

Barros, Luciano Alencar

Article

The relationship between inflation and unemployment in the USA in the surplus approach

Atlantic Review of Economics (ARoEc)

Provided in Cooperation with:

Economists Association of A Coruña

Suggested Citation: Barros, Luciano Alencar (2022) : The relationship between inflation and unemployment in the USA in the surplus approach, Atlantic Review of Economics (ARoEc), ISSN 2174-3835, Colegio de Economistas de A Coruña, A Coruña, Vol. 5, Iss. 2, pp. 1-25

This Version is available at:

<https://hdl.handle.net/10419/282292>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

ATLANTIC REVIEW OF ECONOMICS – AROEC

ISSN 2174-3835

www.aroec.org

6th Volume – nº 2, 2022 – December

Reference: Received: June 2022 | Accepted: October 2022 |

The relationship between inflation and unemployment in the USA in the surplus approach

Luciano Alencar Barros

Federal University of Rio de Janeiro Institute of Economics (IE-UFRJ)

Institute of Social and Political Studies of the State University of Rio de Janeiro (IESP-UERJ)

luciano.barros.ufrj@gmail.com

Abstract: This article aims to analyze the relationship between inflation and unemployment in the United States, in the 1960s and 2010, from the surplus approach. The objective is to compare this relationship in these two decades, which end with low unemployment rates, to understand the scenario of the American economy till the beginning of 2020, in which historically low unemployment and inflation rates were observed, although at the cost of high inequality.

Resumo: Este artículo tiene como objetivo analizar la relación entre inflación y desempleo en Estados Unidos, en las décadas de 1960 y 2010, desde el enfoque del superávit. El objetivo es comparar esta relación en estas dos décadas, que terminan con bajas tasas de desempleo, para comprender el escenario de la economía estadounidense hasta principios de 2020, en el que se observaron tasas de desempleo e inflación históricamente bajas, aunque a costa de alta desigualdad.

Keywords: Macroeconomics; Political Economy; Phillips Curve; Surplus Approach; US Economy, Macroeconomía; Economía Política; Curva de Phillips; Excedente; Economía Norte-Americana

JEL: E31; N12; P16

1. Introduction

The relationship between inflation and unemployment has been the subject of a profound debate in the macroeconomics field, especially after the contribution of Samuelson and Solow (1960). The authors, adapting the theoretical and empirical relationship between the level of unemployment and the rate of change in nominal wages (with the former determining the latter) found by Phillips (1958), estimated a functional relationship between unemployment and inflation in the United States. This relationship has become known in the literature as the Phillips Curve.

The trade-off between the two variables – higher (lower) unemployment resulting in lower (higher) inflation – marked the decision-making process of policymakers in the USA during the 1960s, when unemployment was reduced from 5.5% in 1960 to 3.5% in 1969. In the same period, inflation jumped from 1.7% to 5.5%. The intensification of the distributive conflict due to the maintenance of years of low unemployment associated with the oil shocks in 1973 and 1979 generated a process of accelerating inflation that in the final years of the seventies exceeded the rate of 10% (Korpi, 2002; Cavalieri et al., 2008). This made the rise of the Monetarist school led by Milton Friedman possible, with its interpretation, called accelerationist, of the Phillips Curve. However, between 1984 and 2019, inflation remained largely controlled, below 6%, while the unemployment rate fluctuated but remained below 8% (except for the years that followed the 2008 crisis). The behavior of these two variables during this 35-year interval, with inflation remaining in 30 of the 35 years below 4% while unemployment ranged between 4% and 9%, generated much debate about the theoretical foundations of the accelerationist interpretation of the Phillips Curve, although its general formulation has not been abandoned.

Since much theoretical and empirical discussion has taken place around the original and accelerating formulations of the Phillips Curve (Ball & Mazumder, 2011; Gordon, 2013; Blanchard, 2016; Stock & Watson, 2019; Summa & Braga, 2019; Stansbury & Summers, 2020), this article aims to analyze the relationship between inflation and unemployment in

the United States, in the 1960s and 2010, using the surplus approach. The objective is to compare this relationship during these two decades, which end with low unemployment rates, to understand the scenario of the North American economy till the beginning of 2020, in which historically low unemployment and inflation rates were observed, although at the cost of increasing inequality. With this aim, this article is divided into three sections and this introduction. Section 2 proposes a theoretical model of the relationship between inflation and unemployment consistent with the surplus approach, a model that will be used in section 3 to guide the analysis of the behavior of these two variables in the North American economy from the 1960s onwards, with focus on this decade and the 2010s. Finally, section 4 concludes the article.

2. The relation between inflation and unemployment in the surplus approach

The so-called "surplus approach" is based on the resumption of the classical surplus theory, a research project developed by Sraffa, Garegnani, and their followers. In this point of view, the determination of the aggregate product, both in the short and long term, is analyzed in the light of the Effective Demand Principle, and inflation is interpreted as a phenomenon determined by the basic production costs and to a large extent influenced by the dynamics of the distributive conflict between workers and capitalists¹.

According to this approach, by adopting the Effective Demand Principle, demand inflation would be a phenomenon observed only in the short term and in specific situations in which the effective demand (real demand at production prices²) would be higher than the full capacity product – when "absolute inflation" would occur (Keynes, 2018). This is because, in the long run, the degree of installed capacity utilization adjusts to the current product's trend (in turn determined by the effective demand), given the existence of a structural surplus of labor and the complementary character of the factors of production.

¹ On this theoretical approach see Garegnani (1987) and Serrano and Medeiros (2004).

² Production prices are those that cover costs and guarantee a minimum acceptable level of profitability.

When the degree of utilization of productive capacity is above (below) the normal or planned level, there is an incentive (disincentive) for investment, increasing (reducing) the pace of accumulation to adapt the productive capacity to that required by the dynamics of effective demand (Serrano, 2006). Thus, the situation of current aggregate product equal to or greater than that of full capacity tends to be rare and transient, being overcome by the adjustment of productive capacity. This possibility, however, exists. Analogously, the point of high full employment corresponds, in the labor market, to the lowest unemployment rate made possible by the expansion of effective demand. From this point, any policy that increases aggregate demand to increase output and employment would generate only inflation (Lerner, 1951).

As aggregate demand does not persistently influence inflation, the latter is driven by the dynamics of basic production costs. Among these, the unit cost of labor – the ratio between the hourly wage (w) and the labor productivity (product per hour worked, y) – stands out as a central element. Upon these costs, a mark-up should be levied. One way of representing the relation between these variables is through a simple mark-up equation (1).

$$p = \mu \left(\frac{w}{y} \right) \quad (1)$$

In the above equation, the price level (p) is equal to the mark-up (μ) upon the unit cost of labor (w/y). If one takes the equation of growth rates, it is possible to reach an equation for inflation.

$$\pi = \hat{w} - \hat{y} + \hat{\mu} \quad (2)$$

The inflation equation (2) just states that the current inflation (π) is equal to the sum of the growth rates of the unit cost of labor – wage rate of growth (\hat{w}) minus productivity gains (\hat{y}) – with that of the mark-ups ($\hat{\mu}$).

In line with the Marxist tradition, the exposed surplus approach directly relates the dynamics of unit labor cost to workers' bargaining power. One way to represent the wage growth equation in this theoretical point of view is to assume that wages have an autonomous element (governed by political and institutional elements); one related to

inflation (be it past, expected future inflation, or a combination of the two) and to the ability of workers to incorporate it into nominal wage increases; one related to the level and other to the rate of change of economic activity. One can represent this formulation through the following equation:

$$\hat{w} = \alpha_0 + \alpha_1 \pi^e + \alpha_2 g_e - \alpha_3 U \quad (3)$$

In the above wage growth equation (3), α_0 represents nominal increases in wages unrelated to the economic activity or to the attempt to recompose real wages (as a function of expected inflation); α_1 is the partial level³ ($0 \leq \alpha_1 < 1$) of incorporating expected inflation (π^e) into wages; and α_2 and α_3 represent the ability of workers to raise their wages according to, respectively, the increase in the rate of growth of the level of employment measured in the number of hours worked⁴ (g_e) and according to the reduction in the level of unemployment (U).

Following the Marxist tradition, the higher (lower) unemployment, the lower (higher) the bargaining power of workers and thus their ability to improve working conditions and nominal wage gains.

When there is a large surplus of labour, either visibly unemployed or hidden in rural or other labour reserves, the bargaining position of trade unions is relatively weak, and their members may be demoralized or quiescent. However, as reserves are progressively exhausted or unemployment reduced, their bargaining position becomes stronger and workers become more confident and aggressive. (Rowthorn, 1977)

For inflation to be pressured by nominal wage increases, the latter must raise the unit cost of labor, that is, the growth rate of nominal wages must be higher than that of labor productivity. The relationship between growth rates of output and employment, on the one hand, and productivity, on the other, is complex. Low unemployment is generally associated with high output growth rates and, via the Kaldor-Verdoorn law, productivity

³ “(...) *the inertia is partial since workers do not necessarily ask (and even if they ask, they do not necessarily get) nominal increases that fully cover inflation*” (Barros, 2018).

⁴ The use of this variable aims to capture a relevant part of underemployment that is not necessarily reflected in the unemployment rate, as in the case that the same number of workers offers - voluntarily or involuntarily - less hours of work.

(Verdoorn, 1949; Kaldor, 1970). However, as authors close to the Marxist tradition emphasize, with the reduction of unemployment, workers' discipline in the labor process (absenteeism, micro-conflictuality), tends to decrease, which would adversely affect productivity (Bowles et al., 1984; Marglin & Bhaduri, 1991). This relation is crucial to understanding growth and distribution, but a deepening of it is beyond the scope of this work. However, it is necessary to highlight that concerning shorter terms, it is reasonable to assume the productive structure and the technology as given, without variations in labor productivity, so that any increase in nominal wages (or mark-ups) tends to impact the level of prices.

If one substitutes the wage growth equation (3) in the price equation (2) and includes, in addition to these aspects related to the cost of labor⁵ and increases in mark-ups, other autonomous cost pressures, one can arrive at an overall inflation equation (4), consistent with the surplus approach.

$$\pi = (\alpha_0 + \alpha_1\pi^e + \alpha_2g_e - \alpha_3U) + \alpha_4 \quad (4)$$

In the above equation, π is the current inflation rate; the term between parenthesis represents the nominal wage growth; and α_4 can represent the autonomous cost pressures – such as internal (crop failure, increase in taxes, etc.) or external shocks (rise in prices of imported inputs and products, exchange rate devaluation, etc.) –, as well as increases in mark-ups of companies in relation to production costs, which would generate the so-called "profit inflation" (Davidson, 1978).

It is important to note that in longer terms the coefficients α_0 , α_1 , α_2 , and α_3 are directly influenced by social, political, and institutional factors. For example, the maintenance, for many years, of very low (high) unemployment rates tends to raise (reduce) such coefficients based on changes in those factors (Kalecki, 1943; Stirati, 2001).

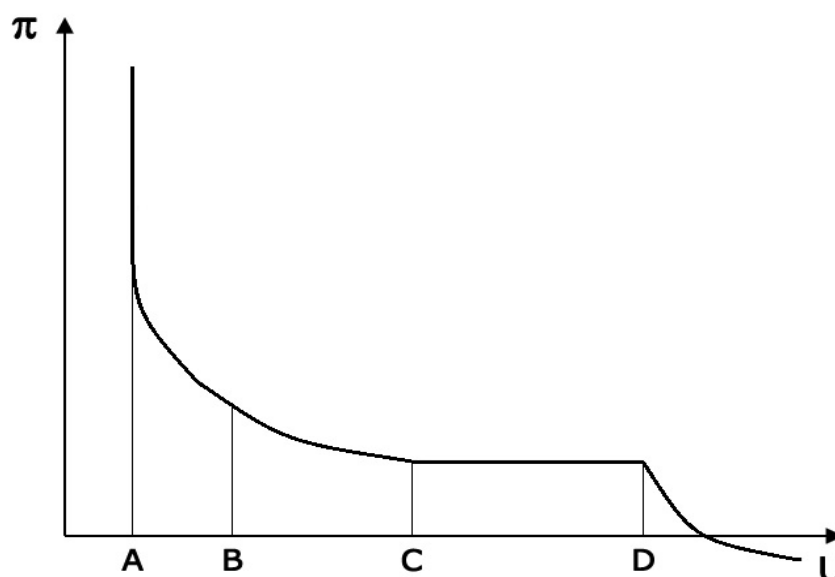
⁵ To simplify the equation the productivity term was omitted, but in the short run one can take it as given, and in the long term the wage growth equation can be understood as a *proxy* for the growth rate of the unit cost of labor.

Once an equation that seeks to express the theoretical foundations of the surplus approach to inflation has been proposed, it is necessary to highlight the difficulty, in this view, of establishing a functional relationship between unemployment and inflation. Although there is a clear connection between the two variables, mediated, as in the original formulation of Phillips (1958) – and also present, albeit in a not in-depth way, in Samuelson and Solow (1960) – by social, political, and institutional factors, it is difficult to establish a direct functional relationship between inflation and unemployment.

As inflation equation (4) makes explicit, the level of unemployment, by affecting the bargaining power of workers, affects the dynamics of nominal wages and tends to impact the evolution of prices. However, the impact of changes in the level of unemployment on inflation (the magnitude of which will depend on α_3) can be altered depending on the rate of change in the level of employment, as also noted by Phillips (1958), on the inflationary expectations and the ability of workers to incorporate it in nominal wages, on the institutional and political factors not directly related to the level of activity, and on autonomous cost pressures (that has absolutely no reason to have a zero average in the medium or long term). Besides, it is necessary to take into account that the longer the analyzed period, the more complex the productivity dynamics become, and the greater is the possibility that the growth rate of labor supply will adjust to the growth rate of demand for labor due to changes in the participation rate, migratory movements, etc., as Garegnani (1990) pointed out.

Once the theoretical foundations of the current approach (as well as the necessary reservations) have been presented, it is possible to propose a form of graphical representation for the inflation equation (4).

Figure 1: Phillips Curve proposal



Source: Own elaboration

In the graph above, point A represents high full employment, the lowest possible level of unemployment (where all unemployment is frictional). Any demand policy aimed at increasing output and employment would only generate inflation (LERNER, 1951, p. 192), that is, α_3 would tend to infinity⁶. Point B, in turn, would be that of low full employment, from which the reduction of unemployment through the expansion of aggregate demand, although possible, would generate an "inflationary spiral" due to the increase in the bargaining power of workers (Lerner, 1951). This process, called the "vicious spiral of prices and wages" by Kalecki (1991), is summarized by Okishio:

The prices and the wage continue to rise, and the rising of prices results in the rising of wages to restore and increase the real wage rate and, on the other hand, the rising of the wage results in the rising of prices to restore and raise the profit rate and so on. So-called wage-price spiral occurs. (Okishio, 1977)

As unemployment increases and the economy approaches point C (coming from point B), the terms α_2 and α_3 would become smaller and smaller, reaching zero in the

⁶ An issue to be addressed is the relationship between the point of high full employment and the situation of full utilization of installed productive capacity, also a point from which the increase in effective demand would generate "absolute inflation" due to pressure in the product market. However, this situation, in the surplus approach, in addition to being temporary (given the adjustment of productive capacity), can be compatible with different levels of unemployment.

interval between C and D. This would correspond to a horizontal segment of the Phillips Curve, an idea grounded both in theoretical terms due to a flat segment in the firms' production cost curves (Sraffa, 1926; Kalecki, 1956)⁷, as observed in empirical terms (Barnes & Olivei, 2003; Stock & Watson, 2019)⁸.

For unemployment levels above D, the negative relationship between inflation and unemployment would be reestablished, that is, α_2 and α_3 would become positive again, but with values that would be lower and lower as unemployment increased, reinforcing the non-linear format of the Phillips present in the author's original formulation. According to Phillips:

When the demand for labour is high and there are very few unemployed, we should expect employers to bid wage rates up quite rapidly, each firm and each industry being continually tempted to offer a little above the prevailing rates to attract the most suitable labour from other firms and industries. On the other hand, it appears that workers are reluctant to offer their services at less than the prevailing rates when the demand for labour is low and unemployment is high so that wage rates fall only very slowly. The relation between unemployment and the rate of change of wage rates is therefore likely to be highly non-linear. (Phillips, 1958)

However, it is important to emphasize that long periods of high unemployment tend to reduce the bargaining power of workers structurally, that is, to reduce α_0 , α_1 , α_2 , and α_3 , in addition to facilitating the acceptance of contractionary measures (often presented by public authorities as to the only ones capable of generating growth and employment), which reinforces this process. As time passes, pressure from the unemployed masses tends to reverse economic policy toward expansionism that counterbalances the situation. Analogously, as noted Kalecki in "Political Aspects of Full Employment" (Kalecki, 1943), prolonged periods of low unemployment positively impact the bargaining power of the working class structurally, raising such coefficients and engendering political and

⁷ The two authors converge on this point concerning normal cases, in which firms would operate with a certain planned idle capacity: "*In normal cases the cost of production of commodities produced competitively - as we are not entitled to take into consideration the causes which may make it rise or fall - must be regarded as constant in respect of small variations in the quantity produced*" (Sraffa, 1926, p.541); and "*It is assumed that supply is elastic, i.e., that the firm operates below the point of practical capacity and that the prime costs (cost of materials and wages) per unit of output are stable over the relevant range of output*" (Kalecki, 1954).

⁸ "*When the unemployment gap lies within the range defined by the thresholds, there is no evidence of a significantly and economically relevant tradeoff between inflation and unemployment.*" (Barnes & Olivei, 2003)

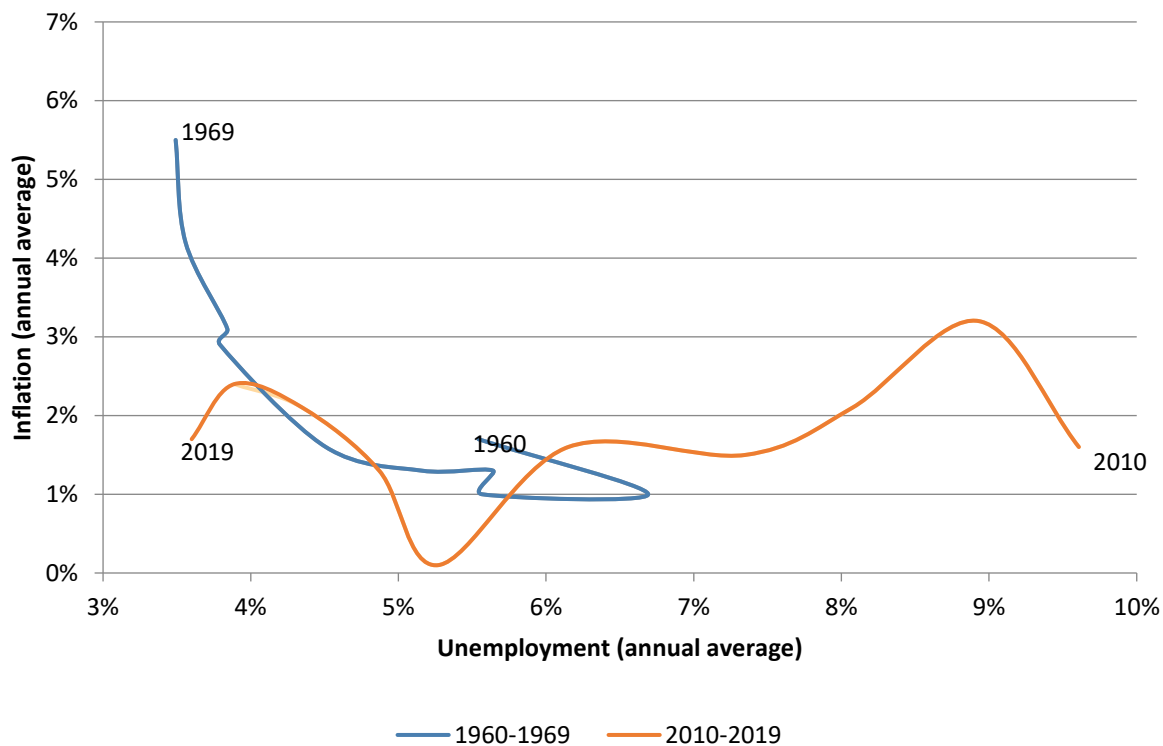
institutional changes in the benefice of workers. In such a context, the capitalist class tends to push the government to adopt contractionary measures to reverse this situation.

Once the theoretical foundations of the relation between inflation and unemployment in the surplus approach are presented, as well as a possible compatible Phillips Curve model (albeit with difficulty, foreseen in the model, of establishing a direct functional relationship between the two variables), it is possible to use such framework to guide the analysis of the reality observed in the USA from the second half of the 20th century on, with special attention to the end of the 1960s and 2010, periods in which unemployment rates below 4 % were registered.

3. The relationship between inflation and unemployment in the USA (1960-2019)

The average unemployment rate observed in the United States between 1960 and 1969 was lower than in the following decades. Except for 1961, the level of unemployment was below 6% over that period, progressively reducing (reaching 3.5% in 1969) concomitantly with the increase in inflation, as shown in figure 2. In the same figure, it is possible to observe that the shape of the curve that relates average annual rates of unemployment and inflation (consumer price index) in this decade is very similar to that included in figure 1, between points A and D: from 1960 to 1965 a horizontal format (C-D segment); from 1965 to 1967 a slightly sloping curve (B-C segment) that, at the end of the decade, became increasingly vertical (segment A-B).

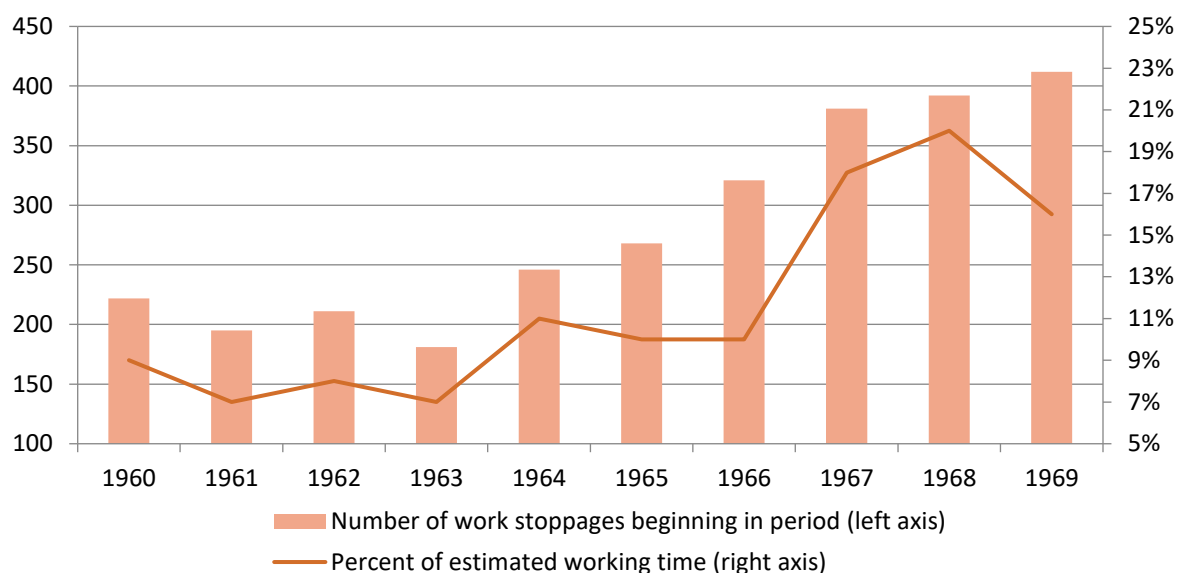
Figure 2: Inflation and unemployment in the USA (the 1960s and 2010s)



Source: Bureau of labour statistics (BLS)

According to the framework here exposed, it is reasonable to assume that the post-war period, when a low level of unemployment was observed (an average of 4.6% between 1948 and 1969), strengthened the bargaining power of workers (Stirati, 2001; Korpi, 2002; Cavalieri et al., 2008). This process was intensified throughout the 1960s: from the first three years of this decade to the last three, the number of strikes with more than a thousand workers initiated per year and the number of workers involved almost doubled, while the estimated percentage of work stoppage time per year jumped from a level of 7% to 16% (figure 3).

Figure 3: Number of work stoppages and percent of estimated stoppage time



Source: BLS

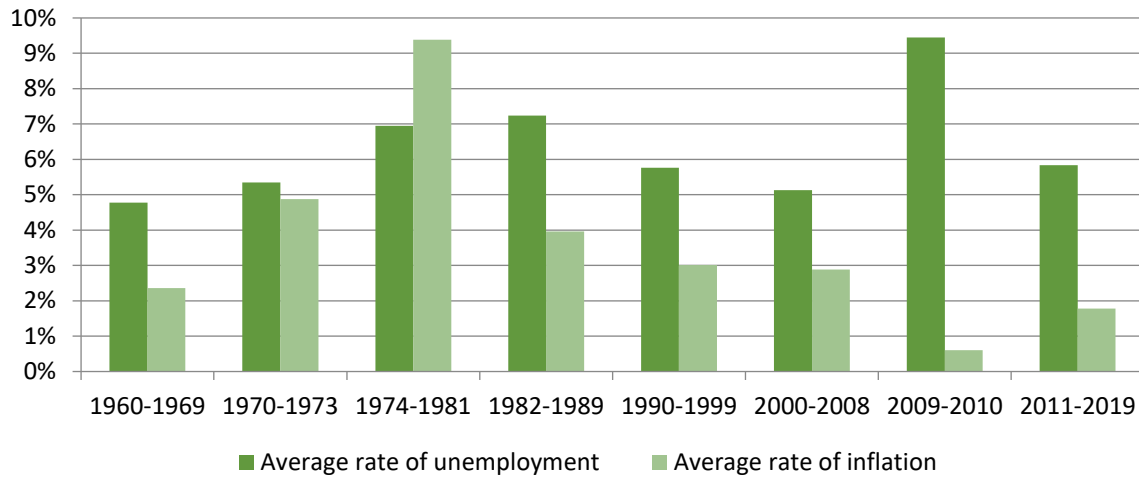
The increase in workers' bargaining power generated pressure on wages that ended up being reflected in the behavior of prices in the late 1960s. This situation worsened from 1970 to 1973, when higher unemployment and inflation rates were registered than in the previous decade (figure 4), which would represent a jump up / right of the Phillips Curve (caused by an elevation in shifters α_0 and α_1). Cavalieri et al. (2008), based on data from the Organization for Economic Cooperation and Development (OECD), point to the fact that the biggest jump in the rate of growth of nominal hourly wages in the US manufacturing industry occurred between the periods of 1952-1967 and 1968-1973, and not between the latter and the one after the first oil shock:

(...) the drastic increase in oil prices in 1973, to which (...) the wages and prices explosion is often traced, simply accentuated an inflationary tug-of-war begun in the preceding five years, and which can therefore be seen clearly as a result of the long period of full employment policies in the capitalist world's leading countries. (Cavalieri *et al.*, 2008)

Thus, the oil shocks of the 1970s only accentuated the inflationary trend that came from the end of the previous decade, generating a strange period in the North American economy. As figure 4 indicates, throughout the 1970s, simultaneous growth in average

rates of inflation and unemployment continued due to the continuity of the process of increasing workers' bargaining power and the oil shocks.

Figure 4: Average rates of unemployment and inflation

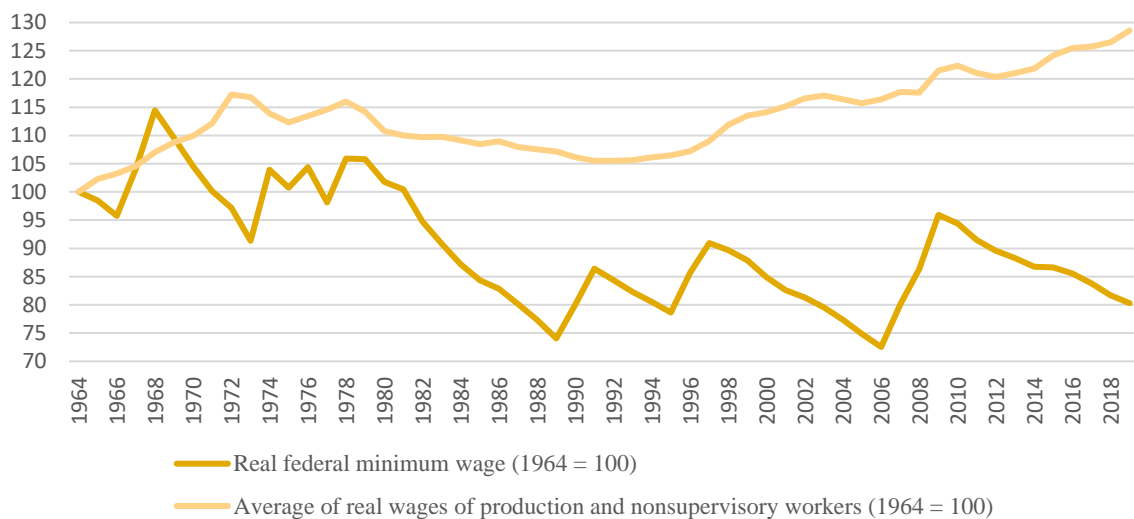


Source: BLS

This process of strengthening the bargaining power of workers took place in the 1960s, with the consequent increase in the share of wages in national income – which reached, according to data from the Bureau of Economic Analysis, a historical peak of 51.6% in 1970 – started to generate more and more discontentment for the class that owns the means of production. From the end of the 1970s onwards, it began, on the one hand, to impose an economic agenda more focused on controlling inflation to the detriment of employment and, on the other, to pressure the government to introduce institutional changes that would disadvantage workers in the scope of the distributive conflict, such as changes and reinterpretations of labor legislation in a pro-business manner, the stimulus to industrial deregulation, the end of income policies, reductions in unemployment insurance, attacks on unions, etc. (Pollin, 2002; Setterfield, 2006; Phillips-Fein, 2009; Palley, 2012; Barros, 2018).

The result, as noted by authors such as Pollin (2002) and Setterfield (2006), was a continuous reduction in the bargaining power of workers⁹ and, consequently, a reduction in the growth rate of real wages after the 1970s, both the minimum and the general average of non-supervisors of the productive sector (figure 5). As the data show, the remuneration in real terms increased at the end of the 1960s and then started to fall: the real federal minimum wage in a continuous downward trend, so that in 2019 it was 20% smaller than its value in 1964; and the average of real wages until the mid-90s, when it started to grow at an average rate of 0.7% per year. This slowed wage inflation and allowed greater inflationary stability in subsequent decades but implied a continuous decrease in the share of national income earmarked for wages.

Figure 5: Evolution of real federal minimum wage and average real wage (1964 = 100)



Source: Economic Policy Institute (EPI)

In this context, the relationship between inflation and unemployment started to maintain, from 1983 on, a more predictable behavior, with inflation largely stable (more than 80% of the time below 4% and always below 6%), while unemployment ranged from a maximum level of 9.6% in 1983 and 2010 to a minimum of 3.6% in 2019. It is important to note that this situation meant that a large increase in unemployment was not required (which, except in the following year to the 1982 crisis and in the three that followed the

⁹ This finding is not restricted to the heterodox field. As Stansburry and Summers (2020) also note, "(...) the decline in worker power is one of the most important structural changes to have taken place in the U.S. economy in recent decades".

2008 crisis, was below 8%) for the maintenance of inflationary control, even though the expected consequence was the continued trend towards income concentration.

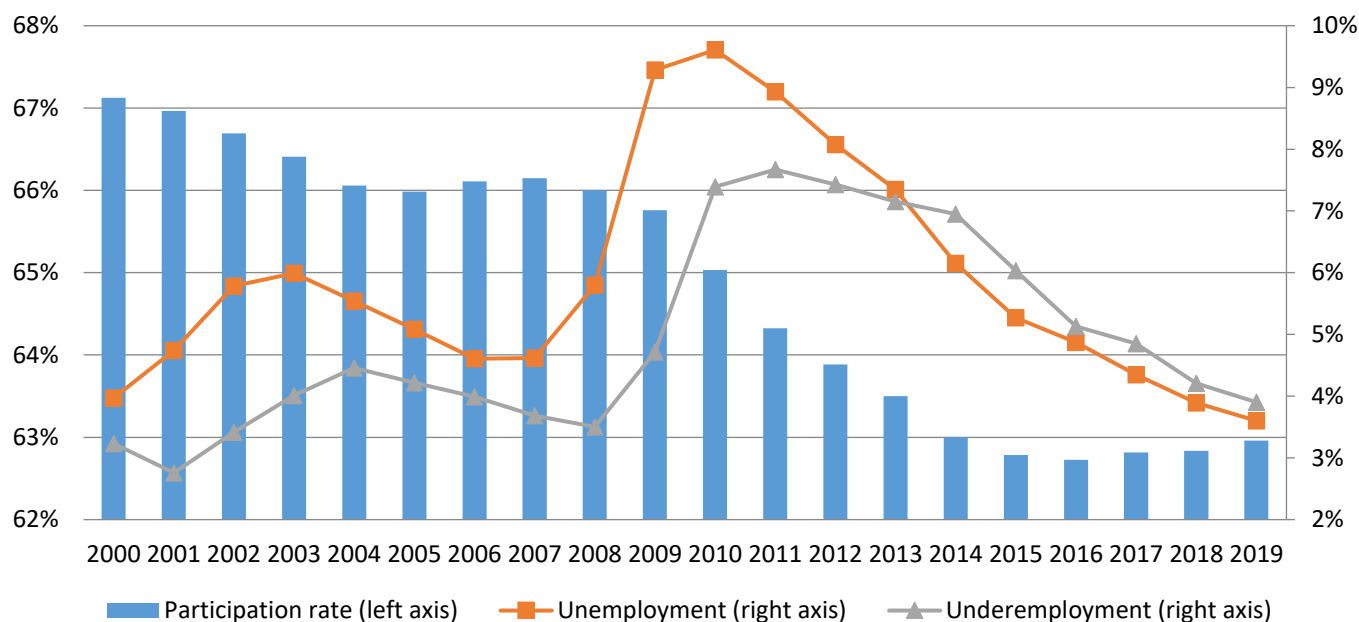
As figure 2 reveals, the unemployment rate has been falling continuously since the post-crisis period of 2008, while inflation remains at the level of 2%, reinforcing the idea of a horizontal segment of the Phillips Curve¹⁰. In 2019, unemployment reached the lowest level (3.6%) observed since 1970. It is necessary, however, to qualify this data.

Firstly, the labor force participation rate has dropped almost continuously since the beginning of the 2000s, only appearing to reverse this trend from 2016 onwards, growing at an average of 1.2 percentage points per year (figure 6). Second, according to OECD data, the average number of hours worked per year did not recover till 2019 from the fall of the 2008 crisis, remaining stable at around 1,780 hours (the lowest level since 1950). Third, the average annual percentage of the underemployed workforce (working involuntarily on a part-time basis or looking for work in the previous year and giving up in the month preceding the survey)¹¹ has grown since the beginning of the century. Although this percentage shows a downward trend after the 2008 crisis (the inflection occurred in 2011), the rate of decline has been lower than that of unemployment, so that, from 2014 on, this "underemployment rate" has overcome the unemployment rate, reaching, in 2019, the level of 3.9%.

¹⁰ This flattening of the Phillips Curve (and/or a theoretical reduction in NAIRU) was also noted by mainstream authors: *"The unemployment rate was below 5%, the level previously thought to have been the NAIRU, for nearly half of the twenty- three years from 1997 to 2020, and was below 4% from May 2018 until February 2020, at levels not reached since the 1960s. At the same time, inflation has been low and has shown little sign of accelerating. These facts suggest that there has been a quite substantial decline in the NAIRU, and / or a flattening of the Phillips Curve"* (Stansburry and Summers, 2020). It is worth noting that the authors also attribute such behavior to the reduction of workers' bargaining power.

¹¹ The Economic Policy Institute's 'underemployment' variable also includes unemployed people. However, for the present analysis, it was decided to separate the two variables so that the data presented here is obtained by subtracting current unemployment from the EPI underemployment rate.

Figure 6: Unemployment, underemployment and participation rate



Source: EPI

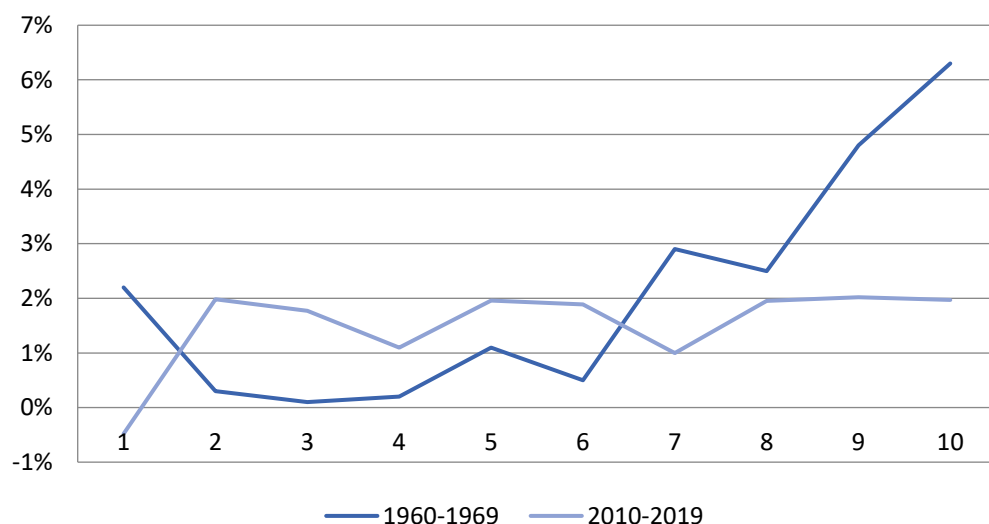
The qualification of the low unemployment rate observed in recent years helps to understand why wages are not reacting similarly to that observed in the late 1960s. The real average wage has been growing since 2012 but at lower rates than those observed in the late 1960s (as seen in figure 5).

The participation rate has fallen almost constantly throughout this century, the number of hours worked per year was at its lowest historical level at the end of the last decade, and the percentage of the workforce that was underemployed was above that observed at the beginning of the century and exceeded the unemployment rate. This had three direct consequences: reduction of the unemployment rate statistic, since the portion of the economically active population outside the labor force – that has increased with the fall in the participation rate – is not qualified as unemployed; the possibility of lower inflation rates to be obtained with low unemployment, that is, a shift down / left in the Phillips Curve (insofar as it reduced the growth rate of the number of hours worked, g_e); and reduction in the workers' bargaining power, given underemployment and reduced quality of work (increased temporary work, outsourcing, increased partial work, etc.).

An analysis of some indicators of workers' bargaining power in the current globalized economy with a flexible labor market reveals how depressed it is in historical terms: according to the Bureau of Labor Statistics, between 2010 and 2019, the average number of strikes with more than a thousand workers per year was 15 (against 283 in the 1960s), while the average time per year of production stopped due to strikes was less than 0.5% (in the 1960s it was 11.6%). Although the number of workers in these big strikes and the number of days of idleness had substantial growth in the last two years of the decade, it was not enough to change the whole picture of the period. It follows from this scenario that, according to Economic Policy Institute data, the average real wage that had been falling at an average of 0.38% per year between 2010 and 2014, only since this year has recovered its pre-crisis value in 2008 and has grown, from 2015 to 2019, at an average annual rate of 2.2%.

A comparative analysis between the unit labor cost growth rates in the 1960s and the 2010s shows important differences. While in the 1960s, there was a trend of acceleration, with the unit labor cost growing above 6% per year in 1969 (an average rate that would be maintained in the following decade), in the decade 2010, this same growth rate shows a trend of stagnation, starting from negative values (in 2010, as in 2009) and remaining, from 2011 to 2019, between 1% and 2% (figure 7).

Figure 7: Annual growth rate of unit labor cost

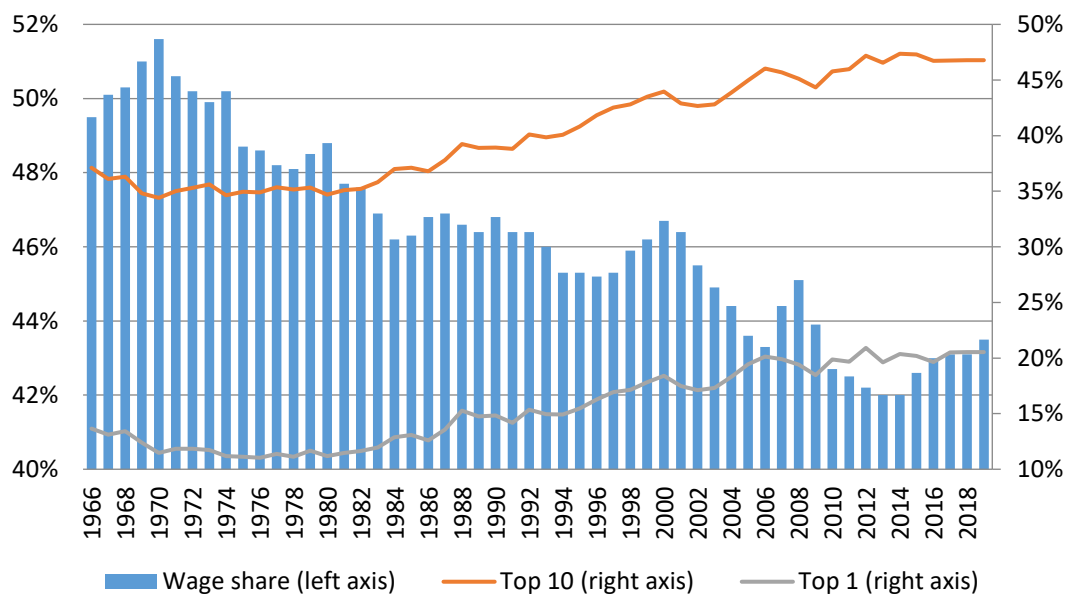


Source: OECD

This situation generated an ambiguous scenario since, even with the creeping growth after the 2008 crisis (around 2% per year), the unemployment rate was at a very low level, and at the same time, it was observed: low bargaining power of workers, low wage growth rate, and a growing gap between average and minimum wages, factors that tend to imply the continuity of the trajectory, observed since the 1970s, of income concentration, both personal and functional¹².

As can be seen in figure 8, the wage share fell from 2010 to 2014 (the year that registered its lowest level in history, 42%), then grew till 2016, stagnated between 2017 and 2018 (at 43.1%), and rose to 43.5% in 2019 (a share smaller than the one of 2005 which was, at that time, the smallest in the whole historical series). When it comes to the personal income distribution, it's clear that that situation has worsened in the 2010s: even though it seems that there is a stagnation in the income concentration tendency since 2017, both the top 10% and the 1% have risen their shares in the national income between 2010 and 2019, respectively, from 45.7% to 46.7% and from 19.8% to 20.5% (the average of both during the decade is the highest of the historical series).

Figure 8: Wage share, Top 10% and Top 1% shares of income



Source: Bureau of Economic Analysis, World Inequality Database

¹² "(...) the declines in unionization and the real value of the minimum wage, and the fissuring of the workplace, affected middle- and low-income workers more than high-income workers, and some of the lost labor rents for the majority of workers may have been redistributed to high-earning executives (as well as capital owners)" (Stansbury and Summers, 2020).

In general, it seems, on the one hand, that the point of high full employment has shifted to lower levels of unemployment, which is desirable as it reduces, in terms of employment, the cost of inflationary control, that is, as the level of unemployment that implies accelerating inflation is lower, it is possible to keep inflation under control at higher levels of employment. On the other hand, the political weakening of workers has resulted in this clear process of income concentration.

The pandemic crisis unleashed in 2020 changed this situation, mainly due to its severe impacts on the labor market and the inflation shocks. At first, unemployment jumped (to 14.8% in April 2020), and inflation showed no upward tendency. Then, big stimulus packages were announced, and this situation was gradually reversed. With the economic recovery, unemployment started to fall, while prices accelerated due to the dismantling of global value chains and the acceleration of commodities prices such as food and energy.

It is worth noting that less orthodox proposals were already gaining ground in academia years before, as in the debate on secular stagnation and the use of greater fiscal activism (Blanchard, 2010; Summers, 2016) or in the rise of the "Modern Monetary Theory" (Wray, 2015), and expansionist measures are being adopted by different governments around the world, in addition to being supported by important institutions such as the IMF¹³. The question is to what extent these measures will be institutionalized in the US after the pandemic crisis or quickly reversed with the resumption of a "new normal" just like after the 2008 crisis. Previous years of low wage increases and income concentration may indicate the need for more structural changes in economic practices.

¹³ See, for instance, the interview of the managing director of the IMF, Kristalina Georgieva, and its chief economist, Gita Gopinath: <https://foreignpolicy.com/2020/09/09/great-lockdown-economy-recovery-coronavirus/>

4. Conclusion

In the surplus approach, the excess of demand in relation to the supply capacity is not the main explanatory factor in the analysis of the inflationary process since the potential product follows the trend of the effective product: the tendency of inflation is dictated by the basic costs of production. Among these, the unit labor cost stands out, determined by the evolution of nominal wages in relation to productivity behavior. Still, according to this approach, the dynamics of nominal wages are mainly determined by workers' bargaining power, having one autonomous element, one related to recompositing inflationary loss, one linked to the level, and the other to the other to the rate of change in economic activity. The price dynamics are also impacted by autonomous cost pressures due to internal or external factors and the increase in mark-ups in relation to costs.

Based on this diagnosis of the inflationary process, it was sought to interpret the relationship between unemployment and inflation in the United States from the 1960s on, highlighting its evolution in the 2010s. In the late 1960s, in a context of strengthened bargaining power of the working class, the economy experienced a situation similar to that described by Lerner (1951). It moved from the point of low full employment to that of high full employment, generating an acceleration of wages and prices, a reflection of the intensification of the distributive conflict. This scenario, exacerbated by the next decade's shocks, would trigger the reversal of macroeconomic policy, a process foreseen by Kalecki (1943).

In the 1970s, the heir of this process of increasing inflation, generator of the inflection of economic policy in favor of the capitalists, and witness of the two major oil shocks showed a strange behavior on the curve that links inflation and unemployment. This curve began to show an increasingly predictable behavior since 1983: with the continuous reduction of the bargaining power of workers and the containment of the pressure of the unit labor cost, the burden – in terms of unemployment – of the inflationary control has been reduced, and the Phillips Curve began to exhibit, except for the two years that followed the 2008 crisis, a largely horizontal format.

The second decade of the 21st century, in turn, presented an ambiguous macroeconomic result. On the one hand, until March 2020, the economy was showing a low unemployment rate associated with controlled inflation and, on the other hand, a low growth rate of output and wages, in addition to the continuation of the (functional and personal) income concentration process.

The relationship between unemployment and inflation in the US from the 1960s onwards has an important lesson: political and institutional factors are very important in mediating economic relations. While the strengthening of the working class at the end of the 1960s initiated a very strong inflationary process, its structural weakening due to higher unemployment rates in the 1970s and 80s and institutional changes from there on allowed inflation to remain stable from 1980 till the end of the 2010s.

To conclude, it is worth noting that, according to the theoretical framework and the analysis here presented, the trade-off between unemployment and inflation is not a simple issue as it may appear in most Phillips Curve interpretations. Although lower rates of these two variables are desirable, this result may come at the cost of weakening the working-class bargaining power and, thus, income concentration. All this should be considered in the political process governing economic policies, growth, and distribution.

References

- BALL, L. M. (2011) & S. MAZUMDER. 'Inflation Dynamics and the Great Recession.' *Brookings Papers on Economic Activity*. Economic Studies Program, The Brookings Institution, 42 number 1 (Spring): 337-405.
- BARENES, M. L. & OLIVIERI, G. P. (2003) Inside and Outside Bounds: Estimates of the Phillips Curve, *New England Economic Review*, 3–18.
- BARROS, L. A. (2018) A “Grande Moderação” nos EUA: uma interpretação Pós Keynesiana, IE-UFRJ.
- BLANCHARD, O. ET AL. (2010) Rethinking macroeconomic policy. *Journal of Money, Credit and Banking*, v. 42, p. 199-215.
- BLANCHARD, O. (2016) The US Phillips Curve: back to the 60s? Policy brief, Peterson Institute for International Economics, number pb 16-1.
- BOWLES, S. ET AL. (1984) Beyond the wasteland: A democratic alternative to economic decline.
- CAVALIERI, T.; GAREGNANI, P.; LUCII, M. (2008) Full employment and the left, In: *Theory and practice of economic policy. Tradition and change. Selected Papers from the 9th Aispe Conference*. Milan: Franco Angeli Edizioni.
- DAVIDSON, P. (1978) *Money and the real world*, 2nd ed, London: Macmillan.
- GAREGNANI, P. (1987) Surplus approach to economics, in J. Eatwell, M. Milgate e P. Newman, eds, *The New Palgrave Dictionary of Economics*. London: Macmillan.
- GAREGNANI, P. (1990) Sraffa: Classical versus Marginalist Analysis, In *Essays on Piero Sraffa*, Unwin & Hyman, London.
- GORDON, R. J. (2013) The Phillips curve is alive and well: Inflation and the NAIRU during the slow recovery, NBER Working Paper number 19390. National Bureau of Economic Research.
- KALDOR, N. (1978 [1970]) The case for regional policies. In KALDOR, N., *Further essays on economic theory*. New York: Holmes & Meier, p. 139-154.
- KALECKI, M. (1943) *Aspectos políticos do pleno emprego*.
- KALECKI, M. (1956) *Theory of economic dynamics*. George Allen and Unwin.

- KALECKI, M. (1991) *Collected Works of Michal Kalecki: Volume 1: Capitalism: Economic Dynamics*.
- KEYNES, J. M. (2018) *The General Theory of Employment, Interest, and Money*, Palgrave Macmillan.
- KORPI, W. (2002) The Great Trough in Unemployment: A Long-Term View of Unemployment, Inflation, Strikes, and the Profit/Wage Ratio. *Politics & Society*, Vol. 30 No. 3, September 2002 365-426.
- LAVOIE, M. (2008) Towards Taming the New Consensus: Hysteresis and Some Other Post-Keynesian Amendments, *Macroeconomics and Macroeconomic Pedagogy*, ed. Giuseppe Fontana and Mark Setterfield, 191-213. Basingstoke: Palgrave Macmillan.
- LERNER, A. (1951) *The Economics of Employment*, New York: McGraw-Hill.
- MARGLIN, S. & BHADURI, A. (1991) Profit squeeze and Keynesian theory. *Nicholas Kaldor and Mainstream Economics*. Palgrave Macmillan, London, 123-163.
- OKISHIO, N. (1977) Inflation as an expression of class antagonisms, *Kobe University Economic Review*, 23:17–29.
- PALLEY, T. (2012) The economics of the Phillips curve: Formation of inflation expectations versus incorporation of inflation expectations, *Structural Change and Economic Dynamics*, 23 (3), pp. 221-230.
- PHILLIPS, A. W. (1959) The relation between unemployment and the Rate of change of money wage rates in the United Kingdom, 1861–1957 1. *economica*, v. 25, n. 100, p. 283-299.
- PHILLIPS-FEIN, K. (2009) *Invisible hands: The making of the conservative movement from the New Deal to Reagan*. Yayasan Obor, Indonesia.
- POLLIN, R. (2002) *Wage bargaining and the US Phillips Curve: was Greenspan right about traumatized workers in the 90s?* Amherst: Political Economy Research Institute, University of Massachusetts.
- ROWTHORN, R. E. (1977) Conflict, inflation and money, *Cambridge Journal of Economics* 1 (3): 215–39.
- SAMUELSON, P. A. & SOLOW, R. M. (1960) Analytical aspects of anti-inflation policy, *American Economic Review*, 50, p.177-194.
- SERRANO, F. & MEDEIROS, C. (2004) O desenvolvimento econômico e a retomada da abordagem clássica do excedente. *Revista de Economia Política*, v. 24, n. 2, p. 94.
- SERRANO, F. (2006) Mind the gap: hysteresis, inflation dynamics and the sraffian supermultiplier, IE-UFRJ.

SETTERFIELD, M. (2006a) Balancing the macroeconomic books on the backs of workers: a simple Analytical Political Economy model of contemporary US capitalism, *International Journal of Political Economy*, 35, 46-63.

SRAFFA, P. (1926) The Laws of Returns Under Competitive Conditions, *The Economic Journal*, vol. XXXVI, pp. 535-550.

STANSBURY, A & SUMMERS, L H. (2020) The Declining Worker Power Hypothesis: An Explanation for the Recent Evolution of the American Economy. National Bureau of Economic Research.

STIRATI, A. (2001) Inflation, Unemployment and Hysteresis: an alternative view, *Review of Political Economy*, Volume 13, No. 4.

STOCK, J. H. & WATSON, M. W. (2019) Slack and cyclically sensitive inflation, Working Paper 25987, National Bureau of Economic Research.

SUMMA, R. & BRAGA, J. (2019) The (conflict augmented) Phillips curve is 'alive and well'. *TD IE-UFRJ*, v. 3.

SUMMERS, L. (2016) Secular stagnation and monetary policy, *Federal Reserve Bank of St. Louis Review*, 98(2), pp. 93-110.

VERDOORN, P. J. (2002 [1949]) Factors that determine the growth of labour productivity. In: *Productivity Growth and Economic Performance*. Palgrave Macmillan, London, p. 28-36.
WRAY L. R. (2015) Introduction: The Basics of Modern Money Theory. In: *Modern Money Theory*. Palgrave Macmillan, London.