



China's quest for oil: Brazil-China relations in the oil sector (2000-2018)¹

A busca da China por petróleo: as relações Brasil-China no setor petrolífero (2000-2018)

La búsqueda de petróleo: las relaciones Brasil-China en el sector petrolero (2000-2018)

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Resumo

Este artigo investiga de que forma a China se tornou uma força relevante no setor de petróleo brasileiro. Os resultados mostram o Brasil como parte da estratégia da China de diversificação de fontes do fornecimento de petróleo e o empenho das empresas chinesas para participar de projetos no país latino-americano.

Palavras-chave: Brasil; China; Petróleo e Gás.

Abstract

This article reviews in what way China has developed into a sizable force in the Brazilian oil sector. Findings show Brazil as part of China's strategy of oil supply diversification and the endeavor of Chinese companies to be part of projects in the Latin American country.

Keywords: Brazil; China; Oil and Gas.

Resumen

Este artículo revisa como China se ha convertido en una fuerza considerable en el sector petrolero brasileño. Los resultados muestran que Brasil es parte de la estrategia de China para diversificación de sus fuentes de petróleo y el esfuerzo de empresas chinas para participar de proyectos en el país latinoamericano.

Palabras-clave: Brasil; China; Petróleo y Gas.

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Introdução

Energy is not just a regular commodity traded on world markets. In political economy analyses, energy is a strategic commodity and, despite the increasing relevance of other energy sources, oil continues to play a crucial role in the world economy. Oil is a requirement for all states, but at the same time, is not equally distributed around the globe. It is a rare and non-renewable resource and, above all, it is essential for the survival, security, and well-being of all states (FUSER, 2013). Energy is a fundamental element of the world economy and it is a mandatory condition to mobilize other resources (AMINEH; GUANG, 2017). Energy is a source of power.

Historically, oil and the fear of paralyzing oil flows have mobilized countries economically and militarily to gain access to resources beyond their state borders. Japan entered World War II to gain access to oil reserves in Indonesia, while Nazi Germany's army invaded the Soviet Union with the ambition to conquer the oil-rich Caucasus region. The United States' (USA) oil predominance was central to the outcome of World War II. Later, the dispute between international companies and oil-rich underdeveloped countries for control of said countries' main hydrocarbon reserves sparked decolonization and nationalism movements. In the 1970s, the two oil shocks created not only a global economic crisis but also a group of wealthy and powerful oil-producing nations with a high capacity to influence international affairs. These are just a few examples of the oil industry's influence among many wars, revolutions, assassinations, coups d'état, and other relevant episodes in contemporary history. According to Yergin:

Over almost a century and a half, oil has brought out both the best and worst of our civilization. It has been both a boon and a burden. Energy is the basis of industrial society. And of all energy sources, oil has loomed the largest and the most problematic because of its central role, its strategic character, its geographic distribution, the recurrent pattern of crisis in its supply—and the inevitable and irresistible temptation to grasp for its rewards (YERGIN, 1991, p. 780).

Finally, energy is essential to both Brazil's and China's development. While China needs to fulfill its energy demand with overseas resources, Brazil can boost industrial development and enhance social welfare using income generated by its new oil and gas deep-sea projects. But more than that, energy is essential to the world economy since it is a requirement for the development and production of goods and services. Energy is also at the core of sustainability and global climate change debates. The investigation about the profile of China's energy investments has been examined in international literature, with a more specific focus given to Asia and Africa, but not as much in Brazil. To fill this gap, this study means to briefly contribute to understanding the role of two major global players in the political economy of energy: Brazil, the Latin American largest economy and resource-rich nation, and China, the world's fastest-growing economy in the last decades and largest energy consumer in the world.

In this article, we aim to review in what way China has developed into a sizable force in the Brazilian oil sector. Our argument is built upon a comprehensive analysis of data and literature review. The structure of the paper is divided into five sections, including this introduction. The following section presents

the Chinese import-dependent path. The third section explains how Brazil fits China's strategy of energy supply security. The fourth addresses the growing Chinese influence in the Brazilian oil sector through trade, investment, and finance. Finally, the conclusion summarizes the results, showing Brazil as part of China's strategy of oil supply diversification and the Chinese companies targeting greenfield projects in the Brazilian pre-salt fields since they have limited opportunities in other parts of the world.

The Chinese Thirst for Oil

In the last two decades, China's energy investments around the globe have increased exponentially. This move is part of a state-led economic globalization strategy of State-Owned Enterprises (SOE) and a part of China's rise as a global political and economic power (AMINEH; GUANG, 2018). Their strategic focus on becoming world market leaders prompted Chinese National Oil Companies (NOCs) to ensure supply security from resource-rich countries, as well as to meet China's high level of import-dependency. China's dependence on fossil energy imports exposes the country's energy security to plenty of geopolitical risks, as many oil-producing regions and international transportation routes are historically unstable (PARRA, 2004). As argued by Hughes and Lipsky (2013, p. 450), "the politics of energy is reemerging as a major area of inquiry for political science after two decades of relative quiet. One reason is the growth in demand in China" while Lee (2012, p. 75) highlights that "China's energy consumption has expanded and its rise has become the dominant geopolitical issue of our time, Beijing's energy security policy has become one of the major discussion topics".

Energy security refers to the need to safeguard sufficient resources to meet the national demand (YERGIN, 2006) and, consequently, it becomes a component of national security, requiring the state to act by diplomatic, economic, and military means (KLARE, 2016). In the Chinese case, Lee (2012) argue:

Governments in all major economies, democratic and authoritarian, view energy security as an inherent component of their national interest. [...] In China, the definition is much stricter than in other energy-importing countries (such as the United States and Japan) since Beijing considers not just reliable and uninterrupted but also a cheap supply of energy as essential to its national and domestic political interest (LEE, 2012, p. 77-78).

China's integration into the global system has been pushing the world to a multipolar order and is rapidly spreading Chinese political and economic influence on different countries and regions by trade flows, direct investments, finance, and diplomatic relations. The growing transnational activities from China's largest NOCs - China National Petroleum Corporation (CNPC), China Petroleum and Chemical Corporation (Sinopec), and the China National Offshore Oil Corporation (CNOOC) - are now crucial to the country's energy supply security. Some analysts like Amineh and Guang (2017, p. 40) argue that once the NOCs become transnational actors, the state loses its monopoly control over the actions of the companies, although still maintaining relevant participation in the companies' decisions. Nevertheless, Hogenboom (2014) adds that although the Chinese state no longer centrally controls the NOC's international strategy³, it continues

3 We take "strategy" as a NOC's means of achieving long-term objectives and "performance" as a NOC's economic efficiency in finding, developing, and delivering hydrocarbon resources (VICTOR; HULTS; THURBER, 2012).

to encourage and support investments in natural resource sectors, ensuring China's insertion into the global economy and turning the country's companies into increasingly transnational players.

China was in the past an oil-exporting country and after decades of economic growth became a net oil importer in 1993. The country has become the largest energy consumer in the world in 2011, surpassing the USA (EIA, 2015). To demonstrate China's oil reliance, we estimate the country's structural dependency rate. At first, we measure Chinese apparent consumption using the methodology as follows:

$$\text{Apparent consumption} = \text{Oil production} + \text{Net oil imports} + \text{Net oil products imports}$$

Then, we calculate China's structural dependency on oil imports.

$$\text{Structural dependency} = \text{Apparent consumption} - \text{Oil production}$$

In other words,

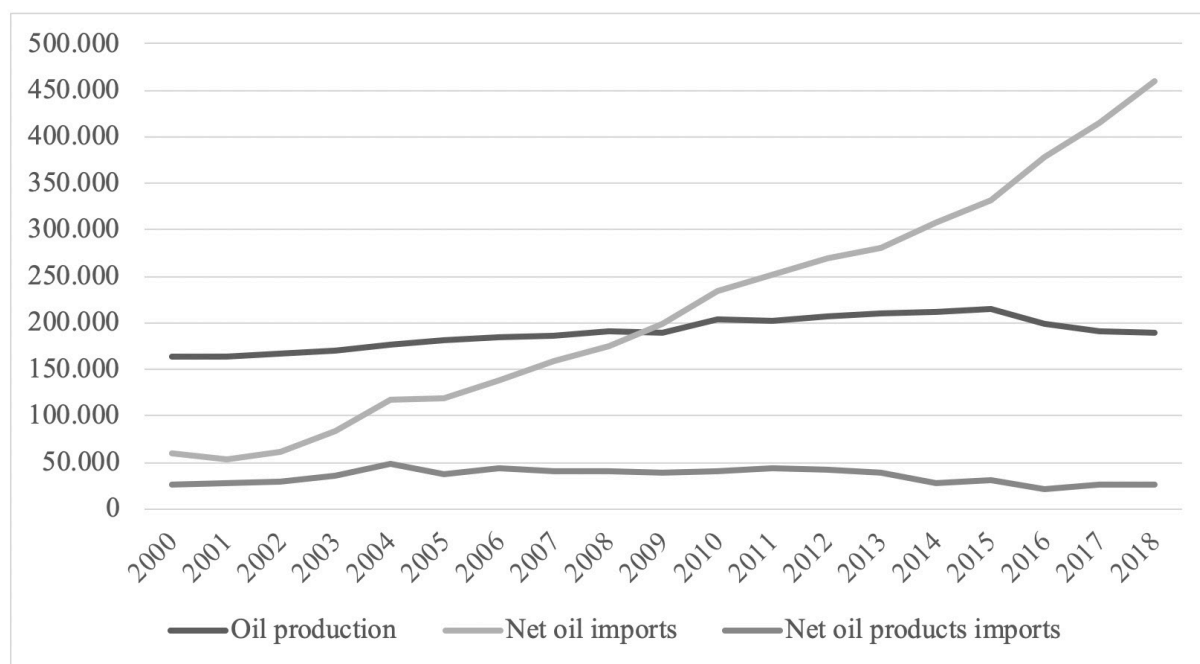
$$\text{Structural dependency} = \text{Net oil imports} + \text{Net oil products imports}$$

Hence, we could measure China's structural dependency rate on oil imports.

$$\text{Structural dependency rate} = \frac{\text{Structural dependency}}{\text{Apparent consumption}}$$

After clarifying the methodology, we can determine China's rate of dependence on oil imports. Firstly, since the oil production had no significant expansion, Chinese net oil imports increased steadily to fulfill the Chinese growing energy demand.

Chart 1. China's oil production vs. net oil and oil products imports (kilotons, 2000-2018)

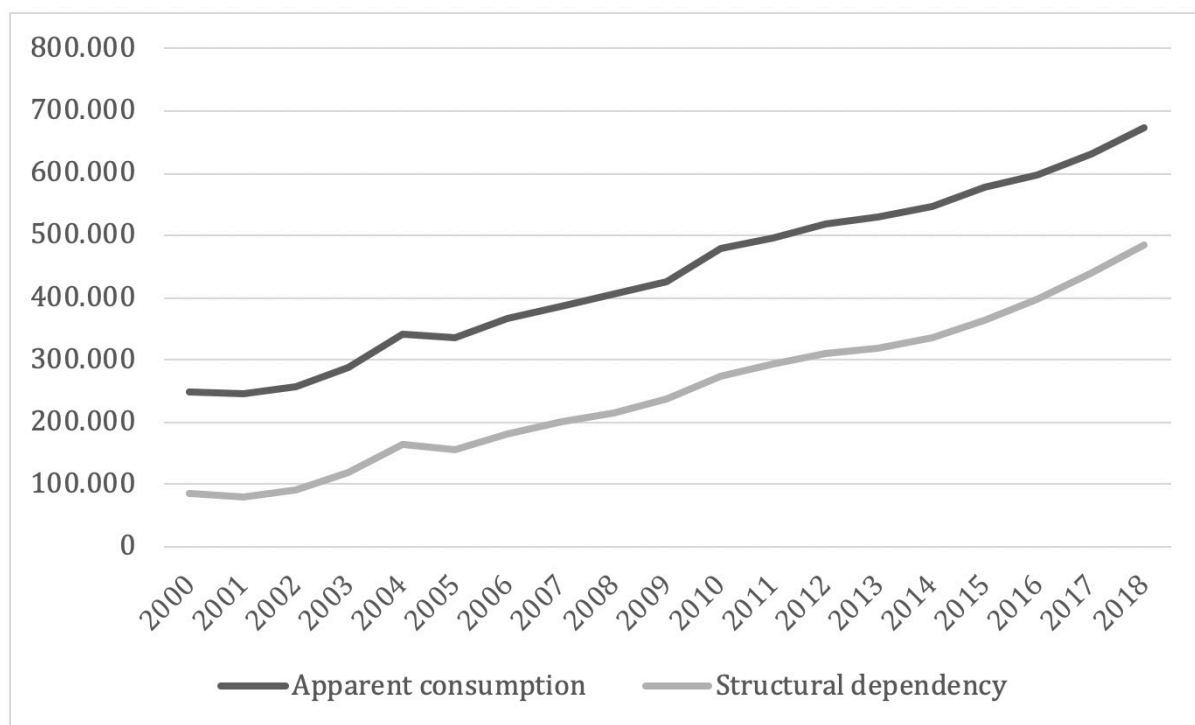


Source: Data from IEA, 2020. Author's elaboration.

The expansion in consumption was accompanied by the increase in net oil imports between 2000 and 2018, the most recent year with available data, resulting in a scenario of structural

dependency on oil imports. The Chinese oil's structural dependency boost from 86.202 to 484.900 kilotons between 2000 and 2018, almost six times higher than previously registered.

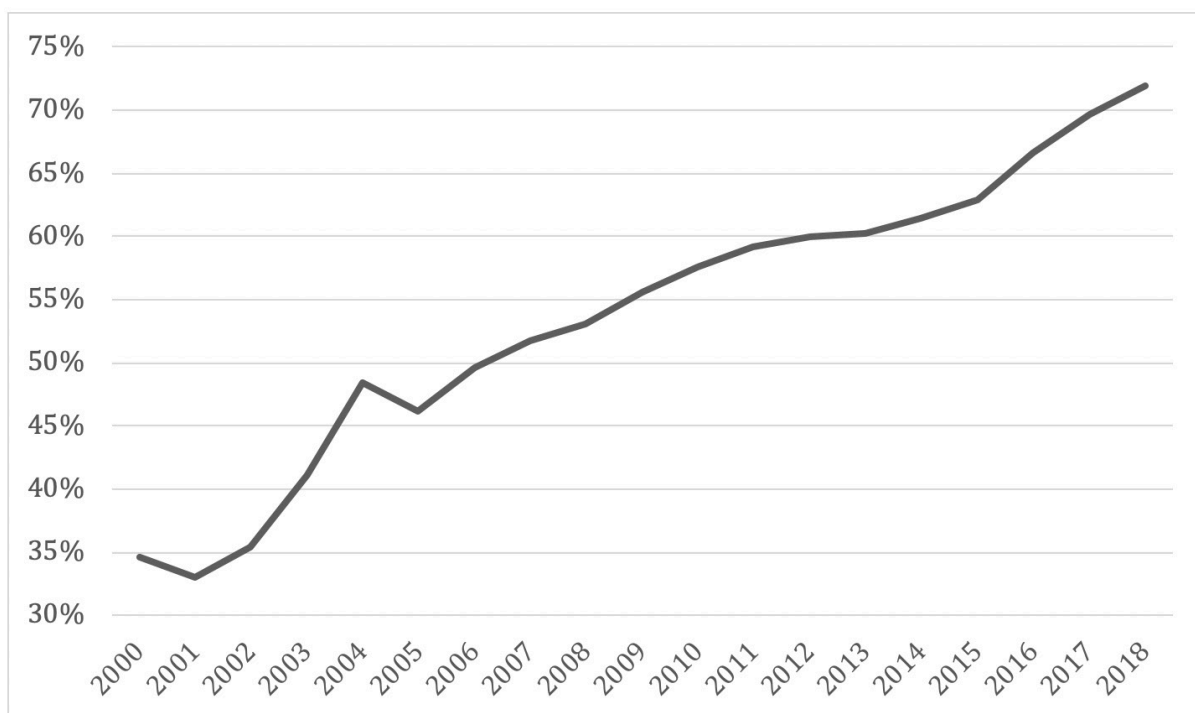
Chart 2. China's apparent consumption vs. structural dependency (kilotons, 2000-2018)



Source: Data from IEA, 2020. Author's elaboration.

By 2000, the structural dependency rate in China was 35%, ten years later this rate rose to 58% and has continued to grow to a high of 72% in 2018.

Chart 3. China's structural dependency rate (% , 2000-2018)



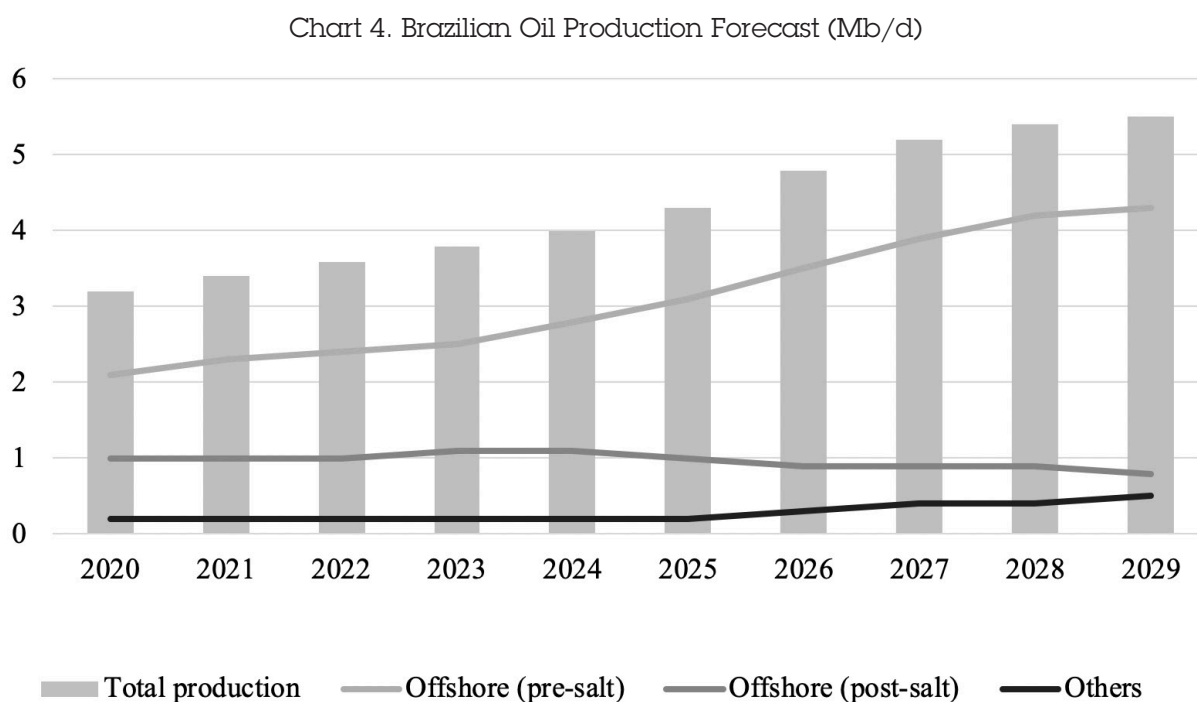
Source: IEA, 2020. Author's elaboration.

Consequently, the country has invested in several energy projects overseas to meet the needs of domestic consumption and diversification of supply to ensure supply security. It is in this context of Chinese dependence on oil overseas resources that Brazil is inserted on China's strategy of energy supply security.

Brazil Meets Chinese Oil Needs

Brazil is still emerging as a large oil-exporting country and it is expected to become an

important actor in energy global geopolitics. In 2007, the announcement of the discovery of large offshore resources in the pre-salt layer changed the historical landscape of scarcity of the country's oil and gas reserves. After proving the potential of the pre-salt reservoirs, Brazil is becoming a great oil exporter. The country is already the largest producer in Latin America, surpassing traditional producers such as Mexico, Venezuela, and Ecuador. The oil output forecast made by the Brazilian energy planning company can be seen in the chart below:



Source: EPE, 2020, p. 152.

Brazilian oil output is predicted to increase 58% between 2020 and 2029. The oil production is set to rise from 3.2 million barrels a day (Mb/d) in 2020 to 5.5 million b/d in 2029, most of it added by the increase in pre-salt production. In 2019, the largest oil producers (including crude oil, all other petroleum liquids, and biofuels) were the USA (19.5 Mb/d) followed by Saudi Arabia (11.8

Mb/d), Russia (11.4 Mb/d), and Canada (5.5 Mb/d) (EIA, 2020). This indicates that Brazil can become one of the largest oil producers in the world by the end of the decade.

The pre-salt is the main area with a capacity to steadily expand the world's oil supply and it is therefore in the crosshairs of the U.S. and China. Schutte (2018) classified the announcement as a new reality to the oil indus-

try since it changed the dynamics of national hydrocarbon policies and transformed the country's historical path of import dependence into one of production and exportation. Brazil's official proven oil reserves accounted for 13.4 billion barrels in 2018 (ANP, 2019). Nonetheless, Sauer and Estrella (2019) estimate that, with the certification of pre-salt oil and gas resources, this amount can achieve more than 100 billion barrels shortly, which can confirm that "pre-salt changes any future scenario on the insertion of Brazil, putting the country on another level in world geopolitics" (SCHUTTE, 2014, p. 86).

This brings challenges and opportunities to the country's economy and raises an intense debate about the regulatory framework, foreign currency appreciation, infrastructural projects, sovereign and social funds, technological advances, and how to improve the national industry's chains with upstream and downstream opportunities. The regulatory framework has changed several times due to the political pressure of different actors. Transnational oil companies, such as ExxonMobil, withdrew their ventures in Brazil returning after a few years when a new government took over and set a more favorable regulation to oil transnational companies. Meanwhile, China's investments remained despite any government or regulatory change.

Finally, it is worth noticing the complementary character of both Brazil and China's energy needs. On one hand, the discoveries in Brazil offer plenty of resources to satisfy Chinese aims of energy security and diversification of supply, strategic assets in ultra-deep-sea waters, economic opportunities, and technology to China's engineering, machinery and oil companies. On the other hand, China offers

opportunities to help Brazil develop its expensive deep-sea projects in a moment that the country and Petrobras have scarce capital available to carry out such ventures, which can improve the country's development opportunities for the next decades.

Brazil-China in Linkages in the Oil Sector

As discussed in the previous sections, Brazil has become a major producer and exporter of oil at a time of increasing demand from China for this commodity. This resulted in a growing Chinese presence in the Brazilian oil sector, which occurred through *i)* the increase of Brazilian exports to China; *ii)* the expansion of Chinese investments in Brazil, and *iii)* the presence of Chinese financial institutions supporting Brazilian oil projects and companies. Therefore, we analyze the three vectors of Chinese expansion in the Brazilian oil sector: trade, investments, and finance.

Trade

Another aspect of the relations between the two countries is the growth of trade. China's economic and political rise is changing the global energy scenario since the country's increasing demand for raw materials cannot be met by available domestic natural resources alone. This poses a challenge to the country's energy security, as it relies on imports for 78% of the crude oil it consumes (NBSC, 2018). The country has become the largest commercial partner for some of the Latin American and Caribbean (LAC) countries. In the case of Brazil, the first decade of the 21st century marked an exponential expansion of more than

2000% in bilateral trade, reaching US\$ 71.27 billion (YANRAN, 2017).

The Chinese industrialization and urbanization process increased the demand for natural resources and resulted in asymmetric commercial flows between LAC countries and China. The Chinese share of the exports in LAC rose from 1.2% in 2000 to 9.6% in 2016, while the imports rose from 2.5% in 2000 to 18.7% in 2016 (HIRATUKA, 2018). The flows of exports from LAC countries to China are not very diversified, with most of them exporting one or just a few goods consisting largely of raw materials, while imports are mainly of manufactured products. South America trade relations with China consists mainly of basic products, especially food and energy, while China has become a competitor to Mexico, Central America, and the Caribbean in their national markets and the USA, offering similar manufactured products to those produced in China (CASAS; FREITAS; BASCUÑÁN, 2020).

Chinese investments are highly concentrated in those Latin American countries with substantial oil reserves and petroleum is crucial for their exports, economic growth, and public revenues (HOGENBOOM, 2014). In Brazil, a far more diversified economy in comparison to other LAC countries, the Observatory of Economic Complexity (OEC) indicates that the share of crude oil exports in 2017 was 7.9% (US\$ 17.4

billion) and 43% of this amount was exported to China. This shows that while China has multiple oil suppliers, with Brazilian crude oil accounting for just 5.1% of their supply, Brazil on the other hand is increasingly dependent on exporting oil to China. In 2020, during the Covid-19 outbreak, Brazil has become China's 4th largest oil supplier, only behind Saudi Arabia, Russia, and Iraq, which consolidated Brazil as a major source and an essential part of China's strategy of oil supply diversification. On the other hand, it is important to notice that 70% of Brazil's oil exports were destined for China in July 2020, an increase of 30% in a year, indicating that the relations between the two countries are increasing steadily (VALLE; PARRAGA, 2020).

Investments

Brazil has become the largest recipient of China's energy investments in the world. As stated by the Chinese Global Investment Tracker (CGIT), US\$ 727.5 billion were invested in different energy projects throughout the world between 2005 and 2019, of which US\$ 50.31 billion were directed to Brazil's energy sectors, topping Canada (US\$ 41.84 billion), Australia (US\$ 38.37 billion), Pakistan (US\$ 38.87 billion) and Russia (US\$ 30.85 billion). The Chinese investments in the Brazilian oil and gas sector are listed in the table below:

Table 1. Chinese Oil and Gas Investments in Brazil

Year	Company	Operation	Amount
2010	Sinochem	40% Peregrino block	US\$ 3 billion
2010	Sinopec	40% Repsol Brasil	US\$ 7.1 billion
2012	Sinopec	30% Galp Energia	US\$ 5.2 billion
2013	CNOOC	10% Libra block	US\$ 700 million

Year	Company	Operation	Amount
2013	CNPC	10% Libra block	US\$ 700 million
2015	TEK	1 block in the Recôncavo basin	R\$ 201 thousand
2016	China Investment Corporation		US\$ 1 billion
2016	China Investment Corporation	90% Nova Transportadora do Sudeste	US\$ 410 million
2017	CNPC		US\$ 120 million
2017	CNOOC	20% Alto do Cabo Frio Oeste block	R\$ 70 million
2017	CNODC	20% Peroba block	R\$ 400 million
2017	CNOOC	1 block in the Espírito Santo basin	R\$ 23.5 million
2017	TEK	2 blocks in the Recôncavo basin	R\$ 1.5 million
2018	Shandong Kerui Petroleum	Construction of Comperj	US\$ 600 million
2018	CNPC	30% TT Work	
2018	CNOOC	30% Pau Brasil block	R\$ 150 million
2019	CNOOC	5% Búzios field	R\$ 3.4 billion
2019	CNODC	5% Búzios field	R\$ 3.4 billion
2019	CNODC	20% Aram block	R\$ 1 billion

Source: AEI, 2020; SCHUTTE, 2020.

We can observe that Chinese investments are increasing steadily, especially after the economic and political crisis that took place in Brazil after 2014, withstanding even the drop in international oil prices of that same year. These investments are concentrated in pre-salt assets and are mainly made by SOEs such as CNOOC and China Southern Petroleum Exploration and Development Corporation (CNODC), a CNPC subsidiary. Between 2003 and 2017, SOEs accounted for 83% of the total amount of China's investments in Brazil (HIRATUKA; DEOS, 2019).

Finance

The internalization of NOCs has been supported by the expansion of Chinese financing through large public banks (HIRATUKA; DEOS, 2019). This movement can also be ob-

served in the Brazilian case, where China's oil investments have been encouraged by financial institutions such as the China Development Bank (CDB), The Export-Import Bank of China (Exim Bank), and in a smaller amount, by the Bank of China (BOC) and the Industrial and Commercial Bank of China (ICBC). Since 2005, CDB and Exim Bank have provided more than \$137 billion in loan commitments to Latin American countries. According to the China-Latin America Finance Database, the largest finance amounts are destined to South America's resource-rich nations: Venezuela (US\$ 62.2 billion), Brazil (US\$ 28.9 billion), Ecuador (US\$ 18.4 billion), and Argentina (US\$ 17.1 billion). The larger part of these transactions is directed to the energy sector and are backed-loan arrangements in exchange for oil supply. The Chinese energy-related loans directed to Brazil can be seen at the following table.

Table 2 Finance: Chinese energy-related loans to Brazil

Year	Purpose	Lender	Borrower	US\$ billion
2007	GASENE pipeline	CDB	BNDES	0.75
2008	Coal plant	CDB	Government	0.35
2009	Pre-salt oil field development	CDB	Petrobras	7
2014	Bilateral cooperation agreement	CDB	Petrobras	3
2015	Bilateral cooperation agreement	CDB	Petrobras	1.5
2015	Bilateral cooperation agreement	CDB	Petrobras	3.5
2015	Leasing of platforms P-52 and P-57	ICBC	Petrobras	2
2016	Supply of equipment and services	EximBank	Petrobras	1
2016	Debt financing	CDB	Petrobras	5
2017	Oil production	CDB	Petrobras	5
2018	Upgrade in refinery infrastructure	NDB	Petrobras	0.2

Source: GALLAGHER; MYERS, 2020; PETROBRAS, 2020.

The previous data indicates a sizable and growing Chinese financial presence in Brazil. It is possible to observe that most loans were concentrated in the energy sector (US\$ 26 billion) and a large part of this amount was taken by Petrobras (US\$ 25 billion), the country's oil state-owned company and largest Brazilian enterprise. The active role of China's investment and commercial banks increased significantly after the global crisis. According to Hiratuka and Deos (2019), the data suggests that Chinese banks operate in Brazil with the strategy to ensure the supply of natural resources to China's growing demand. At the same time, those banks expand markets for Chinese suppliers of goods and services.

Even though their operations in Brazil are still incipient (compared to the stock of foreign direct investments), Chinese finance to Latin America topped financial transactions from either the World Bank and the Inter-American Development Bank in the 2005-2019 period (GALLAGHER; MYERS, 2020). Another sample of the Chinese banks' relevance is

shown by their increasing international performance. In 2018, four Chinese commercial banks were the largest in the world by volume of assets: ICBC, China Construction Bank (CCB), Agricultural Bank of China (ABC), and BOC (HIRATUKA; DEOS, 2019).

Conclusion

In this article, we seek to highlight China's increasing dependence on oil imports. This dependence forced the country to adopt a strategy of diversification of oil supply, seeking to guarantee its energy security. The growth in China's demand for overseas oil sources occurred at a time when Brazil is becoming an oil-exporting nation, which made the country, and the new assets in the pre-salt layer, become part of China's energy security strategy.

One of the main aspects of NOCs activities in Brazil is the possibility to compete in bidding rounds of new and highly productive areas, something unusual in other parts of the world where the access to oil reserves is limited

to the State-owned companies of the host country. The new exploratory areas of the Brazilian pre-salt have been enabling the participation of Chinese NOCs in greenfield projects, not only in what is left behind by the IOCs like in other parts of the world. In other countries, the Chinese NOCs are engaging with the international oil companies (IOCs), but in Brazil, they choose to operate alongside state-owned Petrobras rather than engage with IOCs because of the geological expertise and the recognized technological leadership in the offshore environment of the Brazilian company.

In short, while China ensures its energy security and Brazil transforms into a major oil exporter, their relations through trade, investments, and finance are developing and becoming increasingly relevant.

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