brazil.html>

The country's great hope may rest upon a vision of Brazil's long game — the long-term bet that hinges upon harnessing the country's astonishing assets.

infrastructure under-investment, which has also combined with an astonishing rise of millions of Brazilians into the middle class. This has created more demand for basic infrastructure — electricity, air travel, road use, freight and passenger travel, the whole gamut of activity associated with rapidly expanding purchasing power and discretionary income.

Indeed, every week, it seems, a new announcement is made to enable further expansion of the infrastructure sector. Much of this, of course, is targeting the up-coming 2014 World Cup and 2016 Olympic games. And while there are many reasons for Brazil to celebrate these tournaments — nearly a quarter million jobs will be generated along with more than \$US 116 billion in direct and indirect economic benefit for the World Cup alone — the realities for Brazil, the great promise and the big challenges, transcend these two near-term events. The country's great hope may rest upon a vision of Brazil's long game — the long-term bet that hinges upon harnessing the country's astonishing assets.

Brazil is staggeringly rich in natural resources — a country completely energy independent, with vast hydro-electric capacity, burgeoning wind and solar generation, mature ethanol production, and newfound oil discoveries, the so-called “pre-salt” fields, that are thought to rival those found beneath the North Sea. Brazil is the world's biggest producer of iron ore; it is the largest exporter of beef, sugar, coffee, and orange juice; and is the second largest exporter of soybeans.³ These and other resources have made Brazil a global commodities powerhouse strategically located between major trading partners in Asia, Europe, the United States, and the Middle East.

Such assets are bolstered, moreover, by other competitive strengths: Brazil lands solidly in the first or second quartile of the 142 countries measured in the World Economic Forum's *Global Competitiveness Report*, with a sophisticated business environment, efficient financial markets, and high rates of technological adoption. (Brazil has the 6th largest IT market in the world, representing 8 percent of Brazil's GDP). All of this has allowed Brazil to jump

ten places in 2010 and 2011 in the World Economic Forum's overall country competitiveness report, last year breaking into the world's top 50 economies (to 48th out of 142). Now ranked higher than Russia and India, Brazil was the only BRIC country, in fact, to see its ranking rise last year — and it is closing upon Italy and Spain as the Euro-zone financial troubles linger.⁴

With Europe struggling, a recent analysis of the outlook for the Brazilian economy by International Monetary Fund suggests that Brazil's economy will likely overtake France's by 2015, putting Brazil 5th in the world after Germany.⁵ Brazil's sustained commitment to strategic public spending, moreover, a rarity in these austere times, has brought about one of the lowest unemployment rates in the world, helping to fuel one of the world's largest internal markets, which, in last year's survey by the World Economic Forum, broke into the top ten domestic markets, ranking 9th globally, with a newly emergent middle class of 46 million consumers. That kind of buying power and demand for products, some say, has helped buffer the Brazilian economy from global economic woes.

3 “Brazil: Platform for growth,” *The Financial Times*, March 15, 2011, <http://www.ft.com/intl/cms/s/0/fa11320c-4f48-11e0-9038-00144feab49a.html#axzz1yutYABcf>

4 IT stats are from Antonio Gil, president of the Brazilian Association for IT and Communication Companies (BRASSCOM), presentation at the 2012 Brazil Summit, April 23, 2012. Brazil's business environment is 31st out of 142 countries; financial markets are 40th and technological adoption is 47th. “1.1 The Global Competitiveness Index, 2011-2012,” *Global Competitiveness Report, 2011*, World Economic Forum, pg

15 and 32, <http://www.weforum.org/reports/global-competitiveness-report-2011-2012>. Spain and Italy, which are at the top of the second quartile of WEF 142 ranked countries, are widely viewed as vulnerable in the Euro-crisis, while Chile, Peru, Mexico and Brazil are the countries in Latin America most insulated from the Euro-zone crisis. “Fitch: Chile, Peru best prepared for downturn of global economy; Argentina and Venezuela most vulnerable,” June 4th 2012, Merco Press, South Atlantic News Agency, <http://en.mercopress.com/2012/06/04/fitch-chile-peru-best-prepared-for-downturn>

of-global-economy-argentina-and-venezuela-most-vulnerable. “Europe Dodges a Bank Crisis in Spain, but Perils Lurk,” Jack Ewing, *The New York Times*, June 10, 2012, <http://www.nytimes.com/2012/06/11/business/global/as-focus-shifts-to-rescuing-spanish-banks-worries-grow-over-greece.html?pagewanted=all>

5 “Brazil is expected to pass France by 2015, says Mantega,” *Folha de São Paulo*, 12, 28, 2011, <http://www1.folha.uol.com.br/internacional/en/national/1027086-brazil-is-expected-to-pass-france-by-2015-says-mantega.shtml>

Not that Brazil is by any means immune to macro-economic shifts.⁶ Last November's *Economic Outlook* from the OECD, for instance, underscores both the struggle and the vitality of the Brazilian economy. On the one hand, Brazil's GDP growth has been revised downward to 1.5 percent, the lowest of all the BRICs, yet the same report projects that Brazil's GDP growth will bounce back to 4 percent and more in the next two years.⁷ Indeed, the debate is not if, but when Brazil will come booming back again. And even gloomier assessments of Brazil's US 2.5 trillion economy — some

recent economic forecasts put GDP growth at just under 1 percent in 2012 — look positively sunny compared to projections elsewhere for Germany (0.6 percent), France, (0.5) and for the United States (2.1 percent).⁸ But whatever challenges one might point to in the near term, one common feature stands out in every forecast or projection: the need to build and improve Brazil's infrastructure is so clear, that, as Filipe Jens, director of finance for the Brazilian construction giant Odebrecht put it recently, "For Brazil, not building infrastructure is not an option."⁹

priorities — with the lion's share going to investments in housing (US\$ 151.4 billion), transportation (US\$ 104.5 billion) and everything else that Brazil needs following thereafter — a massive build out in basic sanitation, in the electricity grid, and in telecommunications systems. News of the cooling of Brazil's principal commodities trading partner, China, and the subsequent slowing of the Brazilian economy seems to have only increased the resolve of Brazilian President Dilma Rousseff's government to leverage the beneficial economic multiplying effects of continued and sustained infrastructure stimulus while at the same time lowering interest rates to attract foreign investment.¹¹

"For Brazil, not building infrastructure is not an option."

Brazil has been making news for the size and scope of its infrastructure ambitions ever since they were jump-started in 2007 by the government's Growth Acceleration Program of Investment — PAC I — followed by a second program that began in 2010 — PAC II — that has led to more than twelve thousand private and public infrastructure projects in the works.¹⁰ Oil, gas, and biofuels account for about half of the nearly trillion dollars (\$US 885.9 billion) of PAC II's planned infrastructure investments by 2016 and beyond, according to Business Monitor International. The other half will be divided between many other pressing

The environment for private, long-term investment in infrastructure is improving, with estimates for foreign direct investment in Brazil raised to \$US 63 billion, according to the Brazilian central bank, \$US 13 billion above the bank's prior estimate — with new incentives like infrastructure bonds offering tax relief and other financing strategies becoming part of a mixture of ideas for addressing the question of private investment. The search for mechanisms that will attract private financing in Brazilian infrastructure has led to a conversation that sometimes turns to global infrastructure funds, on the one hand, or to ideas about privatizing the country's pension funds, as Chile has done successfully, in order to capitalize large infrastructure works. Either of these methods, some say, could be applied to infrastructure projects in Brazil — offering more attractive returns of between 9 and 10 percent rather than what the

6 The Bank of International Settlements recently cited the Euro-crisis as a notable reason for Brazil's economy growing just 0.2 percent in the first quarter and showing seasonally adjusted growth over 12 months of under 2 percent. "Harder Times Coming For Brazil, Says Bank For International Settlements." Kenneth Rapoza, *Forbes Investing*, June 24, 2012, <http://www.forbes.com/sites/kenrapoza/2012/06/24/harder-times-coming-for-brazil-says-bank-for-international-settlements/>

7 "General Assessment of the Macro-Economic Situation," OECD Economic Outlook, Vol 2012/2, November 27, 2012, pg 31 and pg 222. http://www.keepeek.com/Digital-Asset-Management/oecd/economics/oecd-economic-outlook-volume-2012-issue-2_eco_outlook-v2012-2-en.

8 "Brazil Analysts Cut 2013 GDP Forecast, Raise Inflation Call," Bloomberg, Jan 7, 2013, <http://www.bloomberg.com/news/2013-01-07/brazil-analysts-cut-2013-gdp-forecast-raise-inflation-call-1-.html> "Brazil's economy is now expected

to grow only about 1 percent in 2012," wrote Simon Romero, in "Brazil Registers Anemic Growth, Surprising Economists," the *New York Times*, December 1, 2012, <http://www.nytimes.com/2012/12/01/world/americas/brazil-registers-slow-economic-growth-in-3rd-quarter-shocking-economists.html>.

The slowdown in GDP growth is largely because of "the country's consumption-based growth model," according to Business Monitor International. To this add Brazil's top-heavy commodities economy, which has brought about a classic rise in the exchange rate of the real, which in turn has been a factor in driving consumption — compounded by easy access to credit, and this has resulted "in the Brazilian consumer becoming one of the most leveraged globally." Now factor in that the high rate of exchange for the real limits export competitiveness. Something has to give eventually, according to BMI, and the likely scenario involves currency depreciation and a further slow-down of economic growth. In all of this, a key element to

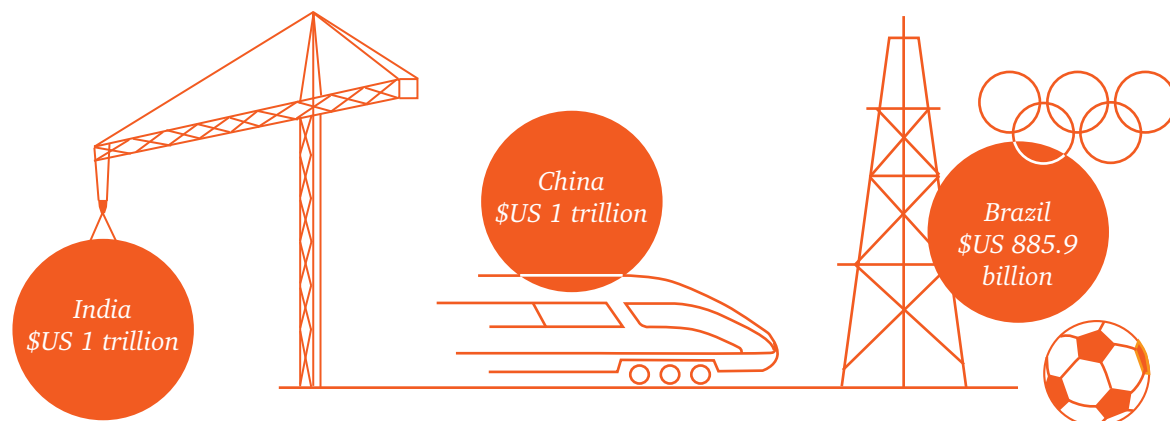
maintaining economic sustainability is infrastructure: "Despite being a painful process, the shift away from a consumption-based growth model towards greater fixed investment is what Brazil needs to put the economy on a more sustainable long-term trajectory." "The Party's Over," *Latin American Monitor: Brazil*, Vol. 29, Issue 7, July 2012, Business Monitor International, italics added.

9 Filipe Jens, Brazil Summit presentation, Brazil-American Chamber of Commerce, New York City, April 23, 2012.

10 "Principle Brazilian Infrastructure Investments Until 2016," *Sobratema.org*, April, 2012.

11 "As Growth Ebbs, Brazil Powers Up Its Bulldozers," Simon Romero, *New York Times*, June, 21, 2012, <http://www.nytimes.com/2012/06/22/world/americas/brazil-combats-slowdown-with-even-more-stimulus.html?pagewanted=all>

In perspective: Five-year plans for infrastructure



current PPP models of roughly 6 percent of GDP. So far, however, the primary engine for the country's infrastructure build-out has been Brazil's Development Bank (BNDES), which, despite the gloomy economic forecasts, lent a total of \$US 21.8 billion for infrastructure projects from January to May last year, up 1 percent for the same period a year earlier.¹² The development bank, moreover, whose loan book is nearly four times bigger than the World Bank's, was committed to \$US 77 billion in infrastructure last year alone — just part of the estimated \$US 639 billion needed, according to BNDES, for infrastructure between 2010 and 2013.¹³

Other countries are spending more on infrastructure. India's new five-year plan, which began in April 2012, announced \$US 1 trillion in infrastructure spending. China's current five-year plan also amounts to a \$US 1 trillion for infrastructure investment, including a 19,000 mile high-speed rail system, the largest transport infrastructure project in history. But Brazil offers many similar head-spinning indicators. Brazil's state-run oil company, Petrobras, for instance, will invest more to produce

its pre-salt oil fields, in inflation-adjusted terms, than NASA did in the great, can-do technological boom of the 1960s and 70s to put a man on the moon. In the United States, the phrase "Apollo-like" is mostly a rhetorical device used occasionally to invoke the need for big thinking, especially when it comes to things like rebuilding America's aging infrastructure, but in Brazil rhetoric has been replaced by a visionary commitment to build — hammered out in steel and concrete — with a big-thinking, breath-taking, Apollo-surpassing intensity that even now is reaching a fever-like pitch, as the deadlines for the World Cup games in 2014 and the Olympics in 2016 approach.

The reason for Brazil's resolve to bet big on infrastructure becomes clear

the more one sees how the growth of any economy can be slowed because of poor infrastructure — and, in fact, the Brazilian "infrastructure gap" plays a big role in slowing growth that would be much greater, given Brazil's resources, but for shortfalls, especially in transportation infrastructure and logistics. According to the World Economic Forum's assessment

of overall infrastructure quality, Brazil sits near the bottom — 104th out of 148 countries surveyed, and this creates a significant drag on the economy. Paulo Resende, of the Center for Studies in Infrastructure and Logistics in Belo Horizonte, Brazil, estimates that the logistics costs of poor infrastructure amount to an average economic drag on the Brazilian economy of 12 percent of GDP, compared to 8 percent for the United States, and 6 percent for Europe.¹⁴ When asked at a recent meeting in New York City to prioritize Brazil's infrastructure needs, Filipe Jens of Odebrecht put transportation infrastructure at the top of his list. But as with any other challenge, the infrastructure

¹² "Brazil's BNDES loan disbursements unexpectedly rise this year," *Reuters*, July 19, 2012, <http://www.reuters.com/article/2012/07/19/brazil-economy-bndes-idUSL2E8I-JL3Q20120719>

¹³ "Brazilian Fostering of Private Financing of Infrastructure Projects," Ricardo Somoes Russo, Enrico Bentivegna, Joao Fernando A. Nascimento, *Latin Infrastructure Quarterly*, No 4, June, 2012, pg 18, <http://www.liquarterly.com/issue4.pdf>.

¹⁴ A World Bank report puts the logistics costs in Brazil at between 15 and 18 percent of GDP, ("How to Decrease Freight Logistics Costs in Brazil," *World Bank Report No. 46885-BR*, February 8, 2010, pg 96), but this figure has changed since the report was published two years ago, according to Paulo Resende. "Logistics costs to Brazil are now 12 percent of GDP due to the decreases in transportation costs in the last two years, mainly in the State of São Paulo due to highway improvements and port costs reductions due to private investments in terminals." Paulo Resende, 6-6-12.

gap offers great investment opportunities as well, and Brazil has been making great strides in attracting such investment, especially in the transportation sector. That priority is well-founded, according to Resende. “Transportation,” he says, “must become one of the highest priorities if Brazil is to achieve true competitiveness with other countries.”

Two other priorities are in the area of governance. While Brazil’s solid institutions and established democratic governments have brought forth consistent economic policies that have enabled the Brazilian economy to hit inflation targets, to establish exchange rate flexibility, and to move toward concessions and privatization in the infrastructure sector,¹⁵ these same institutions are also some of the most bureaucratically complex in the world.¹⁶ Reform of Brazilian governance systems has long been viewed as pivotal, if Brazil is going to fully flower. The tax structure, for example, is complex, as is its regulatory regime. The World Economic Forum’s 2012 Executive Opinion Survey found that “tax rates” and “tax regulations” were the top two most problematic factors for doing business in Brazil, followed closely by “inadequate supply of infrastructure,” “labor regulations,” and “inefficient

government bureaucracy.”¹⁷ Overlapping regulatory regimes at the federal, state and municipal level have helped delay big infrastructure projects for many years. It’s a challenge that is not unique to Brazil, of course. In the United States, for instance, large electricity transmission lines can be delayed for decades because of regulatory hurdles imposed by eleven separate federal agencies, but for those wondering how Brazil’s tremendous promise will be fully realized, many observers suggest two main areas of governance — “bureaucracy, and the tax structure,” says Resende. “These are the huge, huge barriers — the bottlenecks — that Brazil has to overcome.”

Against the sweeping backdrop of the Brazilian economy, the World Cup and Olympics seem like flourishes in a much grander movement. It’s this larger movement — Brazil’s long game, the role that infrastructure plays in all of it, and the challenges and opportunities for infrastructure in the coming years — that is the focus of this issue of *Gridlines*. The challenges of air transport are apparent to anyone visiting Brazil, and while much is changing in this realm, with concessions granted to renovate three major airports, (see the interview with Paulo Resende),

the truly strategic infrastructure build-out lies in the humbler areas of the transportation sector — roads, ports, waterways, and rail. Inefficiencies in this sector have become emblematic of the kind of burden that continues to slow Brazil’s economic growth, while strategic improvements in freight rail, seaports, coastal shipping, and the development of intermodal facilities between rail, trucking, and sea cargo offer so much economic promise. We also look at important areas of governance, as these have long been identified as pivotal parts of a puzzle that will enable Brazil to meet its challenges. Brazil’s attempt to reform its governance systems could be the true legacy, in fact, the thing that most will remember, long after the events of the World Cup and Olympics have passed.

¹⁵ Carlos Langoni, director of the World Economy Center, FGV Foundation, speech and panel discussion, “The World Economy and Brazil,” New York, May 15, 2012.

¹⁶ Filipe Jens, director of finance, speaking at The Brazil Summit, New York City, April 23, 2012.

¹⁷ “2.1: Country/Economy Profiles, Brazil, Key Indicators,” *Global Competitiveness Report 2011-2012*, World Economic Forum, pg 126, <http://www.weforum.org/reports/global-competitiveness-report-2011-2012>.

“Transportation must become one of the highest priorities if Brazil is to achieve true competitiveness with other countries.”

Bridging the infrastructure gap begins with a strategic focus on transport — freight rail, seaports, and intermodal facilities

The causes of the transportation infrastructure gap in Brazil can be summed up in two words: pace and balance. The infrastructure gap exists in the first place because the slow pace of infrastructure investment over the last three decades has not kept up with demand. Up until the 1980s, Latin American infrastructure investment averaged about 4 percent of GDP, and this dropped by half after 1985, yet according to the World Bank, major economies spend 5 to 7 percent of their GDP each year on infrastructure.¹⁸ According to Odebrecht's Filipe Jens, even though Brazil's infrastructure investment has grown at a rate of 13 percent (CAGR) between 2003 and 2011 (from \$60 billion to \$160 billion, for an average of 4 percent of GDP), the problem remains that the "level of investment is only replacing the existing infrastructure in the country. We're not growing infrastructure. We're conserving and maintaining it."¹⁹ Demand, on the other hand, has risen, especially in urban centers. In the Brazilian airport sector, for instance, where passenger terminals are already saturated at 13 of the country's 20 largest airports, air passenger traffic is estimated to grow 35 percent per year, from 111 million passengers in 2009 to 312 million in 2030.



Brazil maritime and rail freight is projected to grow at or near double digits annual to 2016.²⁰ And Brazil's electric generating capacity will need to nearly double, rising 47 percent from 107,000 MW in 2010 to 223,000 MW by 2030, to keep pace with power demand. "In Brazil," says Paulo Resende, "we have not been building out ahead of future demand."²¹ We have always been just catching up to past demand."

But a key challenge, as many observers have noted, lies in what's known as the "intermodal matrix," the mixture and makeup of investment between roadways, railways, water and other transport. For decades Brazil's

intermodal mix has been out of balance, leaning heavily upon road transport. Even today, 58 percent of all transport in Brazil is through the country's crumbling road system, the third largest in the world, of which, however, just 12 percent is paved — and only half of that in good condition.²² Water transport — the most efficient way to move anything in bulk — accounts for only 17 percent of Brazilian transport, and freight rail, the next-most efficient mode of transport, is just 25 percent.²³ Developed countries, by contrast, show a much greater deployment of freight rail — the United States with 43 percent, Canada with 46 percent, and Australia with 43 percent of

¹⁸ "It is estimated that Brazil has invested, on average, approximately 2 percent of its GDP in infrastructure since 1985." "Brazilian Fostering of Private Financing of Infrastructure Projects," *Latin Infrastructure Quarterly*, No. 4, June, 2012, <http://www.liquarterly.com/issue4.pdf>. Other figures from *World Bank Report No. 46885-BR, How to Decrease Freight Logistics Costs in Brazil*, February 8, 2010, pg 14.

¹⁹ Filipe Jens, Brazil Summit presentation, Brazil-American Chamber of Commerce, New York City, April 23, 2012.

²⁰ "Brazil Infrastructure Report: Transport Q3, 2012," Business Monitor International, Industry Forecast Scenario, May 1, 2012. Total tonnage growth of 12.2 percent is projected for Brazil's largest port, at Santos, which is responsible for more than a quarter of Brazil's trade. Annual growth of over 10 percent is expected at the port of Itajai, and rail freight is projected to grow by more than 10 percent in 2012 and continue at an average of 8.3 percent annual growth to 2016. "Brazil Freight Transport Report Q1 2012, Business Monitor International, Industry Forecast Scenario, December 12, 2011.

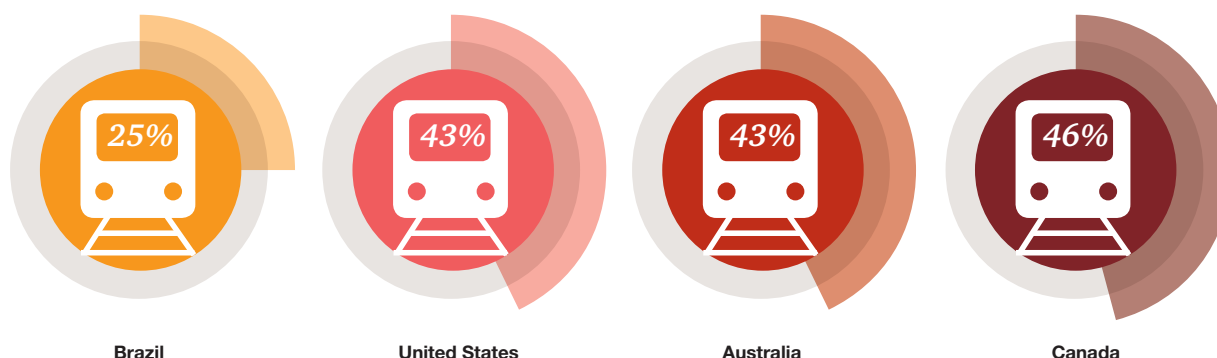
²¹ "Emerging Markets Strategy," September 28, 2011, Royal Bank of Scotland, pg 12.

²² 12 percent of Brazil's road system is paved, compared to China, 54 percent; Russia, 80 percent; and the United States, which weighs in at just 67 percent of its roads paved. Filipe Jens, Brazil Summit presentation, Brazil-American Chamber of Commerce, New York City, April 23, 2012.

²³ "Rail network Expansions Program" Francisco Luiz Baptista de Costa, Ministry of Transport, Nov 10, 2009.

Rebalancing Brazil's intermodal mix: A vast nation needs freight rail to ease dependency on crumbling roads

(percent of national transport)



all transport carried by rail; and a much better balance with road transport — US, 32 percent, Canada, 43, and Australia 53 percent.²⁴ The poor condition of Brazil's roads, moreover, raises transport costs 28 percent on average, but that cost can be much higher, depending upon the product and the region in question.²⁵

Two-thirds of the cost of finished paper products in the state of São Paulo, for instance, is attributable to truck transport and logistics costs of hauling products by road between pulp and paper factories and the Port of Santos. For some products like auto parts, for instance, over half of the cost of production is attributable to road transport and logistics costs — even though those same factories in the São Paulo Metropolitan Region are, on average, within 52 miles of the port.²⁶ By comparison, railroad

costs for bulk products and distances above 550 miles are approximately 40 percent lower than road costs, yet two-thirds of the soybean grain production in Brazil is still carried by road. Despite the advantages of rail, the total length of the railway network in Brazil has actually shrunk by nearly a third between 1930 and 2009, and intermodal connectivity at the city level remains inefficient.²⁷

All of this is changing dramatically, however. And while it's true that the World Cup and Olympics preparations have added a spike to airport and urban rail construction, (and have taken most of the media spotlight), when it comes to Brazil's long game, freight rail and water freight have taken center stage in Brazil's transport investment programs, with new and on-going projects in rail (not including high

speed rail) accounting for nearly half — or just over \$US 39 billion — of all projects currently underway in the transport sector, according to a Business Monitor International report this past May, with an average of more than 12 percent of all transport investment each year going into rail projects between now and 2020.²⁸ What follows are eight solutions suggesting the contours of mid-to-long-term planning that are currently under way in Brazil beyond the World Cup and Olympics.

About the authors

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24 "Investment Opportunities In Brazil," Francisco Louiz Baptista Da Costa, Ministry of Transport, November, 2009. The transport mixture has hardly changed since this report was given, according to Paulo Resende, director of Logistics and Planning.

25 The World Bank gives a range of costs due to poor road conditions of between 10 to 30 percent. *World Bank Report No. 46885-BR*, How to Decrease Freight Logistics Costs in Brazil, February 8, 2010, pg 34, <http://siteresources.worldbank.org/BRAZILINPOREXTN/Resources/3817166-1323121030855/FreightLogistics.pdf?resourceurlname=FreightLogistics.pdf> Paulo Resende suggests an average figure of 28 percent.

Resende, Paulo (2006), "Notes on the Current Conditions of the Brazilian Logistics Infrastructure," Funacao Dom Cabral, Nova Lima; found in, "Promoting Infrastructure Development in Brazil," OECD Working Paper No 898, pg 24, http://www.oecd-ilibrary.org/economics/promoting-infrastructure-development-in-brazil_5kg3krfnclr4-en.

26 "The pattern that emerges is that transport costs account for the largest share of transport and logistics costs (TLC) for five of eight sectors: Foodstuff (56.3 percent), Automotives (45.1 percent), Chemicals (48.7 percent). . . Automotive Parts (51.3 percent). . . [In] the aggregate, transport is the main contributor to the TLC. . . . These flows, to a large extent, use trucks to get to the Port [of Santos]. These products with high

transport costs illustrate Brazil's and São Paulo's heavy reliance on trucks instead of more efficient modes such as rail." *World Bank Report No. 46885-BR*, How to Decrease Freight Logistics Costs in Brazil, February 8, 2010, pg 73.

27 OECD Working Paper No. 898, "Promoting Infrastructure Development in Brazil, Annabelle Mourougane, Mauro Pisu, October, 2011, pg 22, http://www.oecd-ilibrary.org/economics/promoting-infrastructure-development-in-brazil_5kg3krfnclr4-en.

28 "Brazil Infrastructure Report, Q3, 2012," BMI, Industry Forecast Scenario, May 1, 2012, Key Projects Database figures are correct from August 9, 2011.

A few words with Paulo Resende



Paulo Resende, PH.D and MSC in transportation planning and logistics, is the head of the Center for Infrastructure and Logistics at Fundação Dom Cabral, Brazil, where he has worked for thirteen years. During that time he has been a main source of infrastructure analyses for global media agencies such as Financial Times and Reuters. Professor Resende is also consultant of logistics, transportation planning and supply chain in Latin America, and is the author of several studies and logistics reports for the World Bank, InterAmerican Development Bank, and multinationals operating in Latin America.

In 2011 you were quoted as saying that fewer than half of the World Cup construction works will be done on time. How do you feel about the infrastructure for the World Cup, a year later?

I still feel that way, mainly when we talk about urban mobility projects and the airports. These have not advanced much in the last year. One big project — to build a new runway at São Paulo-Guarulhos airport, which was a worry last year — looks as though it will not be completed in time for 2014, mostly because of legal and environmental problems. On the other hand, work is going well with the stadiums, which will probably be completed by 2014. But when we talk about urban mobility, there are significant challenges. The subway lines, for instance, are not moving along as fast as we need them to. Some of the so-called BRTs, the bus rapid trains, will not be done in time — except for the projects in Belo Horizonte, which are on schedule.

What's causing the slowdown with infrastructure projects?

First, I think that Brazil has made a big mistake in mixing together, on the one hand,

long-term infrastructure needs with short-term projects that are mostly to satisfy the needs of the World Cup. Current airport construction is an important example. We have made concessions to private companies at three important airports in Brazil — airports that are already congested. So there is no question about the long-term need for new terminals, but what we are getting, just in time for 2014, are not the new terminals we need but temporary terminals.

The second issue is this: private companies with private managers are pressured by short-term priorities, as opposed to the needs of Brazilian citizens. In Brazil, moreover, we are not used to private management at airports. We're in a time of transition for these two types of management organizations to learn to live together — but unfortunately, from the point of view of the Brazilian government, what counts the most is image in 2014. The needs of the short-term horizon take priority, and this is a mistake. Thirdly, the “new” temporary terminals, which is happening at the Confins, Belo Horizonte airport,

and also the airport in Porto Alegre, in the south of Brazil, in Salvador, Bahia, and also at the airport in Manaus — these temporary terminals will eventually have to be pulled down in order to guarantee access to the terminals that should have been built in the first place.

How would you prioritize the risks to the Brazilian economy now?

Well, there are several things, no single one more important than the other but taken together they pose risk. There's the problem of attracting foreign investment in infrastructure. There's the bureaucracy, which includes the regulatory system, the legal system, the complexity of the bidding process for infrastructure projects, and the like — which in Brazil is very, very heavy. Then there is the tax structure.

If I were to prioritize the risks, they would be, first of all, bureaucracy, because the more complex and the less transparent the bureaucracy, the more likely you'll have corruption. Next would be the tax structure second — nobody really understands it, so simplification — and providing tax incentives

for infrastructure — may actually be the most important thing of all. Then there's just the sheer fact of the infrastructure gap in the first place — I'd put that third. Logistics — warehouses, inventory, transportation, infrastructure inefficiency — cost an average of 12 percent of Brazil's GDP, according to the yearly report from the Federal University of Rio de Janeiro's logistics department. These are the bottlenecks that Brazil has to overcome.

What about Brazil's infrastructure investments in energy? At least half of the nearly \$US 1 trillion investment is going towards the Pre-salt development, and nobody's saying that this is a bad idea. Do you have a different opinion?

No, no. I think this is a good idea. Pre-salt development is very important, as is natural gas. But I think that we should invest in a more sustainable energy matrix in Brazil. I think that we are too dependent on petroleum. I think that we should work on some other sources of energy, like the solar, wind, even biofuel energy, ethanol. I think that Brazil has a good chance to build for the future and build

a different supporting energy matrix so we can guarantee stable energy without too much cost to the environment.

Would you say that, since Brazil has a history of making early decisions to move ahead in bio-fuels, for instance, that there's a cultural expectation that Brazil will continue to move into these other energy pathways?

Definitely. Brazil today is really one of the few countries in the world really prepared in terms of culture to renew its energy matrix. And I think we should take advantage of that.

In the United States, there is often a diametrically opposed relationship between the petroleum sector, for instance, and the renewable sector. Why shouldn't that also happen in Brazil? Or why would you not expect that to happen?

Well, firstly, because Petrobras is very interested in sources of energy other than petroleum. Look at their projects with natural gas and ethanol. And when you mention ethanol, you're talking about agribusiness — and that is a really strong sector with considerable political power. So, I think that we have a power equilibrium of players in Brazil. We don't have a conflict to reshape the energy matrix the way that might happen elsewhere.

Getting back to the issue of inefficient bureaucracy and over-regulation. Critics like you have pointed to inefficiencies in the spending of the BNDES in infrastructure funds. What are the numbers you are seeing in terms of the government being able to actually disperse funds and complete infrastructure projects?

Well, I don't think that this inefficiency is happening with the PAC-II funds, simply because PAC-II has a strong tendency to direct investments on housing, and I believe that housing is going well, mainly because housing does not depend too much on environmental licenses. Not to say there aren't problems — especially with projects related to urban mobility, in which there are significant issues involving payments to people and businesses that are displaced by large transportation projects. That process is very complex in Brazil. The same projects can be contested and re-adjudicated, and the costs for those projects go up. But if you added up PAC I and PAC II, I don't think that more than 60 percent of all the proposed projects will actually be completed by 2012 — even if you consider housing.

But this is still a problem because most of the projects from PAC are projects that were created to fulfill a historical demand. They are not projects

that will fulfill future demand. So, there is an accumulation of demand. And the longer these projects take to get built, the more inadequate they become to that future demand. This sort of thing — not running after the future but constantly catching up to past demand — is happening with our highways and our airports.

How does Brazil overcome this?

Brazilian society must mature and protect long-term projects, and insure that these projects are not interrupted just because a new manager comes along. We need to declare that some long-term projects are off limits to managerial intervention — that they belong to society. I think that the way to do this is to bring together elements of the judicial system, the legislative system, the executive system, and also representatives from society into a single governing body that directs long-term projects. This is not a new idea.

For electricity in the United States, there are long-term power planning commissions composed of some of those very same stakeholders that you mentioned — people from industry and citizens. They have the power to delegate long-term planning and the monies to commit to those needs.

That's exactly what I'm talking about. Another example would

be how London implements its urban toll, a tariff that you have to pay when you go in certain rings downtown. That was a societal decision. But public managers won't tend to take these difficult actions, because it's politically risky. Yet this is what Brazil needs. Some sort of long-term projects commission in infrastructure that would protect society from the changes in electoral or political agendas. You could call it the Infrastructure Strategic Group, or, if you prefer, Strategic Committee, or Infrastructure Strategic Board.

And it would be important to empower them to be the guardians of the long-term infrastructure planning in Brazil. The Infrastructure Strategic Board would be a federal program that would transcend the local politics, and having this kind of authority — at the federal level — would help prevent the kind of delays that have happened to metro projects in most of the Brazilian metropolitan areas, for instance. The Via Quatro in São Paulo, a much-delayed subway line, is an example of this. They would hold public hearings and develop a list of "golden" projects — untouchable projects — and their job would be to maintain the pace of the projects, according to what has been defined by society. ■

Brazil needs a federal commission on long-term infrastructure projects to protect them from the changes in electoral or political agendas.

Solution #1: The North-South line

The railway network in Brazil was privatized in the mid-90's, and while this step helped reduce operation costs, the significant sunk costs of building or improving a railroad seem to have deterred more private investment. In its place, the federal government has filled the gap and most observers feel that continued government investment in railroads is needed in the long term. Nevertheless, several steps could improve private investment in railroads, according to the World Bank, among them enhancing interconnectivity between railroads. On a physical level, some railways in Brazil operate on different track gauges, and the sheer lack of physical interconnectivity between the lines slows return on investment.²⁹ On the level of paperwork — or usage of track by multiple concessionaires, an increasing likelihood as the rail system expands — a better system of compulsory interconnection fees or joint transport agreements between concessionaires of different railroads needs to

be established, according to a World Bank study. And to insure the safety of established lines, clear-cut maintenance and operations targets should be written into concession contracts.³⁰

To date, the mining company Vale is probably the biggest private operator of freight rail in the country, and one of Vale's most important new concessions is the North-South Line, one of three PAC priority freight rail projects of more than 1000 kilometers — the other two are the East-West line, and the Trans-Northeastern Line. Of these, the North-South Line stands out as the most strategically significant. Its completion will mark a historic moment — the first straight-shot of a highly efficient mode of transport through Brazil's rich interior, and, like the transcontinental railroad in the United States, it will provide interconnection between distant coasts, running 1237 miles from the port of Belem in the North, then bisecting the Brazilian *cerrado*, the great savannah-like agricul-

tural region and source of over half of all Brazilian grain, before ending in the south at Senador Canedás, a major inland rail hub and petrochemical refining center that connects to the great southern ports of Rio de Janeiro and to the Port of Santos.

And because it will not follow the Brazilian shoulder of the continent that juts into the Atlantic, (as most current rail lines do), the North-South line will create a new freight corridor that will be 30 percent shorter than the existing central eastern corridor, through less congested areas. It will connect with major east-west routes such as the existing Carajas railroad in the north-east, which is used to haul iron ore to the port of São Louis, and the East-West Railroad, and offering quicker access to major commodities markets in Europe, the United States, and China, via the Panama Canal. "The construction of the North-South line," says Paulo Resende, "will change the entire transport matrix of Brazil."

²⁹ This, too, is changing, however. Logistics companies like Latin American Logistics (ALL) and Standard Logistics, for instance, have recently entered into partnerships with Santos Brazil, one of South America's largest port infrastructure and logistics service providers, for the movement of nearly 8000 containers per year from São Paulo state to the Santos Brazil's maritime terminal in the port of Santos.

And Brado Logistics has signed an agreement with another logistics company, LTI, to cooperate on a corridor between Brazil and Argentina, anticipating a 40 percent increase in intermodal rail volumes on the route through the partnership. "Container transport by rail is becoming a reality in Brazil," says Linda Machado, business director of Brado Logistics, "and it is unthinkable for us not to be a part of this scenario." *International Railway Journal*, July 6, 2012,

http://www.railjournal.com/index.php/central-south-america/brado-expands-as-brazilian-intermodal-market-flourishes.html?channel=536&utm_source=BenchmarkEmail&utm_campaign=Jul_19_2012_Email&utm_medium=email#UBFcN2HbBrp

³⁰ "Promoting Infrastructure Development in Brazil," Working Paper No. 898., OECD, 2011, pg 23.

Solution #2: Ports, reimagined

The strategic importance of Brazil's ports is almost impossible to overstate, as Richard Klein, Chairman and Vice-President of the Board for Multiterminais and Santos Brazil, two of the largest port operations in Brazil, made clear earlier this year. "Brazilian social and economic development depends upon the growth of international trade," said Klein, "and that relies on modern ports expansion." And port capacity is, in fact, expanding, as Brazil's 34 public sea and river ports are expected this year to handle

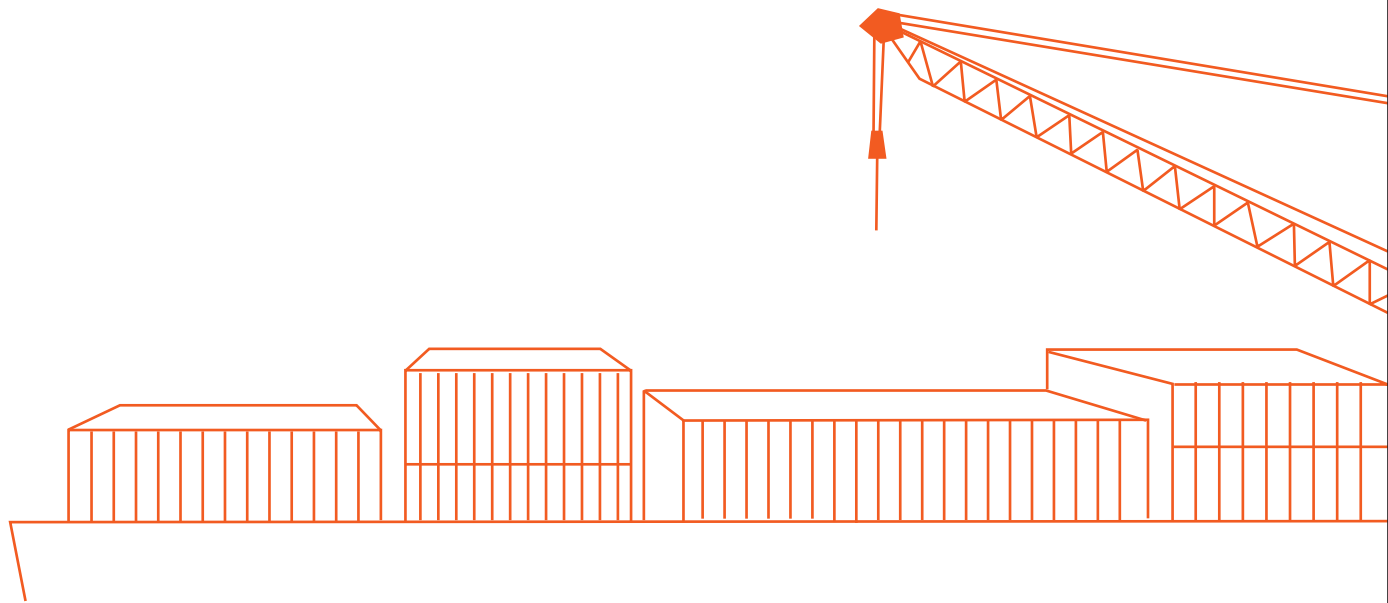
a billion tons of cargo for the first time, according to ANTAQ, Brazil's National Agency for Waterways Transport — but many logistical challenges remain.³¹ Yet even as PAC II investment has been deployed to dredge ports, to reduce paperwork, and to improve general efficiencies, a new, long-range strategic revolution in how ports themselves are conceived may also be under way. That's the idea behind the Açu Superport and Industrial Complex, currently under development by LLX Logística Sat, a company controlled by Brazilian billionaire

Eike Batista. LLX's plan is to build a new port 250 miles north of Rio de Janeiro on a colossal scale, a facility, if it comes to full fruition, that will be best measured not in acres but in square miles — 34 square miles, with plans that include two steel mills, two cement factories, an automobile factory, a factory for structural steel, a factory for auto parts, terminals for oil storage and refining, and more than ten miles of shipping quays.

Açu follows the model set elsewhere beginning in the 1960s and now evident at some of the world's biggest ports — Rotterdam, Antwerp, and Hamburg, and elsewhere in Europe, according to Olaf Merk, a ports analyst at the Organization for Economic Cooperation and Development. "At these ports, you can drive around quite awhile before you actually see anything that looks like a ship," says Merk. Instead, "you'll see refineries, pipes, storage tanks, factories. In Hamburg, you'll see the big Airbus facility. In LaHavre, France, you'll find a factory where Renault automobiles are made."

Co-locating manufacturing centers with transport hubs will reduce transport and logistics costs, but it may also clash with current Brazilian law, which does not grant private port facilities

Super-ports like Açu represent the true meaning of Brazil's "long game" strategy, signaling an entirely new phase for the Brazilian economy — the long-sought shift from commodities export to value-added export.



the right to ship products other than those for which the private port was built. Mining companies, for instance, have built private ports, and they are permitted to ship ore from those ports — but Brazilian law, with few exceptions, does not allow those same companies to use their private ports to ship automobile parts, for instance, or anything else for that matter, other than ore. That kind of shipping — so-called third party, mixed-use shipping, the kind we normally associate with ports — is reserved under Brazilian law for the government-regulated public ports. License to handle third-party shipping is granted to port operators by government concession.

Private ports, however, if they begin handling third-party products, circumvent all of this, as would the kind of shipping envisioned by the Açú Superport and Industrial Complex — many different companies, making many different products and shipping them from a single port. Moving forward, some form of regulatory modification would seem to be required, eventually, to accommodate superports like Açú, which are premised upon multiple and mixed third-party use on a colossal scale. The beginning of such a framework may already be under way in Brazil's supreme court.³²

For now, Açú consists of one cement causeway (that will have a four-lane highway, pipelines, and conveyor belts, among other things) and stretches more than a mile and a half into the Atlantic. A Chinese company has pledged \$5 billion to construct a steel company, and the Norwegian pipeline company Subsea 7 signed a \$10.5 million-per-year lease to use the port to build subsea equipment including pipes for transporting oil and gas.³³

But so far current investment in Açú is geared toward Brazil's primary focus in the commodities market. Plans are in the works that would allow competing mining companies to load 400,000 ton China Max cargo ships, and potentially double the current iron-ore capacity — two iron-ore loading berths, with 40 million to 50 million tons a year — to 100 million tons. And that, apparently, is just for starters. Eventually, when all the industrial facilities are complete, the Açú Superport will represent investment of more than \$40 billion, 50,000 new jobs regionally, and shipping an estimated 350 million tons per year.³⁴ The "superport" idea, according to Paulo Resende, will reduce logistics costs by co-locating commodities terminals for ore, petroleum, agricultural products, for

instance, with factories that receive iron ore, and transform it into sheet metal, structural steel, auto parts, eventually entire automobiles — all in the very ports where these products will be shipped. At its widest circumference, Ports like Açú, according to Resende, represent the true meaning of Brazil's "long game" strategy, signaling the beginning of an entirely new phase for the Brazilian economy — the long-sought shift from commodities export to value-added export.

31 "Rio as Top Shipping Port State in 2012," *Rio Times*, January 3, 2012, <http://riotimesonline.com/brazil-news/rio-business/rio-as-top-shipping-port-state-in-2012/>. Brazil has 34 public ports, five of which are waterways ports, in addition to 42 private terminals and three industrial ports, Paulo Resende, 1-4-2013.

32 Açú currently complies with the existing laws and regulations, provided that Açú has enough 'own cargo' to justify the creation and operation of the port terminal. It is allowed to use its idle capacity to provide services to third parties, according to Cesar A. Guimarães Pereira, Partner, Justen, Pereira, Olivera & Talamini.

33 "Subsea 7 Plant Moves to Rio State," *The Rio Times*, July 24, 2012, <http://riotimesonline.com/brazil-news/rio-business/subsea-7-plant-moves-to-rio-superporto-do-acu/>

34 *Dow Jones Newswires*, March 23, 2012, <http://gcaplain.com/1-33-billion-investment-superport/>, and interview with Paulo Resende.

Solution #3:

Soft Solutions: Governance, regulation, and tax reform

São Paulo's Number 4 subway line could be seen as an emblem of what needs to be done in the realm of governance to further the infrastructure goals of the country. A staggering 42 years has elapsed since the subway line's initial conception, in 1969 — and still the line remains unfinished. In between times, Brazil has passed through harrowing historical periods of hyper-inflation lasting until 1994 when the real was introduced and other reforms took place to help set Brazil back on its economic feet. The vagaries of local politics and changes in leadership and project oversight have led to further deferments. And while Subway Line 4 may be a spectacular counter-example, the phenomenon of delay is a common element that Subway Line 4 shares with so many other large public infrastructure works, including most of the construction projects under way for the World Cup and Olympic tournaments, according to Paulo Resende and many others.

What is needed, according to Resende, is an independent governing body that would see such projects through to completion — no matter what. “Brazilian society needs an independent governing mechanism that will protect long-term infrastructure

projects from changes in electoral or political agendas,” says Resende, who suggests that such a body would comprise representatives from the key areas of governance — the legislative, the executive branch, the judiciary, and also include representatives from industry and the unions. “Something like an Infrastructure Strategic Group or Board,” Resende adds, “would have as its main task the custodianship of long-term infrastructure planning in Brazil.” Such an ideal agency would receive “bottom-up” input from all stakeholders but then provide “top-down” independence and bureaucratic muscle to push strategic plans through to their completion.

Many recent studies of Brazilian infrastructure agree with Resende, though they differ in how this might be achieved. An exhaustive study of Brazilian infrastructure by the World Bank recommends the formation of a National Logistics Council, a board operating independently, outside the Ministry of Transportation, and comprising stakeholders, private sector industry leaders, and public officials whose role would be to advise the government on developing a National Logistics Strategy. Something like this exists with the National Logistics and Transport Plan (PNLT) and

the National Council for Transport Policy Integration (CONIT), though neither go far enough in terms of the independence and autonomy recommended by Resende or envisioned by the World Bank and other studies.³⁵

The main goals of the World Bank's National Logistics Strategy would be to address the many bugbears that create the “Gusto Brazil,” the high cost of doing business in Brazil. These include the overhaul and simplification of the often conflicting and overlapping regulatory systems, “improving competition and privatization, addressing the problems of transport and storage tariffs, pilferage losses, administration costs, customs and other clearances, bribes and malicious delays and social and environmental costs.”³⁶ This last feature — overlapping environmental regulation between federal, state and municipal jurisdictions — has been an often-cited reason that infrastructure projects in Brazil have been delayed.

The decision-making cycle, moreover, is slowed by the risk of criminal liability that decision-makers can sometimes face in projects that run afoul of environmental law. Civil servants, hesitant to assume such



risks, add to delays — just one example of the many ways that cost of infrastructure projects have been difficult to control, and why private financing has been wary of entering more aggressively into the infrastructure sector.

Key to it all is autonomy at the highest level of governance, in order to avoid “policy capture” — the way that projects can fall under the sway of the ministries that oversee them, sometimes working at cross purposes with other agencies. A perfect example of this is the conflict that has sometimes emerged between the Ministry of Energy and Mines, MME, which oversees the construction of hydropower dams, and

the ministry overseeing the dredging and clearing of inland waterways, overseen by National Agency of Waterborne Transportation, ANTAQ. Better coordination between these ministries, for instance, may avoid the costly scenarios that have emerged in recent years in which the same river is both dammed for hydroelectric power and dredged for waterways transport.³⁷

The effort to coordinate ministries toward a common strategic and logistical vision made headway in April this year when the Ministry of Transport and the Ministry of Ports announced the launch of the National Plan of Integrated Logistics (PNLI), which will bring together two exist-

ing plans — the National Transportation Logistics (PNLT) and the National Plan for Port Logistics (NPAP). As a single agency, the newly formed PNLI will analyze and coordinate the infrastructure projects of the two separate agencies — nearly \$325 billion in investment projects planned for ports, highways, railways and waterways between now and 2030.³⁸ This recent initiative, while falling short of creating an autonomous agency and guardian of “golden projects,” is nevertheless a move that Resende and others applaud — its goal: to rebalance the transportation matrix and, in so doing, present a strategic vision that will meet the growth of Brazilian foreign trade in the years to come.

35 “The PNLT stops short of being a complete strategy since it does not continuously evaluate projects in a systemic fashion, which is a fundamental component of any initiative to improve a logistics system. This is also the case with some other potentially innovative and positive initiatives such as the Study of Axes (Estudos dos Eixos) and Brazil in Action (Brasil em Ação) undertaken under a previous administration but which were interrupted with the change of government. Compounding the lack of continuity between administrations is the lack of a centralized and updated database, and severe shortages of training for logistics specialists. These factors, and the absence of a specific unit that could plan and evaluate projects, such as the now defunct National Transport Planning Agency (Empresa Brasileira de Planejamento de Transportes, GEIPOP), have meant that previously good ideas have been interrupted or discontinued, only to start anew with another administration. In fact, this “stop and go” posture has contributed to the lack of a serious and implementable medium and

long-term plan.” *World Bank Report No. 46885-BR*, “How to Decrease Freight Logistics Costs in Brazil,” February 8, 2010, pg 54, <http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1227561426235/5611053-1229359963828/TP39-Final.pdf>

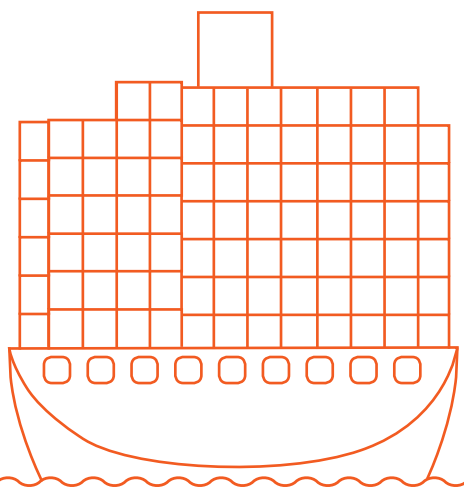
The OECD strongly recommends the presence of independent sectoral regulators. “A growing body of evidence suggests that having independent regulators results in better industry performance and may help foster private investment. . . the lack of a complete framework [such as a National Logistics Strategy, as recommended by Resende and the World Bank] makes some federal regulatory agencies vulnerable to policy capture in areas such as transport and water sanitation.” “Promoting Infrastructure Development in Brazil,” Mourougane, Annabelle, OECD Economics Department Working Paper No 898, 2011, pg 15, http://www.oecd-ilibrary.org/economics/promoting-infrastructure-development-in-brazil_5kg3krfncl4-en.

36 *World Bank Report No. 46885*, February, 2010, pg 100.

37 “One major concern in developing waterway transport is the conflict between hydropower development and navigation in existing and potential waterways, especially in the Amazon. Due to lack of coordination and overall vision of the multiple waterway uses, hydropower projects are often developed without considering river navigation. There is a consensus that the National Water Agency (ANA), as the overall water regulatory agency in the country, needs to be closely engaged in river basin planning and multi-sector resource allocation decisions.” *World Bank Report 46885-BR*, February, 2010, pg 48.

38 “Government Prepares National Logistics,” *Revista Grandes Construções*, April 11, 2012, http://www.grandesconstrucoes.com.br/br/index.php?option=com_content&task=viewNotice&id=10682

Solution #4: Developing Brazil's inland waterways and coastal shipping trade



Brazil has eight major hydrological basins with a staggering 17,000 miles of navigable water. The biggest and longest, the route from Amazonas to Madeira, runs more than 2600 miles. These great rivers translate to a powerful potential cost advantage of shipping anything in bulk by water — 1000 tons transported one kilometer by waterway is estimated to cost \$12 and by road \$US 45.³⁹

The main challenge for the deployment of inland waterways, however, is that most are in the country's less developed northern region with several challenges — regional economies haven't yet developed the capacity for generating high-volume cargo; there are few harbor facilities for handling such cargo; many existing waterways need dredging; and conflicts exist between government agencies with diverging interests — between using Brazil's rivers as freight waterways or using them for hydroelectric power. As a result, only 1 percent of Brazil's total freight volume is shipped by inland waterway.⁴⁰

But, along with port improvements, PAC II spending shows medium to long-term commitment toward making waterways navigable.

Cabotage — Brazil's Emergent Merchant Marine

With 35 sea ports along one of the longest coastlines in the world, another powerful waterborne transport mode comes into view — coastal shipping, or “cabotage,” the transport of goods between two points in the same country. Especially for Brazil, with its huge and vibrant domestic market, the ninth largest market in the world, a maritime cabotage could become an important, efficient, cost-effective way of moving products to different domestic markets.⁴¹ And, in fact, the market is growing, with total cabotage freight growing nearly 2 percent between 2010 and 2011, according to the National Agency for Waterway Transportation (ANTAQ). Yet leveraging this strength to its greatest advantage remains a key strategic challenge and opportunity.

Brazilian law requires river pilots to navigate vessels on the tricky waters from the mouth of the Amazon in the state of Amapá to Manaus, for example, roughly 900 nautical miles, yet river pilots are in short supply — and this has caused logistical logjams downstream.⁴² Still, four companies operate a total of 19 ships making weekly trips from Manaus to Rio Grande.

Container freight cabotage in Brazil, as opposed to raw ore and soya, for instance, is roughly 600,000 tons per year, which could be much more, most observers agree. To that end, public spending from PAC funds amounts to \$US 17 billion being invested in port improvement projects, or more than 21 percent of all current transport spending and averaging at least 7 percent of all transport infrastructure spending per year earmarked for ports and waterways between now and 2020.⁴³ And private infrastructure companies are also moving into the cabotage market. Triunfo, a small to medium-range construction company that operates road concessions in Brazil and is part of a consortium now building an airport in Campinas, is bolstering its vibrant port facility, Portonave, and has also invested \$1 billion in multi-purpose terminal improvements at the Port of Santos — improvements that are strategically designed not to compete with Santos's major export traffic but instead to fit into the emergent niche market of coastal maritime cabotage.

39 In the United States, this difference is estimated to be even larger, at five dollars for waterways and 56 for road. *World Bank Report No. 46885-BR*, February 8, 2010, pg 47

40 *World Bank Report No. 46885-BR*, pg 46.

41 “Brazil Among the 50 Most Competitive Nations in the World,” Merco Press, Thursday, September 6th 2012, <http://en.mercopress.com/2012/09/06/brazil-among-the-50-most-competitive-nations-according-to-wef-report>

42 “Coasting vessels waiting more than four days to meet a practical Manaus,” *Revista Grandes Construcões*, July 27, 2012, http://www.grandesconstrucoes.com.br/br/index.php?option=com_content&task=view&id=12711.

43 “New and Ongoing Projects, Transport, current as of August 9, 2011, *Brazil Infrastructure Report Q3*, 2012.

44 Susana Moreira, "Dilma Rousseff and Brazil's Oil Sector," Council of the Americas, March, 2011, Executive Summary, pg 9, http://www.as-coa.org/articles/3093/Issue_Brief:_Dilma_Rousseff_and_Brazil's_Oil_Sector/ and "Brazil Local Content Policy Inhibits Oil Development," July 18, 2012, Dow Jones Newsires, <http://www.foxbusiness.com/news/2012/07/18/brazil-local-content-policy-inhibits-oil-development/print#zzz210KWZR2>

compared to that of other nations.⁴⁵ And, in fact, Brazilian manufacturing is still battling the effects of a strong real — between 2009 and 2001 Brazil's currency strengthened by almost 40 percent against the dollar.⁴⁶ Developing the pre-salt fields, according to economist Kenneth Rogoff of Harvard University, could do more. "Oil," says Rogoff, "could bring the problem to a whole new level."⁴⁷ But so far, adroit moves in monetary policy and other stimulus measures by the Rousseff administration have helped forestall some of this, and the real, which traded near 1.70 to the dollar earlier in the year, has now weakened to just over 2.00 per dollar.⁴⁸

Monetary policy aside, Brazil is trying other strategies to fend off Dutch disease: R & D centers are being built from which new Brazilian technology and expertise may also emerge; the Rousseff government is using its purchasing power to help some manufacturers, especially those in the construction and infrastructure sectors; and a new sovereign wealth fund is being used to make long-term investments in education. Then there is the mandate for "local content" in the oil industry. Just as a rising tide lifts all boats, it's hoped that local content rules will harness the oil industry's growth — projected from about 10 per cent of GDP to up to 25 per cent in

(and the risks therein), on the one hand, and the need to open the sector up to the efficiencies and expertise of the global marketplace. It's an issue, of course, that goes beyond the role of National Oil Companies (NOCs) to ask, in effect, how much room should be given to non-national companies and under what circumstances.

"The worst case scenario is that local content requirements create a privileged, inefficient industry at the expense of Petrobras and Brazil, says economist Adilson Oliveira of the Federal University of Rio de Janeiro. "But that doesn't have to be the case."⁵¹ There's a difference, according to Oliveira, between local content policies that help local companies compete with international companies and policies that are simply protectionist. That difference can be seen in the way that Brazil is investing in worker training programs and providing 75,000 scholarships over the next ten years for Brazilians to study abroad through the Science Without Borders program.⁵² Initiatives like this, according to Harvard's Kenneth Rogoff, manifest the long view of Brazilian economy and are the best way to move forward.⁵³

Brazil is walking a fine line between the exercise of monopoly interest in oil and gas development and the need to open the sector up to the efficiencies and expertise of the global marketplace.

the coming decades — and help lift some of the Brazilian economy along with it.⁴⁹

But there are challenges. For starters, according to the Brazilian fuels regulatory agency chief Magda Chambriard, Brazil needs to invest \$ 400 billion into its oil and gas industry in order to meet its production goals by 2020, a huge sum that will require significant foreign investment.⁵⁰ Those investments, however, are also being delayed by Brazil's local content laws. Local skilled labor and technology in high-tech deep water oil is scarce. And this has brought about delays in the development of the pre-salt fields, including an expensive delay in the construction of a refinery. In the on-going debate about the development of the country's rich oil and gas reserves, Brazil is walking a fine line between the exercise of monopoly interest in oil and gas development

45 "Managing the resource boom," Mourougane, Annabelle. *Organization for Economic Cooperation and Development. The OECD Observer* 287 (Fourth Quarter 2011): 34-35.

46 "Brazil, Platform for growth," Joe Leahy, *The Financial Times*, March 15, 2011, <http://www.ft.com/intl/cms/s/0/fa11320c-4f48-11e0-9038-00144feab49a.html#axzz1yutYABcf>

47 "Brazil, Platform for growth," Joe Leahy, *The Financial Times*, March 15, 2011, <http://www.ft.com/intl/cms/s/0/fa11320c-4f48-11e0-9038-00144feab49a.html#axzz1yutYABcf>

48 "Update 1-Brazilian stimulus should bear fruit," *Reuters*, July 4, 2012, <http://www.reuters.com/article/2012/07/04/brazil-mantega-economy-idUSL2E8I41XX20120704>

49 "Brazil, Platform for growth," Joe Leahy, *The Financial Times*, March 15, 2011, <http://www.ft.com/intl/cms/s/0/fa11320c-4f48-11e0-9038-00144feab49a.html#axzz1yutYABcf>

50 "All eyes on Brazil's oil," *Global Post*, June 25, 2012, <http://www.globalpost.com/dispatch/news/regions/americas/brazil/120621/all-eyes-brazils-oil>

51 "Brazil Local Content Policy Inhibits Oil Development," *Dow Jones Newswires*, July 18, 2012, <http://www.foxbusiness.com/news/2012/07/18/brazil-local-content-policy-inhibits-oil-development/print#ixzz21I0KWZR2>

52 "Brazil Local Content Policy Inhibits Oil Development," *Dow Jones Newswires*, July 18, 2012, <http://www.foxbusiness.com/news/2012/07/18/brazil-local-content-policy-inhibits-oil-development/print#ixzz21I0KWZR2>

53 "Brazil, Platform for growth," Joe Leahy, *The Financial Times*, March 15, 2011, <http://www.ft.com/intl/cms/s/0/fa11320c-4f48-11e0-9038-00144feab49a.html#axzz1yutYABcf>

Solution #6:

The anti-corruption campaign in Brazil

The effects of a too complex bureaucratic apparatus are harmful, especially for infrastructure, a sector that is sensitive to bureaucratic slowdowns. Complex and inefficient bureaucracy creates delays in construction, for instance, and that, according to Paulo Resende, creates the environment for corruption. “The more complex and the less transparent the bureaucracy, the more corruption you’ll have.” The good news is that Brazil has assumed a leadership role in anti-corruption best-practices.

President Rousseff’s zero tolerance policy towards corruption has led recently to the resignation of six ministers. In July of last year, President Rousseff signed a new anti-money laundering law with teeth to it — one which broadens police and prosecutorial powers and increases penalties.⁵⁴ But perhaps Exhibit A of this new reform movement could be the “mensalão” trials which in October found ten politicians and members of the business community guilty of a “cash-for-votes” scheme and which was widely viewed as the biggest and most significant criminal trial in the history of Brazilian politics.⁵⁵

The Supreme Court found congressional leaders, bankers and individuals connected to the administration of Luiz Inacio Lula da Silva’s Worker’s Party (PT) guilty of buying and selling votes in congress in 2005. More recently,

Non-reported economic activity has decreased from 21 percent of GDP in 2003 to 16.8 percent of GDP in 2011.

the arrest of the chief of staff of the State of São Paulo and two officials from the National Water Agency and the National Civil Aviation Agency for, among other things, allegedly falsifying documents and arranging meetings between politicians and businessmen in return for cash, suggests that the Rousseff administration’s commitment to anti-corruption remains undiminished.⁵⁶ Matthew Taylor, an expert on Brazil at American University’s School of International Service in Washington, suggested that the mensalão conviction was a watershed moment for Rousseff and for Brazil. “Progress is being made,” said Taylor. “Mensalão demonstrates there is both public support for anti-corruption efforts and the institutional wherewithal to effectively combat corruption.”⁵⁷

That work continues. Brazil’s congress in October of 2011 passed a

freedom of information law that obliges officials to publish requests from citizens for information on spending. Taken together, such anti-corruption initiatives and legal frameworks have had measurable effects. According to a survey from the Brazilian Institute for Ethical Competition, for instance, anti-corruption measures have

54 “New Anti-Money Laundering Law in Brazil,” *Rio Times*, July 10, 2012, <http://riotimesonline.com/brazil-news/front-page/new-anti-money-laundering-law-signed/>

55 “Guilty Verdicts for Forming the Mensalão,” *The Rio Times*, Oct 23, 2012, <http://riotimesonline.com/brazil-news/front-page/guilty-verdicts-for-forming-mensalao-scheme-in-brazil/>

56 “Operation Safe Harbor Shows Details of the Finances of Gang,” Lara Wallace, *Journal Da Globo*, 11-30-12, <http://g1.globo.com/jornal-da-globo/noticia/2012/12/operacao-porto-seguro-aponta-detalhes-das-financas-de-quadrilha.html>, and *Brazil Weekly*, November, 2012, <http://brazil-weekly.com/2012/11/>

57 “Brazil Supreme Court Convicts Lula Aides of Corruption,” *Reuters*, October 9, 2012, <http://www.reuters.com/article/2012/10/10/us-brazil-lula-idUSBRE8981ID20121010>

helped reduce the underground economy from 21 percent of GDP in 2003 to 16.8 percent of GDP in 2011.⁵⁸

The popular mood for reform in Brazil and Latin America is reflected, moreover, in a growing awareness of bribery laws and prosecutions, according to the 2012 Latin

American Corruption Survey of more than 400 executives throughout the region. Nearly all (88 percent) of respondents said they were aware of a Brazilian company, individual, or government official being prosecuted for making or receiving an improper payment, gift or other benefit,

and most (75 percent) of those respondents believe the offenders were likely to be prosecuted.⁵⁹ Changes in transparency will not happen overnight, but appropriate measures are clearly trending in the right direction.

58 Non-reported economic activity, as a percentage of GDP, decreased since 2003, the date of the first survey, when it represented about 21 percent of GDP (\$R 357.3 billion). In 2010, it was 17.7 percent of GDP (\$R 668.6 billion). In 2011, the amount decreased to 16.8 percent of GDP (\$R 695.7 billion). "Underground Economy Index," Getúlio Vargas Foundation – FGV — and The Brazilian Institute for Ethical Competition – ETCO, July 4, 2012, http://www.etc.org.br/user_file/Economia_Subterranea_Junho-2011.pdf

59 The survey also reveals the on-going challenge: only 17 percent of respondents think that anti-corruption laws are effective in Brazil, compared to Chile (76 percent), Costa Rica (50 percent), United States (70 percent), Uruguay (57 percent) and Mexico, (16 percent). Brazil ranks with Mexico, Columbia, Bolivia, Argentina, Ecuador, Guatemala and Venezuela as having the highest amount of governmental corruption. Nearly a third of respondents say that corruption in Brazil is a significant obstacle for business, while more than half said that corruption is an occasional obstacle,

compared to Chile where about 1 percent of respondents say that corruption is significant, about 19 percent say it is occasionally an obstacle, and 80 percent say that corruption is not a significant obstacle to business. Overall, "Seventy-five percent of all respondents said they were aware of an offender being prosecuted in the country in which they work for making or receiving illicit payments, up from 69% in 2008," FCPA Americas, <http://mattesonellislaw.com/fcpamericas/growing-awareness-of-anti-corruption-laws-in-latin-america-the-fcpa-compliance-officers-job-might-be-getting-a-bit-easier>

"The mensalão conviction demonstrates there is both public support for anti-corruption efforts and the institutional wherewithal to effectively combat the corruption."



Solution #7: Simplifying the tax structure

Many corporate taxes are being shifted, delayed, lowered or forgiven to incentivize long-term infrastructure construction.

The tax burden in Brazil (36.02 percent in 2011) is greater than developed countries such as Japan, the United States, and Canada.⁶⁰ One-third of Brazil's gross domestic product, in other words, is made up of taxes. The complexity of the tax structure, moreover, creates an overwhelming impetus for underground, "off book" economic activity, which still comes in at just under 17 percent GDP, and onerous disincentives for companies trying to do business "by the book."⁶¹ Yet the climate for reforming these challenges has never been better, according to Carlos Langoni, director of the World Economy Center of the FGV Foundation. "The Brazilian electorate wants reform," says Langoni, "and the country's president, Dilma Rousseff, who is leading such reforms, is very popular as a result."⁶²

Short-to-medium term reforms that will help reduce corruption and help jumpstart outside private investment in infrastructure include streamlining and simplifying Brazil's tax structure. In addition to regulatory complexity, especially at the municipal level, the country's complex tax structure is one of the most frequently cited barriers to doing business in Brazil. "The current tax system contains excessive obligations and a burden of multiple taxation with a cascading effect that makes local and foreign companies less and less interested in making productive investments in Brazil," says Leticia M. F. do Amaral, vice-president of the Brazilian Institute for Tax Planning and partner at Amaral & Associates, a tax law firm.⁶³ Indeed, Brazil's overall tax burden of 36

percent GDP amounts to a systemic embeddedness or dependency upon tax proceeds that will be very hard to change, and yet, according to Amaral, there are many sorts of corporate taxes that are being shifted, delayed, lowered or forgiven to incentivize long-term infrastructure construction.⁶⁴ One is the Special Incentives for the Development of Infrastructure (REIDI), which suspends several taxes for five years on companies that rent machinery and other equipment used in infrastructure.

Another program, REPORTO, creates tax abatements and other incentives for port operators who purchase equipment to improve shipping and handle port cargo. And the Infrastructure Debenture Program offers companies relief from several of the taxes imposed on corporate profits over a four-year horizon. These are just the first of many incremental steps that should be taken in order to truly "shift the tax structure away from regressive taxes on consumption and toward progressive taxes on income and wealth," says Amaral.⁶⁵

60 Current (2011) tax burden figures are from the Brazilian Institute for Tax Planning (IBPT); Other country data (from 2008) from Pereira, Carlos, "Tax Policy in Brazil: The Reform that Never Was," The Brookings Institution, September 8, 2010, http://www.brookings.edu/opinions/2010/0908_tax_policy_pereira.aspx.

61 Selvanayagam, Ruban, "High Taxes and Excessive Red Tape Fuel Brazil's Thriving Underground Economy," September 5, 2010, <http://www.brazil.com/articles/224-september-2010/104-high-taxes-and-excessive-red-tape-fuel-brazils-thriving-underground-economy.html>

62 Professor Carlos Langoni, speaking at the Brazilian-American Chamber of Commerce/ FGV Projetos event: "World Economy Scenarios: Implications for Brazil," University Club, New York City. May 15, 2012.

63 Interview, Leticia M. do Amaral, August 21, 2012.

64 Brazilian Institute for Tax Planning, Leticia M.F. do Amaral, Amaral & Associates, email correspondence, June 11, 2012.

65 Interview, Leticia M. do Amaral, August 21, 2012.

Solution #8: Private investment and financing

The sheer scale of the infrastructure investment needed in Brazil between 2010 and 2013 — a whopping \$639 billion — will require participation by the private sector, according to Patricio Abal, editor of *Latin Infrastructure Quarterly*.⁶⁶ “Long term private sector investment is needed both because of the size of the investments required but also to provide a balance between private and public sector investment, the hallmark of a healthy, sustainable economy. And when it comes to fostering private sector investment in infrastructure — how private and public sectors are working together — Brazil is clearly leading the way,” according to

Abal. “The financing authorities are very business friendly,” says Abal. “When the public sector is not on board, delays occur in infrastructure construction — but this is not the case in Brazil. The private sector invested \$2.5 billion in container terminals alone, and promises to invest another \$5 billion until 2015, according to Multiterminais and Santos Brazil’s Richard Klein. Indeed, Brazil is showing other countries in the region a leadership role in terms of financing its infrastructure.” Abal points to Infrastructure Debentures (IDs), “the first type of securities in Brazil designed specifically to raise long-term private funds for infrastructure projects,” which, among

other features, have strong tax incentives. Other instruments like the “letras financeiras” and the BNDES-sponsored Liquidity Enhancement Fund are designed to provide “a safe environment for individuals and foreign investors, increasing trading volumes for corporate debt, especially in the secondary market,” says Abal. There is, moreover, a mature environment for PPP and concessions contracts, according to Cesar Pereira, partner at Justen, Pereira, Oliveira & Talamini.⁶⁷ “Especially in road concessions,” says Pereira, “there is a high degree of comfort for the participation of Brazilian companies and foreign companies — and the new airport concessions that are

“Pension funds and infrastructure investment represent a strategic alignment between a country’s national needs for growth and the fiduciary interests of voluntary pension funds to optimize long-term portfolio planning.”



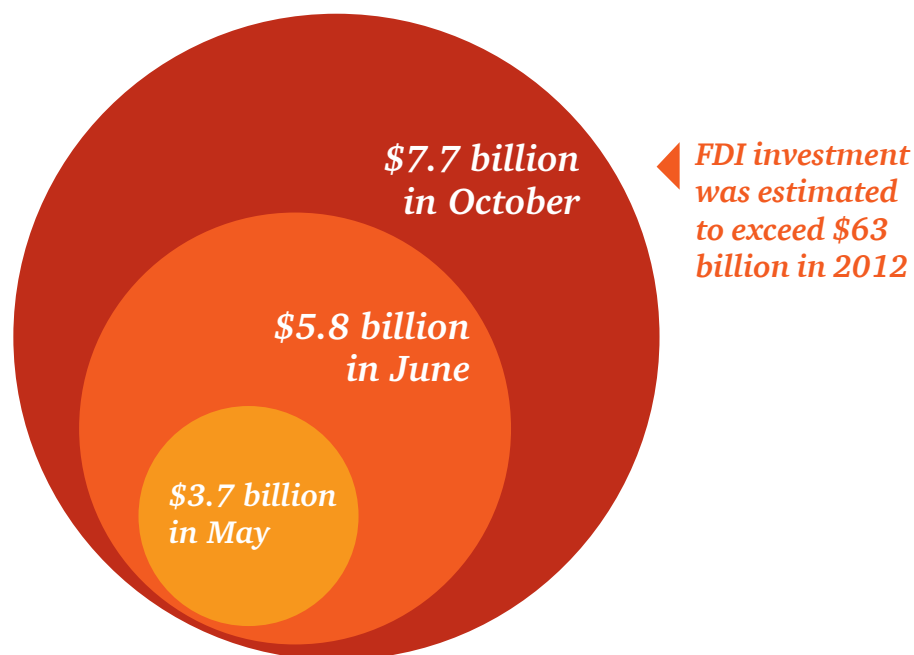
Construction continues apace on stadiums for the World Cup.

Despite gloomy economic reports elsewhere, foreign direct investment in Brazil rose last year

the product of agreements between consortia of domestic and foreign partners also demonstrates this.”

Mechanisms vary for boosting private investment, but many have been paying attention to harnessing voluntary pension funds to help finance infrastructure projects. It’s an idea born in England during the 1980s, under the government of Margaret Thatcher, according to David Tuesta, chief economist for the pension’s unit at BBVA Research, and the practice has matured and spread elsewhere in the UK and in Australia. “Pension funds and infrastructure investment represent a strategic alignment between a country’s national needs for growth, which are facilitated by improved infrastructure, and the fiduciary interests of voluntary pension funds to optimize long-term portfolio planning.”

By diversifying their portfolios in areas that have a direct connection to public works, Tuesta adds, “the needs of social development are matched and facilitated by the financial needs and objectives of the funds.” The risk profile for pension fund investment in infrastructure, according to Tuesta, is competitive with those of stocks and bonds, offering expected rates of return of 9.3 percent, significantly higher



Source: Agencia Brasil (<http://agenciabrasil.ebc.com.br/>)

than most standard PPP contracts, which remain between 4 and 5 percent. Although the practice is still in the nascent stages in Brazil — Tuesta estimates that in 2010 pension funds in Brazil invested roughly \$62 billion in infrastructure projects — more pension fund participation is expected, especially when combined with the attractions of the new infrastructure debentures program. In fact, Moody’s projects that local pension funds and private investors will invest R\$ 124 billion, potentially financing up to 42 percent of Brazilian infrastructure needs from 2012 until 2014.⁶⁸

Hardly a week passes without a new report indicating Brazil’s commitment to private investment, to the government’s continued commitment to fund infrastructure investment, or to the private market’s continued, long-term faith in the Brazilian economy. Foreign direct investment (FDI) came in just under \$60 billion from January to November of 2012 and was projected by the central bank to reach \$63 billion by year’s end. While less than the record high \$66.7 billion in 2011, FDI inflow for Brazil still remains impressive.⁶⁹ Business Monitor

66 “Brazilian Fostering of Private Financing of Infrastructure Projects,” Ricardo Somoes Russo, Enrico Bentivegna, Joao Fernando A. Nascimento, *Latin Infrastructure Quarterly*, No 4, June, 2012, pg 18, <http://www.liquarterly.com/issue4.pdf>.

67 Gridlines Interview, Cesar Pereira, October 19, 2012

68 “Brazil’s new infrastructure debentures are credit positive for the sector,” Moody’s August 13, 2012.

69 According to the Central Bank in December, 2012, FDI should reach \$63 billion for the year. From January through November, net FDI inflow reached \$59.9 billion. In November, 2012, Brazil saw \$4.6 billion worth of FDI. “Central Bank Revises FDI Forecast Up,” Brazil-Arab News Agency, December 18, 2012, http://www2.anba.com.br/noticia_financeira/kmf?cod=19452383

China’s foreign direct investment for the same period was \$47.1 billion. “China January-May FDI down, but May a bright spot,” *Reuters* – Fri 15 Jun, 2012, <http://in.news.yahoo.com/china-january-may-fdi-down-may-bright-spot-111528664--business.html>

International's downgrading of Brazil's 2012 GDP growth forecast to 1.8 in October was offset by its forecast for Brazil's average real GDP growth of 3.6 percent between 2012 and 2017.⁷⁰ The private equity group Kohlberg Kravis Roberts and Russia's biggest investment bank, VTB Capital, have both entered into investment agreements with Brazilian banks, and PepsiCo has renewed investment in Brazil's northeast.⁷¹ In June, the Brazilian government announced "PAC Equipamentos," a R\$ 8.4 billion (US\$ 4.19 billion) addition to the PAC II accelerated growth initiative. PAC Equipamentos essentially targets specific industries in Brazil to procure, among other things, 8,000 trucks, 8,500 buses, 3,000 tractors, along with subway cars, cranes and earth-moving equipment, and 3 million desks and chairs for schools — all of it, according to a government announcement, designed to "strengthen Brazil's [economic] condi-

tion and overcome the difficulties of the international scenario."⁷² These stimulus measures, combined with interest rate cuts, will likely lead to a better second half of 2012, according to central bank president Alexandre Tombini.⁷³

All of this is very encouraging according to Abal and others, despite the current economic slowdown, which, as recent reports of a slight jump in economic growth for June seem to suggest, may be finally leveling off.⁷⁴ Abal and others count Brazil's performance a success, one that benefits the whole region. "Private Brazilian infrastructure companies are developing projects across the region. Even in the most volatile of markets — Argentina, Bolivia, Venezuela — Brazilian infrastructure companies are there," says Abal, "so Brazil's success will continue to create a 'waterfall effect' for everyone."

70 Brazil Business Forecast Report, October 29, 2012, <http://store.businessmonitor.com/brazil-business-forecast-report.html>, As of January 11th, 2013, a weekly survey of economists conducted by the central bank forecast GDP growth at 3.26 percent, Brazil Weekly, January 11, 2013, Brazilweekly.com.

71 "What Next for Two-Speed Brazil?" Jonathan Wheatley, *Financial Times* blog, June 25, 2012.

72 "PAC Equipamentos," June 27, 2012, <http://www.fazenda.gov.br/portugues/documentos/2012/Medidas%20JUN%202012%20v13.pdf>, found in "Brazil's Answer: Spend, Spend, Spend," Jonathan Wheatley, "Beyond Brics," *Financial Times* blog, June 27, 2012, <http://blogs.ft.com/beyond-brics/2012/06/27/brazils-answer-spend-spend-spend/>.

73 "Update 3-Brazil economy to rebound, inflation no threat-cenbanker," *Reuters*, July 23, 2012, <http://www.reuters.com/article/2012/07/23/brazil-economy-cenbank-idUSL2E8IN-8HI20120723>

74 "Indicators. . . are pointing to an improvement in June, which means that gross domestic product could grow around 0.5 percent in the second quarter," according to Santander analysts. "Update 2 — Brazil's economy stalls, but tops forecasts in May," *Reuters*, July 12, 2012, <http://www.reuters.com/article/2012/07/12/brazil-economy-activity-idUSL2E8IC1U520120712>

"Brazil's success will continue to create a 'waterfall effect' for everyone."

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