Dating the Brazilian Economy's Business Cycle: 1997-2009[a]

Datando o Ciclo Econômico Brasileiro: 1997-2009

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Abstract: A group of Marxian economists has been dating the Brazilian economy's business cycle from the first overproduction crisis in 1962 to the present. Their research is based on the Mendonça-Ribeiro interpretation of Marx's crisis theory. This study builds upon their work with the purpose of contributing to bringing the research up to date. We examined Brazil's fifth business cycle. The cyclical component of Brazil's GDP was obtained using the Baxter-King filter. Taking said component as reference, secondary data was manipulated and analyzed to identify the main characteristics of each period in order to divide the business cycle into stages according to Marx's classification. We reached the conclusion that the referred cycle can be divided into 1997.Q3-2000.Q1: crisis; 2000.Q2-2002.Q1: depression; 2002.Q2-2005.Q4: recovery; 2006.Q1-2008.Q1: peak. Furthermore, our analysis identified abnormal economic fluctuations during the depression and recovery stages. We also verified that excess conservatism in the monetary policy carried out by the Brazilian Central Bank could have prevented

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capital accumulation from reaching the speed it would in normal conditions. At last, we highlighted some important characteristics of the crisis that mark the beginning of the next cycle.

Keywords: Overproduction. Business cycle. Marxian Economics. Brazilian Economy.

Resumo: Um grupo de economistas marxistas vem datando o ciclo econômico brasileiro desde a primeira crise de superprodução, em 1962, até o presente. Sua pesquisa se baseia na interpretação de Mendonça-Ribeiro da teoria da crise de Marx. Este estudo se baseia no trabalho deles com o objetivo de contribuir para atualizar a pesquisa. Examinamos o quinto ciclo econômico do Brasil. O componente cíclico do PIB brasileiro foi obtido utilizando o filtro de Baxter-King. Tomando esse componente como referência, os dados secundários foram manipulados e analisados para identificar as principais características de cada período, a fim de dividir o ciclo econômico em estágios, de acordo com a classificação de Marx. Chegamos à conclusão de que o ciclo referido pode ser dividido em 1997.Q3-2000.Q1: crise; 2000.Q2-2002.Q1: depressão; 2002.Q2-2005.Q4: recuperação; 2006.Q1-2008.Q1: pico. Além disso, nossa análise identificou flutuações econômicas anormais durante as fases de depressão e recuperação. Também verificamos que o excesso de conservadorismo na política monetária adotada pelo Banco Central do Brasil poderia ter impedido que a acumulação de capital atingisse a velocidade que teria em condições normais. Por fim, destacamos algumas características importantes da crise que marcam o início do próximo ciclo.

Palavras-chave: Superprodução. Ciclo econômico. Economia marxista. Economia brasileira.

JEL: B51. E32. E65.

Introduction

There are several perspectives from which the development path of an economy can be examined. In their study of the Brazilian economy from 1950 to 2020, Marquetti *et al*. (2023) analyze the main drivers of economic growth, dividing the period into distinct phases according to dominant development models: 1950–1980—developmentalism; 1980s—the lost decade; 1990–2003—neoliberalism; 2003–2015—developmentalism and neoliberalism; and 2016–2020—neoliberalism.

Another important aspect of development is the pattern of economic fluctuations that shape this process. Economists identify this feature of capitalist development as the business cycle, often dividing each cycle into a set of successive phases. However, the methodologies used to date business cycles frequently vary depending on the theoretical framework on which they are based.

In Brazil, the most prominent institution to monitor this phenomenon is the Comitê de Datação de Ciclos Econômicos (CODACE) from Fundação Getúlio Vargas' Instituto Brasileiro de Economia (IBRE/FGV), which follows the Burns and Mitchell's (1946) classification (CODACE, 2009). According to CODACE's methodology, business cycles are divided into expansion and recession periods. They are recurrent, but not periodic, and can last from over one to ten or twelve years. Even though no explicit statement regarding the theoretical framework is given by the committee, this particular business cycle characterization is compatible with the Real Business Cycle (RBC) theory, presented in works such as Plosser (1989), King and Plosser (1984), and Kydland and Prescott (1990).

According to the RBC approach, the crises that mark the business cycle compass are a consequence of random negative supply shocks, which affect productivity and, as a consequence, economic activity. This approach, however, has been criticized by heterodox and even mainstream economists. Stiglitz (2014, p. 336), for example, states that models designed for business cycle analysis that are focused on exogenous shocks tend to mislead researchers, since most of the relevant shocks are endogenous. That is, the majority of economic crises are a consequence of structural transformations and/or persistent shocks.

The RBC theory also contrasts with empirical works such as Juglar (1862), Korotayev and Tsirel (2010), Mendel'son (2013), and Almeida

and Almeida Júnior (2022), which present evidence of regularity in the industrialized capitalist economies' cyclical movement. Other heterodox theoretical approaches, however, take this regularity as an assumption. An example is the Marxian theory of overproduction cyclical crisis. In Marx's (1956a, 1956b, 1969, 1973, 1991) crisis theory, the phenomenon results from the fact that capital accumulation necessarily generates overproduction and, consequently, crises. Here, the term "necessarily" carries philosophical significance, as capital accumulation not only generates the necessary and concrete conditions for the emergence of the real possibility of crisis, but also periodically matures these conditions, transforming the real possibility into actuality (Mendonça, 1990; Ribeiro, 1988, 2008; Almeida Júnior, 2016, 2019, 2023). Each crisis, however, reestablishes the appropriate environment for accumulation by destroying excess capital. A new economic expansion will then generate overproduction once again so the process can repeat itself. According to Marx (1956b, p. 110), the regularity that characterizes the referred process is closely linked to the renovation of constant fixed capital. Nevertheless, it is important to highlight that the theory does not exclude the possibility of crises that are unrelated to the described dynamics.

If Marx's analysis is accurate, then the dynamics of capital accumulation in capitalist economies is, to some extent, predictable. Hence, knowing the stage of the business cycle in which the economy is currently in is key in predicting what is about to come. However, using CODACE's reports for that purpose can mislead economic agents, since the committee's analyses assume that economic fluctuations are, in general, unpredictable. In contrast, a group of Marxian economists has been using an alternative approach to date the Brazilian business cycle. It is based on a particular interpretation of Marx's crisis theory, the Mendonça-Ribeiro interpretation, which was used in works such as Ribeiro (1988), Mendonça (1990), Silva (2002), Almeida Júnior (2016, 2023), and Almeida and Almeida Júnior (2019, 2023). The group's goal is to bring the periodization of Brazil's business cycle up to date.

As such, the purpose of this paper is to continue dating the Brazilian business cycle using the alternative approach outlined above. Specifically, we aim to date the cycle that follows the one analyzed by Almeida Júnior (2023), building on and deepening the earlier effort by

Almeida Júnior (2016), who also examined this cycle[1]. As a result, the delimitation of the period examined here was done after our analysis was concluded. Our theoretical base and methodology are discussed in sections 2 and 3, respectively. The empirical analysis, in turn, is presented in section 4. Finally, we review our main conclusions in section 5. We sincerely hope that our work can contribute to the empirical research on business cycles.

1. Theoretical Framework

The Mendonça-Ribeiro interpretation emerged from the joint work of Mendonça and Ribeiro (1985) and evolved through the theoretical work of Mendonça (1990), Ribeiro (1988, 2008) and Almeida Júnior (2013, 2016, 2019). Its most recent version is presented in Almeida Júnior (2019, pp. 97-113, 2023, pp. 469-475). Here we discuss the main aspects of this interpretation.

According to Mendonça (1990) and Ribeiro (2008), the essential characteristic of the crises that mark the business cycle compass is overproduction. In the dialectical materialism terminology, their content encompasses three elements: 1) the production of an ever-increasing number of commodities, 2) the generation of an ever-increasing number of consumers, and 3) the emergence of barriers that prevent consumption (Ribeiro, 2008, pp. 89-106). The generation of these elements through capital accumulation manifests in the rupture of several unities of opposites, such as purchase x sale, money acting as measure of value x money acting as realization of value, production x consumption, and production x circulation. According to Marx (1969, p. 716), however, the abstract forms of crisis—as the separation of purchase and sale, for example—are necessarily contained in the more concrete ones. Given this, Almeida Júnior (2016, p. 80) argues that, ultimately, the crisis' content will manifest through two forms: the rupture of the unity of opposites production x consumption and of the proportionality between different branches (anarchy of production).

[1] Given the limitations of scope and, above all, of space for theoretical discussion, the various interpretations of Marx's crisis theory will not be addressed here. A substantial part of the debate can be found in Leontief (1968), Sherman (1988), Carcanholo (1996), Laibman (1997), Evans (2004), Grespan (2009), Filgueiras and Druck (2010), Toporowski (2018), and Guijarro and Vera (2022).

For the crisis to happen, however, its content needs to be generated by another phenomenon acting as its cause. According to Almeida Júnior (2023, p. 471), the cause in question is the shock of the opposite poles of capitalism's fundamental contradiction, that is "the impulse toward unrestricted development of the productive forces and the capitalist antagonistic relations of production and consumption".

The author explains that overproduction is one of the social results of competition between individual capitals. Since the market price is a weighted average of individual prices of production, capitalists strive to implement more productive techniques, which enables them to appropriate surplus profits. Moreover, market prices tend to fall as these new techniques spread throughout the economy, creating a permanent incentive to increase productivity. As a general economic behavior, this also pressures down the market price of labor power, maintaining real wages. Thus, on the one hand, production is growing rapidly, which increases the exigency under consumption. On the other, the consumption of the vast majority of society, the working class, is restricted to its usual limits. In other words, there is a greater quantity of use-values in circulation, but there is no corresponding increase in the circulation of value in the hands of the class that constitutes the largest number of consumers, the working class. Therefore, while capital accumulation expands the conditions for surplus-value extraction, it also tends to narrow the conditions for surplus-value realization, weakening the unity between them. When this unity ruptures, it can only be reestablished violently, by an economic crisis (Almeida Júnior, 2023, pp. 470-471).

Nonetheless, the real essence of these economic crises is not overproduction of commodities, but of capital. In other words, a crisis erupts essentially because the number of commodities that can be absorbed by the market does not match what capitalists need to sell to operate with reasonable profit. Hence, in order to restore the proper environment for capital accumulation, the excess capital needs to be destroyed. This destruction of capital marks the beginning of a new business cycle, which starts in the crisis stage.

During the crisis, production cuts are carried out through collective breaks or by dismissing workers, which tends to decrease demand even further. As a consequence, several consumers and companies will be in

default of their debits, leading to an increase in bankruptcies. When the destruction of capital begins to cease, the economy reaches the depression stage (Almeida Júnior, 2023, pp. 473-474).

Less companies in the market implies a higher market share for the ones that endured the crisis. The survivors also tend to be the more productive firms, which causes a down pressure in the general profit rate. This fall in profit rate means that capital accumulation in some activities dominated by precapitalist production becomes economically viable. This is why the destruction of capital is the mechanism through which crises reestablish the proper conditions for accumulation. Once that happens, the economy starts to grow again and enters the recovery phase (Almeida Júnior, 2023, p. 474).

In this stage, most of the economic growth is a consequence of the usage of idle capacity. However, as soon as this capacity reaches a low enough level, new investments are made, generating new demand which, in turn, leads to increased investments. The specific moment in which this happens is heavily influenced by the physical and moral depreciation of constant fixed capital (Almeida Júnior, 2023, p. 472). Nevertheless, when it happens, competition ensures that the economic growth is characterized by the development of productive forces, initiating the peak phase (Almeida Júnior, 2023, p. 474). Finally, as we have discussed, the accumulation process once again leads the economy to a new business cycle.

Still according to Almeida Júnior (2023, p. 473), because of financialization, crises tend to assume the appearance of financial crises in contemporary capitalism, as credit and the formation of fictitious capital became intrinsically linked to productive accumulation. According to Marx (1991, pp. 607-652), this phenomenon was already present in nineteenth-century capitalism. When inventories, indebtedness and defaults increase to a certain point, they tend to cause the reversal of the agent's expectations regarding the economy's capability of proceeding with accumulation. Then, the market value of fictitious capital plummets and the firms' latent productive capital that was seeking fictitious profits[2] is destroyed. As such, since the destruction of capital necessarily begins in the financial sphere, most crises appear to have originated from there,

[2] A concept created by Reinaldo Carcanholo and Maurício Sabadini (Carcanholo and Sabadini, 2009). It refers to profits earned by fictitious capital owners in operations in the financial market.

even though they are a consequence of productive accumulation. It is worth mentioning that these reversals of expectations that trigger overproduction crises can also be generated by exogenous negative shocks, if latent overproduction is already present in the economy.

Regardless of the appearance that the phenomenon assumes, the fact is that the development of capitalist economies is subjected to cycles of economic expansion and contraction. However, that does not mean that this cyclical movement cannot be influenced by exogenous shocks such as economic policies. As Marx (1956a, 1956b, 1969, 1973, 1991), Draguilev (1961), Shaikh (1978), Mendonça (1990), Ribeiro (1988, 2008), Almeida Júnior (2016, 2023), Almeida and Almeida Júnior (2023) and many other Marxian authors would argue, countercyclical policies can and will affect the business cycle. Nevertheless, these policies cannot prevent the economy from behaving as expected for too long.

When countercyclical policies are used to prevent the economy from expanding too quickly, it takes longer to generate overproduction. In addition, the crisis that follows the expansion tends to be less severe, as a consequence of a slower accumulation. On the other hand, when these policies are used to prevent a crisis from happening, they are only preserving the exact process that generates overproduction: capital accumulation. In this situation, there are only two possible outcomes. If the stimuli are not enough to convince capitalists that the realization issues will disappear, it results in a less severe crisis at the expense of reducing accumulation speed in the next expansion. However, if capitalists are convinced that those stimuli will take care of all realization issues, the limit of the mismatch between the conditions for extraction and realization of surplus-value will expand. As a consequence, it will take longer for the economy to reach the rupture point, intensifying the severity of overproduction. The tendency toward overproduction cannot be dissociated from capitalism.

2. Methodological Procedures

The business cycle dating methodology of the Mendonça-Ribeiro interpretation has evolved since it was first used by Mendonça and Ribeiro (1985). Ribeiro (1988), Mendonça (1990), Silva (2002), Almeida Júnior

(2016, 2023), and Almeida and Almeida Júnior (2019, 2023) contributed to this evolution process. In its current form (Almeida Júnior, 2023), the analysis begins by detrending the economy's Gross Domestic Product (GDP).

The variation of any time series can be divided into various components according to their frequency. This is accomplished by using a filtering process. With that in mind, RBC, neo-Keynesian and other theorists created several filtering processes specifically designed for business cycle analysis. They are built to decompose the time series into two components: 1) the cyclical component, encompassed by high and/or medium frequency variations, and 2) the trend component, encompassed by low frequency variations. The former is taken as a proxy for the business cycle, while the latter is usually used to represent potential output.

As Canova (1998) and Burnside (1998) have pointed out, the results obtained in the procedure are sensitive to the choice of the filter and its parameters. This is a consequence of the fact that trend and cyclical components have different meanings for researchers, which reflects in the filters they create and the parameters they use. For example, a filtering process designed to reflect the RBC approach tends to preserve most of the high frequency variations in the cyclical component. That is because most of the phenomena that affect economic activity can be taken as a shock. In opposition, if the filtering process were to represent the Mendonça-Ribeiro interpretation of the business cycle, it would have to remove these variations from the referred component.

In this context, the Mendonça-Ribeiro interpretation focuses on the examination of fluctuations whose crises have overproduction as their essential characteristic. According to the study carried out by Mendonça (1990, pp. 73-81) on the world economy's business cycle, the interval between overproduction crises ranges from five to eleven years. Hence, in this interpretation, smaller short-run fluctuations are random deviations from the expected economic behavior and should be ignored.

Nevertheless, this does not imply that it is necessary to design a new filter in order to isolate what this interpretation identifies as a good approximation for the business cycle. The Baxter-King filter (Baxter and King, 1999) enables researchers to determine the frequency range they want to preserve within the cyclical component. Hence, the appropriate

proxy for the business cycle can be obtained by detrending the economy's GDP with five and eleven years or twenty and forty-four quarters as the frequency range.

Regarding the parameters of the procedure, Almeida Junior (2016, p. 162-163) recommends a maximum lag length of four (k = 4) for annual data and of sixteen (k = 16) for quarterly data. Furthermore, the author (Almeida Júnior, 2016, pp. 150-157) discusses additional reasons that justify choosing this method over the Hodrick-Prescott filter (Hodrick and Prescott, 1980, 1997). This discussion is also carried out in Almeida and Almeida Júnior (2022).

Once it is obtained, the cyclical component can be used as a reference for a more detailed analysis of the capital accumulation process. The aim of this next step is to examine economic data to determine how predominant characteristics of the macroeconomic environment change from one period to another and to classify these periods into crisis, depression, recovery and peak. The classification is carried out by comparing the predominant characteristics of each period to the ones ascribed to each business cycle stage by the theoretical framework. The examination focuses on the variables' growth rates.

To increase the precision in determining the transition between stages without losing the advantages of working with annual growth rates, Almeida Júnior (2016, pp. 157-158, 2023, p. 478) proposed working with four-quarter and twelve-month cumulative growth rates. The idea is to minimize the effect of random events—such as the existence of less business days from one period to another, city blackouts and so on—on the examined variables' values.

Following this methodology, first we extracted the cyclical component of Brazil's annual GDP using the Baxter-King filter. We used the same parameters used by Almeida Júnior (2016) and Almeida and Almeida Júnior (2022). Taking the GDP's cyclical component as reference, we proceeded with a more detailed (qualitative) analysis of Brazil's capital accumulation process. We used a variety of data to identify the main characteristics of each period in order to divide the business cycle into stages in line with Marx's classification.

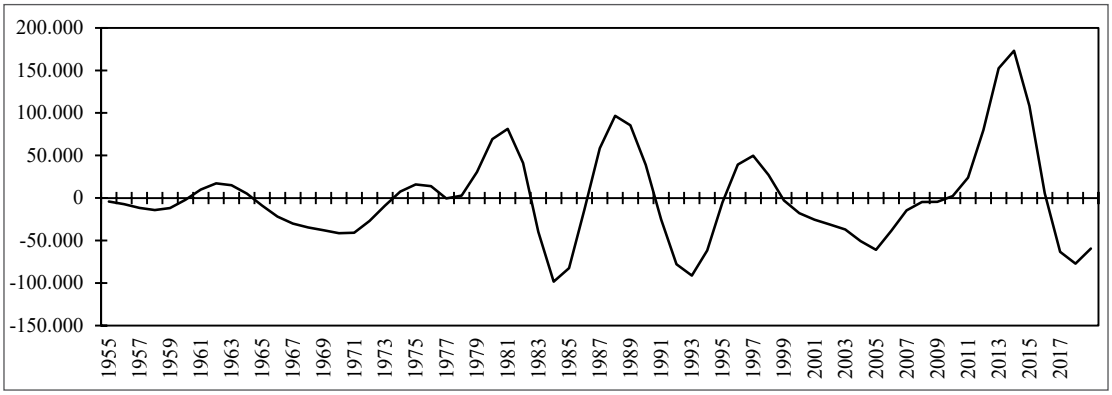
There are a few points that are worth mentioning here regarding the data. First, after considering what was presented by Cavalcanti and Negri

(2014), we adopted the ratio between physical production and number of hours paid in the industry sector as a proxy for the economy's productivity. However, in addition to not representing the entire economy, this indicator has two main flaws: it mistakes increase in absolute surplus-value for productivity growth, if work hours are increased without the corresponding payment; it also mistakes increase in absolute surplus-value for productivity growth, if employers use any means to increase labor intensity—such as the coercion of workers to perform their activities more quickly, for example. Second, before December 2005, FGV's reports on economic climate presented data on utilization of installed capacity in the industry sector only for January, April, July and October. Given this, the information is repeated for the two other months that make up the quarter. Finally, we did not present information on bankruptcies and court-supervised reorganizations divided by company size for the beginning of the period analyzed here, because the data is only available from 2007 onwards.

3. Dating the Fifth Cycle of the Brazilian Economy

As argued earlier, the cyclical component of annual GDP (obtained through the Baxter-King filter) will be decisive for dating Brazilian business cycles. Figure 1 below provides this information.

Figure 1 – Cyclical Component of Brazil's annual GDP: 1955-2019



Source: elaborated by the authors based on IBGE/SCN 2010.

Figure 1 shows that the Brazilian development follows the same pattern of other industrialized capitalist economies. Focusing on the pe-

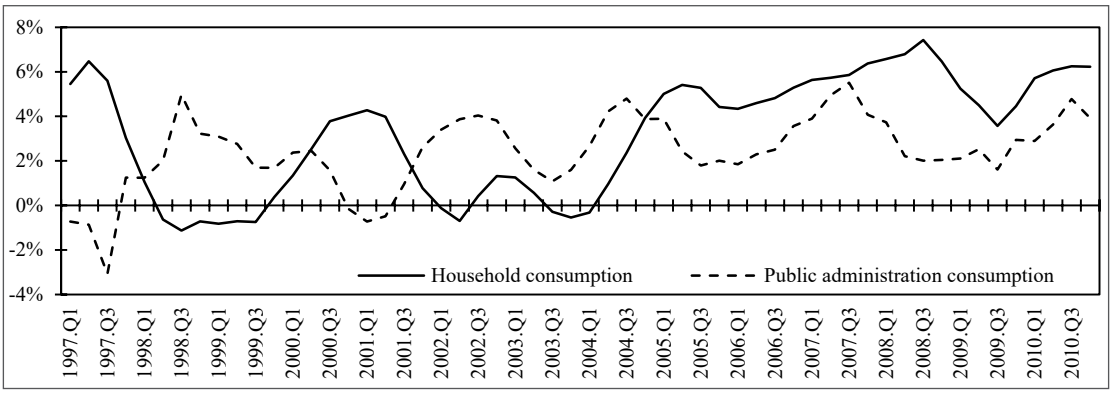
riod we intend to examine, Figure 1 also indicates the beginning of a cycle sometime between 1997 and 1998. According to Almeida Júnior (2023), the referred cycle begins in the third quarter of 1997. According to Ribeiro (1988, p. 456), Tavares (1998, pp. 148-149), and Almeida and Almeida Júnior (2022), the Brazilian business cycle started being endogenously determined in 1962. This first cycle encompassed the "Brazilian Economic Miracle" and ended after the First Oil Shock. Since then, Figure 1 shows the occurrence of four business cycles, until 1997. Therefore, the cycle initiating in the third quarter of 1997 is Brazil's fifth endogenously determined business cycle.

Hence, we need to follow the capital accumulation process in Brazil from the third quarter of 1997 onwards to identify the other stages of the referred cycle. Further analysis will reach the conclusion that this business cycle can be divided as follows: 1997.Q3-2000.Q1: crisis; 2000.Q2-2002.Q1: depression; 2002.Q2-2005.Q4: recovery; 2006.Q1-2008.Q1: peak. We have summarized our results here to help the reader follow our reasoning.

3.1 The Crisis Stage: 1997.Q3-2000.Q1

Once we identified the third quarter of 1997 as the beginning of the cycle, the next step is to determine when the crisis stage ends. However, the countercyclical policy carried out by Fernando Henrique Cardoso's (FHC) administration complicates this task. As we can see in Figure 2, household consumption growth rates plummeted from the third quarter of 1997 onwards, reaching a negative value in the second quarter of 1998. On the other hand, public administration consumption growth rates exhibited the opposite trajectory.

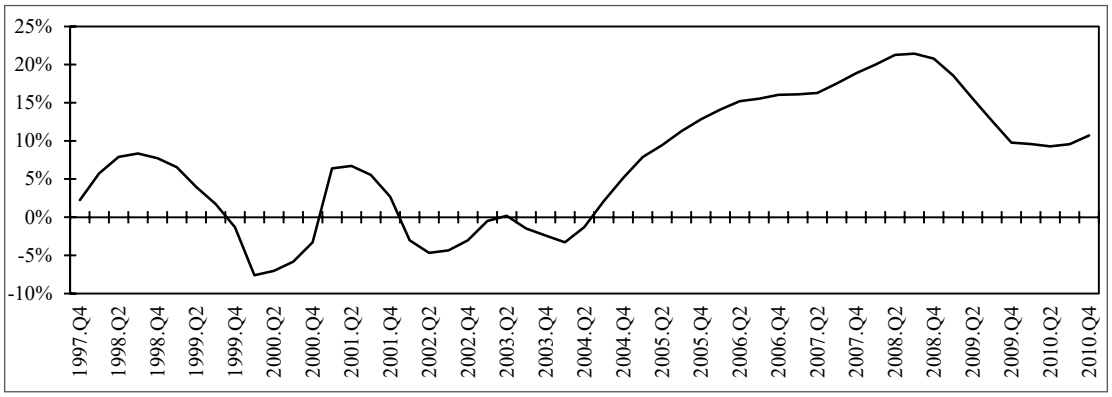
Figure 2 – Real four-quarter cumulative growth rates of household and public administration consumption: 1997.Q1-2010.Q4



Source: IBGE/Quarterly SCN 2010.

Moreover, data presented in Figure 3 indicates that the economy's liquidity was enhanced, allowing capitalists and consumers to receive, in advance, value that had not been produced or realized yet.

Figure 3 – Real four-quarter cumulative growth rates of credit operations to the private sector: 1997.Q4-2010.Q4

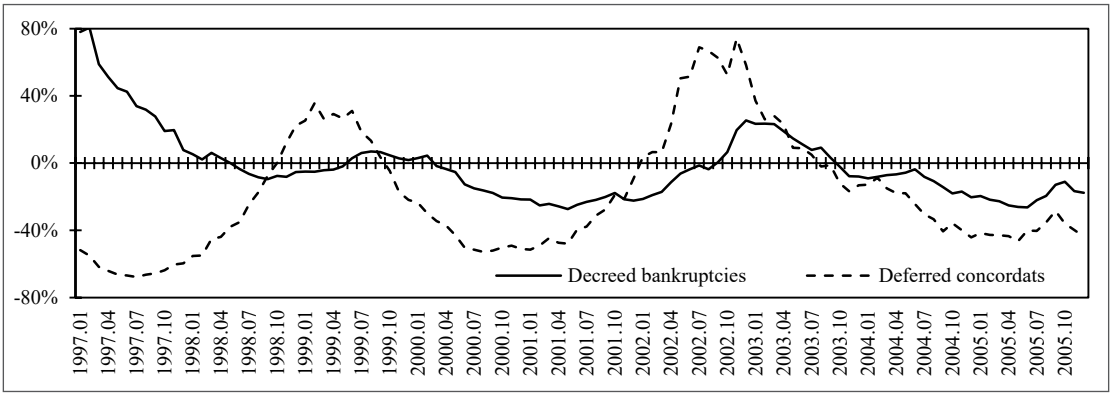


Source: elaborated by the author based on BCB Boletim/Moeda (monthly Brazilian Central Bank's Report) and IBGE/Quarterly SCN 2010.

Figures 4, 5, 6 and 7 bring us more information. As we can see in Figure 4, decreed bankruptcies exhibited substantial growth rates in 1997. It means that the crisis is playing its role, which is to destroy excess capital. The combination of these bankruptcies with the execution of countercyclical policies and decreasing production allowed the remaining firms to reduce their inventories during 1997 and 1998, as we can see in Figure 7. However, as the low level of economic activity increased unemployment

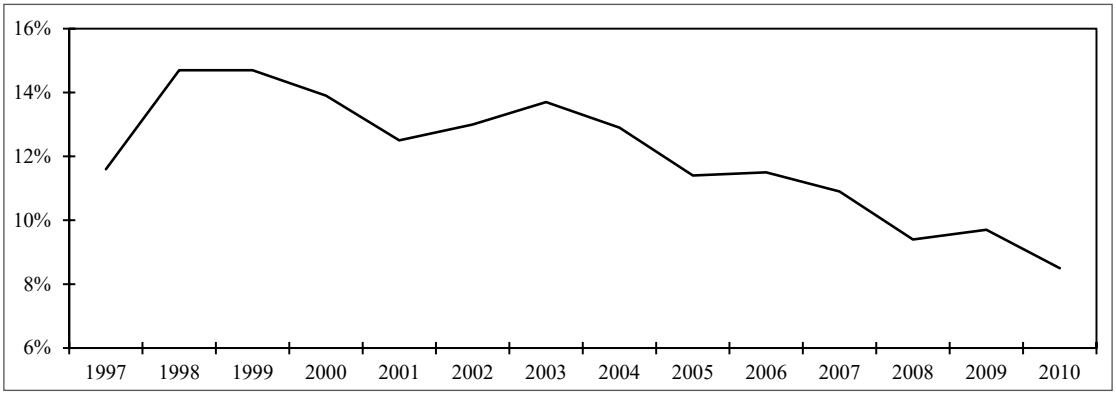
(see Figure 5), it further narrowed the conditions for surplus-value realization, which manifested as a return of the positive inventories variation from the first quarter of 1999 onwards. It also caused deferred concordats to reach expressive growth rates in the same year, as we can see in Figure 4. In June, decreed bankruptcies resumed their growth as well. Despite the scenario, capitalists started to increase production again and Brazil's GDP exhibited positive growth rates from the fourth quarter of 1999 onwards (see Figure 6). As the increase in economic activity generated more income, household consumption also grew (see Figure 2). The scenario promotes the recovery of investment from the third quarter of 2000 onwards, as can be seen in Figure 6.

Figure 4 – Twelve-month cumulative growth rates of decreed bankruptcies and deferred concordats: 1997.01-2005.12Source: Serasa Experian



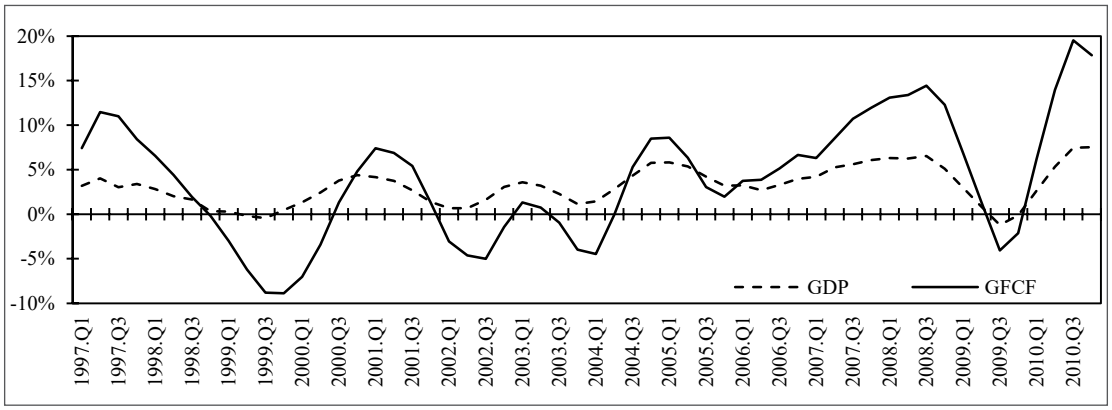
Source: Serasa Experian.

Figure 5 – Annual unemployment rate: 1997-2010



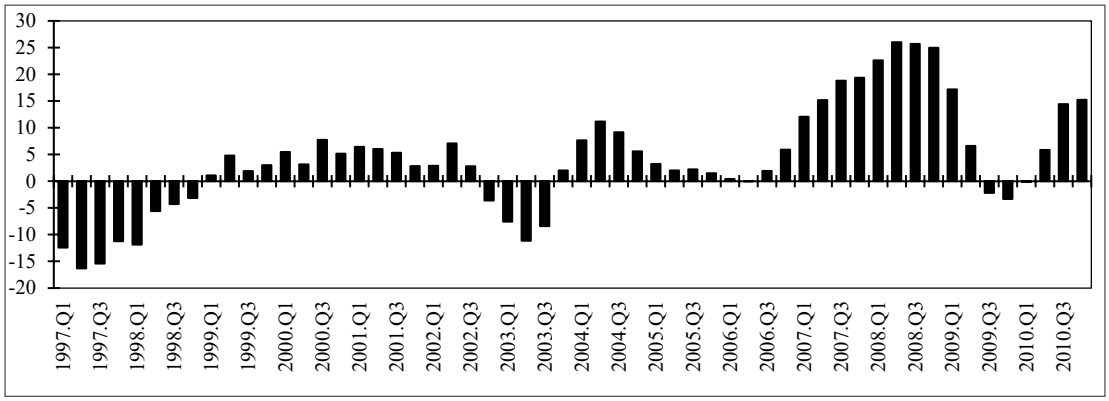
Source: International Monetary Fund's World Economic Outlook (IMF/WEO).

Figure 6 – Real four-quarter cumulative growth rates of GDP and Gross Fixed Capital Formation (GFCF): 1997.Q1-2010.Q4



Source: IBGE/Quarterly SCN 2010.

Figure 7 – Inventories variation (R$ billion) accumulated in four quarters at 1995 prices: 1997.Q1-2010.Q4

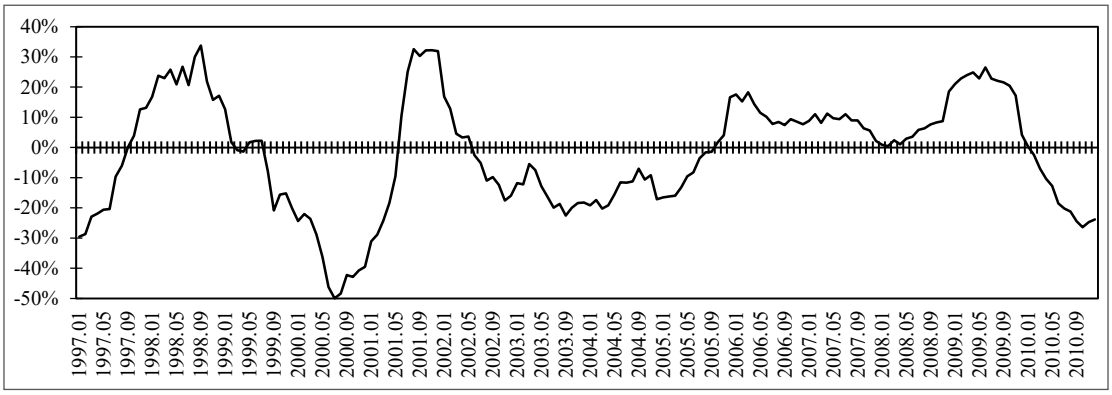


Source: elaborated by the author based on IBGE/Quarterly SCN 2010.

However, the expansion of the conditions for surplus-value extraction in the years 2000 and 2001 was not compatible with the narrow conditions for surplus-value realization at the time. As Tavares and Metri (2020, pp. 14-16) pointed out, the United States entered its crisis stage in 2000, which certainly affected the Brazilian economy as well as the rest of the world. As a consequence, inventories variation maintained expressive positive values in both years and GDP and GFCF growth rates had to adjust. The adjustment happened in the beginning of 2001 (see Figure 6). As we can see in Figure 8, defaults in the economy rose from June 2001 onwards as a part of this process.

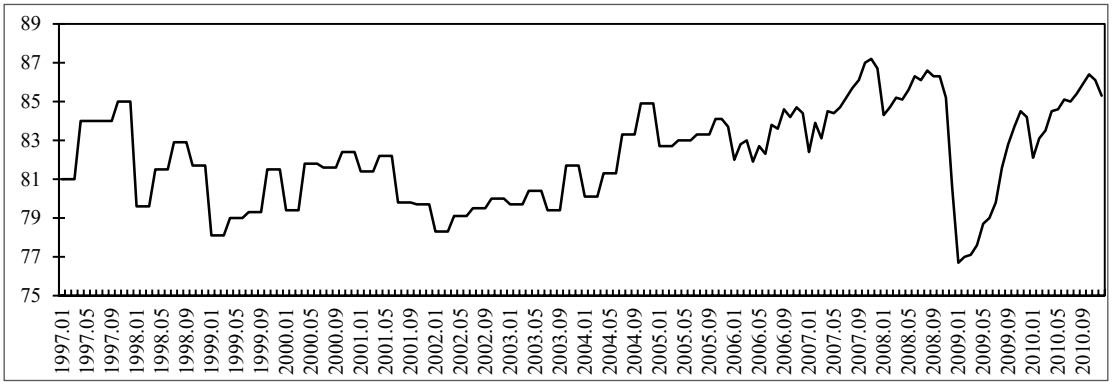
The information we presented so far, along with some additional data, leads us to the conclusion that the crisis stage ended in the first quarter of 2000 for four main reasons. First, decreed bankruptcies started to fall faster after the referred quarter, while the deferred concordats were already falling rapidly (see Figure 4). Second, as we can see in Figure 9, the economy's utilization of installed capacity reached its lowest level in the beginning of 1999. Third, as seen in Figure 5, unemployment rates reached their highest level in 1999. Finally, the dynamic between GDP growth and accumulation of inventories in the years 2000 and 2001 shows that the conditions for surplus-value realization were compatible with a situation in which the economy was preparing to resume capital accumulation.

Figure 8 – Twelve-month cumulative growth rates of default index in t-4: 1997.01-2010.12



Source: calculated by the author from the CSP/IEGV's (São Paulo's Commercial Association/Gastão Vidgal Economics Institute) monthly default index in t-4. The index is obtained by dividing the liquid debt default registration four months past due (received minus canceled) by the number of queries.

Figure 9 – Utilization of installed capacity (%) in the manufacturing: 1997.01-2010.12



Source: Getúlio Vargas Foundation's reports on economic climate (FGV/Conj. Econ).

Once we have identified the beginning of the depression stage, we can start analyzing it.

3.2 The Depression Stage: 2000.Q2-2002.Q1

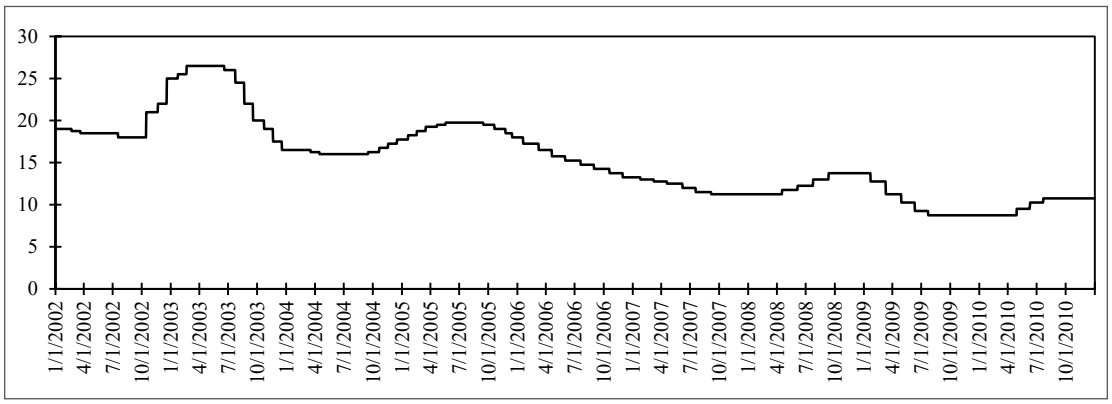
Examining the data presented so far, it is possible to conclude that the economic environment's deterioration trend disappeared in the second quarter of 2000. The number of decreed bankruptcies and deferred concordats fell (see Figure 4), the unemployment rate was stable (see Figure 5), the utilization of installed capacity also showed some stability, and the economy was capable of expanding at low rates (see Figure 6). As we discussed in section 2, these are characteristics of the depression stage, meaning that excess capital has been destroyed and the economy is getting ready to resume capital accumulation. Hence, we need to identify when this resumption occurs exactly. Further examination of the data shows that it occurred in the second quarter of 2002, meaning that the depression stage ended in the previous one.

Figure 6 shows a tendency for GDP growth from the second quarter of 2002 onwards, which is not followed by GFCF. Moreover, starting in April 2002, the utilization of installed capacity in the industry sector presented a growth tendency, as we can see in Figure 9. Hence, expansion seemed to be based on the utilization of idle capacity, which is expected for the recovery stage in our framework.

It is important to highlight that the data on unemployment, decreed bankruptcies and deferred concordats do not tell the exact same story. In our view, that is a consequence of the political disturbance caused by the 2002 presidential election. When it became clear that Luis Inácio "Lula" da Silva (hereinafter, Lula) would win the election, the economic agents started fearing a strong shift in economic policy. This uncertainty led to country risk increase (measured by C-Bonds rate of return), massive capital outflow, and an increasing exchange rate, which affected inflation through oscillations in import prices and expectations. As a consequence, the Brazilian Central Bank (hereinafter, BCB) responded by increasing the interest rate. As we can see in Figure 10, the BCB initiated a round of increases to the base interest rate (Selic) in the middle of October 2002. In February 2003, the Selic reached its peak (26.5 percent) and started decreasing again in June of the same year (Morais and Saad-Filho, 2011;

Werneck, 2014; Giambiagi and Além, 2016; Arantes e Lopreato, 2017; Giambiagi *et al.*, 2021).

Figure 10 – Brazilian base interest rate (Selic) determined by the Monetary Policy Committee (Copom): 01/01/2002-12/29/2010



Source: BCB Boletim/M. Financeiro e de Capitais (monthly Brazilian Central Bank's Report/Financial and Capital Market Section).

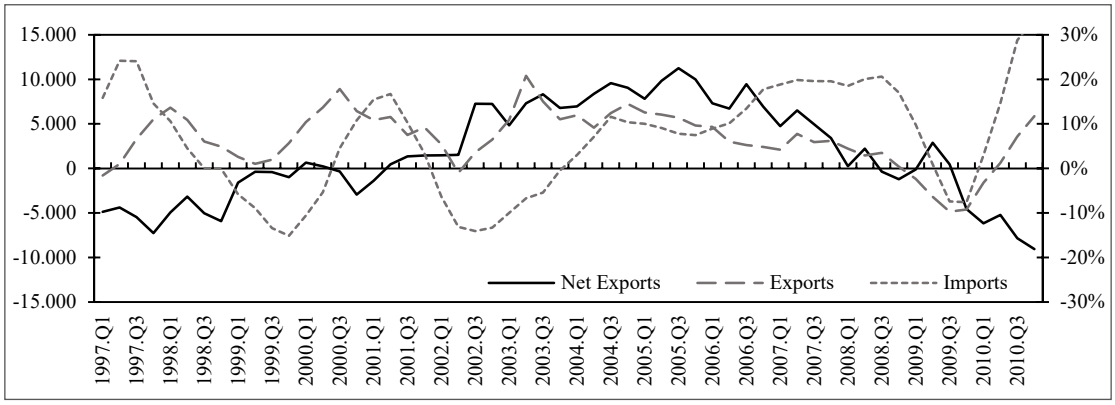
According to Bogdanski *et al.* (1999), changes in the interest rate take three to six months to affect consumer durables and investment. Hence, the behavior of the data on unemployment, decreed bankruptcies, and deferred concordats as well as the fluctuation in GDP growth rates can be explained by the BCB's monetary policy. By further examining Figures 6 and 10, we also noticed that the same thing happened again at the end of 2004/beginning of 2005.

In light of that, we endorse the understanding that the depression stage ended in the first quarter of 2002, despite the short-run fluctuations of economic activity caused by the BCB's monetary policy. With that established, we will go on to analyze the recovery stage.

4.3 The Recovery Stage: 2002.Q2-2005.Q4

The first important thing to highlight about the recovery process is that it is led by the foreign sector's performance and by government consumption. Figure 2 shows that the latter was growing at significantly higher rates than household consumption. Regarding the foreign sector, Figure 11 shows expressive growth of net exports from the third quarter of 2002 onwards, as a consequence of the growing exports and shrinking imports.

Figure 11 – Net exports accumulated in four quarters (left axis, R$ millions) and real four-quarter cumulative growth rates of exports and imports (right axis): 1997.Q1-2010.Q4



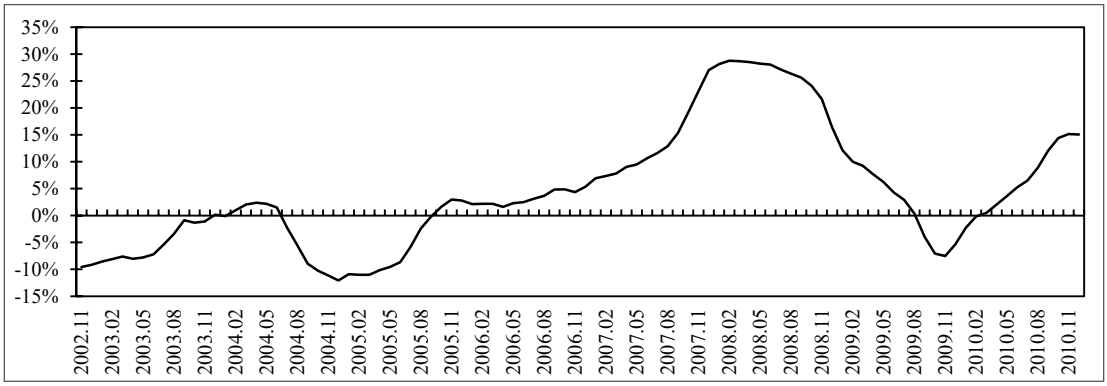
Source: IBGE/Quarterly SCN 2010.

The foreign sector's performance was a consequence of worldwide economic growth in that period, especially in China. The importance of China's growth for Brazil lays on the fact that it pressured the commodities prices to increase, improving the terms of trade in favor of primary exporters (Moraes and Saad-Filho, 2011; Werneck, 2014; Giambiagi and Além, 2016; Arantes and Lopreato, 2017; Giambiagi *et al.*, 2021).

However, as new income is created, consumption grows and also stimulates production growth, as we can see in Figures 2 and 6. As we already know, the growth was initially based on the increasing utilization of installed capacity. Nevertheless, as idle capacity decreases, capitalists are expected to feel pressured to invest, which will also generate more income. This acceleration of economic growth tends to make capitalists expect higher levels of demand in the future, which, combined with competition, pressures them to implement more productive techniques while investing. Therefore, in order to identify when the recovery stage ends, we need to identify when the development of productive forces becomes the essential characteristic of the capital accumulation process.

By examining Figure 6, we notice that GFCF started growing vigorously in 2004. However, by comparing Figures 6, 10 and 12, we find that, before the pressure for the development of the productive forces arose, the BCB's monetary policy slowed capital accumulation down, delaying the entry into the peak stage. This is the second important characteristic of the recovery phase of Brazil's fifth business cycle.

Figure 12 – Growth rates of the ratio between output accumulated in twelve months (quantum) and hours paid accumulated in twelve months in the manufacturing: 2002.11-2010.12



Source: Elaborated by the author based on IBGE/PIM-PF Antiga and IBGE/Pimes.

Nevertheless, following this round of base interest rate increases, GFCF growth resumed in the first quarter of 2006. This renewed acceleration of accumulation was accompanied by rising productivity in the industrial sector, which began in October 2005 and gained momentum from May 2006 onward (see Figure 12). This suggests that the expansion of productive capacity was accompanied by the development of the productive forces, leading us to conclude that the recovery phase ended in the fourth quarter of 2005. According to our theoretical framework, this movement is prompted by a reduction in idle capacity combined with the inherent pressure of competition. However, an additional factor may also have contributed to the simultaneous acceleration of accumulation and productivity growth. As shown by Oreiro et al. (2020), this period was marked by a growing overvaluation of the exchange rate. This would have enabled capitalists to import state-of-the-art equipment at relatively low cost.

Finally, we will examine the last phase of the business cycle: the peak stage.

4.4 The Peak Stage: 2006.Q1-2008.Q1

Before examining the peak stage, it is important to highlight some relevant characteristics of Brazil's economic expansion. As mentioned earlier, the world economy experimented rapid economic growth in the 2000s, which benefited Brazil through the foreign sector. However, in

our assessment, the excessive conservatism of the BCB's monetary policy prevented the Brazilian economy from fully benefiting from this scenario and reaching higher growth rates.

As we know, in an inflation targeting regime, monetary authority should respond to disinflation with base interest rate cuts (Bogdanski *et al.*, 1999). However, according to Giambiagi and Além (2016) and Giambiagi *et al.* (2021), after the 2002 political disturbance, the BCB reacted with excess caution to the disinflation process in Brazil. If we take into consideration that the base interest rate unidirectionally influenced the debt/GDP ratio during Lula's first and second administrations (Gadelha and Divino, 2008; Araújo and Besarria, 2014), we conclude that said caution imposed a higher fiscal effort to achieve fiscal targets. According to Arantes and Lopreato (2017, p. 20), this resulted in a lower public investment and public administration consumption. The high interest rates also discouraged private investment and private consumption of durable goods.

During Lula's second administration, the BCB finally intensified base interest rate cuts, although the Selic remained amongst the highest real base interest rates in the world, which resulted in exchange rate overvaluation, pressuring net exports down in the peak stage. The public sector also took advantage of the macroeconomic scenario to restructure its debt. The aim was to increase the share of prefixed and long-term bonds in public debt. To accomplish that, the National Treasury issued new bonds with these characteristics and used the revenue to buy the old ones. However, the operation was carried out before the base interest rate cuts, resulting in a lower impact in the public debt service and (again) in lower public investment and public administration consumption (Giambiagi and Além, 2016; Giambiagi *et al.* 2021).

The fiscal policy, in line with the monetary policy, also shifted in the second administration. According to Arantes and Lopreato (2017, p. 20), fiscal policy during Lula's first administration was guided by the expansionist fiscal contraction principle established by Giavazzi and Pagano (1990). In contrast, and still according to Arantes and Lopreato (2017, p. 23), in Lula's second administration the fiscal policy shifted towards stimulating economic growth and development. The shift was also influenced by the change in the economic scenario, which allowed higher

government spending. First, because the domestic currency appreciation melted the external debt, pressuring the net debt/GDP ratio down. According to Giambiagi *et al*. (2021, p. 216), equity adjustments responded for two thirds of the decrease in the net debt/GDP ratio. Second, because the higher GDP growth resulted in higher tax revenue growth, thus allowing expenditures to grow faster without putting the fiscal target at risk.

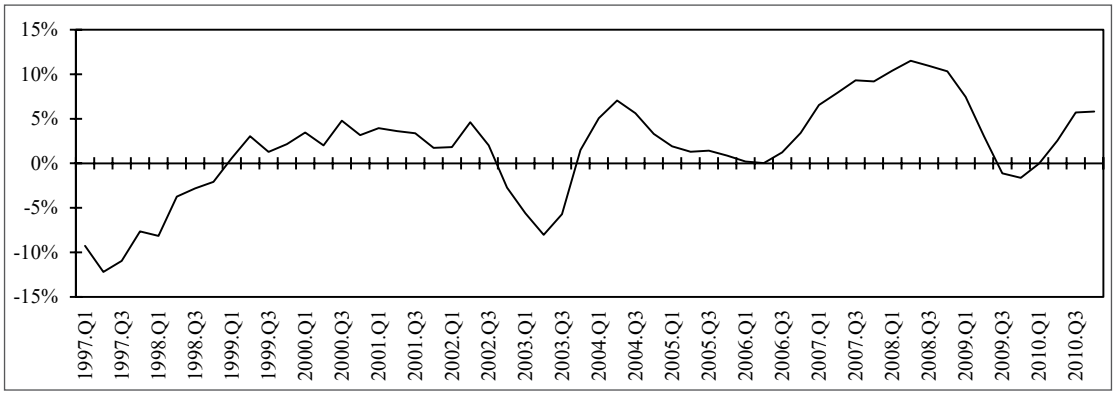
Nevertheless, Morais and Saad-Filho (2011, p. 525) argue that the shift in Lula's second administration economic policy—monetary and fiscal—resulted in an economic policy of a hybrid nature. It consisted of carrying out neo-developmentalist measures while preserving restrictive neoliberal policy goals. This combination resulted in a higher fiscal pressure derived from domestic currency overvaluation and the fiscal cost imposed by monetary policy.

It is also crucial to understand the transformations brought about by the country's productive restructuring in the 1990s and how these changes subsequently altered the conditions for the expanded reproduction of capital. As argued by Almeida and Balanco (2024a, 2024b) and Araújo, Almeida, and Leite (2025), this process simultaneously drove the national economy into deindustrialization and deepened its dependence on the global economy for capital reproduction. Almeida and Balanco (2024a, 2024b) analyze the transnational diffusion of domestically generated economic stimuli and show that, between 1995 and 2010, Brazil experienced a progressive erosion of its capacity to influence domestic economic expansion through both demand and supply-side mechanisms. In other words, the multiplier effects generated by domestic productive dynamics increasingly manifested abroad. This dynamic helps explain the marked increase in imports beginning in 2004, as shown in Figure 11. As a result, the potential for growth during the recovery and peak phases was weakened, ultimately diminishing Brazil's growth prospects throughout its fifth business cycle.

Therefore, considering the points presented, the country's monetary policy, together with its productive restructuring process, appears to have negatively affected the accumulation process, while its fiscal policy had a neutral impact. However, even though the Brazilian economy did not reach the accumulation rate that it would have reached without the re-

strictions imposed by monetary policy, as we found earlier, the investment wave that started in the first quarter of 2006 was characterized by the development of productive forces (see Figures 6 and 12). As our theory suggests, one of the effects generated by this process is the growing gap between the conditions for extraction and realization of surplus value. This can be observed by examining Figure 13.

Figure 13 – Inventories variation's share in Gross Capital Formation (GCF) (accumulated in four quarters): 1997.Q1-2010.Q4



Source: Elaborated by the author based on IBGE/Quarterly SCN 2010.

As we can see in Figure 13, from the third quarter of 2006 onwards, the inventories variation's share in GCF started rising, which was precisely when productivity started increasing more rapidly. If inventories variation is growing faster than GFCF, it suggests that accumulation started creating an imbalance between the conditions for extraction and the conditions for realization of surplus-value. In turn, as we can see in Figure 3, the limit between the mismatch of both conditions is being expanded by credit. The economy is moving toward overproduction and we have to identify the point when the crisis bursts in order to determine when the peak stage ends.

As discussed earlier, when latent overproduction exceeds a certain limit, only two outcomes are possible: 1) since inventories are piling up and companies are in debt, economic agents realize that accumulation cannot be sustained much longer, which will trigger the crisis through stock price drop and output decrease; or 2) an external shock anticipates the movement. The end of Brazil's fifth endogenously determined business cycle and the beginning of its sixth fall into the second scenario.

In June 2007, the rumors about the losses of two US hedge funds controlled by Bear Stearns led to the burst of a real estate bubble in the United States, with repercussions to the international financial market. The examination of the connections of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Association (Freddie Mac) to other international institutions illustrates how the negative impacts spread to the rest of the world.

As Farhi and Cintra (2009) pointed out, Fannie Mae's and Freddie Mac's total debt was US$800 billion and US$740 billion, respectively. Moreover, all mortgage bonds ensured by both companies were worth US$4.6 trillion. However, the possession of these assets was not restricted to US residents. For example, in June 2008, the total debt of US federal agencies in possession of foreigners amounted to US$1.66 trillion, of which US$1.1 trillion was in possession of public foreign institutions, while US$557 billion was in possession of private foreign institutions. Given this, it is reasonable to assume that an important part of Fannie Mae's and Freddie Mac's debt and ensured bonds was in possession of foreign institutions as well. In such a scenario, the bankruptcy of those companies certainly affected economies other than the United States.

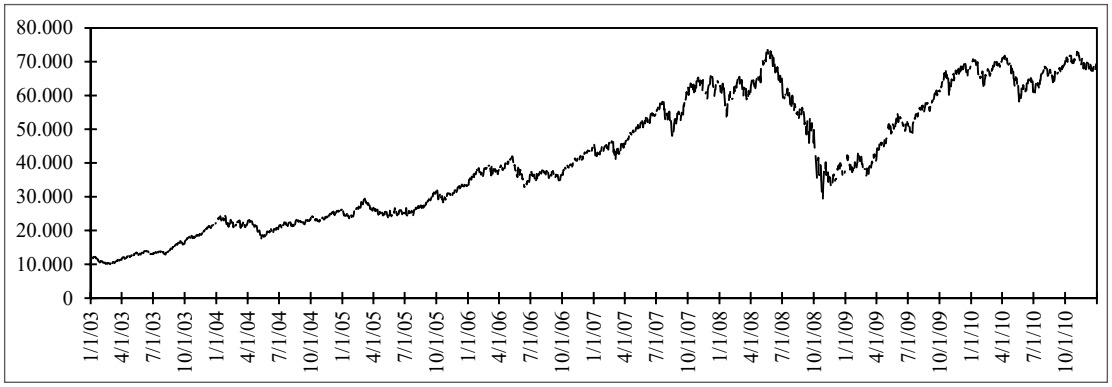
The world economy was also affected by the income decrease in the United States, which led to less imports. As a result, the financial market and the productive sector of other economies suffered a negative shock, with Brazil being among the affected economies. When the shock reached the Brazilian stock market, speculators turned their eyes to the productive sector and noticed that capital accumulation would soon take a downturn: the mismatch between the conditions for extraction and realization of surplus-value had reached its limit.

As we saw in Figure 13, in the second quarter of 2008, inventories variation reached its highest share in GCF. Figure 7 also shows that inventories variation reached its highest level in the referred quarter, when considering the period analyzed here. Moreover, Figure 8 shows an increase in defaults from May 2008 onwards. This scenario led to a reversal of expectations in the stock market. As we can see in Figure 14, in June 2008, asset prices plummeted, with the Ibovespa index reaching 29,435 base-points in October 27th, 2008.

The fact that the crisis' trigger—its non-essential cause—was an

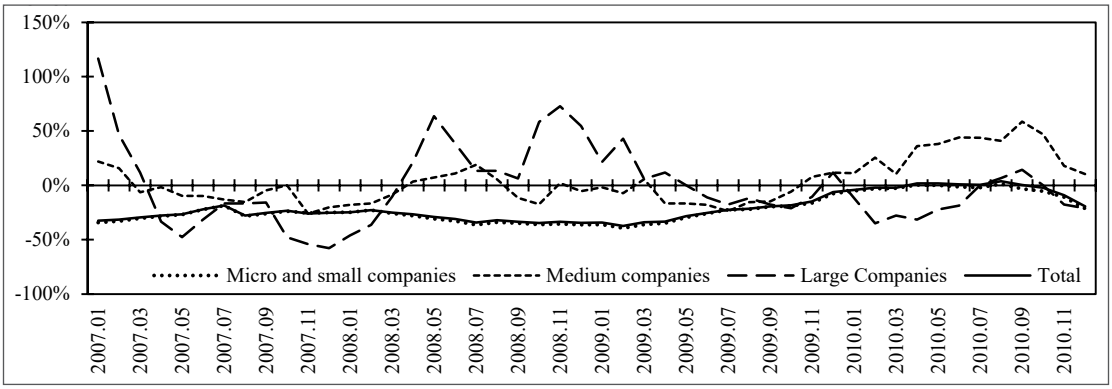
external shock also determined some particular characteristics of the Brazilian crisis. If we analyze Figure 15, we notice that large companies—the ones that are more likely to be linked to the stock market and the foreign sector—were the most affected by the crisis. They were the ones with more consistent increases in bankruptcies.

Figure 14 – Ibovespa stock index (closing): 01/01/2003-12/29/2010



Source: BM&F Bovespa (Brazilian Mercantile and Futures Exchange and São Paulo Stock Exchange).

Figure 15 – Twelve-month cumulative growth rates of decreed bankruptcies by company size: 2007.01-2010.12

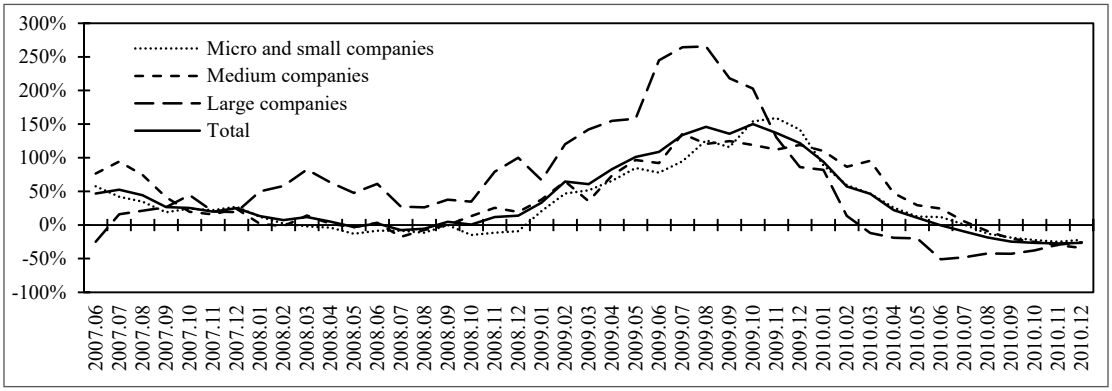


Source: Serasa Experian.

However, the examination of Figure 6 shows that GDP and GFCF growth rates continued increasing until the third quarter of 2008. By reexamining Figure 3, we notice that this can be explained by the expansion of credit operations, which anticipate value that has not been produced or realized yet. In the fourth quarter of 2008, however, capitalists realized that continuing to expand productive capacity and output would lead them to bankruptcy. As we can see in Figure 16, from October of

2008 onwards, court-supervised reorganizations started rising consistently. As a consequence, GDP and GFCF growth rates started to drop in the last quarter of the year, until they reached negative values in the third quarter of 2009. Utilization of installed capacity in the industry sector also dropped significantly from October 2008 onwards.

Figure 16 – Twelve-month cumulative growth rates of court-supervised reorganizations by company size: 2007.06-2010.12



Source: Serasa Experian.

Therefore, from the second quarter of 2008 onwards, the Brazilian economy presented all of the characteristics of an overproduction crisis. The substantial increase of inventories (see Figure 7 and Figure 13) and increasing defaults (see Figure 8) shows the narrowing of the conditions for surplus-value realization and the rupture of the unity of opposites production x consumption. The drop of the Ibovespa index (Figure 14) attests to the overproduction of fictitious capital. The decrease of GDP and GFCF growth rates and the reduction of utilization of installed capacity attest to the overproduction of capital in its productive form and also the rupture of the proportionality between different branches[3]. Fi-

[3] The rupture in proportionality between different branches is assumed here because, as the investment wave leads to overproduction, capitalists halt investment abruptly, causing a sharp decline in the demand for machinery and raw materials. As shown in Figure 6, the drop in GFCF growth rates is significantly more pronounced than that observed for GDP. Producers of means of production may attempt to adjust in order to maintain proportionality. However, in a context of rising bankruptcies and court-supervised reorganizations, the anarchy of production that characterizes the capitalist mode of production makes it unlikely that capitalists will reduce output in a manner that preserves proportionality between branches. The increase in inventories also attests to this rupture, as inventories include both consumer goods and raw materials.

nally, increasing court-supervised reorganizations and bankruptcies attest to the destruction of excess capital.

In light of that, we can establish that the fifth Brazilian business cycle ended in the first quarter of 2008, while its sixth began in the next quarter with the 2008.Q2 crisis. However, the examination of the data presented here enables us to perceive peculiar characteristics of the referred crisis.

The first point that stands out is the relatively mild extent of capital destruction. As shown in Figure 16, the number of companies entering court-supervised reorganization increased after October 2008, indicating that part of their capital was being destroyed. Nevertheless, the bankruptcies increase was almost exclusively restricted to large companies, which are usually the ones that do business abroad and operate in the stock market. This indicates that the conditions for extraction and realization of surplus-value could have grown even further apart if the crisis had not been triggered by the external shock.

The mildness of the crisis can also be attributed to the excessively contractionary monetary policy implemented by the BCB, along with the country's productive restructuring, both of which contributed to slower accumulation during the expansion phases. From the perspective of the Mendonça-Ribeiro interpretation, slower accumulation implies a smaller gap between the conditions for the extraction and realization of surplus-value. In other words, crises resulting from low rates of capital accumulation tend to be less severe.

Finally, the crisis was also followed by a rapid recovery, in which the economy reached even higher capital accumulation speed. Authors such as Barbosa (2010), Cunha *et al*. (2011), Borges and Montibeler (2014), Paula *et al*. (2014), and Borghi (2017) have linked the referred recovery to the use of countercyclical policies, which would also explain the mildness of the referred crisis. Therefore, it seems that the study of Brazil's sixth endogenously determined business cycle will demand careful consideration regarding the influence of these policies on the cycle. This, however, is something that falls beyond the scope of our study.

4. Concluding Remarks

Our study presented an alternative periodization of the Brazilian business cycle in the period 1997-2009. It was based on a particular interpretation of Marx's crisis theory: the Mendonça-Ribeiro interpretation. According to this, the period analyzed corresponded to Brazil's fifth endogenously determined business cycle. After analyzing the data, we have reached the following periodization: 1997.Q3-2000.Q1: crisis; 2000.Q2-2002.Q1: depression; 2002.Q2-2005.Q4: recovery; 2006.Q1-2008.Q1: peak. In turn, Brazil's sixth endogenously determined business cycle begins with the overproduction crisis that started in the second quarter of 2008.

Throughout the analysis, we identified some particular characteristics in the examined business cycle. First, it is worth mentioning that the economy presented abnormal behavior in the depression and recovery stages. This was linked to the 2000 US crisis, the political disturbance caused by the 2002 presidential election in Brazil, and the monetary policy carried out by the BCB. Furthermore, the expansive phases of the cycle were significantly constrained by the excessive conservatism of the BCB's monetary policy and the country's productive restructuring, both of which prevented capital accumulation from reaching the pace it would under normal conditions. Finally, a preliminary analysis suggests that the triggering of the 2008.Q2 crisis by the burst of the real estate bubble in the US financial market and the economic policies adopted by the Brazilian government deformed Brazil's sixth endogenously determined business cycle. As a consequence, studies of the referred cycle will certainly demand careful consideration from the researchers regarding this atypical behavior.

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