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Strategies for economic development in Brazil: A Structuralist-Keynesian approach

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Abstract:
This paper aims to analyze the main reasons to the tendency toward stagnation of the Brazilian economy and to discuss a strategy of sustained development to overcome such tendency from a Keynesian-Structuralist approach, more specifically adopting a New-developmentalism green agenda. A sustained development strategy requires the reconstruction of the manufacturing industry not only to meet domestic demand but to conquer a larger and increasing share of world manufacturing exports. This goal has to be accomplished side by side with a sustainable environmental agenda, aimed at decarbonization and accelerating change in the environment.

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The Brazilian economy has exhibited a pattern of semi-stagnation in recent years. After an average growth rate of 4.0% p.a. from 2004 to 2013, the country experienced a sharp recession between 2014 and 2016, with GDP contracting at an annual rate of –2.1%. In the subsequent period (2017-2022), economic growth averaged only 1.5% p.a., while the unemployment rate remained above 10% from February 2016 to April 2022, gradually declining thereafter. This trajectory suggests that Brazil has lost its capacity for accelerated economic growth.

Our assessment attributes this stagnation to both structural and policy-related factors. Structural challenges include premature deindustrialization, driven in part by declining profitability in the manufacturing sector. Additionally, an unfavorable economic policy mix – characterized by fiscal austerity and monetary tightening – has further constrained growth. Institutional changes, such as labor market liberalization and reduced public investment in infrastructure due to stringent fiscal rules, have exacerbated these challenges.

These reforms have led to a structural deficiency in effective demand, coupled with labor over-exploitation. The erosion of real wages, diminished job security, and a rise in informal employment signal a regression in the employment structure.

This paper aims to analyze the key drivers of Brazil's economic stagnation and propose a strategy for sustained development using a Keynesian-Structuralist framework, specifically through a New-Developmentalist agenda.

From a structural perspective, a sustainable development strategy must focus on revitalizing the manufacturing sector to not only meet domestic demand but also strengthen Brazil's position in global manufacturing exports. This industrial renewal must be pursued alongside an environmental sustainability agenda, emphasizing decarbonization and a transition toward green development. Achieving this requires a coordinated policy framework to drive structural transformation and generate high-productivity, formal employment opportunities.

We term this strategy the "Green New-Developmentalist Agenda". Key policy measures include:

a) implementing an export tax on primary goods to combat Dutch disease and curb deforestation in the Amazon by reducing the profitability of environmentally harmful activities;
b) introducing greater flexibility in the inflation-targeting regime and de-indexing contracts to break inertial inflation trends;
c) reforming fiscal rules to adopt a cyclically adjusted primary deficit target, allowing for increased public infrastructure investment;
d) establishing a competitive, stable, and sustainable real exchange rate over time, supported by capital controls.

This paper is structured as follows: Section 1 presents a Keynesian-Structuralist approach to economic development, incorporating ecological structural change. Section 2 examines recent stylized facts about the Brazilian economy, while Section 3 explores the root causes of its stagnation. Section 4 outlines a Structuralist-Keynesian agenda for sustained growth, specifically a Green New-Developmentalist strategy. Finally, Section 5 concludes the paper.

1. Keynesian- Structuralist approach of economic development

1.1. Development as a process of structural change

One of the main objectives of development economics is to assess the components that lead to structural change. This analysis focuses on the movement of industrial employment and the mobility of resources across sectors of the economy. Manufacturing industry plays a prominent role in economic growth and its expansion generates increasing returns to scale and an improvement in productivity in the economy (Furtado, 1964; Kaldor, 1966).

Developing economies suffer from the concentration of output in sectors with low and medium-low technological intensities, which is often the result of premature deindustrialization. Deindustrialization can be caused by internal or external effects (Pagano and Rowthorn, 1994; Rowthorn and Ramaswamy, 1997, 1999). Regarding internal effects two features must be emphasized: the income elasticity of goods and the industrial productivity gap with respect to the service sector.

In industrialized countries, the service sector concentrates efforts to meet the demands of the manufacturing industry. In this configuration, the service sector is diversified, has a greater share of the labor force, and generates high added value in the economy. The deindustrialization process of mature economies is inevitable since the income elasticity of services becomes greater than the

ones observed of industrial goods after some threshold level of per-capita income is reached. This deindustrialization is, so to speak, "natural" (Oreiro and Feijó, 2010). In many developing economies, however, this process occurred prematurely, that is, they did not reach the maximum per capita income that economic development can provide. This occurs because many developing economies are increasingly concentrating on activities that combine low value added per capita and low and/or medium-low technological intensity (Rodrik, 2016). This fact triggers the process of premature deindustrialization and the "middle-income trap", especially in Latin America, according to the New Developmentalism approach (Bresser-Pereira et al., 2020a; Oreiro, 2020; Oreiro et al., 2020).

This regressive structural change in developing economies had profound impacts on the employment structure of these countries, which is shifting towards less technologically intensive activities. Even though developed countries also exhibit some deindustrialization (Palma, 2005; Rodrik, 2016), there is a widening of the technological gap between developed and developing economies. This reflects on increasing social inequality, great differences in per capita income and a potential decline in the capacity of developing economies to innovate.

Rodrik (2016) points out that deindustrialization reflects on the quality and decline of employment. It is low-skilled workers who bear most of the impact of recent changes in technology in the manufacturing industry. Countries that have had a strong comparative advantage in manufacturing products using new technologies have avoided the steady decline in manufacturing jobs over the past few decades as a proportion of total employment.

The differences in the income elasticities of demand for exports and imports reflect the non-price characteristics of goods and, therefore, different structures of production between developed and developing economies (Thirlwall, 1997). Several authors claim that structural changes can affect the income elasticities of imports or exports in constrained balance-of-payments models (Setterfield, 1997, McCombie and Roberts, 2002). An important contribution to demand-oriented theories of output growth is the structural economic dynamics approach developed by Pasinetti (1983, 1993). For Pasinetti, changes in the production structure led to changes in the output growth rate, due, for example, to different sectoral demand growth rates that could be produced by differences in sectoral income elasticities. And yet structural change impacts human learning.

The international diffusion of technology and the relationship with human learning is slow and uneven across countries (Prebisch, 1949). A few countries take the lead in innovation and technology, while the vast majority lag, being just innovation takers, without learning and appropriating the invention. As technical change is closely associated with structural change and the emergence of new sectors, goods and skills, the productive structure of a few countries diversifies, and undergoes major transformations, while most other countries remain stagnant or even decline, being the result, for example, of under accumulation of human capital. As a result, most countries end up specializing in a few sectors, generally traditional sectors, which generate low-quality employment. Sectors with low or negligible technological intensity maintain a high share of workers employed and exhibit extreme difficulty in generating good-quality jobs, which should be reflected in smaller wages.

Although the high value-added per unit of work employed can also be seen in high technology-intensive services and agriculture, empirical evidence presented by Gabriel et al. (2020, p. 63) shows that a greater share of the primary sector in the added value is associated with lower growth rates of GDP per capita, even after controlling the level of the technological gap. Furthermore, for developing countries, a greater share of the service sector is also associated with a lower GDP growth rate. Therefore, the composition of output is important for long-term growth.

Complementarily, for Oreiro et al. (2019), the sectoral composition or productive structure of a country matters, influences labor productivity, and affects the level of per capita income. It is not possible to measure the so-called total productivity of production factors without looking at the employment structure, the structure of the technological domain, the share of sectors in GDP (industry, agriculture, and services). These ideas are even one of the fundamental propositions of the New-Developmentalist School, as described in Bresser-Pereira et al. (2015) and Gala (2017).

1.2. Structuralist approach of productive and financial asymmetries of peripheral economies

One way of assessing the degree of financial subordination is through its connection with productive structure, especially in developing economies' ability to export higher value-added products in the very nature of the productive structure of each country (Paula et al., 2024). This theoretical relationship can be understood initially from Latin American structuralism's contribution around the "center-periphery" concept. Prebisch (1949) regarded the international division of labor as characterized by two poles in which peripheral countries concentrated on producing primary goods; advanced central countries, on manufactured goods. This dichotomy between central and peripheral economies is expressed in a structural asymmetry between these economies' productivity levels, resulting from a tendency for the terms of trade to deteriorate as a result of the higher long-term income elasticity of manufactured goods as compared with primary goods. In other words, this persistence of the center-periphery dichotomy can be considered to derive from the different driving forces underlying its dynamics: while economic growth in the central countries is driven by technical progress, on the periphery it is determined predominantly by external demand for commodities. In that context, the heterogeneity of productive structures is at the heart of the explanation for underdevelopment and the establishment of the "peripheral condition" (Bielschowsky, 2009).

According to the ECLAC structuralist approach, peripheral subordination is related to a productive structure specialized in the production of commodities, such as oil, copper, soybean, corn, meat, etc. As we have already pointed out, in recent years particularly, there has been significant evidence that a significant number of developing economies are increasingly dependent on commodities, causing a process that some authors have called "premature deindustrialization" that it is, a process in which the share of the manufacturing sector in employment and GDP shrinks before such economies have attained high levels of per-capita income (Rodrik, 2016; Correa and Feijó, 2022). One of the causes of this phenomenon is "Dutch disease", a phenomenon associated with a change in the composition of a productive structure in which growth comes to be led by the sector based on natural resource exports, while the industrial sector declines.[1] In the New Developmentalism approach, it is considered a market failure that leads to a long-term cyclical trend of appreciation of the real exchange rate (Gala, 2008). This results in a competitive disadvantage, which reduces the profitability of the manufacturing sector that produces tradable products (Bresser-Pereira et al., 2015). Botta (2015) highlights this relationship in relation to Colombia in a theoretical model with financial causation: the discovery of mineral resources is seen to attract speculative capital flows and foreign direct investment

[1] Bresser-Pereira (2013, p. 372) writes, "The Dutch disease is a country's chronic exchange rate overvaluation caused by the exploitation of abundant and cheap resources, whose production and export is compatible with a *more appreciated* exchange rate than the exchange rate that makes internationally competitive the other business enterprises in the tradable sector that use the most modern technology existing worldwide. It is a structural phenomenon that creates obstacles to industrialization or, if it was neutralized and the country industrialized, but later ceased to be, provokes deindustrialization".

(FDI), which strongly appreciates nominal and real exchange rates, as well as diminishing international investors' perceptions of risk posed by the country. However, this leads to a continuous long-term reduction in the industrial sector competitiveness, greater exchange rate volatility, rising current account deficits, and external vulnerability via foreign currency debt. This analysis arrives at results like those found on the New Developmentalism approach (Bresser-Pereira et al., 2015), according to which commodity-exporting peripheral economies tend to currency appreciation deriving both from the Dutch disease phenomenon and from the differential interest rates that attract external capital to developing economies.

Ocampo (2001a, 2001b) takes up the Structuralist center-periphery approach, according to which the economic opportunities of the periphery, either through international trade or on financial markets, are largely determined by its asymmetric integration into the international economy. In this connection, the manner of peripheral developing economies' international financial integration may exacerbate inequalities between center and periphery in the development process.

Peripheral developing economies thus face two overlapping asymmetries – monetary asymmetry and financial asymmetry – which reduce their policy space and shape their subordinate role in international financial integration. Ultimately, these two asymmetries result in macroeconomic asymmetry, as explored in the Structuralist approach by Ocampo (2001a, 2001b). This author argues that, while central economies are "business cycle makers", peripheral economies are "business cycle takers", that is, the center has more policy autonomy and is "policy making", while the periphery is essentially "policy taking".

1.3. Ecological structural change

The beginning of the Industrial Revolution in Great Britain in the second half of the XVIII century had two long-term effects over the world. The first effect was the occurrence of the so-called "great divergence", defined as a cumulative process of international dispersion of per-capita incomes (Pomeranz, 2000). According to Pritchett (1997) the ratio of GDP per capita of the richest to poorest countries rose from 8.7 in 1870 to 51.6 in 1985. In 2008, for a sample of 87 countries, Ros (2013) showed that the ratio of the richest country (Norway) to the poor country (Zimbabwe) was 274:1.

The second long-term effect was the cumulative increase of CO2 levels in the atmosphere. According to Aghion et al. (2021, p. 173) until the beginning of the nineteenth century, the concentration of carbon dioxide in the atmosphere was stable, at levels of 280 parts per million (ppm). In 2018 the atmospheric concentration of carbon dioxide had reached 410 ppm. This rapid increase in the CO2 levels created the greenhouse effect, which is the source of global warming and climate change that will have devastating economic effects in the next decades if it is not controlled in time.

After the end of the Second World War many countries that had fallen behind in economic development relative to European countries and the United States had started a process of state-led industrialization by import substitution. Countries as Brazil, Mexico and South Korea industrialized at a very fast rate reaching the status of middle-income countries at the end of the 1970's and the beginning of the 1980's. From that time on, however, Latin American Countries like Brazil become stuck in a middle-income trap (MIT hereafter) while East Asian countries continued its development path, reducing their income gap to the developed economies.

As we have already pointed out, according to new-developmentalist theory (NDT hereafter) the main reason for the stagnation of Latin American Economies compared to the East-Asian countries is that the former experienced a process of premature deindustrialization , i.e., a reduction of the share of manufacturing industry in output and employment before the "Lewis's point" is reached (Lewis, 1954), that is, before all labor force is transferred from the traditional or subsistence sector to the modern sector of the economy (Bresser-Pereira et al, 2015). In other words, the MIT was a result of an incomplete structural change of Latin American economies. This was precisely the case of Brazil.

One of the causes of premature deindustrialization for NDT is the overvaluation of real exchange rate caused by the Dutch disease (DD hereafter), that means the exchange rate overvaluation caused by the production and export of commodity goods that are intensive in the use of natural resources. According to Guarini and Oreiro (2022), green industries can be the most damaged ones by exchange rate overvaluation, because they have a higher technological intensity than brown industries, requiring a more trained and educated workforce which demands high real wages.

If industrialization was the cause of climate change and premature deindustrialization was the cause of stagnation of Latin-American countries like Brazil how it is possible for then to resume growth without converting into "pollution havens"?

To answer this question, we had to notice that the necessary transition from a fossil fuel-based economy to a low-carbon economy – which the European Commission (2019) denominates as an ecological transition – is compatible not only with industrialization but also with reindustrialization of the countries that get stuck in the MIT due to DD. Economic development is structural change, and what is needed now is an Ecological Structural Change defined by the increase of the share of green activities in output to reduce the emissions of CO_2 into the atmosphere by each unit of output produced, that is to increase the environmental efficiency of the economic system.[2]

The ecological structural change depends positively upon the weight of green activities through many channels. Technological green activities can increase the *price competitiveness* of the industries by reducing the unit raw material and energy costs of production and they can increase the *non-price competitiveness* of manufacturing industries, as the environmental sustainability of goods production increases the quality perceived by international consumers (Guarini and Porcile, 2016; Althouse et al., 2020; Galindo et al., 2020).

There are also important technological advantages that can derive from green activities concerning the technological complementarities between standard and green technologies (Horbach, 2008; Guarini, 2015), economies of scope (Johnstone et al., 2008), knowledge spillovers generated from green activities, typically high knowledge intensive (Rennings, 2000; Jaffe et al., 2003). Green activities can open the room for new sources of competitiveness and business for activities driven by innovation and high added valuing (ECLAC, 2016).

Higher is the share of green activities, higher is the demand for new green goods and services generated by backward and forward linkages theorized by Hirschman and that can be reinterpreted by a green perspective (Lenzen, 2003). Green innovations stimulate the networking and open innovation process, favoring linkages across sectors and in turn increasing returns (Ghisetti et al., 2015; Fabrizi et al., 2018). Eco-industries generate territorial economic spillovers because the installation and maintenance of appliances is strictly linked to the local context (Görlach et al., 2014).

[2] We go deeper on these issues in section 3.

Investments in renewable energy activities have a multiplier effect on the value chain and reduce the external vulnerability of the economy for the substitution of fossil fuel imports, decreasing the uncertainty of the refueling in terms of the international price volatility of fossil energies due to financial speculations in the energy market (Creti and Nguyen, 2015; Ahmad, 2017; Kyritsis and Serletis, 2018; Rizvi et al, 2021) and the unpredictable supply interruptions due to political instability (ECLAC/CGEE, 2020).

Circular economy favors industrialization by promoting production diversification in the activities of waste management, repair, maintenance, remanufacturing, and recycling and by reducing the raw material unit costs (Albaladejo et al., 2021). Share of green activities represents the preference for productive investment vis-à-vis financialized speculation because green innovations reflect the strategic long-term goals, instead of short-term strategies typical of corporate financialization (Huang et al., 2021). The green activities can also have a positive impact on the current account of the balance of payments, as they can increase international both price and non-price competitiveness (Guarini and Porcile, 2016) as well as they can cause import substitution concerning fossil sources (ECLAC/CGEE, 2020), and finally, they can enlarge the exports opportunities by producing secondary raw materials and high value-added industrial waste (Albaladejo et al., 2021).

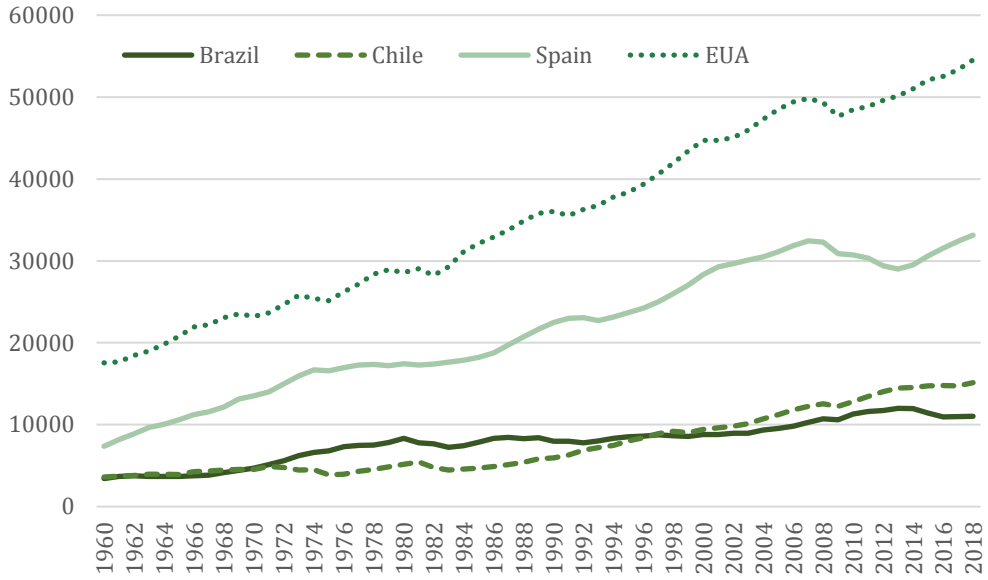
2. Some stylized facts of the Brazilian economy

As we have already pointed out, after an average growth rate of 4.0% in 2004/2013, followed by an acute recession in 2014-2016 (–2.1% p.a.), the Brazilian economy had an average growth of only 1.5% p.a. in 2017-2022, characterizing a situation of economic semi-stagnation![3] More important to assess the economic performance of a country is to compare the evolution of the per capita income of Brazil with other economies. As we can see in figure 1, Brazil and Chile have had a very moderate growth of per capita income compared to USA and Spain, so that the gap has increased dramatically at least since the beginning of the 1960s. This characterizes a situation that some authors have called “falling behind” (Bresser-Pereira et al, 2020a).

As we will see in the next section, one of the main reasons for the stagnation of the Brazilian economy is the huge production regression due to the process of premature deindustrialization. One of the consequences of this process is the “re-primarization” of the exports of goods and services. As we can see in figure 2 the share of manufactured goods over the total of exports was more than 50% in 1981-2007 and fell to 29% in 2020, while basic goods, consisting mainly of natural resource commodities (such as iron ore and crude petroleum) and agricultural commodities (soybean and derivatives, corn, raw sugar, bovine meat, poultry meat, coffee, etc.), have increased symmetrically. Therefore, the Brazilian economy is returning to being an economy specializing in the production of commodities for export, as Prebisch (1949) had once characterized the Latin American economies in the middle of the XX century.

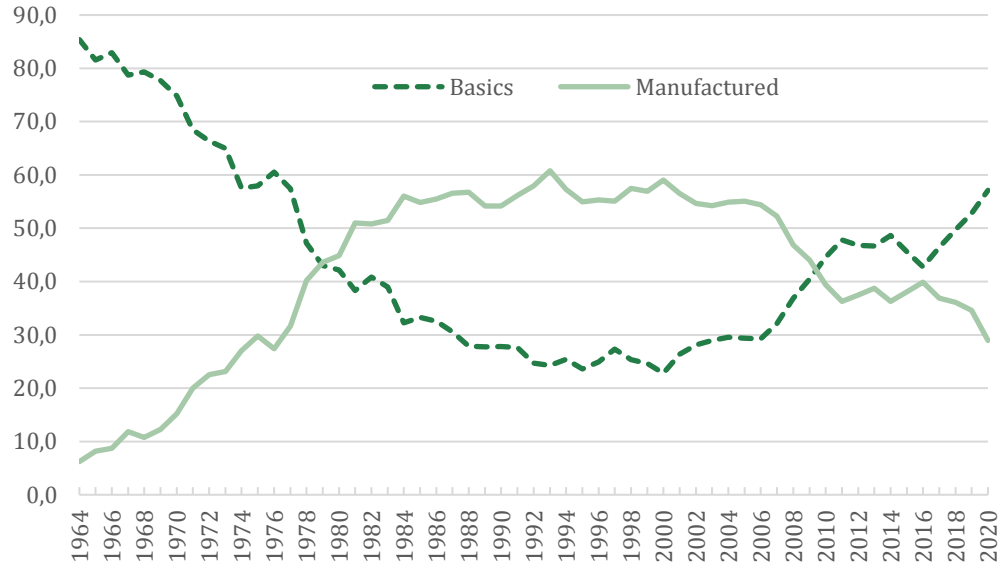
[3] In Lula da Silva’s third term (2023-….), there was some change in the economic policy due to some fiscal impulse, with the return of real increase in minimum wage, expansion of the Bolsa-Família program, some increase in public investments (low-income housing program “Minha Casa, Minha Vida”), etc., that eventually increased the GDP real growth to average of 3.2% p.a. in 2023-2024 (considering the estimative of GDP growth of 3.5% in 2024 according to the Focus Report of 12/27/2024). However, there is some concern about the sustainability of growth due to tightening monetary policy since 2022 and the possible weakening of the fiscal impulse in 2025 as according to the new fiscal rule approved in 2023 the increase in public spending depends on the increase of the tax revenues, and the federal government has had some difficulties to approve new taxes in the National Congress.

Figure 1 – *Evolution of Per Capita Income in US$ 2010 for Brazil, Chile, Spain, and the USA*



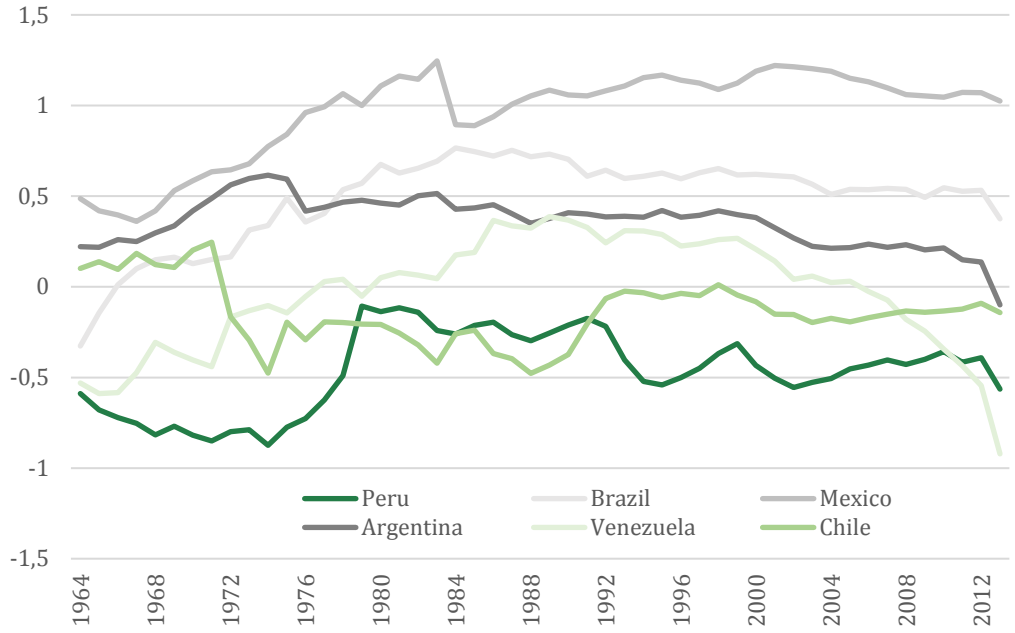
Source: World Bank (2022).

Figure 2 – *Share of basic and manufactured products in Brazilian exports, 1964-2020 (%)*



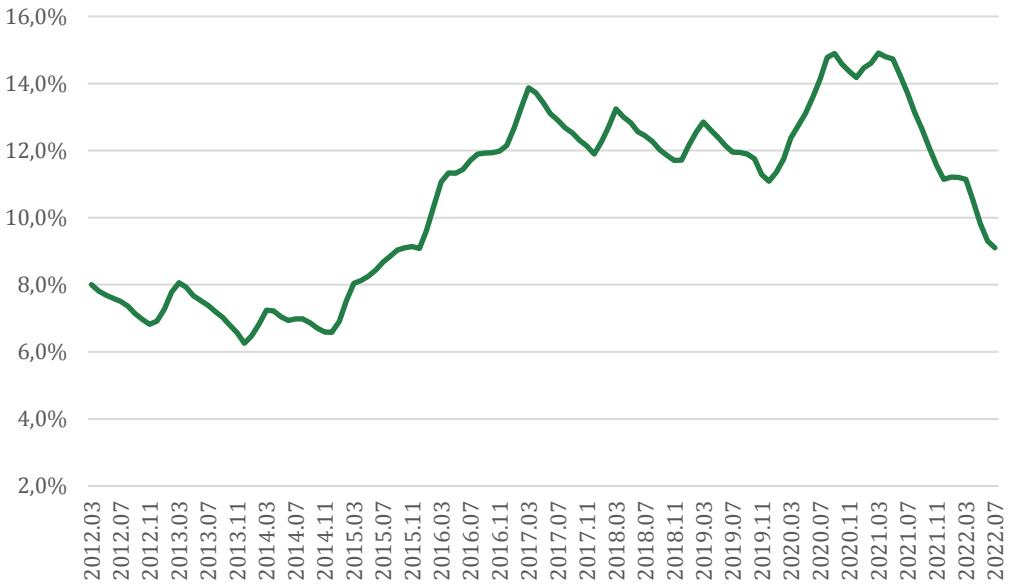
Source: FUNCEX (2022).

Figure 3 – *Economic complexity index, selected Latin American economies, 1964-2013*



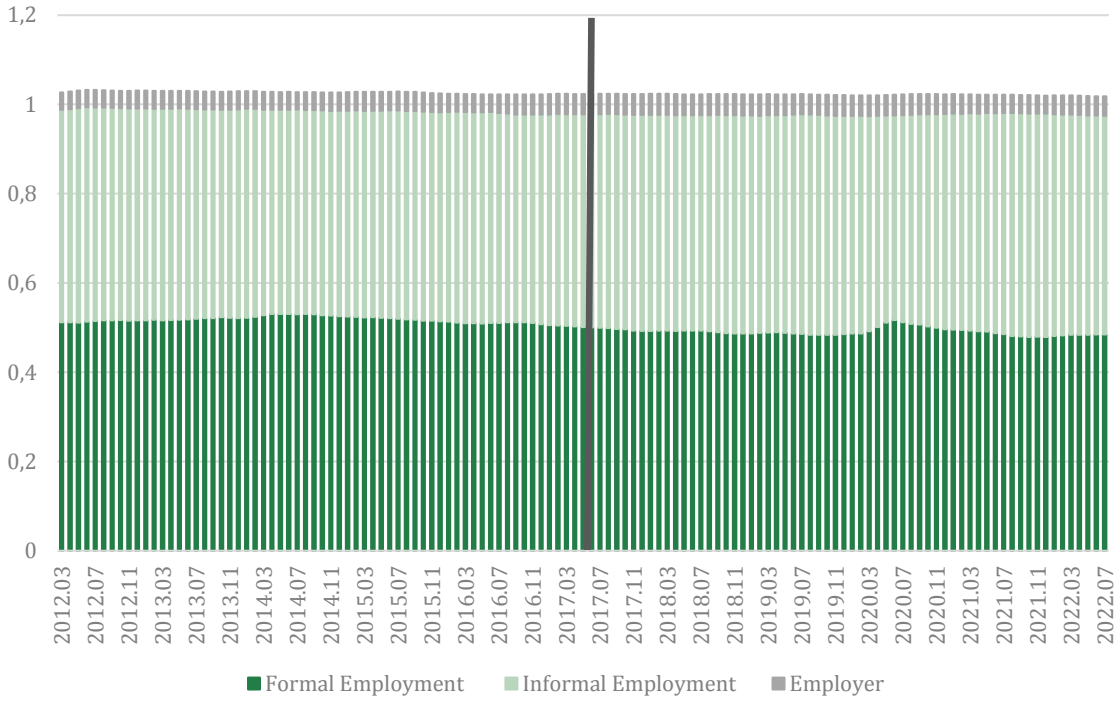
Source: OEC (2022), elaboration of the authors.

Figure 4 – *Unemployment rate in Brazil – 2012.03-2022.07*



Source: IPEADATA (2022).

Figure 5 – *Composition of employment in the Brazilian labor market, 2012.03-2022.07*



Source: IPEADATA (2022).

Figure 3 presents the economic complexity index[4] extracted from the Observatory of Economic Complexity (OEC) database (2022). Economic complexity matters because it helps explain differences in the level of income of countries and more importantly because it predicts future economic growth. In most of the big Latin American economies, the Economic Complexity Index (ECI) increased from the mid-1960s until the beginning of the 1980s, that is during the period known as import substitution industrialization until the external debt crisis. ECI stagnated or even reduced since then in part due to the trend toward deindustrialization in the region (Palma, 2005). Brazil and Mexico have the highest ECIs among countries in the region, expressing a greater diversification of their productive structure compared to the other economies. In particular, the ECI has been gradually reduced in Brazil.

The unemployment rate, that was less than 8% before 2015, increased sharply since 2015 reaching the level of more than 12% at the end of 2016 (figure 4). During the pandemic year of 2020 this rate increased to more than 14%, as was expected. In fact, many unemployed workers decided to stop looking for work during the coronavirus pandemic: the percentage of the "discouraged" population – those who do not seek work immediately because they think they will

[4] To determine the degree of productive complexity of any given country, Hausmann et al. (2011) introduced an algebraic methodology to build an index that reflects the degree of diversification of the export mix, its interaction with global value chains, and its ubiquity or rarity, i.e., the number of other countries in the world with the capacity to replicate the production of a specific good. In this respect, airplanes are rarer than sugar cane, because only a few, technologically more sophisticated countries can produce them.

not get a suitable job – in the total of economically active population increased from 4.2% to 5.4% from the fourth quarter of 2019 to the third quarter of 2020 (for more, see Paula, 2021). Since the middle of 2021 unemployment rate reduced sharply from 14.7% in May 2021 to 9.1% in July 2022. Therefore, the recovery of employment had been more pronounced than that consistent with the evolution of GDP real growth. Indeed, the reopening of the economy is causing the services sector to recover and hire labor. The decisive factor is the growth in occupation rather than in compensation. This pattern of expansion of the salary mass and of consumption, therefore, depends mainly on the increase in occupation that has occurred since mid-2021.

However, due to the coronavirus crisis and labor reform of July 2017,[5] that has resulted partially in the change of work to temporary work or outsourced work and put pressure on wages, mainly in unskilled work, due to the reduction in the bargaining power of workers. Indeed, the number of occupied workers earning up to one minimum wage and 1 to 2 minimum wages, i.e., the base of the wage pyramid, increased from 28.8% and 28.4%, respectively, in September 2020 to 35.6% and 31.2% in June 2022. There is a clear precariousness of labor relations in Brazil: informal employment (without a formal employment contract) increased from 46.0% in January 2015 to 49.0% in July 2022, involving around 50% of the total employment. (figure 5).

3. Reasons for stagnation of the Brazilian economy: a Keynesian-Structuralist view

In this section we analyze the main reasons of the semi-stagnation trend of the Brazilian economy. For this purpose, we consider two sets of factors: (i) structural factors, that include premature deindustrialization, profit squeeze, and financialization of the economy; (ii) and conjunctural factors, that are related to the implementation of orthodox economic policies.

3.1. Structural factors

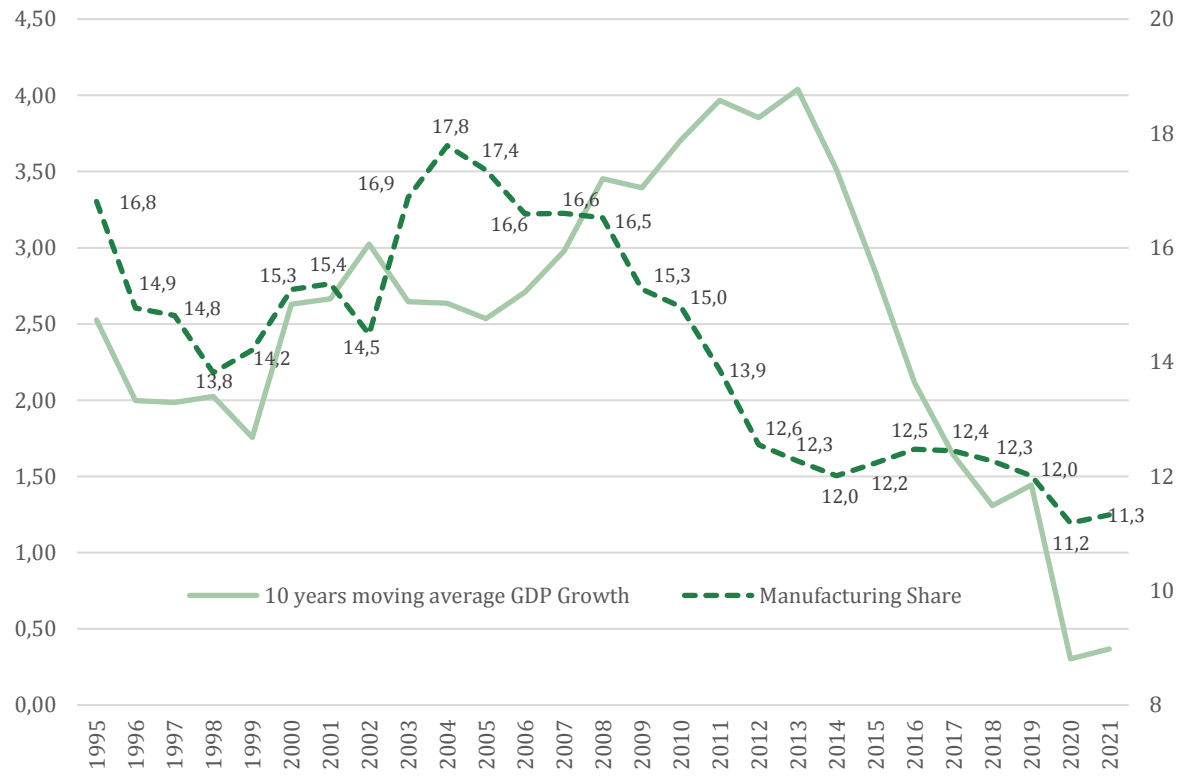
One of the main structural reasons of the semi-stagnation of the Brazilian economy is the premature deindustrialization, as we have already pointed out it is a process in which the share of the manufacturing industry in employment and GDP shrinks before such economies have attained high levels of per-capita income. This occurs because many developing economies are increasingly concentrating on activities that combine low value added per capita and low and/or medium-low technological intensity. As we can see in figure 6, the manufacturing share (share of the manufacturing sector over GDP) in Brazil fell from 17.8% in 2004 to 11.3% in 2021. Although correlation does not mean necessarily causality, from our theoretical/analytical framework developed in section 1 we can infer that the decline in the *GDP growth trend* is at least partially associated to the fall of the manufacturing share in Brazil.

New-developmentalist economists have argued that the fall in the investment rate in Brazil since 2014 is related to the sharp decline in the net profitability rate of the corporations, mainly manufacturing firms, that resulted in the phenomenon known as “profit squeeze”, following the long expansion that started in 2003 (Oreiro and Paula, 2021; see also Martins and Rugitski, 2021). The fall in profit margins in the industrial sector stemmed, in turn, from the increase in the unit labor cost (ULC), generated by the increase in wages above the growth in labor productivity;

[5] Labor reform included the implementation of intermittent work, the possibility to outsource the core business, became the annual Union contribution is optional, as for attorney feed Labor Reform established that the losing party should pay attorney fees to the other party in an amount from 5% to 15% of the condemnation or economic benefit, among other measures.

together with the overvaluation of the exchange rate, which prevented the transfer of the increase in the ULC to the prices of industrial products due to competition from imported products. Another factor that explains the fall in investment spending in 2014 was the sharp retraction in investments by the Petrobrás Group. Due to the combined effects of the high debt coefficient (measured by Ebitda), the fall in the price of oil on the international market, and the implications of the "Lava-Jato" operation; the Petrobrás Group reduced its investment spending from 1.86% of GDP in 2013 to 1.41% of GDP in 2014, a contraction of 0.45 p.p. of GDP. We can also see that with the exception of the pandemic year of 2020, the profitability rate increased in 2017-2021 (figure 7). The rise in commodity prices in the international market as Brazil is an important commodity exporter as we have already seen, as well as the wave of mergers and acquisitions between companies, which have further concentrated the market and reduced competition, and mainly the reduction in labor costs due to the labor reform are the main reason of the high profitability under a context of stagnation of the economy.

Figure 6 – *10 years moving average of real GDP growth and manufacturing share (percentage of GDP) in Brazil, 1995-2021*



Source: Authors' calculation with data from IPEADATA (2022).

Figure 7 – *Net profitability rate r, and net investment, I, Brazil, 2000-2021*

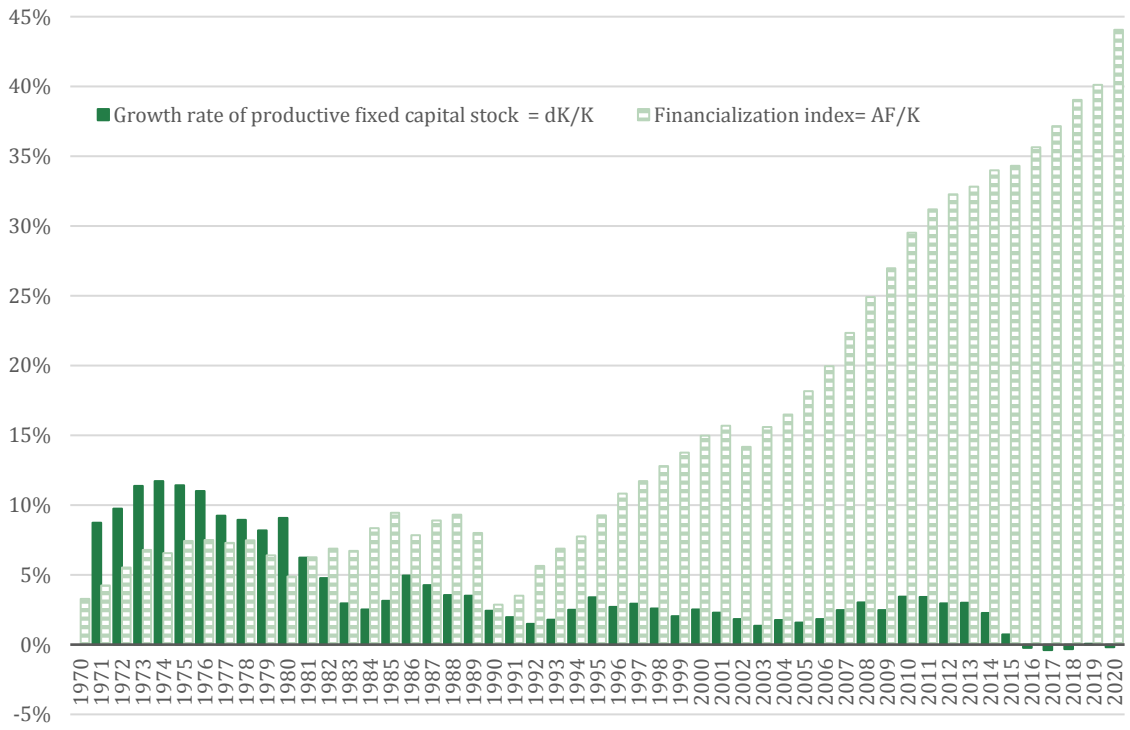
Source: Marquetti and Miebach (2023).

Figure 8 shows the series of the growth rate of the productive fixed capital stock (the capital accumulation rate) together with the financialization index, defined as the ratio between the total stock of non-monetary financial assets and the total stock of fixed capital. In the 1970-1980 subperiod, a period of high growth of the Brazilian economy, the fixed capital accumulation rates are higher than the financialization rates, and it is not possible to characterize the prevalence of financialization in this subperiod. From the 1980s until 1994 (when the Real Plan, a successful monetary stabilization plan, was implemented), the rates of financialization exceed the rates of fixed capital accumulation, expressing the emergence of a macroeconomic environment where financial allocations became more attractive than real assets. In this subperiod, the financialization process is initiated by the inflationary gains made possible both by the appropriation of the inflation tax by the banks and by the existence of "indexed money' (daily liquidity investments with returns at the Selic rate, the Central Bank policy rate).

Starting in the 1990s, stimulated by financial liberalization in terms of capital inflows and outflows, and by the speculative nature of capital flows from residents and non-residents alike, the financialization rate entered a clear and strong expansion, with the stock of financial assets representing in 2020 more than 44.1% of the total stock of fixed capital. Due to the high levels of interest rates practiced and the high level of public debt in Brazil (which part are indexed to Selic rate), financialization remained, but increased to a new level in which the interest gains appropriated by the big banks and capital holders were drastically amplified by the high cost of financing and loans granted by the financial market to Brazilian households and companies (Bresser-Pereira et al, 2020b).

The behavior of these two series in this third subperiod also expresses a disconnection between the capital allocated to financial assets and that allocated to gross fixed capital formation. Financialization becomes explicit and starts to be reproduced by high real interest rates, instead of the inflationary gains in the previous period (Bruno, 2022).

Figure 8 – *Rentier-financier accumulation vs. fixed capital accumulation, 1970-2020(%)*



Source: Bruno (2022, p. 51).
Note: The accumulation rate was calculated based on growth rate of productive fixed capital stock over GDP while financialization rate is calculated based on total financial assets (M4-M1) over the stock of fixed capital.

So, financialization of the Brazilian economy has contributed for the reduction of the productive accumulation rate, and consequently, for a low economic growth in the long term. Indeed, Paula and Meyer (2019) show that since the 1990s the reduction in the accumulation rate in Brazil was followed by a gradual and sharp increase in the financialization rate, that is there is some evidence that financialization is underway in Brazil after the process of capital account liberalization. These findings are in connection with the literature on financialization. For instance, Davis (2017) did a broad review on the relationship between financialization and productive investment reporting that a large body of empirical work suggests a robust and negative relationship between financialization and fixed capital investment.[6]

[6] Orhangazi (2007) highlights two main channels in which financialization negatively affects productive investment. The first is related to the allocation of internal funds available for investments in financial assets when they offer larger

3.2. Cyclical factors: macroeconomic policies

Besides the structural factors, there are a set of cyclical factors that have contributed to the stagnation trend of the Brazilian economy, in particular related to the implementation of an orthodox economic policy and some liberal reforms (Constitutional Amendment imposing the spending cap and labor reform).

As for the implementation a conservative economic policy, the modus operandi of monetary policy under an inflation target regime has produced two problems in Brazil. The first one is related to the fact that Brazil implemented a framework of inflation targeting regime that can be considered rigid, as the target horizon – the period during which monetary policy actions are expected to return inflation to target – was (until 2024) the calendar year. However, most countries use a longer term of two years or more, or a moving period that allows a short-term divergence between the inflation target and higher current inflation due to the shocks that affect the economy, allowing the central bank to accommodate smoothly such shocks in a medium horizon. It should be emphasized that Brazil, in this particular regard, was one of the few countries that use a calendar year as the target horizon, the calendar year as the target horizon (Paula and Saraiva, 2015). As for 2025 National Monetary Council (CMN), composed by the Minister of Finance, Minister of Planning and the President of Central Bank of Brazil (BCB), changed the target horizon from a calendar year to a "continuous target", that is the target refers to inflation accumulated over twelve months, calculated month by month.[7] However, CMN also decided to maintain the inflation target at 3% for 2026 – with a margin of 1.5 percentage points up or down – a target that is too low for an indexed economy like the Brazilian one.[8]

Furthermore, Bresser-Pereira at al. (2020b) develops the hypothesis that the prevalence of high real interest rates in Brazil for decades has led to the formation of a coalition of rentier-financier interests for keeping interest rates high. The maintenance of high real interest rates, within the context of the presence and maintenance of an overnight circuit, led to the creation of a conventionally "safe" interest rate. Thus, a belief in our conviction of continued high rates was formed. Such a vicious cycle greatly contributed to the development of a process of financialization of the Brazilian economy through interest income (see above).

One important institutional change in Brazil related to monetary policy was the implementation of the independence of the BCB in February 2021. According to the Complementary Law No. 179/2021, BCB's primary objective is to assure price stability; BCB' secondary objectives – without compromising the fulfillment of the primary objective – are: (i) ensuring the stability and efficiency of the financial system; (ii) smoothing the fluctuations of economic activities; (iii) promoting full employment. Although the law establishes multiple

short-term returns (besides being reversible unlike fixed assets). The second channel is related to the pressure exerted by the shareholders on the managers of the firms in obtaining greater short-term returns and greater dividends payments, making them prefer financial investment. Another incentive factor for the investment in short-term financial assets is the management policy of modern firms, where managers have fixed salaries and extra remuneration linked to the performance of the firm, as well as shareholders pursuing larger short-term yields, by the maintenance of stock prices at high levels and greater dividends payments.

[7] For example, in January 2025, inflation accumulated over twelve months is compared with the target and its tolerance interval. The following February, the same procedure, and so on. In this way, the verification moves over time and is no longer restricted to the month of December each year. In the same way, monetary policy can work with a horizon that is therefore shifting over time. In the case of inflation deviations from the target, the size of the horizon considered for reaching the target is defined by the Central Bank.

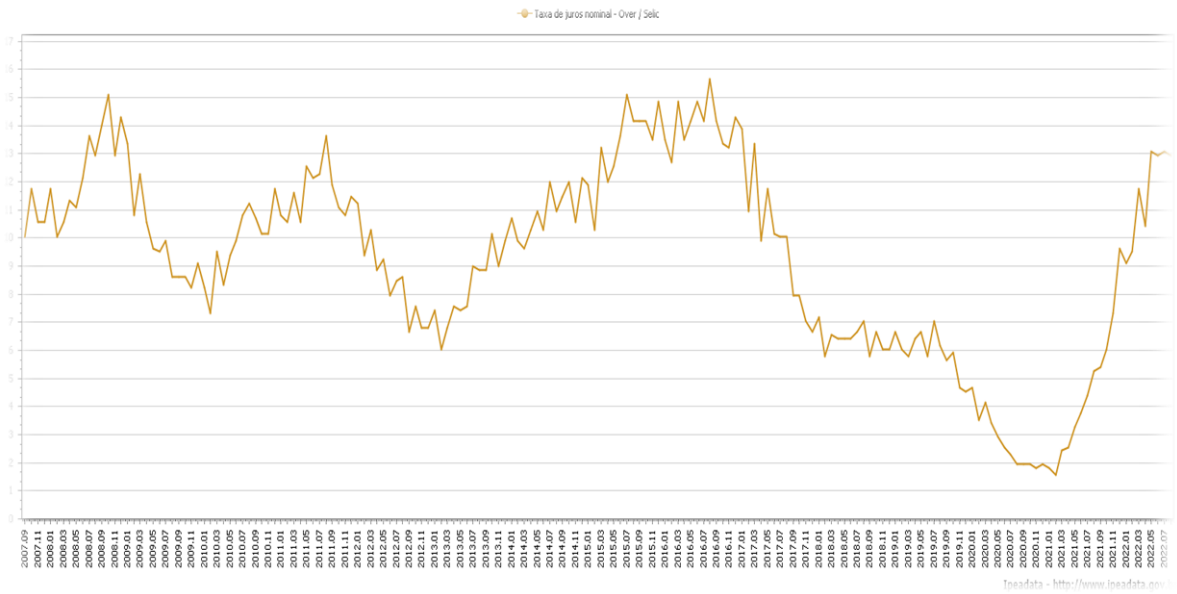
[8] A lot of contracts are still readjusted by the past inflation, as it is the case of the residential rental.

mandates to BCB, the main goal is price stability. Therefore, there is a hierarchy in terms of the goals; in practice price stability is the single objective of the BCB.

Figure 9 shows the behavior of Selic policy rate in 2012-2022, where we can see that interest rate has been maintained in high levels (more than 6.0% p.a.), except mid-2019-2020, and has been the highest of the world. On the other hand, figure 10 compares the expected Selic rate as estimated by Central Bank of Brazil (BCB) Focus Report, by means of which the BCB surveys the financial market's forecasts for inflation and interest rates, and the effective (12-month lagged) Selic rate to show that, generally speaking, the expected rate is higher than the effective one, which seems to suggest that the financial market tends to overshoot its interest estimates in the Focus Report in hopes that the BCB will endorse such expectations. Therefore, the financial market has an upward bias for its expected interest rate and an inflation rate that puts pressure on the BCB to endorse their expectations (Bresser-Pereira et al, 2020b).

One of the consequences of the high level of interest rates in Brazil is its impact on the financial burden of the public debt. As we can see in figure 11, the high level of nominal fiscal deficit is mainly determined by the impact of interest rate on the public debt, except for the 2020/mid-2021 pandemic period due to the emergency fiscal expenditures to face economic and social effects of the COVID-19 crisis.[9] In 2022 primary fiscal surplus (the difference between government expenditures and tax revenues, excluding interest on public debt) was possible due to combination of the temporary increase in the tax collection in consequence of the effects of the inflation and high commodity prices combined with the increase of GDP nominal growth.

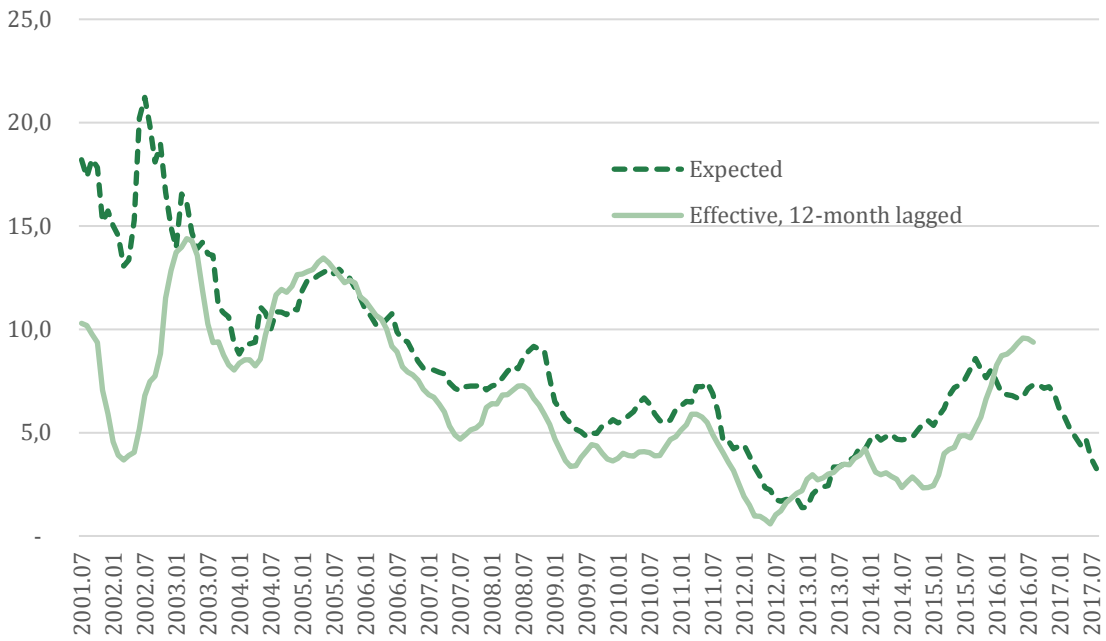
Figure 9 – *Selic policy rate (% p.a.), 2012-2022*



Source: IPEADATA (2022).

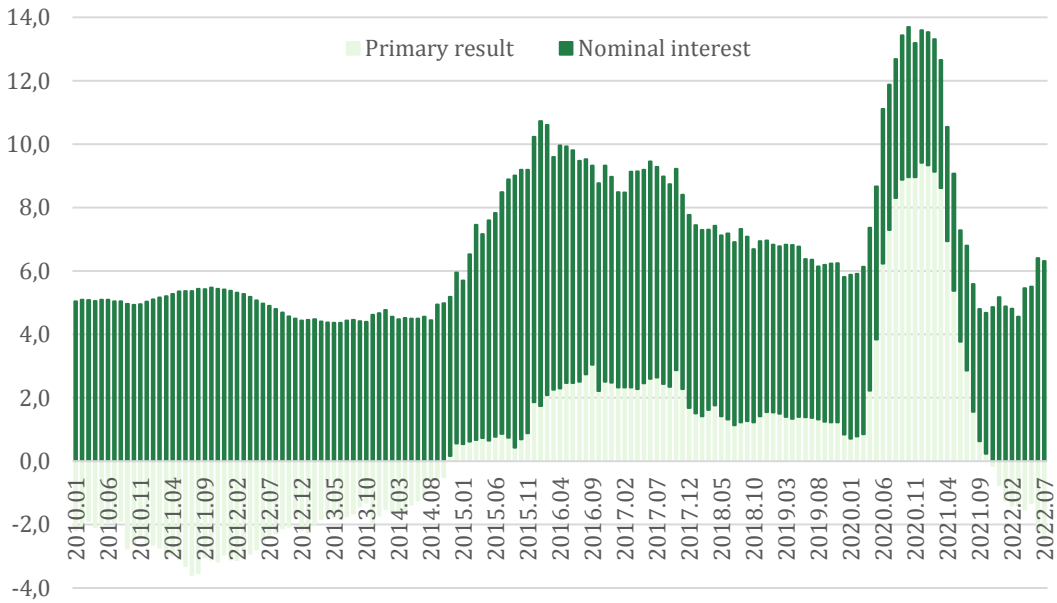
[9] According to Paula (2021), the countercyclical actions in Brazil in 2020, especially those relating to emergency aid, had strong countercyclical effect on the economy and also reduced poverty and social inequality in a significant way during the coronavirus crisis. Compared to other major Latin American economies, Brazil performed better in both economic and social indicators.

Figure 10 – *Expected (Focus) and effective Selic rates (% p.a.), 07/2001-07/2018*



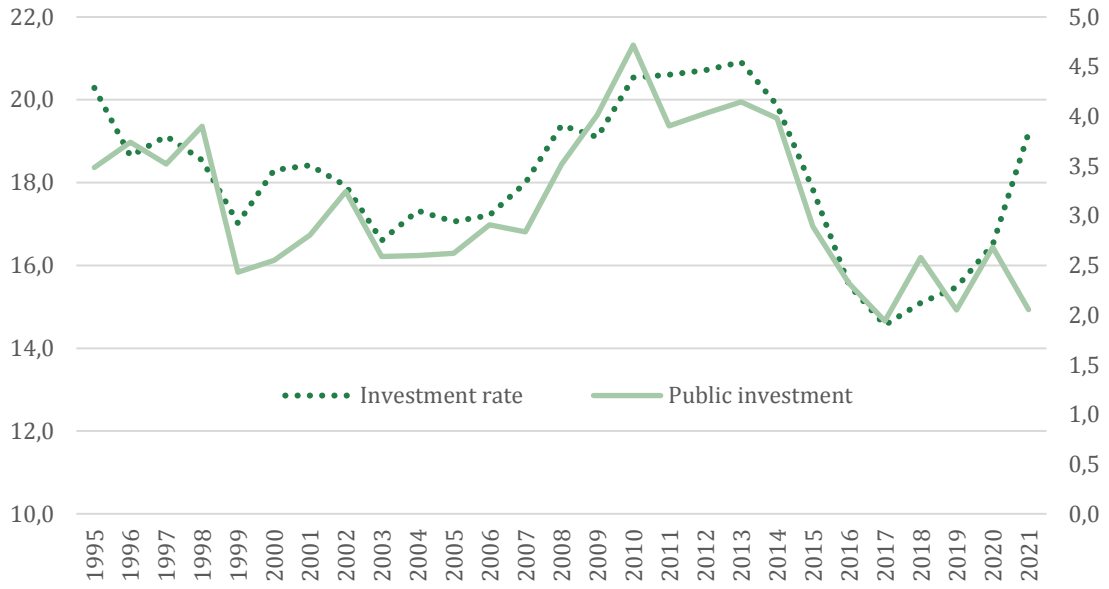
Source: Bresser-Pereira et al (2020b),.

Figure 11 – *Nominal fiscal deficit in Brazil (percentage of GDP), 2010-2022*



Source: Central Bank of Brazil (2022).

Figure 12 – *Investment rate (left) and public investment (right) as percentage of GDP, 1947-2021*



Source: Observatório de Política Fiscal (2022) for public investment (includes all levels of government and state-owner firms) and IPEADATA (2022) for investment rate (gross fixed capital formation over GDP).

Last, but not the least, we must consider that a constitutional ceiling on public spending, proposed during the Temer Government, was approved by the National Congress in the end of 2016, becoming effective from 2017, which (in real terms) freezes government spending for 20 years, since public primary spending is adjusted only by the previous year's inflation, a type of fiscal rigidity that exists only in Brazil. Constitutional Amendment 95 imposed the spending cap prevents any fiscal policy management, which is a fundamental tool for smoothing out the economic cycle: if the economy grows faster than expected, government revenues will rise more than forecast, but government was not allowed to spend in case of surplus, because its expenditures were limited by the spending cap; on the other hand, as the spending cap rule required zero real growth in total spending, any real increase in mandatory expenditures entailed reducing discretionary spending in the same amount, so that total primary expenditures remained constant and did not exceed the target (Barbosa, 2019).

One of the consequences of the spending cap rule implemented in Temer Government in 2016 – which made fiscal policy pro-cyclical, being prevented from being used as an instrument to stabilize the economic cycle – was the reduction of the public investment that became the adjustment variable of the fiscal budget, due to the difficulties of the federal government in compressing mandatory spending (education, health, etc.). Indeed, since 2015 public investment declined and has been maintained at very low levels (less than 3% of GDP), what has contributed at least partially to the fall in the investment rate (figure 12). The new fiscal framework approved in 2023 in Lula da Silva's government combines primary fiscal result targets (the difference between government revenues and expenses, excluding spending on public debt's interest rate) with a rule for public spending, whose growth depends on the performance of revenues, and the

guarantee of a minimum level for public investment. However, one of the problems of the new fiscal rule is that the increase in public spending depends on the increase of the tax revenues, and the federal government has had some difficulties in approving new taxes in the National Congress. As the literature shows (IMF, 2014) there is a strong complementarity between private investment and public investment, particularly regarding infrastructure investments, which have high externality for other sectors of the economy.

In conclusion, one of the main problems of the Brazilian economy has been the lack of demand and not an eventual problem of supply. According to Borges (2018) the lack of demand is a result of an "overkill" arising from excessive conservatism of economic policy. The maintenance of a contractionary monetary policy for a very long period, with the maintenance of a Selic rate above the neutral interest rate of the economy, in a context in which fiscal policy has been frequently contractionary, has contributed greatly to the economy having a slow recovery with a tendency to semi-stagnation.

4. A Structuralist-Keynesian agenda for ecologically sustained growth in Brazil: the Green New-Developmentalist strategy

Dutch disease (DD) had a *clear environmental side* that is, up to now, not considered by New Developmentalism theory (NDT). This is precisely the case of Brazil. Production of soybeans and cattle is land intensive, but extremely profitable in Brazil because the land is abundant. The increasing production of soybeans and cattle leads to the expansion of land used by this kind of production to the borders of the Amazon forest. Marginal producers had no option instead to put down the forest to occupy new spaces for soybeans and cattle which had a clear and negative effect on the CO_2 emissions. The traditional economic solution to the problem is to reduce the profitability of such kinds of activities – this where the export tax over primary goods fits in.

Brazilian economy has a chance to reindustrialize if an ecological structural change is adopted to increase the share of green activities in GDP. The first necessary step is to eliminate the DD which is the simultaneous cause of premature deindustrialization due to exchange rate overvaluation and of CO_2 emissions associated with the production and exports of primary goods. To eliminate DD, the introduction of an export tax over primary goods is required. The objective of the export tax is precisely to reduce the after-tax profits of the primary goods sector relative to the after-tax profits of manufacturing share, thus stimulating the redirection of private investment from the production of commodities to the production of manufacturing goods. The tax rate over primary goods exports should not be constant, but dependent on the stage of the commodity price cycles. In the periods when commodity prices are higher than the long-term average, tax rate can be an increasing function of this difference to reduce the extra-normal profits that would be obtained by commodity exporters. When the prices are lower than the long-term average, the tax rate could be set in zero to avoid disruptions in the supply of primary goods.

The manufacturing sector, however, can have a large share of brown activities. So, an ecological structural change must also be stimulated inside the manufacturing sector or, in the words of Mazzucato (2014, pp. 162-164), a *green manufacturing revolution* must be achieved. The idea of a green industrial revolution is to radically change the manufacturing sector for it to be ecologically sustainable, which requires a transition of the energy matrix to the production of clean energy that does not depend on fossil combustibles. This transition will demand a lot of investments in new power production plants based in solar and wind energy. Since these sources of energy are "diffuse" and "intermittent", then a lot of investment will be necessary to create an

"intelligent electrical network", that is a network of software integrated power-plants designed to optimize the flexibility, performance, and efficiency of energy production. Due to the huge uncertainty in the initial stages of the green manufacturing revolution, the lion's share of the required investment must be done by the government (ibid., p. 165).

A substantial increase in public investment in Brazil cannot be done under the current fiscal rules, even in the case of the new fiscal framework. The fiscal rules promoted a huge squeeze in public investment in Brazil over the last years as we had seen in section 3. The financial and monetary asymmetries of peripheral developing economies like Brazil do not allow the absence of any fiscal rule that prevents an ever-increasing path for the public debt to GDP ratio. The challenge for Brazil is to define a fiscal rule that allows the required increase in public investment for the green industrial revolution to occur while making it possible for the debt-to-GDP ratio to be reduced in the medium to the long term. One possibility would be the adoption of a target for structural primary surplus, that is, for the primary surplus of central government in a situation of zero output gap. The target should be set at a level that allows a gradual reduction of the gross debt-to-GDP ratio from the current level, more or less 78% of GDP in July 2024, to around 60% of GDP in 15 years. When the Brazilian economy is operating with a negative output gap, the actual primary surplus will be lower than the target, making fiscal policy counter-cyclical. When the output gap is positive, then the actual primary surplus will be higher than the target, which means that the extra government revenues derived from the overheating of the economy must be saved by the government instead of being used to finance new government expenditures.

The size of the structural primary surplus depends on the level of real interest rate as well as the level of real GDP growth. As we have seen in section 3, Brazil has had very high nominal and real interest rates over the last 25 years. Something had to be done to reduce the long-term level of interest rates in Brazil.

We have already pointed out that one of the causes of the high level of short-term interest rate in Brazil is the Institutional Arrangement of the Inflation Targeting Regime in Brazil. Empirical evidence presented by Rocha and Oreiro (2009) had shown that a less flexible inflation targeting regime is associated with lower GDP per-capita growth for a sample of 23 countries in the period 1991-2004. One possible explanation for this finding is precisely the interest rate channel: a less flexible inflation targeting regime promotes a higher level for short-term interest rate that had negative impact over aggregate demand and investment, reducing the rate of economic growth.

This change should be complemented by the elimination of the remaining indexation of contracts in the Brazilian economy which is responsible for a high level of inflation inertia, demanding higher levels of short-term interest rate for the inflation target to be achieved. The empirical evidence for the Brazilian economy presented in Oreiro and Costa Santos (2023) showed the existence of a high autoregressive coefficient in the time series of the Brazilian inflation index due to the continuing existence of inflation indexation. So, a monetary reform demanding the use of the legal tender in Brazil (Real) to be the only unit of account in all contracts is also part of the strategy to reduce the long-term average of short-term interest rate in Brazil, allowing a lower structural primary surplus.

Finally, to Brazil increase its policy space – mainly the capacity to manage the real exchange rate – some kind of capital controls should also be adopted. One possibility is to introduce a tax on overall capital inflows – including Foreign Direct Investment – in order to increase the autonomy of monetary policy, making it possible for the Central Bank to set the domestic interest rate more independent of the foreign environment at the same time it manages the fluctuations of nominal and real exchange rate around a competitive level in the long-term.

5. Conclusion

This paper aimed to analyze the main reasons for the tendency toward stagnation of the Brazilian economy – that we divide into structural factors (mainly deindustrialization and financialization of the economy) and cyclical factors (mainly the implementation of an orthodox conservative economic policy) and to discuss a strategy of ecologically sustained development to overcome by adopting a New-developmentalism green agenda. For this purpose, we developed initially a Keynesian-Structuralist approach of economic development, that has its focus on structural change as the driver of development.

A sustained development strategy requires the reconstruction of the manufacturing industry not only to meet domestic demand but to conquer a larger and increasing share of world manufacturing exports. This goal must be accomplished side by side with a sustainable environmental agenda, aimed at decarbonization and accelerating change in the environment. As we pointed out in the paper, the Brazilian economy has the chance to reindustrialize if an ecological structural change is adopted to increase the share of green activities in GDP, implementing its own green manufacturing revolution.[10]

Such a strategy demands a political consensus in order to make possible the implementation of the green developmentalist agenda. Of course, this is not an easy task and depends on the correlation of political forces and political leaders with commitment to such an agenda. This paper showed that green developmentalist agenda can be an opportunity window for the difficult task of overcoming the stagnation trend of the Brazilian economy. Without any doubt, this is an enormous challenge.

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[10] A significant institutional advancement in Brazil was the approval of a new tax reform in 2024, primarily aimed at unifying taxes. This reform seeks to simplify and modernize the country's notoriously complex tax system, enhancing transparency, reducing compliance costs, and fostering a more competitive and sustainable business environment.

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