FOLHA DE ROSTO

Título: The long expansion and the profit squeeze: output and profit cycles in Brazil (1996-2016)

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Resumo: O objetivo do presente trabalho é contribuir para a compreensão da recente crise brasileira ao argumentar que ela se relaciona com uma compressão cíclica dos lucros que ocorreu entre 2009 e 2014, seguindo a longa expansão cíclica que se iniciou em 2003. Para tanto, são examinadas as trajetórias cíclicas do produto e da taxa de lucro da economia brasileira, ao longo dos cinco ciclos econômicos identificados entre 1996 e 2016, recorrendo-se à parte do arcabouço estabelecido por Weisskopf (1979) que foca-se nos ciclos. Os resultados indicam que compressões dos lucros são raras na economia brasileira, possivelmente devido ao caráter truncada e à fraqueza das expansões cíclicas. No entanto, uma compressão cíclica ocorreu no último ciclo, em parte como resultado do *boom* das *commodities*, uma vez que o último atenuou a vulnerabilidade externa da economia e permitiu uma expansão mais longa do que era usual.

Palavras-chave: compressão cíclica dos lucros, economia brasileira, decomposição da taxa de lucro, Weisskopf, modelo Goodwin-estruturalista

Códigos JEL: B50; B51; E32

Abstract: The aim of the present paper is to contribute to the understanding of the recent Brazilian crisis by arguing that it was related to a cyclical profit squeeze that took place between 2009 and 2014, following the long cyclical expansion that started in 2003. To do so, the cyclical trajectories of output and profit rates in the Brazilian economy, throughout the five business cycles that took place between 1996 and 2016, are examined by resorting to the part of the framework established by Weisskopf (1979) that focuses on cycles. The results indicate that profit squeezes are rare in the Brazilian economy, possibly due to the truncated character and the weakness of the business cycles' expansions. However, a profit squeeze did took place in the last cycle, partly as result of the commodities boom, as the latter attenuated the foreign vulnerability of the economy and allowed for a longer than usual expansion.

Keywords: cyclical profit squeeze; Brazilian economy; profit rate decomposition; Weisskopf; structuralist Goodwin model

JEL Codes: B50; B51; E32

Área ANPEC*:* 2 – Economia Política

Between 2014 and 2016, the Brazilian economy collapsed. After more than ten years of rates of economic growth above the recent historical average, real gross domestic product (GDP) fell almost 10 percent from its last peak, in the first quarter of 2014, to the most recent trough, in the last quarter of 2016. Unemployment rate, in its turn, more than doubled, surging from 6.2 to 13.7 percent between December 2013 and March 2017. The present paper aims to contribute to recent debates on the origins and determinants of such collapse. To do so, we resort to an empirical investigation of the cyclical trajectory of the profit rate in Brazil throughout the last five business cycles, from 1996 to 2016, following closely the framework established, in this *Journal*, by Weisskopf (1979). The present work, which uses extensively the results obtained by Martins (2017), is part of an ongoing research project that attempts to interpret the recent Brazilian economic trajectory from the standpoint of growth and distribution models (Carvalho/Rugitsky, 2015; Rugitsky, 2015, 2016, 2017; Gonçalves, 2017).

To the best of our knowledge, this is the first attempt to apply the part of Weisskopf's (1979) framework that focuses on the cyclical phenomena to countries other than the United States (U.S.). The rarity of this kind of research is probably due to the difficulty to obtain data for profit rates in a frequency adequate to examine cyclical dynamics. Most studies on profitability rely on annual data and, as a consequence, focus on longer-term trends.[1] Taking advantage of data made recently available (Souza Júnior, 2017), the present research computed a quarterly profit rate series from 1996 to 2016.

The results obtained seemed illuminating due to its contrast to the ones obtained for the U.S. economy, by Weisskopf (1979) himself and by subsequent research (Henley, 1987; Bakir and Campbell, 2006, 2009, 2017; Izquierdo, 2013). These investigations have suggested that a cyclical profit squeeze is one of the main determinants of cyclical dynamics in the U.S., with the expansion phase of each cycle bringing about a squeeze in the profit rate that eventually unleashes the contraction phase. In general, such a pattern does not seem to apply to Brazil, being hard to identify profit squeezes in its data. As a peripheral economy dependent on the exports of primary goods, the end of its cyclical expansions seems to be generally brought about by foreign shocks. It is also noteworthy that its cycles tend to be shorter, with expansion phases that are not long enough to tighten the labor market sufficiently for profits to be squeezed: the U.S. economy went through only 4 cycles between 1980 and 2009 and their average length was more than 7 years (28.9 quarters), whereas the Brazilian economy went through 7 cycles between 1983 and 2009 and their average length was less than 4 years (14.9 quarters).[2]

The fact that cycles in peripheral economies are exogenously determined is, of course, an old theme from Latin American structuralism. A recent examination of this issue by the Economic Commission for Latin America and the Caribbean (ECLAC), resorting to data for 59 countries from 1990 to 2010, found similar results (ECLAC, 2012: chap. 3; see also Pérez Caldentey, Titelman, and Carvallo, 2014): the average duration of cycles is shorter in Latin America and the Caribbean than in other regions, like East Asia and OECD member countries (ECLAC, 2012: 101). Moreover, it is noteworthy that the difference is explained mainly by the contrasting duration of the expansion phases of the cycles, with contraction phases being more homogeneous in their duration across regions. The Brazilian case is singled out in this analysis due to the fact that the expansion phases of its cycles, in this period, were even shorter and had smaller amplitude than the Latin American average. ECLAC (2012: 100-1) argues that such "truncated expansion phases," characteristic of the region, are "determined by external shocks (particularly in relation to access to international liquidity and terms-of-trade fluctuations) and procyclical policies."

The last cycle of the Brazilian economy, however, shows a pattern similar to the one identified for the U.S. economy. In the fourth quarter of 2009, some quarters into the expansion phase, the profit rate peaked and started to decline. Then, after a long profit squeeze, the contraction phase began in the first

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[1] For the case of Brazil, see especially Marquetti, Maldonado, and Lautert (2010) and Marquetti and Porsse (2014). Weisskopf (1988) himself had to change his framework when he extended his research to other rich countries, having available only annual figures.

[2] According to the dating of cycles by, respectively, the National Bureau of Economic Research (NBER) and the Brazilian Committee on the Dating of Business Cycles (CODACE). This difference remains if alternative periods are considered. The average length of all 11 cycles that the U.S. economy went through since 1945 is just below 6 years (23.2 quarters) and the cycles for the Brazilian economy considered in this research, that is, those between 1995 and 2016, had an average of a little more than 4 years (17 quarters).

quarter of 2014. It is plausible that the magnitude of the collapse that followed can be, at least partly, attributed to the fact that it was the compounded result of a foreign shock and a profit squeeze. As it will be suggested below, such profit squeeze, an uncommon occurrence in the Brazilian economy, was probably allowed by the commodities boom (on the latter, see Erten and Ocampo,2013; and Reinhart, Reinhart, and Trebesch, 2016). It is suggested from this recent history that, when foreign bonanzas allow the Brazilian economy to grow for periods longer than usual, it becomes subject to the cyclical profit squeeze dynamics that seems to be typical of rich economies. In this way, the present research contributes to the examination of the specificity of the distributive conflict and of class struggle in peripheral economies.

The identification of the profit squeeze in the run-up to the crisis does not entail disregarding other potential determinants of the collapse. The debate on such determinants is still far from settled, but critical economists tend to emphasize the crucial role played by (i) the turn to austerity, in late 2014, (ii) the political crisis that began with the massive protests of 2013, was aggravated by the impeachment of President Dilma Rousseff (from the Workers' Party) in 2016 and resulted in a deep rearrangement of the Brazilian party system in the election of 2018, in which a candidate from the extreme-right, Jair Bolsonaro, rose to the presidency, and (iii) the fall of commodities prices, which had peaked in 2011, at the end of the boom, and fell significantly in 2015 (see, for a sample of this debate, Singer (2015, 2018), Serrano and Summa (2016, 2018), and Saad-Filho and Morais (2018)).

It is arguable that the occurrence of a profit squeeze, from 2009 to 2014, rather than being a fourth main determinant of the crisis, can be seen as a determinant of the turn to austerity and of the political crisis themselves. The distributive conflict that resulted from the profit squeeze seems to have contributed decisively to Rousseff's decision to shift economic policy towards austerity, after the election of 2014. It likely also contributed to the decision by the ruling classes to support, in spite of the turn to austerity, the impeachment process that was initially articulated by the opposition parties in Congress.[3] In what concerns the commodities prices, it certainly had many effects in the Brazilian economy, reducing foreign demand and putting pressure on the balance of payments. But its effects on the profit rate, through the capacity/capital ratio, cannot be underestimated, as the data presented in the following sections indicate.

1. CYCLICAL PROFIT SQUEEZE: THEORY AND HISTORY

The usefulness of Weisskopf's (1979) framework can be more clearly suggested by presenting it alongside certain growth and distribution models.[4] In 1967, Goodwin suggested that Volterra's predator and prey model could be used to represent Marx's interpretation of the business cycle. More concretely, he conceived a framework in which growth and the functional distribution of income determine each other, leading to cycles in employment and the wage share. The impact of distribution on growth resulted from assuming: (i) that, following Kalecki, there are savings only out of profits; (ii) that savings automatically become investment (Say's law); and (iii) that the capital/output ratio is stable. Goodwin (1967: 54) claimed that the last assumption was of "an empirical sort" and admitted that it was "disputable", while the first two were made "for convenience." It follows from the three assumptions above that a higher profit share raises the savings rate and, consequently, the investment rate. Faster accumulation of capital, in its turn, leads to faster economic growth (the two rates must be equal in order to keep the capital/output ratio constant). Resorting to current jargon, one could argue that this formulation is the equivalent, in a savings-driven model, of a profit-led growth regime.

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[3] It could be argued that the connection between the profit squeeze and the contraction is weakened by the fact that the former began almost three years before the latter. However, as will be discussed in the following sections, the effects of the profit squeeze on capital accumulation might have been attenuated by a payroll tax reduction that was implemented from 2012 onwards (Scherer, 2015). This reduction seems not to have been able to avoid ultimately the accentuation of the distributive conflict and the deterioration of the political situation, which eventually contributed to creating the conditions for the contraction. In addition, such lag between the profit squeeze and the contraction is in line with the one found in the research for the U.S. economy (see, for instance, Izquierdo, 2013: 465-7)

[4] This presentation was in part inspired by Lavoie's (2017) recent analysis of Weisskopf (1979). For a recent literature review of cyclical profit squeeze theories that focuses rather on the Marxist contributions, see Basu, Chen, and Oh (2013: 577-580).

The other side of the model consists of the impact of growth on distribution. This resulted from the assumption that real wage "rises in the neighbourhood of full employment" (1967: 54). When output growth is faster than labor productivity growth (he assumed the latter grew at a constant, exogenous rate), employment increases, strengthening the bargaining position of the workers, pushing real wages up, and squeezing the profit share (once real wage growth is faster than labor productivity growth). One could call this inverse relation between growth and the profit share a profit-squeeze distributive schedule (following Barbosa-Filho and Taylor, 2006). Putting everything together, the result would be a cyclical trajectory. When employment is low, real wages grow less than labor productivity, increasing the profit share and accelerating output growth. Such growth would increase employment until real wage growth surpassed the growth of labor productivity, squeezing profits. The resulting lower profit share cuts down capital accumulation and ends up decreasing employment. Eventually, the weakened bargaining position of workers is reflected in lower real wage growth and the profit share recovers, reinitiating the cycle.

Briefly put, Goodwin (1967) formalized a cyclical profit squeeze, based on the periodical depletion and reconstitution of the reserve army of labor, providing a mathematical representation of an argument elaborated by Marx (1867/1976: chap. 25). For the purposes of the present paper, it is useful to consider the implications of Goodwin's (1967) cycle for the trajectory of the profit rate, decomposed in the way suggested by Weisskopf (1979: 342):

$$\rho = \frac{\Pi}{K} = \frac{\Pi}{Y}\frac{Y}{Z}\frac{Z}{K} = \sigma_\pi \varphi \zeta$$

where ρ stands for the profit rate, Π is the volume of profits, K is the capital stock, Y is output, and Z is potential output (that is, output produced at full utilization of productive capacity). In this way, the profit rate can be decomposed in three elements, the profit share of income (σ_π), the capacity utilization rate (φ), and the capacity/capital ratio (ζ). Given that Goodwin (1967) assumed a stable capital/output ratio, he disregarded the trajectories of the utilization rate and the capacity/capital ratio (which, when multiplied, result in the output/capital ratio). It follows that his profit share cycles are also profit rate cycles.

Barbosa-Filho and Taylor (2006) formulated a version of Goodwin's model that essentially entailed the incorporation of the principle of effective demand.[5] They called it a "structuralist Goodwin model." Instead of output growth, in their model it is the capacity utilization rate that interacts with distribution to generate cycles. Correspondingly, the cycles are in utilization and the wage share.

The main novelty of their model lies in the impact of distribution on utilization[6]. Abandoning Say's law, they assume that output is determined by effective demand and that the latter, in its turn, is a function of income distribution (following Kaleckian growth and distribution models, pioneered by Rowthorn (1981), Dutt (1984), Taylor (1985), Blecker (1989), and Bhaduri and Marglin (1990)). Assuming a higher propensity to consume out of wages than out of profits, a higher profit share decreases consumption, but has a positive impact on investment. Depending on the parameters, a direct or an inverse relation can result between the profit share and utilization. The former case is called the profit-led

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[5] Another model of demand-driven cycles inspired by Goodwin was formulated by Skott. For a comparison of the latter with Barbosa-Filho and Taylor's, see von Arnin and Barrales (2015).

[6] The impact of utilization on distribution is explained by the same underlying mechanism that links growth to distribution in Goodwin's model. An increase in utilization pushes real wages up, resulting in a rate of growth above that of labor productivity, squeezing profits. Hence, they call it a "Marxist" distributive curve. Some of the literature on the cyclical profit squeeze assumes that, in the late expansion phase of the cycle, the rate of labor productivity growth is pushed down at the same time that real wages are being pushed up. The logic behind such effect is that "an increase in working class power enables workers to resist more successfully capitalist efforts to increase work intensity (via increased discipline, speed-ups, and other measures designed to increase labour efficiency units per hour of work) and thereby to reduce the rate of growth of labor productivity." (Weisskopf, 1979: 346) See also Boddy and Crotty (1975: 8) and Goldstein (1996: 57). There are also reasonable grounds to suppose that an increase in utilization accelerates rather than decelerates the rate of labor productivity growth, as Barbosa-Filho and Taylor (2006: 398) suggest, due to "technological, scale and composition effects" (the so-called Kaldor-Verdoorn law would be an example). Be that as it may, the inverse relation between utilization and the profit share depends only on the impact of utilization on wages being stronger than its impact on productivity. It does not require rising utilization to decrease the rate of growth of labor productivity, neither it is incompatible with such decrease.

demand regime, while the latter is the wage-led one. Based on data for the U.S., they argue that the profit-led case is the most relevant one and focus their discussion on it. This option entails that the cycle that emerges from their model is similar to Goodwin's (1967), except for the role played by effective demand.[7]

Regarding the cyclical trajectory of the profit rate, however, Barbosa-Filho and Taylor's (2006) model goes beyond Goodwin's in a significant way.[8] The cycles in the capacity utilization rate imply that the assumption of a stable capital/output ratio is abandoned. The reason is that, as shown in Weisskopf's (1979) decomposition of the profit rate, the output/capital ratio moves along the utilization rate, assuming that changes in the latter are not compensated by changes in the capacity/capital ratio. Consequently, the structuralist Goodwin model's cyclical dynamics of the profit share and of utilization tend to result in more complex profit rate cycles. Dividing the trajectory into four phases, one can summarize their results in the following way:

(A) Starting from a low capacity utilization rate, both utilization and the profit share increase, the former due to increasing demand (a result of the above-average profit share) and the latter due to slack in the labor market. Rising utilization and profit share both increase the rate of profit.

(B) The previous increase in utilization results in a tight labor market, with real wages growing above labor productivity and, consequently, squeezing the profit share. Given that the profit share, despite starting to fall, is close to its highest level in the cycle, demand is still increasing and bringing about further increases in utilization.[9] The trajectory of the profit rate depends on the relative strength of the two antagonistic forces (a falling profit share and a rising utilization rate).

(C) The third phase is the beginning of the contraction. The previous decrease in the profit share becomes large enough to reduce aggregate demand and utilization. Due to the fact that the latter, despite falling, is still close to its peak, workers remain in a strong bargaining position to further squeeze the profit share. The profit rate decreases in this phase, with the simultaneous fall of the profit share and utilization.

(D) The fourth phase is the final part of the contraction. It is characterized by the gradual recovery of the profit share, an effect of the fall of utilization that began in the previous phase and that resulted in a working class weakened by rising unemployment. Given that the profit share, despite starting to increase, is close to its lowest level in the cycle, demand is still falling and bringing about further decreases in utilization. Once more, the trajectory of the profit rate depends on the relative strength of the two antagonistic forces (a rising profit share and a falling utilization rate).

Such models allow one to identify determinants of the cyclical dynamics of growth and distribution in capitalist economies, combining explanations for the trajectories of capital accumulation and of the distributive conflict between capital and labor. But mechanically applying them to illuminate specific historical episodes may lead to misleading results. Weisskopf's (1979) empirical strategy allows

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[7] Another way to interpret the meaning of Barbosa-Filho and Taylor's (2006) extension of Goodwin's (1967) model is to argue that they conceived of a framework that combines two variants of the Marxist literature on cycles, the "rising strength of labor" variant and the "realization failure" one, whereas Goodwin (1967) incorporated only the former. See, on the debate between the different variants of explanation of the cyclical profit squeeze, Boddy and Crotty (1975, 1976), Sherman (1976, 1997), Weisskopf (1979, 1988), Goldstein (1996, 1999), and Basu, Chen, and Oh (2013).

[8] It might be useful to clarify that Barbosa-Filho and Taylor's model does not focus on the trajectory of the profit rate, emphasizing rather the cyclical trajectory of the profit share. Whereas the profit share is the variable of interest to examine the cyclical dynamics of the functional distribution of income, there is some debate whether capitalists focus on the profit share or the profit rate in their investment decisions. Kaleckian literature, in particular, is divided on this issue: for a summary of this debate, see Lavoie (2014: 370-375). For a profit (rate) squeeze to be relevant, the necessary assumption is that the profit rate is the main variable of interest for capitalists or, at least, for the dynamics of a capitalist economy.

[9] It is noteworthy that the cyclical interaction between demand and distribution is determined by both schedules, not only by the demand regime. Thus, despite the assumption that aggregate demand is profit-led, during this phase B, which is precisely the profit squeeze, utilization increases whereas the profit share falls.

one to examine the data for specific cycles from the standpoint of the models discussed above, but it also helps to assess whether particular cyclical trajectories deviated from the one predicted by the models.

Weisskopf (1979) himself thought of his framework as destined to evaluate empirically different variants of Marxian crisis theory, that is, the different Marxian explanations for the law of the tendential fall in the profit rate. Those explanations are usually associated with the long-run phenomena, but he argued that they could also be considered as theories "of short-run cyclical declines in the rate of profit (to explain capitalist business cycles)." (p. 341). With the data available to him, he examined both long-run and short-run dynamics.

Only the part of his work concerning cycles is of interest for the present research. It began by dividing each of the five cycles that the U.S.' economy went through between 1949 and 1975 in three phases, as suggested by the fact that, in each cycle, the profit rate peaked before output. The first phase, designated phase A or early expansion, was dated from the trough of real output to the peak of the profit rate. Phase B, or late expansion, began at the peak of the profit rate and ended in the peak of real output, while phase C, also called contraction, lasted from the peak of output to its subsequent trough. With this division, he estimated the change in the profit rate (and in its components) in each phase of each cycle and then averaged the results obtained for the same phases of all cycles.

Very briefly, the results he obtained were the following. The profit rate increased in phase A, in the average for the 5 cycles, due to increases in the profit share and in utilization. Then, in the late expansion (phase B), a profit (rate) squeeze was the result of a falling profit share, which more than compensated the modest increase in utilization. Finally, during the contraction (phase C), the profit rate was further brought down by an additional decrease in the profit share and by a decline in utilization. The trajectory of the capacity/capital ratio did not have much impact on the profit rate in any phase of the cycle.

Weisskopf's (1979) results can be seen as an empirical vindication of the structuralist Goodwin model for the U.S. economy. The trajectories observed on phases A and B are the ones predicted for the first two phases of the demand and distribution cycles, described above. And Weisskopf's (1979) results complement the theoretical description by pointing out that in the late expansion the decline in the profit share more than compensates for the increase in utilization, resulting in a profit rate squeeze. Weisskopf (1979: 350) opted for not dividing the contraction into two phases and so his phase C should be read as the combination of the two contraction phases of the theoretical cycles described above (the ones referred to as C and D).

The present paper is an attempt to contribute to the sparse efforts that make use of the approach developed by Weisskopf (1979) – like Henley (1987), Bakir and Campbell (2006, 2009, 2017), and Izquierdo (2013), all of them focused on updating the framework for the more recent U.S. cycles – and to analyze whether his results are valid for other periods or for other economies, especially peripheral ones. It should be mentioned as well that the present research is also related to other attempts to interpret the current Brazilian crisis by focusing on the trajectory of the profit rate, like Rocca and Santos Jr. (2014), Marquetti, Hoff, and Miebach (2016), Pinto et al. (2016), and Martins (2017).

It is assumed, in order to interpret the empirical results in light of the theoretical framework described above, that the Brazilian economy is characterized in the period in question by a profit-led demand regime and a profit-squeeze distributive schedule. Such assumption seems in line with the burgeoning literature that attempts to estimate these schedules from Brazilian data, which in most cases tend to find a profit-led demand regime (see, for instance, Araújo and Gala, 2012; Oreiro and Araújo, 2013; Feijó, Câmara, and Cerqueira. 2015; Feijó, Lamônica, and Bastos, 2015; Gonçalves, 2017; and Jesus, Araújo, and Drumond, 2018). Attempts to estimate the distributive schedule are less common, but there is evidence for the profit squeeze one (Gonçalves, 2017). A detailed investigation of the cyclical dynamics of demand and distribution in Brazil since the early 2000s, which also assumes a profit-led demand regime and a profit-squeeze distributive schedule, can be found in Rugitsky (2017).

2. OUTPUT AND PROFIT CYCLES IN BRAZIL (1996-2016)

Data for the five Brazilian business cycles that took place between 1996 and 2016 are presented in Table 1 and Figure 1, below. Details about sources and the method for computing the profit rate, as well as its decomposition, can be found in Appendix 1. It is remarkable that cycle I does not have a phase B (late expansion), as defined by Weisskopf (1979), given that output and profit rate peak at the same quarter. In cycles II, III, and IV, in their turn, the profit rate peaks between one and two quarters before output, so that, given the inherent imprecision in the dating of cycles, these short profit squeezes should be interpreted with caution. Finally, cycle V has the three phases well defined and so is reminiscent of the U.S. cycles.

It should be noted that attempts to update Weisskopf's (1979) work to more recent U.S. data also found a cycle without phase B, the one between 1980 and 1982 (Henley, 1987; Bakir and Campbell, 2006, 2009, 2017; and Izquierdo, 2013).[10] The latter is usually explained as an expansion cut short by Volcker's contractionary monetary policy, so that it did not last long enough to significantly impact the labor market and, through this impact, squeeze profits (Brenner, 1998/2006: 194-198).

[TABLE 1 AND FIGURE 1]

Is there a similar explanation for the mentioned pattern of the first four Brazilian cycles under consideration? That is, were there also factors exogenous to the cycles that prematurely interrupted the cyclical expansions? The first cycle, from the third quarter of 1995 to the first quarter of 1999, roughly coincides with the first Fernando Henrique Cardoso government (1995-1998), a period marked by the price stabilization that followed the implementation of the Real Plan and by the implementation of neoliberal reforms (Belluzzo and Almeida, 2002: chap. 8; Fishlow, 2011: 44-47, 50-65; Nobre, 2013: 69-89). Such a cycle was characterized by the expansion that had the lowest average quarterly rate of growth among the eight expansions from 1983 to 2016. The expansion was too weak to put pressure on the labor market and the average unemployment rate actually rose every year during the expansion, from 1995 to 1997. Besides being weak, it was also short, lasting only 9 quarters, whereas the average length of expansions is 12.4 quarters (taking into consideration the 5 cycles examined). Such expansion could not have led to a cyclical profit squeeze and the profit rate fell only with the onset of the contraction, which was mainly determined by the contagion from the East Asian crisis (Brenner, 2002/2003: chap. 6; Palma, 2006), which ultimately led to the abandonment of the fixed exchange rate regime in early 1999.

The subsequent cycle, from the first quarter of 1999 to the fourth quarter of 2001, was similar in several aspects, being characterized by a short and weak expansion that had little impact on the labor market. Its expansion phase was a quarter shorter than the one of the first cycle, but it was slightly stronger[11]. In this case, the unemployment rate fell, but very mildly: the average rate for 1998, the year of the previous contraction, was 8.4 percent, whereas the average for 2000, the last year of the expansion, was 7.8 percent. The data suggest that the profit rate peaked in the last quarter of 2000, while the expansion lasted until the first quarter of 2001, but the mentioned evidence points against interpreting this interval as a late expansion characterized by a cyclical profit squeeze. This second cycle roughly coincides with Cardoso's second government (1999-2002), which was characterized by the establishment of the so-called macroeconomic tripod: inflation targeting, flexible exchange rates, and primary surplus targets (Pastore and Pinotti, 2005; Farhi, 2006; Nobre, 2013: 89-100). The policy shift did not succeed, however, in reducing the fragility that plagued the economy and the expansion was eventually cut short, mainly, by the Nasdaq crash that ultimately led to a recession in the U.S. (Brenner, 2002/2003: chap. 10) and in other rich countries, being the contraction intensified by an energy crisis in Brazil in mid-2001.

Cycle III, from the fourth quarter of 2001 to the second quarter of 2003, comprises the last year of Cardoso's second government and the crisis triggered by the speculation around the election in which Luís Inácio Lula da Silva, from the Worker's Party, was first brought to office (Pastore and Pinotti, 2005; Paulani, 2008). Its expansion was even shorter than the previous two, lasting only 4 quarters, and again the unemployment rate rose, instead of falling. The immediate determinant of the contraction phase that

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[10] Goldstein (1996: 59) argues that the expansion of the cycle between 1980 and 1982 "is better interpreted as a blip in a collapse that extends from 1979-82." See also Goldstein (1996: 71).

[11] Average annualized quarterly growth rate was 3.7 percent, instead of 3.5 percent.

began in the fourth quarter of 2002 was the economic turmoil related to the election that took place in October. Anticipating the victory of Lula, capital flight led to a depreciation of 64 per cent of the Brazilian real against the dollar, between April and October 2002. To contain the impact of the depreciation on the inflation rate, the central bank increased the nominal interest rate from 18 to 26.5 percent, between October 2002 and March 2003, in a procyclical move common in peripheral economies (Kaminsky, Reinhart, and Végh, 2005; Ocampo, Rada, and Taylor, 2009).

The fourth cycle, from the second quarter of 2003 to the first quarter of 2009, is similar to the previous three in the fact that it ended due to the impact of a foreign shock: in this instance, the contagion effects of the financial crisis that erupted in the U.S. in the fall of 2008. However, it differs from the previous ones in the length and strength of its expansion: it lasted for 21 quarters and its average annualized quarterly rate of growth was 5.2 percent. Such long and strong expansion was bound to impact the labor market: the average unemployment rate declined from 12.3 to 7.9 percent, between 2003 and 2008. As a consequence of this impact, of policies adopted in the period, and of changes in the occupational structure (along with technical change), the profit share oscillated around a declining trend throughout the period (see Rugitsky, 2017), but that was compensated by increases in the capacity utilization rate and the capacity/capital ratio. The profit rate could thus keep increasing until the contraction, peaking only one quarter before output. This trajectory will be further analyzed in the next section.

In historical perspective, it is important to note that the cyclical trajectory of the profit rate in these four cycles represented an oscillation around a mild upward trend that contrasts with the long-term decline of profitability since the 1950s (Marquetti and Porsse, 2014). This inflection in the historical trend, during the first three cycles, was a consequence both of a stabilization of the output/capital ratio and of an increase of the profit share, a result in its turn of the weakening of the working classes that accompanied the implementation of neoliberalism. In the words of Marquetti and Porsse (2014: 65), "[t]his change was apparently connected with the effects of neoliberal reforms and macroeconomic policies relating to employment and wages, which strengthened the political power of the capitalist class." The heightened external fragility resulting from the processes of trade and financial liberalization that began in the early 1990s and the ensuing truncated cyclical expansions, kept unemployment rates at high levels, blocking even a temporary, cyclical recovery of the bargaining position of the workers, until the commodities boom and the long expansion (see below).

To further examine the cyclical pattern of the Brazilian economy, the rates of change of the profit rate for each phase of the cycles (early expansion, late expansion, and contraction) can be decomposed in its three determinants: the profit share, the capacity utilization rate, and the capacity/capital ratio. The results are presented in Tables 2, 3.1 and 3.2 and in Figure 2, below.

[TABLES 2, 3.1 AND 3.2 AND FIGURE 2]

The results obtained have several similarities to the ones presented by Weisskopf (1979), even though the first four cycles examined here were cut short by exogenous factors, thus not presenting cyclical profit squeezes. Such similarities suggest that the cyclical interaction between the relevant variables take place despite the "truncated" character of the expansions. The increase in the rate of profit during the early expansion, phase A, is mostly explained by an increase in the profit share both in the Brazilian (Table 2) and in the U.S. (Weisskopf, 1979: table 4) cases. An increase in utilization also plays an important role. In the late expansion, phase B, in its turn, the decline of the profit rate is almost exclusively explained by the decrease of the profit share, with the utilization and the capacity/capital ratio playing minor roles, also both in the Brazilian and in the U.S. cases.[12] Finally, during the contraction, phase C, the main determinants of the decline of the profit rate are falls of the profit share and of

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[12] Given that three of our four phases B are hardly typical representatives of a cyclical profit squeeze, it might be more adequate to compare the average results for the U.S. with the one obtained for the phase B of last Brazilian business cycle being examined (Table 3.2). In the latter case, the decline of the profit share is still the main determinant of the fall in the profit rate, but a decline in the capacity/capital ratio has a similar impact. This cycle will be examined in more detail in the next section.

utilization – in the U.S. case the role of the profit share is a bit larger, whereas in the Brazilian case the opposite is true. In all phases, the role of the capacity/capital ratio is almost negligible in the U.S. case, while in the Brazilian one, its impact is a bit larger, but it remains a secondary determinant.[13]

One could argue that the rarity of profit squeezes in the Brazilian case makes the above comparison less compelling as a dynamic as the one suggested by the theoretical literature examined in section 1 seems not to characterize the Brazilian economy. However, the rarity in itself seems to be an interesting result, contributing to the understanding of the specificity of business cycles and of the distributive conflict in peripheral countries like Brazil. In addition, the fact that such an uncommon phenomenon, the profit squeeze, did take place between 2009 and 2014 could help to interpret the depth of the collapse that followed. If the pressure of the workers on profits tended to be constrained by the truncated cyclical expansions, it is plausible that, once it was unleashed by a long expansion, it would have deep political and economic consequences, something further analyzed in the next section.

It should be noted, finally, that the results presented above, in Tables 2, 3.1, and 3.2, seem to be robust. First, an alternative series for the profit rate was calculated using a different estimate of the capital stock[14]. Second, the decompositions of the changes in the profit rate were calculated based on two other slightly different datings of the cycles and of the cycle phases. The results of all these different calculations, which are available upon request, were qualitatively very similar. However, the use of a different measure of utilization has a greater impact on the results, enhancing the role of the capacity/capital ratio in the trajectory of the profit rate and reducing that of utilization. For a presentation of this alternative and a brief analysis of its implications, see Appendix 6 (available upon request).

3. THE COMMODITIES BOOM, THE LONG EXPANSION, AND THE PROFIT SQUEEZE

Taking into consideration this summary of the data for the last five Brazilian business cycles, the present section will focus on an examination of the profit squeeze that took place in the last late expansion, between 2009 and 2014, and of its origins. Figures for the unemployment rate suggest that, in fact, the contraction that resulted from the onset of the crisis in the U.S., in 2008, should be interpreted as a short interruption of a long expansion that took place between 2003 and 2014, comprising the two Lula's governments and the first government by Dilma Rousseff. The unemployment rate, which was at 12.3 percent in 2003, reached 7.9 in 2008, remained practically stable in 2009 (with an average of 8.1), despite the contraction, and went on falling afterwards until 2014, when it had reached 4.8 percent.

It is not unlikely that the early expansion of the fourth cycle was close to turn into a profit squeeze when it was suddenly cut short by the contagion effects of the crisis that began in the U.S. It had lasted more than 5 years, being, by a wide margin[15], the longest expansion that took place in Brazil of all the business cycles that have been dated (that is, from 1983 onwards). Moreover, the rise of the profit rate was determined by increases in utilization and in capacity/capital ratio, which more than compensated the observed decrease in the profit share, and both variables had reached their peaks, for the period between 1996 and 2016, in 2008. That is, their increase in cycle V did not take them to the level they had attained in cycle IV (see Figure 2 and Table 3.2). Be that as it may, the contraction that began in mid-2008 decreased sharply the three components of the profit rate, creating the conditions for a new increase that took place in 2009. This short early expansion, however, would probably not have led to a profit squeeze were it not for the fact that it began in conditions (especially regarding the labor market) very close to the ones in which the previous expansion ended.

The first issue to be addressed is the reason why this long expansion was possible, given that expansions are typically weak and truncated not only in Brazil, but in Latin America as a whole, as mentioned previously. This characteristic is mainly a consequence of the region's vulnerability to foreign shocks. Hence, a long expansion could only come about if such vulnerability were, for some reason,

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[13] It is true that such phase averages overcast the differences among the individual cycles, as can be seen in the results presented in Tables 3.1 and 3.2, but that is also the case in the research with data for the U.S. economy.
[14] Using a share of the quarterly capital stock form Souza Júnior (2017) that approximates the non-residential capital stock (see Appendix 1).
[15] Just two other expansions lasted longer than 3 years, one in the early 1980s and the one from cycle V.

attenuated. The 2000's commodities boom and the abundance of liquidity related to it did precisely that. It allowed the Brazilian economy to run current account surpluses from 2003 to 2007 and the government to accumulate billions of dollars in foreign reserves, becoming a net external creditor. According to Biancarelli, Rosa, and Vergnhanini (2017), this "new reality" of the Brazilian balance of payments allowed the economy to go through its longest expansion to date without facing currency shortages, to absorb the foreign shock of 2008, avoiding a currency crisis, and to resume growing quickly despite the deterioration of international liquidity conditions. In what concerns the cyclical dynamic, such attenuation of foreign vulnerability allowed the demand and distribution cycles to run its course without being prematurely interrupted by balance of payments' difficulties.

It is, of course, true that the commodities boom also had another effect on the cycle, shifting its center of gravity to a higher utilization level, given that it represents a long expansionary shock, having persisted until 2011 (Rugitsky, 2017). The magnitude of this positive impact is suggested by the fact that the commodities boom in question lasted twice as long as the average one (12 and 6 years, respectively) and resulted in a change in real commodities prices that was more than twice as large as the average increase (88.7 and 39.1 percent, respectively), according to Reinhart, Reinhart, and Trebesch's (2016: table A1, online appendix) data for all the 13 commodities booms that they identify between 1790 and 2015. The bust, in its turn, was not as significant, lasting only 4 years (in comparison to an average of 6 years) and reducing real commodities prices in 25.1 percent (slightly less than the average decline of 25.8 percent). It did have a contractionary impact on the Brazilian economy through "indirect channels" (Biancarelli, Rosa, and Vergnhanini, 2017), but it did not result in a sudden contraction.[16]

The first Lula government (2003-2006) took advantage of the policy space provided by the commodities boom to adopt measures that increased aggregate demand, especially an institutional stimulus to household borrowing[17], an acceleration of the real increases of the minimum wage and an expansion of social transfers (*Bolsa Família* program). The rise in exports that resulted from the commodities boom also played a role in stimulating demand. Moreover, in the turn from the first to the second Lula's government, a deliberate attempt to increase direct public investment takes place alongside an increase in investment by state enterprises (mainly by Petrobras, the oil company). All these factors contributed to the first part of the long expansion, the early expansion of cycle IV (see Barbosa-Filho and Souza, 2010; Serrano and Summa, 2012; Corrêa and Santos, 2013; Carvalho and Rugitsky, 2015; and Rugitsky, 2017).

The increase in the profit rate observed in the period deviated from the typical early expansion in one aspect, already mentioned: the profit share declined almost from the beginning of the expansion and the profit rate only increased because such decline was compensated by increases in utilization and in capacity/capital ratio (Table 3.2). It has been argued, from the standpoint of a structuralist Goodwin model, that the decrease in the profit share observed in the period was not only a result of growth acceleration (and its effect on the labor market), but also a product of policies that increased the bargaining power of workers (mainly, the increases in the real value of the minimum wage) and of the sectoral pattern of growth (Rugitsky, 2017). The impact of the latter on the profit share took place through a composition effect: the growing share (in aggregate value added) of sectors with below-average profit shares of income reduced the average profit share independently of any squeeze in profit shares that took place within sectors. Available estimates, resorting to different levels of disaggregation and focusing on slightly different time periods, suggest the relevance of this effect. Dias and Ruiz (2016: 14) estimate that the composition effect accounted for 42.5 percent of the decrease in the profit share observed between 2005 and 2009. Marcolin (2017: 32) finds a lower, but still relevant, figure: 23.7 percent of the decline observed between 2004 and 2009 can be attributed to a composition effect. Finally, Martins (2017: 108) calculates that 71.4 percent of the decline observed between 2004 and 2007 was due to these

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[16] The "indirect channels," examined by Biancarelli, Rosa, and Vergnhanini (2017), mainly refer to the impact of the exchange rate devaluation, which was partly a result of the end of the commodities boom, on the balance sheets of firms with debt denominated in foreign currencies and to the impact of the falling asset prices, resulting from the liquidity cycle that accompanied the commodities one, on the collateral of domestic agents and, consequently, on the dynamics of credit.
[17] Allowing a new kind of credit with automatic repayments from the paycheck, the so-called *crédito consignado*.

sectoral shifts, while in the following period, between 2007 and 2010, half of the decline was due to the composition effect.

Given that the theoretical framework discussed in section 1, above, is a single-commodity one, disregarding sectoral dynamics, it cannot contribute to the interpretation of such composition effect. It has been argued, however, that the sectoral dynamics observed in Brazil during the long expansion can be taken account of by a framework that combines Kaleckian models with some insights from Latin American structuralism (Rugitsky, 2016, 2017, 2019). More specifically, changes in the sectoral compositions of output and employment seem to have played the role of a mediation between aggregate demand and income distribution, unleashing the following cumulative process: changes in wage inequality impacted consumption patterns, leading to shifts in the sectoral compositions of output and employment; the latter, in their turn, had effects both on the functional income distribution and on wage inequality, reinitiating the cycle (Rugitsky, 2017, 2019; Loureiro, 2018; see also Medeiros, 2015).

The increase in utilization can be explained by the expansion itself and the fact that it compensated the effect of the falling profit share on the profit rate is something suggested in the Kaleckian literature. The question that remain refers to what could be determining the change in the capacity/capital ratio, given that the other two factors (profit share and utilization) are dealt with by the theoretical framework proposed by Barbosa-Filho and Taylor (2006), but the capacity/capital ratio was simply assumed constant in that formulation. Weisskopf (1979) maintains that the observed capacity/capital ratio could be subject to shifting relative prices of output and capital stock.[18] Indeed, it is well known that the prices of non-tradable goods rose faster than those of tradable goods in Brazil since the early 2000s, in part due to the appreciation of the exchange rate (Summa and Serrano, 2017). Given that the share of tradable goods is probably larger in the capital stock than in output as a whole, such difference in inflation rates could explain at least part of the increase in the capacity/capital ratio in the first decade of the 21st century[19]. Such hypothesis is further backed by the similar trajectories, depicted in Figure 3, of the capacity/capital ratio and of the Brazilian terms of trade, which is parallel to the movements of the exchange rate in the period and is closely related to the commodities boom (Martins, 2017: 70-80; Rugitsky, 2017: 1-2).[20]

[FIGURE 3]

Two additional factors should also be mentioned, regarding the increase in the capacity/capital ratio. One is the sectoral pattern of growth, given that the sectors that had its share of value added increased in the period (especially, some activities in the services sector) probably had above-average capacity/capital ratios[21]. The second factor is related to Steindl's (1952/1976: 175-191) claim that the observed trajectory of the output/capital ratio could reflect, rather than actual technological factors, a changing age structure of the capital stock[22]. Martins (2017: 52) estimated this effect, which did

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[18] Other determinants of the capacity/capital ratio, operating on longer time horizons, should not be disregarded, but seems less relevant to the episode in question. See Appendix 6 (available upon request).

[19] Moreover, the geographical shift of the production of machines and equipment to East Asia, in general, and China, in particular, has had the effect of holding its prices down, which could also have contributed to the observed trajectory of the ratio.

[20] The problem with that interpretation is that the capacity/capital ratio estimated for the present research is in real, rather than nominal, terms, so it should not reflect the shifts in relative prices. This issue deserves further research in order to assess whether the deflators used to estimate the series for real output and real capital stock were in fact able to eliminate entirely the impact of the trajectory of relative prices.

[21] Data to assess this hypothesis is very limited, but Martins (2017: 63-70) made an attempt.

[22] The issue is related to the way of measuring the capital stock. For the calculation of the profit rate, it is appropriate to use the net capital stock, since it is "designed to reflect the wealth of the owner of the asset at a particular point in time" (OECD, 2009: 56). However, according to Steindl (1952: 176): "Gross capital (...) will in general be much more related to the productive capacity than net capital". The OECD (2009) also points to gross capital as a more adequate proxy for productive capacity. As shown by Martins (2017: 47-55), changes in the rate of investment may have a greater effect on the value of capital than on its productive capacity, under or overestimating changes in capital productivity. In addition, it is also shown that the ratio of net to gross capital indicates changes in the average age of the capital stock, hence the name "age structure of the capital stock".

contribute, albeit moderately (less than 20 percent), to the increase in the capacity/capital ratio from 2004 to 2007.

After the abrupt fall in the profit rate that took place during the contraction from mid-2008 to early 2009, which was determined by a fall of its three determinants (Table 3.2), the profit rate resumed growing until the last quarter of 2009. Such growth was mainly a product of an increase in profit share and utilization. The increase in the profit share, as Figure 2 suggests, does not seem to imply a reversal of the developments that were pushing it downwards since the beginning of the long expansion, but probably reflects just labor hoarding, as the wage share grew markedly with the onset of the crisis and declined with a similar intensity when economic activity recovered.

During the profit squeeze, from the end of 2009 to early 2014, the profit share falls again, but now faster than it had fallen during the beginning of the long expansion. Such a decline seems to be explained by the typical mechanism of the cyclical profit squeeze, that is, a tight labor market. This is suggested both by the fact that the unemployment rate had reached low levels during this period and by Marcolin's (2017) and Martin's (2017) estimates of the role of the composition effect on the decline during this period: they find a positive composition effect on the profit share, which is more than compensated by a strong intra-sectoral decrease. In other words, while at the beginning of the long expansion the decrease in the profit share seems partly a result of the sectoral pattern of growth, which contributed to the impact of falling unemployment, during the profit squeeze its determinant was the reduction of the profit share by workers with higher bargaining power within each sector. Such changing nature of the fall of the profit share is also suggested by the fact that the number of strikes and of hours not worked grew significantly from 2009 to, at least, 2013 (Summa and Serrano, 2017: 11-15; Braga, 2016: 73). During the profit squeeze, class conflict came to the fore.

Although the main determinant of the decline of the profit rate was the fall of the profit share, declines in both utilization and in capacity/capital ratio contributed as well. The fall of utilization is a result of the deceleration of growth observed in the period. The decline of the capacity/capital ratio, which gathered speed after 2011, could have been determined, in its turn, by the depreciation of the exchange rate that took place contemporaneously and its effect on the inflation rates of tradable and non-tradable goods.[23] Moreover, according to Martins (2017: 52), 40 percent of the decline observed between 2010 and 2013 can be attributed to a changing age structure of the capital stock.

The profit squeeze, which lasted from the last quarter of 2009 until the outbreak of the last contraction in the first quarter of 2014, covered the last year of Lula's second government and the first three years of Rousseff's first government (2011-2014) and might illuminate the controversies about the determinants of the economic deceleration that occurred in the period, as argued above. Some authors, like Serrano and Summa (2016), suggest that the deceleration was mainly a consequence of the contractionary nature of the economic policy shift that took place between 2011 and 2013, comprising a decrease in public investment (allegedly to allow for a reduction of the interest rate) and a depreciation of the exchange rate.[24] Macroprudential policies adopted in 2010 also played a role, pushing household borrowing down. Alternatively, Singer (2015, 2018) claims that the deceleration seems to have had a more political nature, reflecting the opposition of the ruling classes to the policies implemented by Rousseff's government.[25]

The occurrence of a cyclical profit squeeze, precisely during this period, may contribute to this debate. On the one hand, the economic policy shift aimed at stimulating private investment, at least partly

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[23] It is interesting to note that, in the U.S. case, a falling capacity/capital ratio played a prominent role in the profit squeeze that took place around 1972 and 1973, in contrast to the secondary role it played in the other business cycles, according to Weisskopf (1979: 352, table 5). This may be related to the fact that this period was characterized by a depreciation of the dollar, following the cancellation of its convertibility to gold. See Brenner (1998/2006: 122-129). The prominent role of the capacity/capital ratio was not found, however, in later updates of Weisskopf's research, like the ones made by Bakir and Campbell (2006) and by Izquierdo (2013).

[24] That the latter could be contractionary has been famously argued by Krugman and Taylor (1978), building on previous work from Hirschman and Diaz-Alejandro.

[25] The economic policy shift was implemented counting on the support of industrial capital, to compensate for the fact that it tended to alienate financial interests. The bet on the division of the ruling classes failed, according to Singer (2015), who identifies a reunification of the bourgeoisie from 2012 onwards. See also Rugitsky (2015).

through policies that had a positive impact on profit margins, counteracting thus the profit squeeze. The fact that it did not succeed in increasing investment and maintaining the pace of economic growth can be attributed to the fact that the policies adopted had an ambiguous effect on the profit rate, pushing it down through a decrease of utilization at the same time that it attempted to push it up through an increase in margins.[26] On the other hand, the profit squeeze provides a material basis for the aggravation of class conflict that underlies Singer's (2015, 2018) narrative.

The political and economic situation worsened markedly between 2014 and 2016, with the turn of economic policy towards austerity, the beginning of the recession and the escalation of political turmoil, which resulted in the ousting of Rousseff from office in 2016, after an impeachment process. Such events are the repercussion of the tensions, both political and economic, accumulated in Rousseff's first term, which are, in their turn, arguably related to the profit squeeze.

The role played by the financial sector in the current crisis should also not be disregarded.[27] The more salient aspect of financialisation in the Brazilian economy seems to be related to public debt, given that the extraordinarily high level of the interest rate in Brazil results in the channeling of a significant amount of tax receipts to the financial institutions that hold a large share of government bonds. In this context, the government has limited autonomy in relation to the financial sector in the choice of economic policy. Therefore, its shift in 2011 and the turn to austerity in 2014 cannot be examined without taking the pressure of financial interests into account. An issue that could be pursued in future research is the specific impact of the profit squeeze on the financial institutions, to examine whether their political behavior was also stimulated by falling profitability.

The interaction of economics and politics is acknowledged by part of the literature on the cyclical profit squeeze from its beginning. In a famous paper from 1943, Kalecki claimed that a situation of persistent full employment would be resisted by capitalists, who would fear its social and political implications, that is, the strengthening of the working classes. Assuming, as he did, a functional distribution of income that would not oscillate cyclically, Kalecki argued that full employment tended to raise the profit rate (through an increase in utilization), but "'discipline in the factories' and 'political stability' are more appreciated by business leaders than profits." (1943: 326) The contraction would result, in this case, by capitalists' pressure on the government to cut down its expenditures. He suggested calling the resulting cyclical pattern a "political business cycle." (330; see Rugitsky, 2013: 457-461)

Boddy and Crotty (1975) questioned Kalecki's point that the boom increased the profit rate resorting to an empirical exercise similar to Weisskopf's (1979). But, despite claiming that the cyclical contractions might be partly attributed to a profit squeeze, they did not disregard the political motives identified by Kalecki. In their words, "[t]he Marxian economic effects of the business cycle reinforce the socio-political aspects stressed by Kalecki." (1975: 5) The recent Brazilian crisis seems to be a particularly clear illustration of such interaction of economics and politics: the profit squeeze had been aggravating the distributive conflict and pushing down the growth of investment since 2009, when in 2015 the ruling classes' calls for austerity finally prevailed and the abrupt contraction of public expenditures resulted in a large fall of economic activity. Additional factors certainly played a role, such as the fall in commodities prices in 2015 and a corruption scandal that paralyzed the construction sector, but the crisis cannot be understood without taking into consideration the profit squeeze and its economic and political effects.

4. CONCLUDING REMARKS

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[26] Given that part of the policies consisted in a decrease in payroll taxes, its impact would only be felt on the after-tax profit rate, instead of on the gross (before taxes) profit rate used in the present research. It would be interesting to examine whether the two in fact diverged in this period, an issue that could be pursued in future research.

[27] On the one hand, in contrast to the trend observed in rich economies, the financial sector in Brazil has not seen its share of GDP rise. In fact, during the long expansion, it remained stable at around 6.5 %, a low level compared, for instance, with the U.S. economy (see Krippner, 2005: 178). On the other hand, it is not unlikely that the share of the financial sector in corporate profits exhibits a trajectory more in line with the one observed in other countries, something that should be further investigated.

With sparse research on the cyclical dynamics of profit rates in peripheral economies, the results here presented should be considered preliminary. It would be interesting to investigate whether analysis for longer periods or for peripheral countries other than Brazil would lead to similar results, that is, that profit squeezes are rare due to the truncated nature of the cyclical expansions. More specifically, future research could examine whether other South American countries that were similarly impacted by the commodities boom also presented longer expansions followed by a profit squeeze and whether other recent crises that occurred in the region could be, at least partially, related to the latter. Moreover, the results for Brazil could be complemented in numerous ways, for instance by investigating in detail the role of relative prices on the trajectories of the capacity/capital ratio and of the profit share and by decomposing the changes of the profit share in changes in real wages and in labor productivity.

If the results are correct, a strategic question remains for those interested in the prospects of a less unequal Brazilian society. Countercyclical macroeconomic policies are certainly crucial in order to overcome the weak character of the expansions, which keep unemployment at high levels and hinders workers ability to shift the distribution in their favor. As Pérez Caldentey and Titelman (2014) argue, such countercyclical policies, if combined with adequate policies focused on productive development, may also play an important role in terms of the long-run trajectory of the economy, given that trend and cycle are arguably interdependent. But, by attenuating the impact of foreign shocks, countercyclical policies that allow for longer and stronger expansions may lead to profit squeezes and to aggravated class conflicts. In the recent Brazilian case, such conflicts manifested themselves in dramatic fashion, revealing the fragility of democracy itself. The struggle for equality will require, it seems, more than foreign bonanzas, countercyclical policies, and long expansions. It will require a deeper transformation of society, shifting the power balance in favor of the great majority, so that, in the future, when class conflicts result once more in cyclical profit squeezes, democracy can be preserved and social regression can be avoided.

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APPENDIX 1: DATA – METHODS AND SOURCES

1) Profit Share: It is defined as one minus the labor share of income. An annual series for the latter, ranging from 1996 to 2015, is calculated as the ratio of employees' compensation to the sum of employees' compensation and gross operational surplus, using data from national accounts (specifically, *Tabelas de Recursos e Usos, Nível 12, Tabela 2*). This follows Gollin's (2002) second suggested adjustment, which considers that gross mixed incomes comprise both labor and capital income in the same proportions as the remainder of national income. The calculated annual series is, then, transformed into quarterly one resorting to monthly labor share series calculated from *Pesquisa Mensal do Emprego* (Monthly Employment Survey) and *Pesquisa Nacional por Amostra de Domicílios* (National Household Sample Survey). Concretely, the proportional deviation of the share of each quarter in relation to the corresponding annual figure is used to bring the annual national accounting series to a higher frequency. To do so, the Denton-Cholette disaggregation with average conversion is used (see Di Fonzo and

Marini, 2012). Further, the seasonal adjustment for the complete series is performed by SEATS method using an ARIMA (100) x (011) setting, with two 'level shifts' (1996Q4 and 2001Q4). Total profits are then calculated by multiplying total value added, obtained from the quarterly national accounts, and the profit share.

2) Capital Stock: Following conventional procedure (Marquetti, Maldonado, and Lautert, 2010; Souza Júnior, 2017), an annual series for the net capital stock is calculated using the Perpetual Inventories Method, which is based on the investment flow and parameters related to asset depreciation (such as life time and depreciation rate). Details about this calculation can be found in Martins (2017). To bring the calculated series to a quarterly frequency, we resort to the quarterly deviations from the annual average from the quarterly series calculated by Souza Júnior (2017) – a potential limitation is that the latter includes residential stock, in contrast to the annual figure estimated by Martins (2017). Alternatively, the rates of change of the profit rate and of its components were recalculated using a different series for the quarterly capital stock: a series that resulted from multiplying the data from Souza Júnior by the average share of nonresidential capital stock in total capital stock, for each year, as estimated by Martins (2017). Results were very similar.

3) Capacity utilization rate: Seasonally adjusted series for the capacity utilization of the industrial sector calculated by the Brazilian National Confederation of Industry (*Confederação Nacional da Indústria*). The alternative series for the whole economy, discussed in Appendix 6 (available upon request), is obtained by weighting indicators for each of the three major sectors (industry, agriculture, and services) in relation to their share in value added. The indicators for agriculture and services were calculated following the procedure suggested by Bonelli (2016). In each case, the log of the series of seasonally adjusted aggregate output, from the quarterly national accounts, is obtained and the local maximum semesters are considered to represent full capacity utilization. The full capacity for each semester is then given by the polynomial equation that connects these peak points and the capacity utilization rate, by the ratio between the observed value and the calculated full capacity.

4) Dating of cycles: Dating provided by the Brazilian Committee for the Dating of Business Cycles (*Comitê de Datação de Ciclos Econômicos*).

5) Rates of change: Following Weisskopf (1979), the annual growth rate of each variable x is obtained by ordinary least squares regression of log x on time (measured in years). The annual growth rates of each phase are obtained by the average growth rates of the respective phases in each cycle.

APPENDIX 2: TABLES

TABLE 1: RECENT OUTPUT AND PROFIT CYCLES IN BRAZIL (1996-2016)				
Cycles	Keypoint	Quarter	Real Output, Y*	Profit Rate, ρ**
I	Y-trough	1995.3***	271.614	31,02%
	Y-peak, ρ-peak	1997.4	289.022	34,31%
	Y-trough	1999.1	285.173	31,63%
II	Y-trough	1999.1	285.173	31,63%
	ρ-peak	2000.4	304.605	34,90%
	Y-peak	2001.1	305.476	33,89%
	Y-trough	2001.4	303.004	35,61%
III	Y-trough	2001.4	303.004	35,61%
	ρ-peak	2002.2	310.228	36,47%
	Y-peak	2002.4	318.918	34,45%
	Y-trough	2003.2	314.458	35,14%
IV	Y-trough	2003.2	314.458	35,14%
	ρ-peak	2008.2	402.792	40,49%
	Y-peak	2008.3	410.266	40,36%
	Y-trough	2009.1	385.507	34,46%
V	Y-trough	2009.1	385.507	34,46%
	ρ-peak	2009.4	414.464	39,20%
	Y-peak	2014.1	474.345	35,24%
	Y-trough	2016.4	435.615	28,82%

* GDP at constant 2000 Brazilian Reais (millions)

TABLE 2: RATES OF GROWTH OF BASIC VARIABLES: PHASE AVERAGES*

		Phases		
		A	B	C
Rate of profit, ρ		2,05%	-2,17%	-3,00%
Share of profits, σ_π	0,81%	-1,52%	-0,69%	
Capacity utilisation rate, φ	0,76%	-0,06%	-1,55%	
Capacity/capital ratio, ζ	0,27%	-0,20%	-0,46%	

* All figures represent average annual % rates of growth.

TABLE 3. 1: RATES OF GROWTH OF BASIC VARIABLES*

	Cycle I		Cycle II			Cycle III		
	A	C	A	B	C	A	B	C
	1996.1-1997.4	1997.4-1999.1	1999.1-2000.4	2000.4-2001.1	2001.1-2001.4	2001.4-2002.2	2002.2-2002.4	2002.4-2003.2
Rate of profit, ρ	2,81%	-3,02%	2,36%	-6,37%	8,11%	2,06%	-4,93%	1,71%
Share of profits, σ_π	2,43%	-1,90%	1,35%	-4,94%	8,18%	-0,89%	-5,86%	2,67%
Capacity utilisation rate, φ	0,44%	-0,98%	1,41%	-0,85%	-1,43%	1,40%	0,58%	-1,76%
Capacity/capital ratio, ζ	-0,33%	0,16%	-0,63%	0,06%	0,55%	1,33%	0,86%	0,62%

* All figures represent average annual % rates of growth

TABLE 3.2: RATES OF GROWTH OF BASIC VARIABLES*

	Cycle IV			Cycle V		
	A	B	C	A	B	C
	2003.2-2008.2	2008.2-2008.3	2008.3-2009.1	2009.1-2009.4	2009.4-2014.1	2014.1-2016.4
Rate of profit, ρ	0,66%	-0,54%	-13,72%	7,21%	-1,32%	-3,33%
Share of profits, σ_π	-0,39%	-1,27%	-6,37%	4,09%	-0,59%	-0,77%
Capacity utilisation rate, φ	0,36%	-0,62%	-3,87%	1,66%	-0,13%	-1,19%
Capacity/capital ratio, ζ	0,62%	1,41%	-1,99%	0,68%	-0,46%	-1,05%

* All figures represent average annual % rates of growth

APPENDIX 3: FIGURES

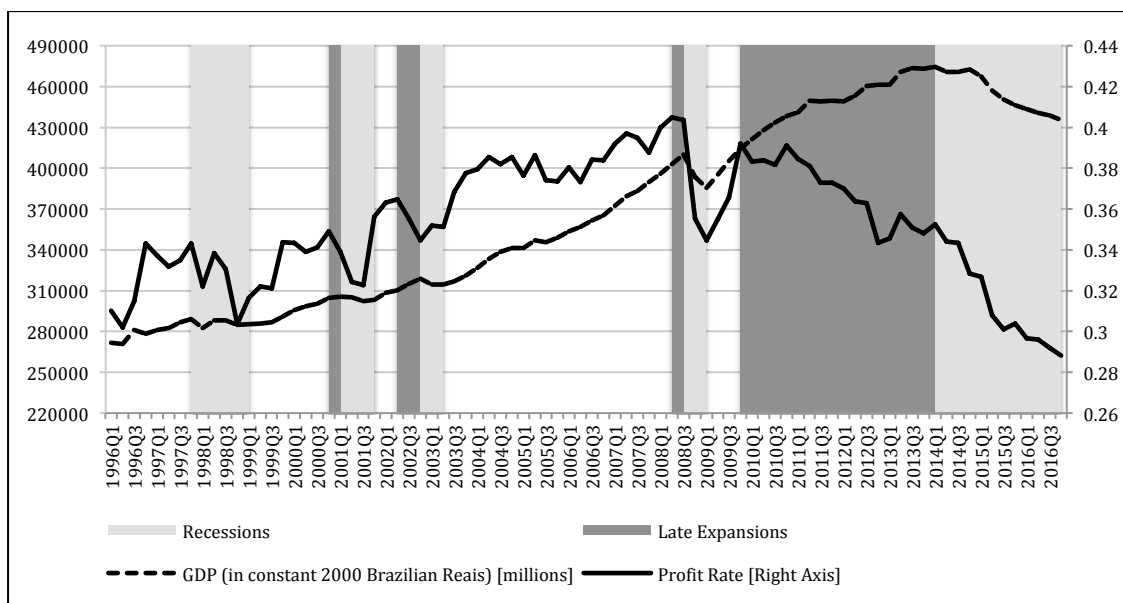## Figure 1: Recent Output and Profit Cycles in Brazil (1996-2016)

Figure 2: Components of the Profit Rate (1996-2016) [index: 1996Q1=1]
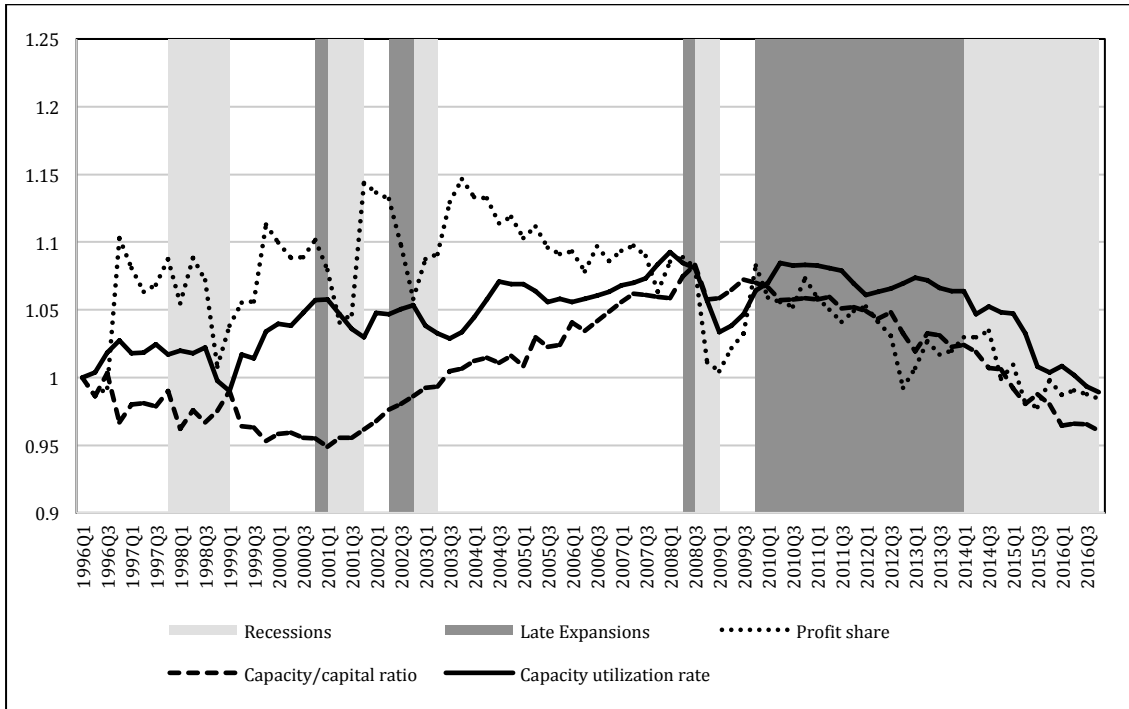

Figure 3: Capacity/Capital Ratio and Terms of Trade (1996-2016) - [index: 1996Q1=1]