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Sobrevalorização cambial ascensão e queda do modelo de industrialização de Moçambique

Exchange rate overvaluation the rise and fall of Mozambique's industrialization model

Sobrevaloración del tipo de cambio El ascenso y la caída del modelo de industrialización de Mozambique

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Resumo: Está empiricamente comprovado que a sobrevalorização cambial não é favorável ao desenvolvimento econômico entendido como mudança estrutural ou industrialização nacional. Este artigo analisa a influência da administração do câmbio no modelo de industrialização adotado por Moçambique com base na teoria novo-desenvolvimentista e no método histórico-dedutivo. Da teoria destacou-se a centralidade na análise da gestão do câmbio, enquanto o método é apropriado por analisar a regularidades dos fenômenos e, a partir destas fazer inferências. Estas ferramentas foram úteis para analisar os contrastes de Moçambique: um país rico em recursos naturais, com tendência de sobrevalorização cambial, surtos de industrialização seguido de recessão econômica e desindustrialização. Concluimos que os fatores explicativos remetem à confluência de fatores internos e externos que são, a concessão de incentivos fiscais, a ascensão dos BRICS e o reforço da cooperação Sul-Sul.

Palavras-chave: Moçambique; industrialização; sobrevalorização cambial.

Abstract: It is empirically proven that exchange rate overvaluation is not favorable to economic development understood as structural change or national industrialization. This article analyzes the influence of exchange rate management on the industrialization model adopted by Mozambique based on the new-developmental theory and the historical-deductive method. The theory highlighted its centrality in the analysis of exchange rate management,

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while the method is appropriate for analyzing the regularities of phenomena and, based on these, making inferences. These tools were useful to analyze the contrasts of Mozambique: country rich in natural resources, with a tendency for exchange rate overvaluation, outbreaks of industrialization followed by economic recession and deindustrialization. We conclude that the explanatory factors refer to the confluence of internal and external factors, which are the granting of tax incentives, the rise of the BRICS and the reinforcement of South-South cooperation.

Keywords: Mozambique, industrialization; exchange rate overvaluation.

Resumen: Está empíricamente comprobado que la sobrevaloración del tipo de cambio no es favorable al desarrollo económico entendido como cambio estructural o industrialización nacional. Este artículo analiza la influencia de la administración del tipo de cambio en el modelo de industrialización adoptado por Mozambique, basado en la teoría nuevo-desarrollista y el método histórico-deductivo. De la teoría se destacó su centralidad en el análisis de la gestión del tipo de cambio, mientras que el método es apropiado para analizar las regularidades de los fenómenos y, a partir de estas, hacer inferencias. Estas herramientas fueron útiles para analizar los contrastes de Mozambique: un país rico en recursos naturales, con tendencia a la sobrevaloración del tipo de cambio, brotes de industrialización seguidos de recesión económica y desindustrialización. Concluimos que los factores explicativos se refieren a la confluencia de factores internos y externos que son la concesión de incentivos fiscales, el ascenso de los BRICS y el refuerzo de la cooperación Sur-Sur.

Palabras clave: Moambique; industrialización; sobrevaloración del tipo de cambio.

Introduction

With the fall of the paradigm of industrialization by import substitution, space was opened to rethink the possibility of exploring the competitive advantages of national economies and taking advantage of international liquidity flows to compensate for investment difficulties resulting from low tax collection or even the lack of national capital in peripheral states (Tavares, 1972; Porter, 1990).

Associated with this, economic globalization has led to the relocation of industries from central countries, which, in search of new sources of raw materials, reduced operating costs, new markets or environments with more lenient legislation, have established units outside their territories of origin.

Although in the new context, which emerged after the import substitution model, the geographic location of the industry can give the country the title of producer of a certain good, studies show that, in some cases, certain types of industries are able to operate without “leaving traces” in the local economy, such as the extractive industries of mining, oil and gas (Hirschman, 1958; ROSS, 2012). If not, they can cause damage to the economy in what has become known as the curse of natural resources (Auty, 1993).

The resulting market failure is at the macroeconomic level. It turns out that among the macroeconomic prices, the exchange rate is the one that has the greatest potential to make the national economy competitive, that is, to allow its producers to export at low cost, in the context of an economic model geared towards exports, the export-led growth. On the other hand, the overvaluation of the exchange rate, associated with the practice of high interest rates, can attract foreign capital to the market which, depending on the industrialization model adopted, can create “outbursts” of industrialization suddenly followed by deindustrialization.

The case of Mozambique, an African country rich in natural resources, is a case in point for study. Coming out of a civil war that lasted 16 years, the country managed, after opening its market in the 1990s, to be one of the countries with the highest annual GDP growth rate in the region, at 7%, for almost two decades. Since 2000, it has adopted an economic policy based on promoting industrialization, with the start of operations of the first multinational industry established in that market, the Mozal, an aluminum producer.

In the same period, natural gas exploration deposits were granted to the multinational Sasol, operating from South Africa, and thus a market was opened where several multinationals such as Kenmare, Rio Tinto, Vale do Rio Doce, Anadarko, etc. quickly established themselves, as we systematize in Table 1. The economy was vibrant during the commodities boom, as the time when Chinese industry demanded a lot of international raw materials for its economy became known.

Mozambique finally seemed to be on the path to industrialization, however, years later, the industries that gave Mozambique the title of being a producer of some good, presented reasons that justified the impossibility of continuing the investment, and the commodities boom ended.

In almost all cases, in addition to the huge holes resulting from open-pit mining, resettled populations without secure means of subsistence, and high living costs, the legacy for the economy as a whole is that 74% of the economically active population still practices subsistence farming using hoe. GDP fell by more than half in 2016 and since 2015 the trade balance has been dominated by the export of mineral fuels and aluminum.

In methodological terms, these phenomena can be analyzed using two methods: the hypothetical-deductive method, based on abstract models and precise calculations, which has been commonly associated with the neoclassical school, or the historical-deductive method, which starts from the analysis of regularities of phenomena and makes inferences (Bresser-Pereira, 2009). In the analysis we undertake, we do not test hypotheses or build abstract models, but rather, based on statistical, economic data and institutional dynamics, we make an analysis of political economy based on the historical-deductive method.

This article analyzes the rise and fall of Mozambique's industrialization model based on exchange rate management. To this end, it presents the following structure: after this introduction, it summarizes the debt on exchange rate management, discusses the materials and methods, makes a brief presentation on Africa and Mozambique in international trade, presents the debate on exchange rate policy in Mozambique and the economic effects of exchange rate management and finally, the results of the analysis and the conclusion.

Exchange rate management and economic development, a summary of the debate

Exchange rate management remained marginal in economic debates for a long time and it was only in the late 1970s with the studies of Bela Belassa (1978) and later Krueger (1982), Sachs (1985) and Dollar (1992) that the topic attracted more attention.

According to De Araújo (2010), although their perspectives differ, the approaches of these four authors converge in defending two assumptions: first, the need for a competitive exchange rate and second, its potential to enable foreign trade, that is, exports.

This approach, as can be seen, differs from the structuralist thesis that was dominant between 1940 and 1960, which understood structural change as industrialization that should be carried out through import substitution with a focus on the domestic market. Other studies by Williamson (2003), Furuguem (2007), Bresser-Pereira (2008), De Araújo (2010), Bresser-Pereira (2012) and Bresser-pereira et al. (2020) contributed to deepening the understanding of the subject by presenting new perspectives of analysis.

Williamson (2003), based on Max Corden, describes three approaches to exchange rate choice that he calls “conventional thinking”. According to the author, these are: the nominal anchor approach, the real targets approach and the exchange rate stability approach. The nominal theory approach states that there is a unique structure of relative prices; fixing any price and introducing a negative feedback mechanism, so that the price level tends to rise (decline) whenever there are pressures for that price to fall (rise), and the fixed price will fix the price level. The real targets approach is applied by those who recognize that the exchange rate plays a fundamental role in determining macroeconomic equilibrium and therefore must be managed through policy. The exchange rate stability approach, which for the author does not have the same pedigree as the two approaches described, starts from the view of exchange rate instability as a major problem.

Based on these three approaches synthesized by Max Corden, Williamson (2003) presents his approach which, according to the author, aims to overcome the limitations of those approaches as well as combine their valid elements in the approach he called development strategy for exchange rate choice. He notes that despite the crucial role that the real exchange rate has in the economy, developing countries have not emphasized a policy for its management.

His model argues that investment is determined (subject to a savings constraint) by the desire to invest and, through analysis of various channels, concludes that countries that want to develop need to direct their exchange rates to avoid overvaluation.

The Williamson's (2003) approach reproduces the imprecision of many studies that do not differentiate between the concepts of economic growth and development. De Araújo (2010) clearly presents the channels of influence of exchange rates on economic growth. According to the author, exchange rates affect investment, the export of non-traditional goods, the performance of the tradable goods sector, compensation for market and contractual failures, and balance of payments restrictions.

When presenting his approach, Williamson (2003) emphasized that he did not intend for his approach to be the only one to define the choice of exchange rate policy or regime. As the open question, Furuguem (2007) discussed his analysis starting from a value question: “what is the best exchange rate system?”.

In the author's argument, the different types of systems vary over time and space. For example, the different exchange rate systems: “fully flexible” or “free floating”, the exchange rate band system, the fixed rate system and the fixed rate system with convertibility are practiced by different countries in different periods. He points out that the practice of a controlled exchange rate with a “very devalued” currency may be behind industrial growth.

Rossi (2016) understands that the short-term effects are ambiguous because the exchange rate variation will affect the productive structure, so while in the short term, exchange rate appreciation can break production chains and deindustrialize, exchange rate devaluation, depending on the rigidity of the production structure, may not rebuild production chains and boost industry.

In this divergence of arguments, it is important not to lose sight of the purpose of exchange rate management. The new developmentalist school (Bresser-Pereira, 2012; Bresser-Pereira et.al, 2020; De Araújo, 2010) identifies two purposes: to neutralize the Dutch disease caused by the tendency towards overvaluation of the exchange rate and to promote economic development understood as national industrialization.

Therefore, the choice of the appropriate exchange rate regime implies the decision to reject economic growth with foreign savings, the correct management of the five macroeconomic prices (exchange rate, profits, wages, investment and interest) and the three equilibrium exchange rates: current exchange rate, industrial exchange rate and external debt exchange rate (BRESSER-PEREIRA, OREIRO and MARCONI, 2016; BRESSER-PEREIRA, 2024).

The benefits are numerous. The exchange rate stimulates economic growth by ensuring the country's balance of payments stability by stimulating exports and restricting imports. It maintains the current account balance and increases savings and investment, keeps wages low and reduces aggregate consumption (Bresser-Pereira, 2004a).

Methods and materials

This study will adopt a mixed method that combines qualitative and quantitative research. Within the scope of qualitative research, an extensive bibliographic review was carried out to assess the state of the art of discussion on the subject at international, regional and national levels. Priority was given to primary sources, specialized articles in the area, academic works, communications by experts, favoring an interdisciplinary approach that did not confine the analysis to the monopoly of an economistic approach.

King, Keohane and Verba (1994) explain that qualitative research encompasses a wide variety of approaches, but by definition none of these approaches rely on numerical measurements and assert that non-statistical research will produce more reliable results if researchers pay attention to the rules of scientific inference. As a mixed research, statistical and economic data are interpreted by placing the facts within the context in which they occurred in order to analyze their regularity.

The historical-deductive method was chosen as the method of approach. Bresser-Pereira (2009) teaches that there are two methods of economic science: the hypothetical-deductive method and the historical-deductive method. He explains that both are deductive, but they differ in that the historical-deductive method starts from the observation of a complex and changing reality, while the hypothetical-deductive method starts from assumptions and adopts logical consistency as a criterion of truth.

In this study, we analyze two phenomena: exchange rate fluctuation and investment flows in the period 2010-2015. The Mozambican case is relevant because despite the global economic crisis of 2008, the country recorded remarkable economic growth, with the prospect of becoming the fourth largest in the world. As a low-income country that is structurally dependent on external support, explaining such a “miracle” proved to be an opportune case study.

For Gerring (2008), case study analysis focuses on one or more cases that should provide information on a larger population. This method was chosen because, starting from the analysis of a single case or small samples (small-N), it is flexible, allowing adjustments during the research, offers the case history and a detailed portrait (ECKSTEIN, 1975) and enables a holistic and comprehensive analysis of the phenomenon (GERRING, 2011).

Based on the study by Nhanombe (2021), the technique adopted for analyzing exchange rate data was cointegration analysis using autoregressive distributed lag models (ARDL) applied to the estimation of growth equations to measure the effect of exchange rate misalignment and volatility on economic growth. Data were extracted from the following sources:

a) Central Bank of Mozambique – annual exchange rates using statistical bulletins;

b) National Institute of Statistics – data on the trade balance, data on exports and imports of Mozambique;

c) International Financial Statistics from the International Monetary Fund (IMF) – where data on annual average exchange rates and Consumer Price Indexes (CPI) were extracted;

d) Pen World Data – where information on exports and imports, average annual exchange rates and consumer prices were extracted.

Brief notes on Africa and Mozambique in international trade

Three years after the global economic crisis of 2008, The Economist published the title Africa Rising on the cover of its December 3, 2011 issue, and the same title was later used by Time Magazine in its December 3, 2012 issue. In 2014, at a meeting organized by the International Monetary Fund, central bank governors and finance ministers gathered in Maputo, the capital of Mozambique, signed the Maputo Joint Declaration on Africa Rising: A Shared Vision for Sustained Growth and Prosperity.

With the economic crisis affecting the economies of the central countries, the African continent thus appeared as the new frontier of development. In fact, contrary to the trend of economic recession, all African sub-regions grew at a rate that was faster than the global average in the last decade and a half, with the highest rate being 6.3% and the lowest being 3.5% (Lopes, 2019).

At the same time, there was a “land rush” with foreigners investing in the purchase of land for agricultural purposes (Bellucci, 2012). This movement signaled the relative consensus on the failure of structural adjustment in African countries (Mkandawire and Soludo, 2003) and the need for more investment under favorable conditions.

The Mozambican economy has a balance of payments that is continually in deficit, with exports accounting for around 30% of total trade and the remaining 70% being made up of imports. Grouping them into blocs, the main trading partners are considered to be the OECD, which represents 34.8% of Mozambique's total foreign trade, the European Union with 24.9%, SADC, 31% and the ASIA "bloc", 23.2% (Pereira, 2019).

Between 2004 and 2013, GDP growth in Mozambique grew at an average rate of 8% per year (MOSCA et al, 2016) and there was a flow of foreign direct investment into the oil and mineral resources extraction area, as seen in the table below:

Table 1: Megaprojects from 2004 to 2013

Company Name	Celebration year	Contract Object
Mozal I, II e III	2000/2003	Aluminum Production
Vale do Rio Doce	2004	Moatize Mine Mining Concession
Sasol Petroleum Sofala Limitada	2005	Oil Research and Production – Blocks 16 & 19
Anadarko Moçambique Área 1 Limitada	2006	Oil Research and Production – Area 1 Offshore – Rovuma Block
Eni East África SpA	2006	Oil Research and Production – Area 4 – Rovuma Block
Artumas Moçambique Petróleos, Limitada	2007	Oil Research and Production – Onshore Area - Rovuma Block
Kenmare	2007	Heavy Sands, Coal
Petronas Carigali Overseas Sdn Bhd	2008	Oil Research and Production – Offshore Areas 3 & 6, Rovuma Basin
Riversdale Moçambique Limitada	2009	Benga-Moatize Mine Mining Concession
Sasol Mozambique Exploration Limitada	2010	Oil Research and Production – Area "A" Onshore – Mozambique Basin
CESUL Projeto de Transmissão	2011	Electricity
Rio Tinto/Reversdale	2012	Coal (thermal and metallurgical)
Minas Moatize Limitada	2013	Mining Concession
Projeto de Energia de Benga	2013	Electricity
Sasol/ ENH 50% Expansion	2011-2016	Natural Gas

Source: Biggs (2012), Bihale (2016).

Some press predicted economic growth that would position the country as the fourth largest in the world between 2010 and 2015 due to the increase in its capacity to strengthen macro-fiscal management due to the discovery and exploration of natural resources[2].

Studies on exchange rate policy in Mozambique

2 The truth of January 8, 2014.

Mozambique adopted a fixed exchange rate regime in 1975, which remained in force until 31 March 1992. During this period, a rigid exchange rate regime was adopted, which remained in force until 1986, with an accumulated devaluation of 48% over 11 years. Between 1987 and 1988, there was a very intense devaluation followed by mini-devaluations known as crawling pegs between 1989 and 1990 and, finally, daily mini-devaluations that took place from September 1991 to March 1992. In 1992, in the context of the implementation of the Economic Rehabilitation Program, a flexible exchange rate regime was introduced, determined by the supply and demand mechanism in the market (IMPIJA, 2008).

According to Curado et al. (2008), after a series of stabilization programs in Latin America and East Asian countries to value their currencies and, through exchange rate anchoring, promote the stabilization of domestic prices, with the systematic occurrence of exchange rate crises in some countries, the limits of economic stabilization programs through exchange rate anchoring were noted.

Therefore, the experience of these crises has led many emerging countries to adopt floating exchange rate policies. However, out of fear of floating, many countries declare a certain exchange rate regime different from that in practice that is, countries adopt a de jure floating exchange rate regime, but the result shows that they manage their exchange rates in fact.

Falck (2000) conducted one of the pioneering studies on the diagnosis of Dutch disease in Mozambique, analyzing the influence of foreign aid in the period between 1990 and 2000 on the creation of Dutch disease, questioning whether foreign aid, through its effects on the real exchange rate, compromised the country's competitiveness. The study indicates that foreign aid contributed to maintaining the exchange rate at a “higher and more stable” level than would have been possible if there had been no aid.

Other authors Mosca et. al. (2014) analyzed the influence of exchange rates on the agricultural sector from 1995 to 2011. According to the authors, foreign exchange inflows cause a supply of foreign exchange that does not correspond to the real economy, which causes a tendency for the local currency to overvalue. It points out that the exchange rate and agricultural production in Mozambique showed a positive relationship in the period under analysis (from 1995 to 2011), that is, as the metical depreciated against the dollar, there was an increase in agricultural production or vice versa. The study concluded that exchange rate policy has been managed in a politicized, ineffective and inefficient manner and recommended the adoption of an exchange rate policy that is consistent with the country's economic and social development policy.

The analysis of exchange rate policy was also the subject of an econometric study by Biggs (2012), where he analyzed transmission channels through which the existence of abundant resources can determine poor economic performance. According to the author, the data showed that Mozambique was already experiencing high volatility in important economic variables for the country, with emphasis on the real exchange rate.

Recent studies on exchange rate regulation in Mozambique are by Carsane (2017), Nhanombe (2021) and Mussagy (2021). Carsane (2017) analyzed the fiscal, monetary and exchange rate policies adopted in the period 1995-2014 and found that the variation in the exchange rate only affected the country's imports, but not its exports because the country's exports are determined by the needs of international markets.

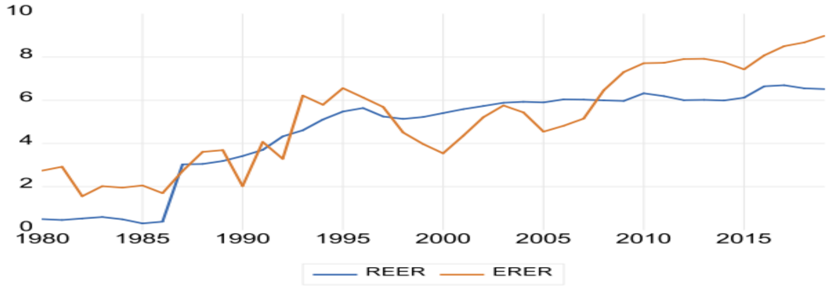
During part of the period analyzed by the author, especially after the year 2000, exports were dominated by minerals and fuels, with emphasis on aluminum produced by Mozal. Therefore, the exchange rate reduced imports, but without necessarily impacting the evolution of the agricultural sector.

Mussagy (2021) analyzes exchange rate changes from the perspective of exchange rate crises. The author identifies four moments of exchange rate crises experienced in the country: the first moment in 2001 when the exchange rate fluctuation was caused by the floods that devastated the country in 2000. The second moment in 2005, the third in 2010 as a reflection of the international economic and financial crisis, and the fourth moment in 2016, created, among other reasons, by the suspension of external support to the state budget and the balance of payments by cooperation partners.

This study is useful in that, by identifying periods of exchange rate crisis, it provides elements for reflection on the effects of exchange rate management on the economy according to the exchange rate system and period. According to Furuguem (2007), the exchange rate systems: “fully flexible” or “free floating”, the exchange rate band system, the fixed rate system and the fixed rate system with convertibility are practiced by different countries in different periods and Rossi (2016) complements this by relating the effects of the exchange rate system to the flexibility or rigidity of the productive structure.

In conclusion, Nhanombe (2021) analyzed the effects of the exchange rate level, misalignment and exchange rate volatility on Mozambique's economic growth between 1980 and 2019 based on an econometric investigation that involved the estimation of growth equations to measure the effect of misalignment and exchange rate volatility on economic growth, through the analysis of cointegration using autoregressive distributed lag models (ARDL).

Chart 1: Real and effective exchange rate and equilibrium exchange rate (1980-2015)



Source: Nhanombe (2021, p.92)

The above graph shows that Mozambique's real effective exchange rate was always misaligned with its equilibrium value and that for most of the period analyzed the Mozambican national currency was overvalued, with a greater overvaluation observed in the period 2010-2015.

Despite the overvaluation of the currency, between 2010 and 2015, the country was a preferred destination for foreign direct investment in the industry and extraction of natural resources. What industrialization model was adopted and what were the results?

Results

The granting of “generous” tax incentives to megaprojects

Stiglitz (2005) states that in order to transform natural resources into blessings, it is necessary to pay attention to macro and microeconomic policies in the range of reforms to be planned. According to the author, to ensure greater transparency in business, it is necessary to make available information on how the government interacts with stakeholders, the terms of contracts, amounts involved, quantities extracted and how the value will be applied.

While the Stiglitz's (2005) proposals are close to the foundations of initiatives that advocate transparency in the extractive sector, such as Publish What You Pay or the Extractive Industries Transparency Initiative, in the early 1970s, the school of economic regulation was born, with Joseph Stigler as one of its main founders. Stigler (1971) argued in his seminal article that regulation is acquired by the industry, designed and operates in its benefit. Therefore, whether through direct action or through other actors such as international financial institutions, the International Monetary Fund and the World Bank, multinationals operating in the extractive sector have an unfair advantage (ACFB, 2013).

Indeed, reality seems to corroborate Stigler's (1971) hypothesis. Studies by Yates (2012), War on Want (2016), Mailey (2015) and Burgis (2005) reveal a neo-colonial pattern of resource exploitation characterized by looting, pillaging, expropriation and repatriation of profits.

While these authors point the finger at big international capital, other studies such as that by Oxfam (2017) show the active involvement and complicity of local political and economic elites. These practices, which have been seen as an almost general trend, have repercussions on the political economy of states when considered individually. The case of Mozambique suggests the influence of path dependence if we consider the process of implementation of the first multinationals after the country joined the international financial institutions.

According to Bussotti (2013), in the 1980s, African countries were recommended by the World Bank and the International Monetary Fund to provide facilities to receive investments from multinationals and it was in this context that Mozal, the first multinational, was established in the country since independence in 1975.

With an estimated aluminum production of $1.34 billion, the company began operating in June 2000 after two and a half years of construction. Only 6% of the project value was spent on goods and services and labor in Mozambique, where subcontractors were foreign resources. Annual production of 245 thousand tons of aluminum was expected, all of it for export, with an estimated value of $400 million (Bellucci, 2006). Mozal's contribution to the trade balance represented more than 54% of the total that the country exported in 2008 and in 2014 it continued to be the country's most exported product with 27% (Mucanze, 2016).

Despite the weight of Mozal's exports in the country's overall export volume, its contribution to the economy is small due, among other factors, to the application of the following tax incentives: exemption from payment of Corporate Income Tax (IRPC), SISA, Customs Duties, VAT, ICE, Customs Service Fee, IRPS exemption for expatriated resources during the construction phase and exemption in the first 5 years of operation, among others. It also enjoys deductions for costs with public domain infrastructure, Mozambican Staff and oil tax, Free repatriation of up to 100% of profits and dividends. Companies that provide services to this company benefit from IRPS exemption, 15% of IRPC, guaranteed rights on imports and free repatriation of up to 100% of profits, dividends and others (Castel-Branco, 2010).

The case of aluminum production by Mozal, as was later observed with natural gas and coal, shows the weakness of the State in using its resources to promote economic growth.

Mozambique became an international reference due to the discovery of natural gas deposits in 2013, which placed it as the third country with the largest reserves on the African continent. Despite this, the first prospecting took place during the colonial period and it was only in 1994, with the help of the World Bank and after the government had unsuccessfully approached dozens of oil companies, that they managed to attract Sasol Petroleum International from South Africa.

With the start of construction of the Pande and Temane gas project in 2002 and production in 2004, the overly optimistic outlook of the World Bank and the Government regarding the contribution of the exploitation of the resource to the national economy was contradicted by the finding that the annual sales value of Mozambique's gas in South Africa in 2013 was more than US$800 million per year, while the total government revenue over the first eight years of the project, 2004-2012, was less than US$50 million (CIP, 2013).

According to CIP (2013), three explanatory factors are: the removal of the production sharing clause; high additional capital costs and a disadvantageous formula for calculating the gas sales price. The reasons for the removal of the production sharing clause and the approval of the disadvantageous formula are unknown. However, in the company's shareholder structure, 10% are private shareholders whose identity is not yet publicly known.

Similar to the Mozal case, the Mozambican government exempted Sasol from paying tax with a 50% reduction in IRPC during the first 6 operational years, exemption from VAT, SISA, CP, customs duties and circulation tax and the right to repatriate 100% of its profits (Castel-Branco, 2010).

Mozambique attracted foreign investment with the discovery of what was considered at the time one of the largest coal deposits in the world, with estimated reserves of just over 2.5 billion tons. The Brazilian company Vale do Rio Doce planned to operate the open-pit coal mine for 35 years, with an estimated average annual production of 11 million tons of coal products to be exported to markets such as Brazil, Asia, the Middle East and Europe (Notícias, 2008).

Regarding the signing of the contract with the Government of Mozambique, this multinational benefited from a reduction of 15% of IRPC for the Mine during the first 10 years, a reduction of 5% for the Manufacturing industry, Withdrawal Tax, Customs Duties, Stamp Duty, ICE, VAT, CP, a 50% reduction of SISA on the acquisition of real estate and exemption on the transfer of State properties, IRPS Exemption for Expatriates in the construction phase and a 40% reduction or exemption in the first 5 years of operation (Mucanze, 2016).

As can be inferred from the above, multinationals in the extractive sector appear to operate in a market whose relationship pattern was defined at the time of the establishment of the first multinational, Mozal, an aluminum producer. Some studies, such as Bussotti (2013), analyzed the subsequent apathy of government entities in controlling activities that are harmful to the environment, such as the emission of gases without due community consultations.

Table 2: Megaprojects and the granting of tax incentives

Megaproject	Year of start of activities	Tax incentives
Mozal	2000	Exemption from payment of Corporate Income Tax (IRPC), SISA, Customs Duties, VAT, ICE, Customs Service Fee, IRPS exemption for expatriate resources during the construction phase and exemption in the first 5 years of operation, among others. Also enjoys deduction of costs with public domain infrastructure, Mozambican Staff and oil tax, Free repatriation of up to 100% of profits and dividends.
Gás de Temane e Pande (Temane and Pande Gas)	2004	Disadvantageous formula for calculating the sale price of gas, exempted Sasol from paying tax with a 50% reduction in IRPC during the first 6 operational years, exemption from VAT, SISA, CP, customs duties and circulation tax and the right to repatriate 100% of its profits.
Vale do Rio Doce	2007	Reduction of IRPC to 15% for the Mine during the first 10 years, reduction to 5% for the Manufacturing industry, Withdrawal Tax, Customs Duties, Stamp Duty, ICE, VAT, CP, reduction of SISA by 50% on the acquisition of real estate and exemption on the transfer of State properties, IRPS Exemption for Expatriates in the construction phase and reduction by 40% or exemption in the first 5 years of operation.

Source: CIP (2013), Mucanze (2016).

In parallel with the growth in FDI, FDI flows surpassed the US$1 billion figure for the first time in Mozambique's history in 2010. In 2011, megaprojects alone contributed US$2.1 billion and other companies contributed US$1.3 billion. There was also an increase in the provision of credit to the Mozambican government by the BRICS countries. Between 2008 and 2014, Mozambique's debt to the BRICS rose from around US$191 million to around US$1.8 billion (Massarongo and Chichava, 2018).

BRICS and strengthening South-South cooperation

The BRICS countries (Brazil, Russia, India, China and South Africa) emerged as the country's main creditors, significantly increasing the country's debt stock. In 2008, Mozambique's debt stock with China was only US$3 million, rising to around US$1.4 billion in 2014. With India it grew from around US$28 million to around US$170 million. In the same period, the debt with Brazil increased more than fivefold, rising from around US$17 million to around US$100 million (Massarongo and Chichava, 2018).

Although during this period Brazil, Russia, India and China stood out as the countries that granted the most loans to Mozambique, South Africa's weight remains decisive, as in the SADC bloc, it stood out with 88% of the total trade that this bloc has with Mozambique.

Table 3: Companies implementing some projects financed by BRICS in Mozambique

Creditor	Amount	Year	Purpose	Company awarded
Exim Bank China	2300		Mpanda Nkuwa Dam	Camargo Correia (Brazil), Insitec and EDM
Exim Bank China	115		Modernization of Maputo Airport	Anhui Foreign Economic Construction (AFECC)
Exim Bank China	70		Zimpeto National Stadium	Anhui Foreign Economic Construction (AFECC)
Banco do Brasil	8.5	2012	Construction study of Moamba Dams	N/A
Brasil	45	2013	Additional amount for completion of Nacala Airport	Odebrecht Construction company
Brasil (National Bank for Economic and Social Development-BNDES)	144	2013	Nacala Airport	Odebrecht Construction company
Brasil	135	2014	Maputo-Matola Public Transport	N/A
Brasil	40	2014	Nacala Free Trade Industrial Zone	
Brasil	320	2014	Moamba Major Dam	Construction company Brasileira Andrade Gutierrez
China	120	2014	Rehabilitation of Beira Fishing Port	China Harbour Engineering Company Lda.
Exim Bank	185.4	2015	Fiber Optics	N/A
Exim Bank	400	2015	Caia-Nacala Transmission Line	N/A
Exim Bank	120	2015	Chimuarra-Namacurra Road N380	N/A
Exim Bank	94.4	2015	Sunate-Macomia Road N1	N/A
Exim Bank China	90.3	2015	Rehabilitation of Chipembe Dam	N/A
Exim Bank China	65.4	2015	Lúrio River Road/Bridge	N/A
Exim Bank China	78	2015	Modernization of Chokwe Irrigation System	Power China International Group e Xinji- ang Production and Construction Corp
Exim Bank China	60	2015	Digital Migration I	Startime Software Tecnologies
Exim Bank China	223	2015	Digital Migration II	Startime Software Tecnologies
Exim Bank China	150	2015	Maputo Exhibition	N/A
Exim Bank China	450	2015	Lúrio Hydroelectric Dam	N/A
Exim Bank China	300	2012	Maputo Circular Project	China Road and Bridge Corporation
Exim Bank China	681.59	2012	Maputo-Catembe-Ponta D'Ouro and Bela Vista Bridge	China Road and Bridge Corporation
Exim Bank China	416.5	2016	Rehabilitation of Road N6: Beira-Machipanda	Anhui Foreign Economic Construction (AFECC)

Source: Adapted from Massarongo and Chichava (2018).

Final considerations

In this article, we analyze the influence of exchange rate management on the industrialization model adopted by Mozambique. The analysis was based on the new developmental theory and the historical-deductive method. The new developmental theory highlights the role of exchange rates in boosting the domestic economy and international competitiveness, while the method analyzes the regularities of phenomena and, based on these, makes inferences. It was found that there is a variable influence of exchange rates on different sectors of the economy. Mosca et al (2014) found that the exchange rate and agricultural production in Mozambique showed a positive relationship in the period under analysis from 1995 to 2011, while Carsane (2017) concluded that in the period 1995-2014 the variation in the exchange rate only affected the country's imports, but not its exports. Other studies have shown a tendency towards exchange rate overvaluation (Biggs, 2012; Nhanombe, 2021) and periods of exchange rate crises (MUSSAGY, 2021). Thus, we analyzed how this exchange rate situation may have influenced the industrialization model adopted by Mozambique, that is, how it is that despite the overvaluation of the exchange rate, the country has received a lot of foreign direct investment for the industrial sector. We found that the industrial sector that flourished the most was the extraction of mineral resources and energy, stimulated by the granting of tax benefits, the rise of the BRICS and the strengthening of South-South cooperation. The end of the commodities boom period with high demand for inputs for Chinese industry led to the bust of national industrialization. Mozambique remains deindustrialized and 74% of the economically active population still practices subsistence agriculture using hoe. Future studies should deepen the analysis of public production policies and strategies, mobilization and allocation of resources, and conditions for economic profitability.

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