MEASURING THE QUARTERLY PROFIT RATE IN THE BRAZILIAN ECONOMY, 1997-2021

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Abstract

This paper estimates the quarterly macroeconomic profit rate of the Brazilian economy from Q4 1997 to Q4 2021. The profit rate is decomposed into capital productivity, profit share, and capacity utilization, enabling the analysis of both long- and short-term fluctuations. Two series are constructed at current prices: one using total capital and another excluding residential non-productive capital. The results show an upward trend in the profit rate, primarily driven by rising capital productivity. This increase may be explained by the effects of deindustrialization and improvements in the terms of trade. The series align with key phases of Brazil's business cycles and are consistent with other profit rate estimates, despite methodological differences. Post-COVID-19 data indicate a rise in profitability driven by a declining wage share. These findings offer empirical insights into economic dynamics of the Brazilian economy.

Keywords: Profit rate; capital productivity; profit share; Brazilian economy.

JEL Classification: B51, E25, N16.

1 INTRODUCTION

Profits are the central driver of capital accumulation under capitalism. Capitalists invest money capital with the explicit aim of generating profits, making the profit rate, the ratio of profits to total capital advanced, a central metric of capitalist performance. Profit rates directly influence investment decisions and capital accumulation, shaping the trajectory of gross domestic product (GDP). In the short term, fluctuations in the profit rate during business cycles play a pivotal role. A rising profit rate typically spurs investment, accelerating capital accumulation and boosting economic output. Conversely, a declining rate can dampen investment, potentially triggering economic crises. In the long term, the profit rate reflects deeper structural dynamics within capitalism, such as technological change, class struggle over wages, and shifts in the organic composition of capital, as emphasized by Marx. A persistent decline in the profit rate may signal systemic contradictions, while stabilization or recovery often depends on countertendencies such as intensified exploitation, globalization, or financialization.

Roberts (2009) argues that the methodology for measuring the profit rate matters, with the results being conditioned by the method employed. Marx's general profit rate is the ratio between surplus value and the sum of constant and variable capital in an economy. Roberts (2009) advocates for measuring the macroeconomic profit rate, which would be able to capture the cyclical movements of one capitalist economy as a whole. Duménil and Lévy (2004) argue that the government sector and residential real estate should be excluded from the fixed capital stock. The authors argued that profitability only affects the decisions of the private sector. Ribeiro, Clemente, and Miebach (2022) estimate the average profitability of companies in Brazil using financial

statement data, an approach we classify as microeconomic. The profit rate can be measured through both macroeconomic and microeconomic approaches.

The literature on profit rate estimates for the Brazilian economy remains limited. Most studies provide only annual estimates, while quarterly estimates are relatively scarce. Marquetti (2002) presents the first annual estimates, whereas Martins and Rugitsky (2021) offer the first quarterly series. Higher-frequency quarterly data are important for short-term analysis and the application of econometric techniques. This paper estimates the quarterly macroeconomic profit rate for the Brazilian economy from the fourth quarter of 1997 to the fourth quarter of 2021. It extends the period analysed by Martins and Rugitsky (2021). This time frame allows an initial discussion about the effects of the COVID-19 pandemic over the functional income distribution and the profit rate.

With this goal, we first review the measurement strategies for the profit rate, with special attention to the Brazilian case. Subsequently, two quarterly series of the macroeconomic profit rate for the Brazilian economy is estimated using current prices: the first using total capital stock and the second with only the productive capital stock. The two series are compared with each other and with the quarterly estimates of Martins and Rugitsky (2021) and Ribeiro, Clemente, and Miebach (2022). A discussion about the results and its relationship with recent developments in Brazilian economy is also presented.

The paper is structured into five sections, in addition to this introduction. The second section explores the approaches and methods used to calculate the profit rate. The third section reviews studies that estimate the profit rate for the Brazilian economy. The fourth section presents the methodology used to construct the profit rate series and analyses their temporal evolution over the study period. The fifth section analyses the

relation between economic cycles in the Brazilian economy and the profit rate. Section sixth concludes the paper.

2 METHODOLOGIES FOR CALCULATING THE PROFIT RATE

Profitability is the driving force of capitalism, as it gives orientation for capital accumulation. The prospect of higher profit rates encourages investment and production expansion, thereby contributing to economic growth. On the other hand, declines in the profit rate tend to discourage investment, creating an environment of uncertainty and potentially triggering economic crises. The cyclical relationship between profits and economic activity is a fundamental phenomenon of capitalism, and its understanding is important for analyzing the fluctuations and crises that characterize this system, as noted by Roberts (2009).

The empirical literature suggests that the profit rate follows a long-term declining trend alongside cyclical fluctuations in capitalist economies. For instance, Roberts (2009) analyzes the U.S. economy from 1950 to 2000 and highlights a downward trend across economic cycles. Duménil and Lévy (1993) identify two major periods of declining profit rates in the United States (1869–1914 and 1950–1989), linking the trend to a reduction in capital productivity. Tapia (2012), in a quarterly analysis of U.S. corporate profits from 1948 to 2010, argues that “as a rule, recessions are preceded by a drop in corporate profits.” Basu et al. (2022) estimate a global profit rate from 1960 to 2019 and also find evidence of a downward trajectory. In the Brazilian case, Marquetti et al. (2023) identify a declining trend between 1950 and 2020.

The literature presents different strategies for estimating the profit rate. The method employed in the profit rate calculation is important, as it can significantly influence analytical results. Marx (1990, [1867]) defines the profit rate as the ratio of surplus value to constant and variable capital, as shown in Equation 1. This can be conceived as a macroeconomic perspective that enables the profit rate to be analyzed as an economy-wide phenomenon, allowing for the identification of both cyclical movements and long-term declining trends (Roberts, 2009; 2011).

$$P = \frac{s}{c+v} \qquad (1),$$

where P is the profit rate, s is the surplus value, c is the constant capital, and v is the variable capital.

In addition to the macroeconomic profit rate, profitability can be calculated at the sectoral level or even for individual firms. This flexibility enables granular analysis, allowing for the identification of sector- and firm-specific particularities. The choice of analytical level depends on the availability of data and the research questions.

Empirical literature calculates the profit rate as the ratio between profits, a flow variable computed as output minus cost of production, and capital, a stock variable representing the money capital invested in fixed capital (Duménil and Lévy, 1993). Several authors have adopted this approach, including Weisskopf (1979), Moseley (1991), Mariña and Moseley (2000), Duménil and Lévy (2004), Cámara (2007), Maito (2015), Duque García (2022), and Marquetti et al. (2023). In most studies, profit is computed as the difference between net output and wages, with adjustments for mixed income, as discussed in Miebach and Marquetti (2023). The fixed capital stock, depending on data availability, is measured excluding residential construction, under the assumption that, unlike productive capital, residential buildings are not employed to generate surplus value.

There was also a discussion concerning different measurement methods for flow and stock values. Marquetti et al. (2019) note that the measurement is affected by inflation rates. They also point out that the 2008 global financial crisis generated debates over the different methods of measuring the profit rate. Proponents of the Temporal Single-System Interpretation (TSSI) advocate calculating the profit rate at historical costs. The key difference between the two methodologies lies in measuring capital stock. Those adhering to the TSSI argue that capital stock can be computed at historical prices, meaning capital goods are measured at their acquisition price. Among the main advocates of calculating the profit rate using historical prices are Kliman (2010, 2011) and Freeman (2013). Kliman (2010) argues that while historical prices provide an important basis for calculating the profit rate, the method should be flexible and adapted to the specific research objectives.

Meanwhile, the group recommending measuring the profit rate at current prices uses the net stock of fixed capital valued at current prices (Marquetti et al. 2019). In a zero-inflation context, profit rate estimates at historical and current prices are equal. However, under inflationary conditions, using the net stock of fixed capital at historical prices becomes problematic, as the resulting profit rate is distorted by inflation and its underlying drivers, such as monetary policy, currency devaluations, and nominal wage increases. Thus, this method of measuring the profit rate does not seem suitable for contexts with moderate to higher inflation, such as Brazil's, which has a history of persistent inflationary pressures.

Based on the macroeconomic measurement of the profit rate, Weisskopf (1979) proposed a decomposition into three main components to analyze its behavior, as shown in Equation 2. The first component relates to the profit share of national income, influenced by the depletion of the industrial reserve army during phases of economic

expansion. The second component is linked to the level of capacity utilization, reflecting aggregate demand conditions. Finally, the third component concerns the potential productivity of capital, influenced by the tendency of the organic composition of capital to rise and the technical conditions under which a specific economy operates.

$$\rho = \frac{\Pi}{K} = \frac{\Pi}{Y}\ \frac{Y}{Z}\ \frac{Z}{K} = \sigma_\pi\ \varphi\ \zeta \qquad (2)$$

where ρ is the profit rate, Π represents the total profits, K is the capital stock, Y is the output, Z is the potential output, and σ_π is the profit share.

The measure proposed in this paper follows Weisskopf's (1979) approach and aims to estimate the aggregate profit rate from the standpoint of capitalists. Accordingly, we do not explore the distinction between productive and unproductive activities. For a theoretical discussion on this issue, see Shaikh and Tonak (1994). A recent application can be found in Rotta (2025). For a discussion of the Brazilian economy, see Morrone, Marquetti, and Miebach (2023) and Freitas (2021).

Our analysis is grounded in the New Interpretation of Marxian value theory developed by Foley (1982) and Duménil (1980). This approach offers a resolution to the transformation problem by directly linking labor values to money prices, providing a coherent basis for calculating the aggregate profit rate. In our computation of the profit rate, we follow the methodology outlined by Duménil and Lévy (1994).

An alternative for measuring the profit rate is to analyze company data based on published financial statements from private companies. Ribeiro, Clemente, and Miebach. (2022) use Return on Equity (ROE) as an indicator of profitability obtained from financial statements of companies listed on the Brazilian stock exchange (B3) and corporations that, due to their size, are required to disclose such data. ROE is calculated by dividing net profit by shareholders' equity. Net profit corresponds to the company's earnings after deducting all expenses, including operating costs, financial expenses, and

taxes. Shareholders' equity, in turn, represents the company's residual value, i.e., the difference between its assets (including goods and rights) and its liabilities (obligations). Rodrigues, Milan, and Herrlein Jr. (2022) argue that using shareholders' equity as the denominator in computing the corporate profit rate proxy better captures the economy's progressive financialization, as discussed in Mollo (2011; 2015), since it more accurately reflects returns earned on owners' and shareholders' capital. Their approach also provides alternative methods for decomposing the profit rate using corporate balance sheet indicators. Specifically, their procedures can identify effects resulting from changes in asset composition, which is particularly relevant in the context of rising financial assets.

3 MEASURES OF THE PROFIT RATE IN BRAZIL

There is a small but growing body of literature focusing on the profit rate in Brazil. Two strands of literature can be identified: one that uses National Accounts data and another that explores published financial statements from private companies. Both are discussed below.

Marquetti (2002) computed the annual profit rate for Brazil from 1955 to 1998 using national accounts data and examined its relationship with technical change. Later, Marquetti, Maldonado Filho, and Lautert (2010) extended the analysis to the period 1953–2003. They measured the profit rate as the product of capital productivity and the profit share, using current-price national accounts data. Their findings point to a declining trend in the profit rate, primarily driven by a fall in capital productivity.

Marquetti, Hoff, and Miebach (2020) employ Weiskopf's approach to examine Brazil's profit rate evolution from 2000 to 2015, relying again on current-price national

accounts. They find an increase in the profit rate between 2003 and 2007, driven by higher capacity utilization and potential capital productivity. However, after 2007, the profit rate declined due to falling profit shares and potential capital productivity. This downward trend is identified as a key factor in the economic and political crisis that began in 2014.

Martins and Rugitsky (2021) estimate Brazil's quarterly profit rate from 1996 to 2016 using constant-price national accounts data. They analyze the cyclical and trend components of the profit rate and output, applying Weisskopf's (1979) decomposition. The study concludes that the 2014 economic crisis was linked to a profit squeeze between 2009 and 2014, following an expansionary phase that began in 2003. The authors note that profit squeezes are atypical in Brazil and Latin America, likely due to external vulnerability and truncated expansion cycles. However, they argue that the squeeze occurred because the commodities boom temporarily mitigated external vulnerabilities.

Grazziotin, Fornari, and Marquetti (2022) analyze the relationship between the profit rate and capital accumulation in Brazil from 1953 to 2017. Using annual current-price national accounts and a modified Weisskopf (1979) decomposition, they calculate the profit rate as the product of capital productivity and the profit share. Granger causality tests indicate unidirectional causality, with the profit rate driving capital accumulation, supporting the hypothesis that higher profits stimulate investment and economic growth.

Marquetti et al. (2023) examine Brazil's profit rate from 1950 to 2020 using current-price national accounts and Weisskopf's (1979) decomposition. They identify high economic growth during the developmentalism phase (1950–1980) and stagnation in the neoliberal phase (1980–2020). The profit rate declined due to a decline in capital

productivity, which reduced capital accumulation and economic growth. During the neoliberal phase, the same profit rate led to lower capital accumulation, as financial sector investment became an alternative means of accumulation. The authors conclude that falling profitability and structural economic changes are key to understanding Brazil's growth slowdown in recent decades.

From a published financial statements perspective, Instituto de Estudos para o Desenvolvimento Industrial (IEDI, 2016), a Brazilian think tank, investigated how the economic recession impacted the profitability of large Brazilian firms. The analysis encompasses 340 publicly traded non-financial companies from 2010 to 2015, utilizing profitability indicators such as net, operating, gross margins, and ROE. The IEDI (2016) study shows a significant decline in productive profitability after 2010, particularly in industrial net and operating margins. The authors attribute this deterioration to firms' inability to pass on rising costs to final product prices, compounded by high interest rates that affect financing conditions.

Rodrigues and Silva (2022) estimate the profit rate of Brazilian firms, including publicly traded and large privately held companies, using quarterly balance sheet and income statement data from 2000 to the second quarter of 2021. They propose an expanded ROE breakdown based on Weisskopf's (1979) decomposition (Equation 5). Their results demonstrate a strong correlation between corporate return on equity (ROE) and overall economic performance.

Ribeiro, Clemente, and Miebach (2022) compute the profit rate using financial statements from companies listed on Brazil's B3 stock exchange. They use ROE as a proxy for the average corporate profit rate, estimating it in current prices quarterly from 1996 to 2019. Their findings suggest the 2014–2016 crisis was a profitability crisis, linked to institutional reforms implemented after 2016.

Moraes and Azevedo (2024) estimate the average profit rate from 2010 to 2021 using accounting data from 24 Ibovespa-listed firms. Contrary to traditional Marxist theory, their results suggest that capital-intensive sectors transfer value to less capital-intensive sectors. This implies that real-world competition dynamics in Brazil may be more complex than classical Marxist theory predicts.

The results of the studies surveyed in this section highlight a tendency for the profit rate to decline in the Brazilian economy. Most studies utilize annual datasets from national accounts, with some also using firm-level datasets. Only Martins and Rugitsky (2021) produce quarterly estimates for Brazil using national accounts data, allowing short-term analysis. In the next section, a more extended quarterly data series for the profit rate and its components is estimated for the Brazilian economy.

4 QUARTERLY PROFIT RATE AND ITS COMPONENTS IN BRAZIL

This section presents the estimated profit rate and its components for the period from the fourth quarter of 1997 to the fourth quarter of 2021. It also provides a brief analysis of the profit rate's evolution and its main determinants over the business cycles.

The Brazilian system of national accounts and labor surveys both provided by the Brazilian Institute of Geography and Statistics (IBGE) make it possible to estimate a quarterly profit rate series. The IBGE display estimates of quarterly GDP data with a time series starting from the first quarter of 1996 (IBGE, 2025d). The profit rate is calculated using a four-quarter accumulation for each observation, resulting in a series that spans from the fourth quarter of 1997 to the fourth quarter of 2021[1].

[1] It is possible to measure the profit rate on a four-quarter basis. This procedure eliminates the problem of seasonality in the measurement of both the profit rate and capital accumulation.

The series for the profit rate was calculated as the product of capital productivity, profit share, and capacity utilization. Functional income distribution data are available in Brazilian national accounts annually. An annual series of labor shares was initially estimated using IBGE (2025c) and the Miebach and Marquetti (2023) approach for mixed income. To obtain a quarterly series, an auxiliary series was constructed using combined data from the Monthly Employment Survey (PME) and the Continuous National Household Sample Survey (PNAD Contínua), both from IBGE (2025a, 2025b). These surveys are based on household samples, with the PME covering six metropolitan regions.

PME data was used up to the fourth quarter of 2011, and from 2012 onward, data from the PNAD Contínua was employed. While the PME was a sample survey with geographical limitations, the PNAD Contínua survey covers the entire country. An auxiliary series was constructed as the ratio between the nominal wage bill and nominal GDP (IBGE, 2025d). The wage bill was estimated by multiplying the number of employees by their average earnings. The quarterly auxiliary series reflects short-term labor market dynamics. This series was combined with annual national accounts data to construct a robust quarterly series. For this purpose, the Denton-Cholette disaggregation method was applied, preserving the annual series average while using the quarterly series to indicate short-term movements (MARTINS AND RUGITSKY, 2021). The Denton-Cholette disaggregation implied that the quarterly series of profit-share began in the fourth quarter of 1997. The profit share in income was calculated as the complement of the labor share estimated at current prices.

The level of capacity utilization is defined as the ratio of actual GDP to its trend. For some observations, this ratio exceeds one. The trend component was obtained by applying a Hodrick-Prescott filter (with a lambda parameter of 100) to the four-quarter

accumulated quarterly constant-price GDP series. This procedure also provides an estimate of potential GDP.

Capital productivity was computed as the ratio between potential GDP and the four-quarter accumulated quarterly total capital stock (ELCF) using Souza Júnior and Cornelio's (2020) data. The estimated where made in current prices, using the Gross Formation of Fixed Capital deflator provided by IBGE (2025c) since Souza Júnior and Cornelio's (2020) estimate was constructed at constant prices. The profit rate based on total capital is estimated by multiplying the profit share in income by capital productivity and capacity utilization. We used the productive ELCF, obtained from IPEA (2025) data, to compute the profit rate based on productive capital. The quarterly productive ELCF series was obtained by multiplying the quarterly total ELCF series by the average annual share of productive ELCF in total ELCF.

Figure 1 shows the profit rate and its determinants between the fourth quarter of 1997 and the fourth quarter of 2021, calculated for total and productive capital. Over the period of study, the profit rate exhibits an upward trend, which is more pronounced when using total capital as the denominator. This positive trend is primarily a consequence of an increase in capital productivity, which contrasts with the long-run tendency for the profit rate to fall as predicted by Marxian analysis. Two main factors may explain this result. First, a structural change in the Brazilian economy led to a shift away from manufacturing toward less mechanized sectors with higher capital productivity, a process often associated with deindustrialization. Second, a rise in the terms of trade has positively impacted capital productivity (Marquetti et al., 2025).

The analysis reveals a strong correlation between the profit rate and capital productivity until 2019, indicating that changes in the latter are the main explanatory factor for the former movements in most of the analyzed period, a result consistent with

the literature. On the other hand, the profit share in income displays a cyclical pattern, suggesting that distributive conflict may have played a secondary role in determining profitability during this period, at least in its initial phase. It's important to note that the COVID-19 pandemic changed the short-term dynamics since the recovery in profitability after the crises was due to rising profit share a stagnant capital productivity growth, which may express the disruptions in some economic sectors.

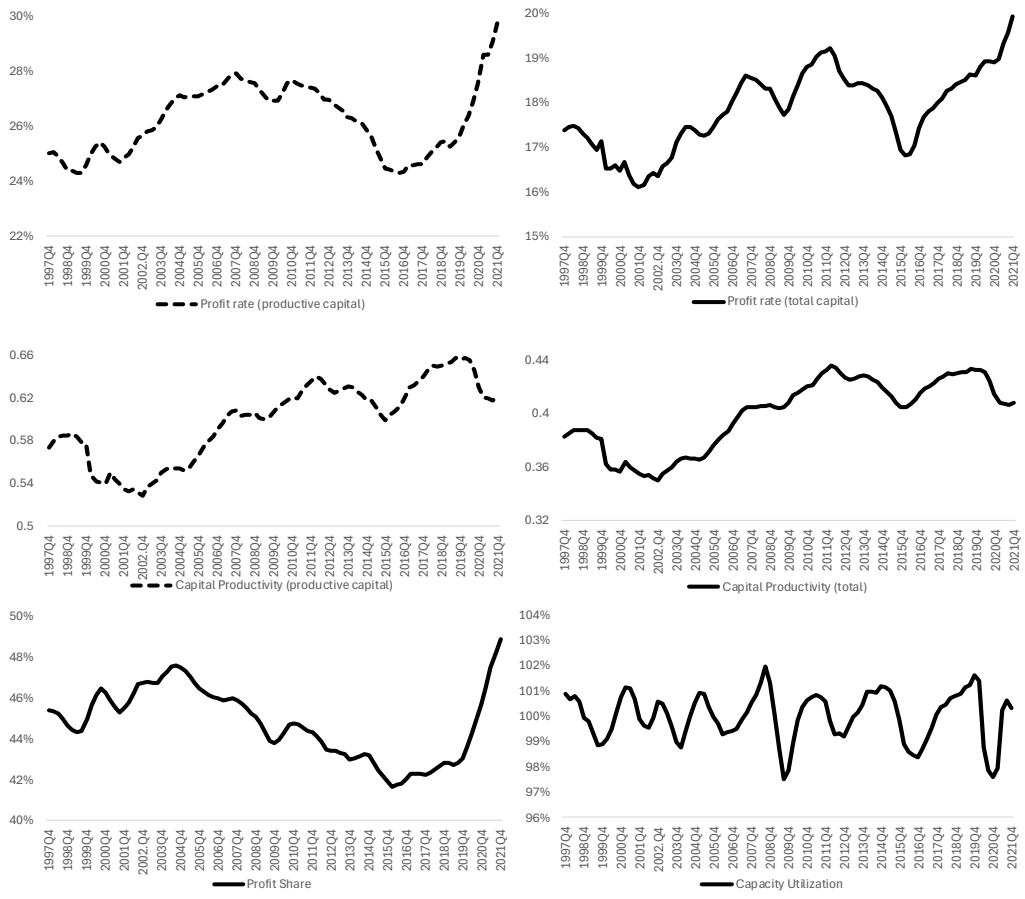

Figure 1: Brazilian profit rate and its components, 1997 Q4 a 2021 Q4.
Source: Authors calculations

The profit share in income grew from 1997 Q4 until 2004 Q3, a period marked by the neoliberal policies under the Fernando Henrique Cardoso governments, and the beginning of Lula government. Subsequently, there was a decline between 2004 Q4 and 2016 Q2, coinciding with policies aimed at raising the minimum wage,

expanding demand, and other pro-worker measures. From 2016 Q3 onwards, with the return of neoliberal policies under the Temer and Bolsonaro administrations, the profit share rose again. The COVID-19 pandemic had a deep effect on the functional income distribution in Brazil. There was a strong rise in the profit share, with a correspondent fall in the wages. This process may have been derived from the compounded effects of lowering wages due to rising unemployment and other restrictions imposed by the health emergency as well as by the rising prices in the aftermath of the COVID-19 shock. It seems that the pandemic had a deep effect on workers incomes, which may explain the first defeat of Bolsonaro, the first incumbent president to lose a reelection bid in the country. Future research on this point is needed.

Capacity utilization, as expected, presents higher volatility in quarterly data. Nonetheless, the shocks from the Great Financial Crisis (GFC), the Brazilian crisis of 2016 and the COVID-19 pandemic are visible. It's noteworthy that in 2021 the Brazilian economy presents lower capacity utilization than in the period before the pandemic, which may also had contributed to the falling wage share.

The results align with previous studies indicating a growing profit rate until the mid-2010s, followed by a falling profit rate until the recession of 2015-2016, and give support to the discussion of Marquetti, Hoff, and Miebach (2020), Martins and Rugitsky (2021), and Ribeiro Clemente and Miebach (2022). The subsequent period saw a strong profit rate recovery in Brazil in the context of the return of the tenets of neoliberalism in the Temer and Bolsonaro governments. The COVID-19 pandemic did not change the tendency of the growing profit rate. The health crisis may even have intensified this process since it implied in a more difficult economic environment to workers as it reduced its bargaining power in the context of rising inflation. The present results

provide further evidence for the discussion on Marquetti, Miebach and Morrone (2023) and Miebach et al. (2024) over the recent developments in the Brazilian economy.

5. PROFIT RATE AND ECONOMIC CYCLES IN BRAZIL

This section presents the relation between the Brazilian business cycle and the profit rate to provide insights into the relevance of the profit rate over the short-term economic dynamics. Table 1 displays the chronology of Brazilian business cycles, based on quarterly data from CODACE (2023). It includes the accumulated growth rate of output during both recession and expansion phases.

Table 1: Accumulated growth rate of GDP and accumulated profit rate.

Recessions				Expansions			
Period	GDP	Profit rate (total)	Profit rate (productive)	Period	GDP	Profit rate (total)	Profit rate (productive)
1998Q1 1999Q1	-1.3%	-1.0%	-2.5%	1999Q2 2001Q1	7.40%	-3.0%	2.4%
2001Q2 2001Q4	-1.3%	-3.4%	-0.5%	2002.Q1 2002.Q4	5.20%	1.4%	3.2%
2003Q1 2003Q2	-1.3%	1.8%	0.8%	2003Q3 2008Q3	30.20%	10.1%	6.8%
2008Q4 2009Q1	-5.1%	-1,2%	-1.0%	2009Q2 2014Q1	23.10%	1,6%	-3.8%
2014Q1 2016Q4	-8.1%	-5.2%	-7.50%	2017Q1 2019Q4	5.70%	6.7%	5.4%
2020Q1 2020Q2	-11.0%	1.7%	2.9%	2020Q3 2021Q4	13.9%	5.3%	12.8%

Source: IBGE (2025), CODACE (2025), and authors' calculations.
Note: (1) Recessions: Accumulated GDP growth from peak to trough measured according to the seasonally adjusted quarterly GDP at market prices; Accumulated profit rate growth rate on total capital and productive capital calculated from peak to trough of the product; (2) Expansions Accumulated GDP growth from trough to peak measured according to the seasonally adjusted quarterly GDP at market prices; Accumulated profit rate growth rate on total capital and productive capital calculated from trough to peak of the product.

Additionally, there is information on the accumulated growth rate of the estimated profit rate on total and productive capital. In general, output follows the movements of the profit rate during recessions and expansions. The exceptions are usually short-term shocks as the recession's phases between 2003Q1 and 2003Q2, and between 2020Q1 and 2020Q2. In the expansion between 2009Q2 and 2014Q1 there was profit rate fall. However, the profit rate effectively started to fall in 2011Q1, while sustaining a higher average than the observed one in previous decades until 2013Q4.

Regarding the phases of economic growth, during the first period, between 1998Q1 and 1999Q1, the recession was a consequence of the 1997 Asian crisis and the overvalued exchange rate which resulted in the end of Real Plan. In early 1999, the macroeconomic tripod was implemented, establishing three principles: floating exchange rates, inflation targets, and fiscal surplus. The recession between 2001Q2 and 2001Q4 was mainly associated with the crisis in the United States and the NASDAQ crash, further intensified by the Brazilian energy crisis. Market concerns over the policies that might be adopted by the newly inaugurated President, Lula, explain the decline in output between 2003Q1 and 2003Q2. From 2008Q4 to 2009Q1, a recession occurred due to the international financial crisis triggered by the U.S. housing bubble.

Economic literature points to the vulnerability of the Brazilian economy to external shocks. Martins and Rugitsky (2021) identify that external factors triggered the first four recessions analyzed in Brazil. However, the 2014Q2 to 2016Q4 recession had a unique character, originating from internal economic dynamics, specifically the decline in the profit rate. Recent work from Marquetti et al. (2025) discusses the effects of the exchange rate and terms of trade on Brazilian profitability and provided some evidence for the relation between growing profitability and growing output between 2003 and 2008 in the context of the early 2000s commodities boom.

The profit rate began to fall in 2011, as the commodities boom vanished and real wages remained growing, resulting in a profit squeeze. The government aimed to induce private investment by lowering taxes and other expansionary economic policies. It succeeded in maintaining GDP expansion (in a lower average rate than in the previous decade) and to sustain employment, but it was not enough to prevent the loss of dynamism in the economy and growing political disturbances, as Marquetti, Hoff, and Miebach (2020) pointed out.

Between 2014Q2 and 2016Q4, the longest recession within the analyzed period lasted eleven quarters occurred. It was triggered by the decline in the profit rate in preceding years. The profit rate fall was produced by a combination of a changing international environment, a falling capital productivity and a rising labor share. The recession was overcome with a neoliberal turn that started in Temer's government, followed by Bolsonaro. Temer promoted a deep labor reform, reducing rights and protections and restarting neoliberal reforms in Brazil. Bolsonaro also promoted neoliberal reforms aiming to restore profitability. The result was a recovery in the profit rate as the labor share fell.

Between 2020.I and 2020.II, the most intense recession in the series was caused by the COVID-19 pandemic. However, the pandemic crisis did not change the profit rate recovery trajectory. The pandemic shock seemed to have acute effects on a labor market already weakened from Temer´s labor reforms. The aftermath of the pandemic recession witnessed a deep fall in labor share and an increase in the profit rate until the end of the period under analysis.

There are differences in the profit rate measures with total capital and productive capital. In a short-term crisis, the profit rate on total capital falls more than the profit rate on productive capital. One explanation for this process is that capital expenditures

are more easily suspended in residential constructions, which depends on the consumers and credit concessions. Productive investment, usually with a longer return to maturity, continues after been started, since its suspension may generate further losses for capitalists. The situation is inverted in a longer recession, since the capitalists seem do not start new investments as the economic environment worsens.

6 FINAL REMARKS

This paper makes two key contributions to the study of profit rate dynamics in Brazil. First, it provides a critical synthesis of the methodological divergences in profit rate measurement that characterize existing literature. Second, it presents new quarterly estimates for the Brazilian economy from Q4 1997 to Q4 2021, calculated at current prices using both total capital and productive capital frameworks. The analysis considers total and productive capital at current prices, covering the period from the fourth quarter of 1997 to the fourth quarter of 2021. The analysis employs Weisskopf's (1979) decomposition to examine the components of profit rate.

The analysis reveals an upward trend in the profit rate, driven by rising capital productivity. This trend may be explained by two key factors: the process of deindustrialization and reprimarization, and improvements in the terms of trade, which positively affected capital productivity. There was a strong correlation between the profit rate and capital productivity series, suggesting that capital productivity served as the primary determinant of profit rate movements in Brazil during the study period (1997-2021). The estimated profit rates were also compared to the quarterly chronology of Brazilian business cycles published by CODACE (2023).

Overall, the profit rate aligned well with major developments in the Brazilian economy over the period. Additionally, profit rates calculated using total capital and productive capital showed similar trends, despite the distinct nature of residential capital. This similar path suggests that the core dynamics of profitability in Brazil's productive sectors largely drive overall profit rate movements, even when accounting for non-productive capital components.

The results highlight the importance of methodological choices in profit rate measurement, as different approaches yield quantitatively distinct results. Selecting the most appropriate methodology will depend on the specific research context and data availability. A comparison between the profit rate calculated in this study and that of Martins and Rugitsky (2021) reveals similar overall trends, despite methodological differences in the computation of certain variables. Both series follow the dynamics of the Brazilian economy.

Both the macroeconomic approach, based on national accounts, and the microeconomic approach employed by Ribeiro, Clemente, and Miebach (2022), using firm-level financial statements, yield consistent profit rate estimates for Brazil. However, the macroeconomic perspective, by capturing economy-wide dynamics, provides a more comprehensive framework for analyzing Brazil's structural economic evolution.

The quarterly profit rate series presented in this paper enables future researchers to conduct econometric analyses of profitability trends and their macroeconomic determinants. Additionally, our results offer preliminary insights into the impact of the COVID-19 pandemic and its aftermath on Brazil's profit rate and its underlying components, an important area for further research.

REFERENCES

Basu, D., Huato, J., Jauregui, J. L., and Wasner, E. 2022. “World Profit Rates, 1960–2019”. *Review of Political Economy*, 37(1), 92–107.

Duque Garcia, C. A. 2022. Economic growth and the rate of profit in Colombia 1967–2019: A VAR time-series analysis. *Review of Radical Political Economics*, 54 (3) p. 1–19.

Duménil, G. 1980. De la Valeur aux Prix de Production. Paris, France: Economica.

Duménil, G., and Lévy, D. 1993. *The economics of the profit rate: competition, crises and historical tendencies in capitalism*. 1. ed. Aldershot: Edward Elgar Publishing.

_____. 2004 “The real and financial components of profitability (United States, 1952–2000)”. *Review of Radical Political Economics*, 36 (1), p. 82-110.

Cámara, S. 2007. The dynamics of the profit rate in Spain (1954-2001). *Review of Radical Political Economics* 39 (4): 543–61.

Foley, D.K. 1982 The value of money, the value of labor power, and the Marxian transformation problem. Review of Radical Political Economics 14(2): 37–47

Freeman, A. 2013. “The profit rate in the presence of financial markets: a necessary correction”. *Journal of Australian Political Economy*, v. 70, n. 70, p. 167-192.

Freitas, A. 2021. "The Rate of Surplus Value in Brazil, 1996-2016," *Review of Radical Political Economics*, vol. 53(3), p. 398-422.

Grazziotin, H. A., Fornari, A. P., Marquetti, A. A. 2022. “Taxa de lucro e acumulação de capital no Brasil: concepções teóricas, análise histórica e relação de causalidade”. *Economia Ensaios*, Uberlândia, v. 37, n. esp., p. 176-208.

IBGE – Instituto Brasileiro de Geografia e Estatística. 2025a. *Pesquisa Mensal de Emprego (PME).* March 14, 2025. <https://www.ibge.gov.br/estatisticas/sociais/trabalho.html>.

IBGE – Instituto Brasileiro de Geografia e Estatística. 2025b. *Pesquisa Mensal de Emprego e Pesquisa Nacional por Amostra de Domicílios Contínua (PNAD contínua)*. March 14, 2025. <https://www.ibge.gov.br/estatisticas/sociais/trabalho.html>.

———. 2025c. *Sistema de Contas Nacionais*. March 14, 2025. <https://www.ibge.gov.br/estatisticas/economicas/comercio/9052-sistema-de-contas-nacionais-brasil.html?=&t=downloads>.

———. 2025d. *Sistema de Contas Nacionais Trimestrais*. March 14, 2025. <https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9300-contas-nacionais-trimestrais.html?=&t=resultados>.

IEDI - Instituto de Estudos para o Desenvolvimento Industrial. 2016. *Sem lucro, sem investimento*. São Paulo, Jan 16, 2024 <https://iedi.org.br/artigos/top/estudos_industria/20160624_sem_lucro_sem_investimento.html>.

Kliman, A. *The persistent fall in profitability underlying the current crisis: new temporalist evidence*. New York: Marxist Humanist Initiative, 2010.

_____. *The failure of capitalist production: underlying causes of the great recession*. London: Pluto Press. 2011.

Maito, E. 2018. "The tendency of the rate of profit to fall since the XIX century and a world rate of profit". In *World in Crisis*, eds. G. Carchedi and M. Roberts, Haymarket Books, Chicago, p.140-167.

Mariña, A. and Moseley, F. 2000. "The rate of profit in the postwar Mexican economy". In *Political Economy and Contemporary Capitalism: Radical Perspectives on Economic Theory and Policy*, eds. Ron Baiman, Heather Boushey, and Dawn Saunders, 184–92. Armonk, NY: M.E. Sharpe.

Marquetti, A. 2002. "Progresso técnico, distribuição e crescimento na economia brasileira: 1955-1998". *Estudos Econômicos* (São Paulo. Impresso), v. 32, n.1, p. 103-124.

Marquetti, A., Hoff, C. and Miebach A. 2020. "Profitability and Distribution: The Origin of the Brazilian. Economic and Political Crisis". *Latin American Perspectives*, 47: 115-133.

Marquetti, A., Maldonado Filho, E., Lautert, V. 2010. "The profit rate in Brazil, 1953-2003". *Review of Radical Political Economics*, 42 (4), p. 485-504.

Marquetti, A., Maldonado Filho, E., Miebach, A., and Morrone, H. 2023. "Uma interpretação da economia brasileira a partir da taxa de lucro: 1950-2020". *Revista de Economia Política*, v. 43, n. 2 (abr./jun. 2023), p. 309-334.

Marquetti, A., Miebach A. and Morrone, H. 2023. "Back in Power: Prospects and Limits of Lula´s Government". *Investigación Economica*, 82 (324), 3-26.

Marquetti, A., Miebach, A., Morrone, H., and Leite, S. 2025. Investigating the dynamics of the profit rate, the exchange rate, and terms of trade in Brazil. *PSL Quarterly Review*, *78*(312), 95–114.

Marquetti, A. A., Morrone, H., Miebach, A. D., Ourique, L. E. 2019. "Measuring the profit rate in an inflationary context: The case of Brazil, 1955–2008". *Review of Radical Political Economics*, 51 (1), p. 52-74.

Martins, G. K., and Rugitsky, F. 2021. "The long expansion and the profit squeeze: output and profit cycles in Brazil (1996–2016)". *Review of Radical Political Economics*, 53 (3), p. 373-397.

Marx K (1990) *Capital: A Critique of Political Economy*, Vol. 1. 1867th ed. London: Penguin Classics.

Miebach, A. D., and Marquetti. 2023. Functional income distribution in Brazil: 1947-2019. *Nova Economia*, [S. l.], v. 32, n. 3.

Miebach, A. D., Morrone, H., Marquetti, A. and Leite, S. 2024. Navigating Economic and Political Challenges: Lula's Third Term in a Changing World. *International Review of Economic Policy*, 6 (1): 35-49.

Morrone, H., Marquetti, A. A., & Miebach, A. D. (2022). Productive and Unproductive Sectors' Interactions in Brazil: A Miyazawa Analysis. *Review of Radical Political Economics*, 55(2), p. 251-268.

Mollo, Maria de Lourdes Rollemberg. 2011. "Crédito, capital fictício, fragilidade financeira e crises: discussões teóricas, origens e formas de enfrentamento da crise atual." *Economia e Sociedade* 20 (3), p. 449-474.

Mollo, M. L. R. 2015. A crise mundial e suas consequências: um debate teórico. Crítica Marxista, 41, p. 51–67.

Moraes, L. S.; Azevedo, R. 2024. "On Marx and accounting: An empirical study of the transformation of values into prices of production in the Brazilian contemporary economy, 2010-2022". *PSL Quarterly Review*, v. 77, p. 263-288.

Moseley, F. 1991. *The Falling Rate of Profit in the Postwar United States Economy*. London: Palgrave Macmillan.

Ribeiro, T. C., Clemente, L. T., Miebach, A. D. 2022. "Crise brasileira de 2014-2016 e mudança institucional: A lucratividade média das empresas no Brasil*". XXV Encontro de Economia da Região Sul*. February 03, 2023. <https://www.anpec.org.br/sul/2022/submissao/files_I/i2-184e07657f5e145eecf1608ff4ac44d6.docx>.

Roberts, M. 2009. *The great recession: Profit cycles, economic crisis – a marxist view*. March 03, 2023. <https://archive.org/details/TheGreatRecession.ProfitCyclesEconomicCrisisAMarxistView>.

_____. 2011. "Measuring the rate of profit, profit cycles and the next recession". *Paper to the 11th AHE Conference*.

Rotta, Tomás N. 2025 "Value capture and value production in the world economy: A Marxian analysis of global value chains, 2000–2014." *Environment and Planning A: Economy and Space,* 57, no. 2-3, p. 184-202.

Rodrigues, L.; MILAN, M.; HERRLEIN JR., R. 2022. Excesso de liberação de capital produtivo, financeirização e a mensuração da taxa de lucro na economia dos EUA. *Economia Ensaios*, Uberlândia, v. 37, p. 154-175.

Rodrigues, L.; Silva, G. 2022. “Lucratividade e suas decomposições: uma construção do modelo Dupont “à la Weisskopf””. Encontro Nacional de Economia Política, 27. March 10, 2023 <https://enep.sep.org.br/uploads/766_1647196899_artigo_sobre_lucratividade_identificado_pdf_ide.pdf>.

Shaikh, A.; Tonak, E. 1994. *Measuring the Wealth of Nations: The Political Economy of National Accounts*. Cambridge: Cambridge University Press. 1994

Tapia Granados, J. A. 2012. “Statistical Evidence of Falling Profits as Cause of Recession: A Short Note”. *Review of Radical Political Economics*, 44(4), 484-493.

Weisskopf, T. 1979. “Marxian crisis theory and rate of profit in the postwar US economy.” *Cambridge Journal of Economics*, v. 3, n. 4, p. 341-378.