



Management of pre-salt oil royalties: Wealth or poverty for Brazilian coastal zones as a result?



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ABSTRACT

Brazil is the largest country in South America in terms of both area (8,515,767,049 km²) and population (203,912,619 of inhabitants). Over the last decade, it has also become one of the world's fastest-growing economies; today, it is the world's seventh largest economy and plays a substantial role in the international oil and gas production market. The recent discovery of the huge amount of petroleum in the oceanic pre-salt layer can position Brazil as the world's fourth largest petroleum producer by 2030. As a result, the country is facing the challenge of finding a non-predatory development strategy for the sector, especially one that will protect the coastal environments and local communities. The Brazilian system of royalties, initially thought to counteract negative impacts, has encountered social and governmental disapproval, and has subjected the communities affected by the oil findings to considerable uncertainty and increased disputes over the fairness of the returns from the use of this resource. Both national and international experiences have shown that when mismanaged, royalties from oil production create an economy that is heavily dependent on oil, and often lead to fiscal inefficiency and corruption. These effects happen because government ownership of the oil resources alone does not guarantee social and economic development or higher quality of life for local people; this part of the population is generally the group that is harmed by the activities. The key is in defining the implementation and management frameworks for the efficient utilization of oil resources. The development of the Brazilian oil industry should account for the fact that these activities are predominantly carried out in the coastal zone, a region whose ecological and economic relevance was recognized by the Brazilian Constitution of 1988, which gave it the status of a national heritage site. This study discusses Brazilian practices in royalty management and compares them to international experiences in terms of legal, social and economical aspects. We also provide a historical summary of the use of oil resources in Brazil, advocating for responsible utilization that includes obligatory compensation for social or environmental impacts on coastal and oceanic zones.

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Introduction

In the 1990s, the Brazilian oil and gas sectors experienced a rapid expansion in all of their stages, from geophysics to platforms and pipelines building, as well as with inland structures. Every activity has expanded since the Petroleum Act of 1997. Since that time, Brazil has emerged as one of the leading centers for offshore oil and gas production in deep and ultra-deep waters (Silvestre and Dalcol, 2009). Petroleo Brasileiro S.A. (PETROBRAS-the Brazilian National Oil Company) is the world's largest deep-water oil producer, and it is

reaching depths where experience is scarce or nonexistent (Regalado, 2010).

With the discovery of petroleum in the oceanic presalt layer in 2006, investments in the sector have increased, especially along the southern and southeastern coasts. PETROBRAS recent discoveries in the Santos basin have revealed significant hydrocarbon potential in an 800 km long and 200 km wide area in Brazilian deep-water pre-salt basins, where the Tupi field discovered in 2007 has estimated recoverable reserves of between 5 and 8 bbls and the Carioca field, discovered in 2008, may contain even larger volumes of recoverable oil (Kjarstad and Johnsson, 2009). The presalt oil discoveries are located across three oil basins: Campos, Espírito Santo, and Santos. The latter is the area where the largest discoveries have been made; its exploration activity extends 340 km from the coast. Since 2006, more than 70 exploration wells have been drilled in the presalt layer in the

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Santos and Campos basins, with the exploratory success rate of over 80% – very high compared to the world average.

Production began in 2008, and has reached 100 million barrels. Currently, more than 200,000 barrels are extracted daily in those basins, and the expectation is to reach 1 million barrels per day by 2017. The total investment in the presalt layer, including the proportion made by PETROBRAS and its partners, is estimated to reach US\$ 93 billion (PETROBRAS, 2012). These findings possibly are the beginning of a new economic cycle for the country known as the presalt cycle (Polette and Aloise de Seabra, 2013).

Because these activities largely evolved on the continental shelf, the oil production chain has been established in coastal zones. This supply chain provoked most of the social and economic alterations seen in the producing regions. They include industrial structures, land and port infrastructure equipment, offices, and all the types of enterprises that deal with the demand for services and equipment for the oil sector.

As a consequence of this strong and sudden mobilization of capital, Brazilian coastal zones are now facing new social and environmental impacts that have been added to previously existing difficulties. They include social segregation, the formation of slums between fishing communities and jobless migrants, limited diversification of economic activities, devastating environmental impacts at the local level, a high dependence on oil, “war of places” between neighboring municipalities, alienation of the local population from the benefits of the oil industry, and challenges for the municipal administrations in establishing infrastructure of goods and public services to accommodate the greatly increased number of physical and juridical entities (Neto et al., 2008, Polette and Aloise de Seabra, 2013).

The Brazilian coastal zone currently hosts 40% of the country's total population. The progressive occupation of this area has resulted in conflicts between economic development and environmental conservation, a situation that is inherent to developing countries (Castello et al., 2006). The Atlantic Forest, located exclusively in the coastal region, is considered as an “Earth's biodiversity hotspot” where exceptional concentrations of endemic species are undergoing exceptional loss of habitat, since this biome retains only 7.5% of its primary vegetation (Myers et al., 2000).

The economic and ecological relevance of the Brazilian coastal zones were recognized in the Constitution of the Republic in 1988. In its fourth paragraph of Article 225 gave the coastal zone and the Atlantic Forest the status of National Heritage. The main consequence of this law was the extension of the responsibilities to all government levels, in contrast to the earlier arrangement in which responsibility was placed solely on coastal municipalities.

The recent discovery of the huge amount of petroleum in the ocean has resulted in a national challenge of looking for a non-predatory development strategy for the sector, especially one that protects coastal environments and local communities. The Brazilian system of royalties was initially thought to counteract negative impacts in a municipality designated as a “producing locality” or municipalities directly or indirectly impacted by oil activities (Postali and Nishijima, 2013). However, new rules for sharing and royalties investing introduced by the current regulatory framework (12351/10 Act) could submit impacted coastal localities to substantial reduction on budgets related to oil taxes. In this context, our study analyzes international and Brazilian experiences in petroleum resource management in order to demonstrate the risks of excessive freedom to allocate revenues to different levels of government. We also present the Brazilian criteria on royalty distribution, and we discuss the law as a legitimizing aspect that can establish the obligatory use of royalties to mitigate social, economic and environmental impacts in producing regions.

Oil revenue management

International experiences

In general, the problems of countries with an abundance of oil stem from the difficulty to manage production revenues. Too many examples of developing countries in the last few decades have demonstrated the drastic social impacts on residents of areas close to oil wells and the reduction in their quality of life.

Sachs and Warner (1995, 1997) and Gallup et al. (1999) analyzed 97 economic aspects of developing countries from 1971 and 1989 and found a negative correlation between the rate of economic growth per capita and the exports of primary products (especially oil and gas). These studies showed that countries with abundant natural resources have experienced reduced rates of growth, which represent a phenomenon known as “resource curse”.

According to Elbra (2013), the term “resource curse” has gained popular acceptance since the work entitled *Sustaining Development in Mineral Economies: The Resource Curse Thesis* (Auty, 1993). The term is now widely used, both inside and outside of academia. Although the prevalence of the concept is debated, a common definition can be established. Using a combination of key authors, resource curse can be defined as the paradox by which mineral-rich states fail to keep pace economically with their non-mineral-rich peers (Elbra, 2013).

Resource curse may stem from several concurrent or distinct factors, and the cause can only be analyzed case by case. According to Ross (2003), mineral dependence may aggravate poverty through six different mechanisms. Four mechanisms are economic, and two are political. First, commodity prices are more volatile than the prices of manufactured goods; therefore, economies that are dependent on mineral exports are more likely to face economic shocks. Second, mining produces substantial revenues for governments or investors but usually employs few workers, thereby increasing inequality. Third, mineral extraction results in slower growth and thus disproportionately hurts the poor. Fourth, links between mining and the rest of the economy are usually weak. Mining employs few workers, and in the absence of upstream or downstream industries, provides little unskilled or semi-skilled employment. Fifth, mineral dependence may increase the likelihood of civil war, which can both increase poverty rates and differentially hurt the poor. Sixth, mineral dependence appears to make countries less democratic through its reduction of the government's dependence on taxes, a process that retards the emergence of a middle class and gives the government sufficient revenue to bribe or repress potential dissenters (Ross, 2003).

The term “resource curse” refers to a generic approach. When analyzed only in terms of economic effects, an oil-rich country could be facing the phenomenon known as “Dutch disease”. The name originated from the experience that occurred in the 1960s in the Netherlands after the discovery of gas in the North Sea. From the significant foreign exchange inflows that resulted from the gas exports, the exchange rate increased enough to cause the loss of competitiveness of the manufacturing sector.

In summary, Dutch disease is an appreciation of the exchange rate as a result of the massive inflow of foreign exchange for the export of the commodity extracted, a process which makes products from other sectors of the economy uncompetitive compared to foreign products and causes economic atrophy. According to Holden (2013), the economic mechanism is simple: higher domestic demand increases demand for non-traded and traded goods. Traded goods can be bought from other countries, but non-traded goods have to be produced at home. The increased demand for non-traded goods pushes up non-traded prices, leading to a real appreciation of the currency, either via nominal appreciation or higher domestic inflation.

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