

# **Distribution and Cost-Push inflation in Brazil under inflation targeting, 1999-2014**

Ricardo Summa (IE/UFRJ)

Franklin Serrano

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## **1. Introduction**

Since mid-1999, after the introduction of the inflation-targeting system, the Brazilian monetary authority pursues a single official objective, the control of inflation, which must remain inside a pre-defined range around a center value in each calendar year (defined since 2005 as 4.5% a year plus or minus 2%). After a period in which inflation was above the upper limit of the inflation target range in almost every year (1999-2003), since 2004 the central bank has been successful in keeping inflation within the target range every single year. However, from 2010 to 2014 inflation got very close to the upper limit.

Most analyses of Brazilian inflation during this period (even that of economists that consider themselves heterodox or critical) tend to confuse the institutional framework of inflation targeting, which actually exists, with the so-called new consensus model (or sometimes even with its more complex and unrealistic DSGE or new neoclassical synthesis version) that is often used rhetorically to justify and explain the inflation targeting system. But that model (in any of their versions) has no basis in Brazilian reality and seems to exist only in the minds of some economists (Serrano (2010a)).

The most salient evidence of this confusion is the widespread (but incorrect) belief that in Brazil inflation is actually controlled through the management of aggregate demand, and the latter mainly through the manipulation of the basic interest rate by the Brazilian central bank. In reality, inflation in Brazil is a cost-push (not a demand-pull) phenomenon and the way the interest policy of the Brazilian central bank actually operates (whether or not some of the policymakers are really aware of it) is through the strong impact of interest rate differentials on the rate of change of the nominal exchange rate (in situations in which there is no external credit rationing nor strong political objections to further appreciation of the exchange rate). This means that a policy of high interest rates usually leads to a process of exchange rate revaluation which lower the prices of tradable goods and inputs in local currency, which by their turn also decrease

the prices of a number of government monitored private utility and service (which are partially indexed to tradable prices) and thus tend to lower cost inflation in the economy. Therefore in Brazil, not only inflation is not caused by excessive growth of aggregate demand, but also the only effective and systematic transmission mechanism of monetary policy is the exchange rate cost channel briefly described above.

In this paper we analyze the evolution of Brazilian inflation under the inflation targeting system according to this cost push interpretation. We first discuss (in section 2) some essential characteristics of the Brazilian cost inflation process and the transmission mechanism of monetary policy. We then identify (in section 3) the main features of three quite distinct phases mentioned above (1999-2003, 2004-2009 and 2010-2014) and explain them in terms of tradable price trends in U.S. dollars and in local currency (i.e., converted by the nominal exchange rate), of the changes in the dynamics of the so called monitored prices and the behavior of wage inflation. Each of these three components is analyzed in more detail in the subsequent sub-sections, namely, tradable prices in local currency (section 3.1), monitored prices (section 3.2) and wages (section 3.3). In section 4 we look at the changes in the wage share that have resulted from these distinct phases of cost-push inflation.

We conclude (in section 5) that the fact that the exchange rate policy has changed and now there has been a trend towards continuous nominal devaluation after mid-2011, together with the fact that the strengthening of the bargaining power of workers has led to a trend of rising (nominal and) real wages since 2006 means that distributive conflicts in Brazil are getting much more intense. And this explains the increasing difficulties of keeping inflation lower than the upper limit of target range. We also suggest that the apparently very irrational recent (early 2015) change in the orientation of economic policy towards contractionary fiscal, incomes and monetary policies in a situation in which the economy is already stagnating (see *The Economist* (2015) and Serrano and Summa (2015b)) seems to be ultimately based on the desire to weaken the bargaining power of workers that was (perhaps inadvertently) much strengthened during the brief but intense Brazilian “golden age” of 2004-2010 (see Serrano & Summa (2012), Weisbrot et alli (2014)).

## **2. Some structural and institutional features of Brazilian inflation under inflation targeting system**

## **2.1 High but not complete inflation persistence and high sensitivity to tradable prices**

The first thing that draws ones attention when we look at Brazilian inflation compared to other countries (not only the advanced one but also developing countries both in South America and elsewhere) is that Brazilian inflation tends to be on average both higher and more persistent. Besides that, Brazilian inflation is also unusually influenced by the local currency prices of tradable goods (and thus, of course, by the nominal exchange rate) and other supply shocks, although the economy is not very open (with an import content coefficient of only 12.5% of aggregate demand in 2014 (Serrano & Summa (2015b))).

In our view, these features are explained by the fact that the Brazilian economy still has a relatively high degree of formal and some informal indexation to past inflation. Informal indexation to past inflation may be due partially to the fact that the Brazilian inflation target system targets headline inflation (in a discrete calendar year basis) rather than having a target of core inflation (or a moving average of headline inflation). Moreover, the fact that actual inflation, even when meeting the target range, has been above the central target in almost every single year since 1999 (exceptions are the years 2006, 2007 and 2009) also prevents the center target from being an effective anchor for inflation expectations, making inflation expected by the market more sensitive to actual (instead of target) past inflation.

More importantly, however, is the relatively high degree of formal contract indexation to past inflation. A large number of monitored prices of private utilities and services (and some publicly provided services too), as well as other non-monitored prices as real estate rents are still formally indexed to past inflation. Moreover, in many cases these monitored prices are indexed to a price index (the IGP-M index) that is extremely sensitive to the wholesale/producer price index (IPA) which, by its turn, is strongly affected by the prices of tradable goods in local currency. This makes these non-tradable service prices quite sensitive to changes in international dollar commodity prices and changes in the nominal exchange rate. This rather unusual institutional arrangement was inherited from the privatization policies of the 1990s and, in spite of some changes discussed further below, is still mostly in place.

Note, however, that although inflation persistence is relative high, it is far from being complete<sup>1</sup>. Therefore, the usual condition in new consensus macroeconomic models that the sum of effects on current inflation of past and expected inflation is equal to one and the conclusion that follows that the effect of a single demand shock would be a permanent acceleration of inflation<sup>2</sup>, have no empirical basis in recent Brazilian experience and it is instead a condition that is imposed rather than estimated in most macroeconometric models with the excuse that agents would be irrational not to take expected inflation fully into account. But such theoretical argument is hardly reasonable as it confuses the individual cognitive ability to foresee inflation with the very different question of agents having the political or market power to include such forecasts in their contracts<sup>3</sup>.

In addition, in open economies, the full pass-through from expected to actual inflation for the economy as a whole also requires the assumption that relative Purchasing Power Parity holds empirically, that is, that domestic inflation must be equal to tradable goods inflation in the local currency. This relation clearly has also not been observed in the Brazilian economy over the period in question<sup>4</sup>. So, in reality, full persistence is the exception rather than the rule outside very high inflation regimes and periods.

But the consequence of acknowledging that inflation persistence however high is only partial is that by itself it already leads us to the equivalent of an old (i.e. non-accelerationist) Phillips curve. This means that, under partial inflation persistence, the cost of a stabilization policy based on generating a negative demand shock would be a permanent (rather than a temporary as the new consensus model holds) trade-off between output (and employment) and inflation. This provided, of course, that we could postulate that demand shocks have a regular effect on inflation, which as we shall presently see, happens *not* to be the case in Brazil.

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<sup>1</sup> For a survey of evidence for partial inflation persistence in the Brazilian economy, see Summa (2011).

<sup>2</sup> For a theoretical critique of the hypothesis of full persistence in the new consensus model, see Serrano (2006) and for a version with expectations, see Setterfield and LeBlond (2003).

<sup>3</sup> See Serrano (2010b). See also section 3.3 and table 2 for data regarding the actual capacity of workers in getting real wage gains in Brazil.

<sup>4</sup> See table 2 for data regarding overall inflation and inflation of tradables in local currency. These two variables are different in the whole period (2000–2014) and even more during shorter periods (2000–2003, 2003–2009 and 2010–2014).

## 2.2 Very low degree of nominal price (and wage) “flexibility”

The Brazilian economy in the period of inflation targeting (mid 1999 to now) also exhibits a very low (and in practice irrelevant) degree of either price or wage “flexibility”, understood as the aggregate response of price markups to **deviations** of the actual degree of capacity utilization from its trend normal values and/or the response of wages (or unit labor costs) to **deviations** of the open unemployment rate from its longer run trend. Pro-cyclical markups are hard to find<sup>5</sup> and nominal (and real) wages seem to be strongly correlated with the longer term trend of the open unemployment rate, but not with fluctuations around this trend<sup>6,7</sup>.

There are many reasons for this. In the case of prices, Brazil is hardly a price maker in any world market. Being thus a price taker, almost all prices of tradable goods (including commodities which have very flexible international prices) are exogenously given relative to domestic demand conditions, once international prices and the nominal exchange rate are given. Moreover there is a large number of monitored prices that comprised a substantial fraction of the basket underlying the official consumer price index used for inflation targeting (the IPCA). Also the most of the non-tradable goods and services among the so-called “free” (i.e. non-monitored) prices tend to follow cost plus markup market pricing rules (supermarkets, beauty parlors, soft drinks factories, for instance). So price flexibility in Brazil is relegated to a few (mainly agricultural) goods which are both basically non-tradable and have “auction” markets (such as tomatoes). And, of course, the movements of such prices tend to reflect much more the instability of the supply (due to the weather or other disruptions in the wholesale to retail distribution) than aggregate demand conditions<sup>8</sup>.

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<sup>5</sup> For empirical evidence of (mostly anti-cyclical) markups in Brazilian industry, see Feijo and Cerqueira (2010).

<sup>6</sup> The empirical inverse relation between the levels of real wage and the levels of the unemployment rate is known as the wage (bargaining) curve (Blanchflower and Oswald (2005)). Empirical evidence regarding the existence of wage curves in Brazilian economy can be found in Amitrano (2015).

<sup>7</sup> Summa and Braga (2014) disaggregated Brazilian overall price index in “services”, “industrial goods”, “food and beverage” and “monitored” prices. The results found after estimating equations for each disaggregate inflation rate are that demand shocks are not important to explain the inflation dynamics of “industrial goods”, “food and beverage” and “monitored goods and services”. The inflation of free “services” is explained by the level of the unemployment rate, but not by deviations of unemployment rate relative to its trend. This last result is compatible with the hypothesis of the appearance of a more structural process of wage inflation in Brazil since 2006 as a result of higher bargaining power of workers, that will be presented in sub-section 3.3.

<sup>8</sup> Actually, Summa and Braga (2014) found a negative relation between “food and beverage” inflation and demand for “food and beverage” (sales in supermarkets), and the granger causality tests point out

And in the case of money wages at least in the formal market, their short run downward flexibility would entail costly increases in turnover, as labor laws still forbid most direct reductions of the money wage of an already employed worker.

Moreover, the most important feature relating to money and real wage dynamics that we must take into account to understand recent Brazilian inflation is that, contrary to what the majority of economists think nowadays, positive nominal wage inflation may well happen way before the economy reaches “full employment”. In fact, it is quite unlikely that true full employment is ever reached in peacetime in a capitalist economy, and this is even more unlikely in a developing economy with a large informal sector and disguised unemployment. But as the classical economists from Smith to Marx knew, persistently lower trend rates of unemployment strengthen the bargaining power of the labor force, especially under favorable political and institutional circumstances (Kalecki (1971), Rowthorn (1977)). In this view, wage inflation is understood as a consequence of ‘workers “excessive” demands` (or claims) relative to productivity growth, instead of the usual neoclassical view of an ‘excess demand for labor‘ (Palumbo(2015)<sup>9</sup>. And this can occur even if the economy is still far away from full employment. For other political or institutional reasons wage inflation may not appear at all even if the level of employment is growing fast (as in Brazil during the period of military rule). Thus, the relationship between wage inflation and the trend of the unemployment rate is not necessarily stable, and this relationship is mediated by political, institutional and cultural aspects that influence the workers' bargaining power ((Kalecki, 1971, Rowthorn, 1977, Stirati, 1994, 2001)<sup>10</sup>. This point is very important, because the recent

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in the direction of higher inflation causing lower demand. Bastos, Jorge and Braga (2014) estimated disaggregated inflation equations for 17 industrial sectors and found no systematic relationship between sectoral inflation and demand (measured by degree of capacity utilization ), and the evidence of cost pressures as the main determinants of inflation dynamics of the analyzed sectors, particularly changes in international prices and in the nominal exchange rate.

<sup>9</sup> Precisely because of the possibility of wage inflation arising way before full employment ,Abba Lerner (1951) long ago created two different expressions : he called “*Low Full Employment*”, a situation in which current output level is below its potential, and it is still possible to expand the level of employment through increased spending, but workers bargaining power is strong and creates a wage-price spiral; and called “*High Full Employment*”, the actual point of full employment with labor scarcity, at which it is impossible to expand employment level stimulating aggregate demand.

<sup>10</sup> On the relationship between labor market conditions and wage behavior, for example, Phillips (1958) says that both the level and the change in unemployment rate may be important to explain wage growth. Lower levels of unemployment lead to greater competition between employees, which leads to an increase in money wages. On the other hand, decreases in the unemployment rate (the rate of change of the unemployment rate) enhances the workers’s bargaining power and put them in a

increase in money and real wages in Brazil has widely been incorrectly interpreted as evidence that the economy is overheating, because it has supposedly reached full employment of labor (even by many who acknowledge that there is still spare capacity in the capital stock).

In any case, the upshot of the above discussion is that for various causes, a regular relation between any sort of demand gap and nominal prices and wages is very difficult to find in the data for the Brazilian economy<sup>11</sup>.

### **2.3 The transmission mechanism of monetary policy: demand and cost channels**

The lack of significant aggregate nominal flexibility would make controlling inflation through the manipulation of aggregate demand quite difficult even if the control of aggregate demand through changes in interest rates was easy (in other words if a stable IS curve could be easily identified).

However, in Brazil (as in many other countries) this is not the case. Private nonresidential investment tends to be entirely induced by expected demand relative to installed capacity and totally insensitive to interest rate reductions (and other incentives such as low taxes or higher markups)<sup>12</sup>. Persistently lower interest rates do seem to encourage residential investment and autonomous consumption based on credit but even here the lags and shape of the credit cycle not only are strongly affected by institutional and regulatory changes in the banking system but also seem to be poorly understood<sup>13</sup>.

To make matters even more complex, in Brazil, in spite of the fact that the majority of Brazilian economists are strong trade elasticity optimists, the empirical evidence seems to show that real exchange rates have very small direct positive effects on net exports (in fact in most estimates they fail to meet the Lerner conditions so with given output they do not even improve the trade balance). On the other hand, there is also a lot of evidence that real wages tend to increase when there are nominal and real exchange rate revaluations.

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stronger position to demand wage increases (Phillips, 1958, p. 283; see also Pollin, 2003, Palumbo(2015)). Moreover, not only both the level and the change of the unemployment rate could influence wage inflation, but also the time for which the unemployment rate remains at high or low levels. Thus, in periods where the unemployment rate is kept in low (high) levels for a long period, an increase (decrease) in the bargaining power of workers can arise through the “discipline effect” (Kalecki (1943)).

<sup>11</sup> For evidences see Braga (2013), Summa and Braga (2014), Bastos, Braga and Jorge (2014), Summa and Macrini (2014). See also Summa (2011) for a survey.

<sup>12</sup> Dos Santos (2013), Dos Santos et alli (2015), Serrano and Summa (2015b).

<sup>13</sup> Serrano and Summa (2015b).

These two things together usually mean that in Brazil (as in many other countries) exchange rate devaluations tend to decrease aggregate demand because the negative effect on real wages and consumption is much stronger than the possible positive direct effect on net exports. Conversely, a nominal and real revaluation tends to increase, rather than decrease aggregate demand. This implies that when the central bank increases interest rates, if that comes together, as often does in Brazil, with a tendency of exchange rate revaluation, these higher interest rates, even when they slow down residential investment and consumer durable credit, tend to increase real wages and induced consumption, making the so called IS curve quite unstable and unreliable.

Therefore the traditional transmission mechanism of monetary policy through the demand channel that links higher interest rates to lower aggregate demand and lower aggregate demand with lower prices or wages can hardly be at work in the Brazilian economy, although the literature shows that those who confuse the existence of an institution called inflation targeting with the new consensus (or even de DSGE) model do not seem very aware of that.

#### **2.4 The exchange rate cost channel of monetary policy**

Given that the demand channel of monetary policy does not seem to work in Brazil, we should turn to the cost channel. Now, the first element of the cost channel of monetary policy is the possible “perverse” effect of interest rate increases on cost inflation. In fact, there is evidence of the so-called “prize puzzle” in Brazil<sup>14</sup>. Moreover, there is also some evidence that gross profit markups tend to increase together with interest rates as both the borrowing and opportunity costs of capital for firms increase when interest rates are raised<sup>15</sup>. This effect makes the control of inflation through increases in interest rates even more difficult.

Luckily, for the monetary authorities, this “perverse” effect of higher interest rate on inflation is just a level effect, i.e., a single change in nominal interest rates tends to lead to a single increase in gross profit markups. This being so, this effect is usually more than compensated by a much stronger effect through the rate of change of nominal exchange rate effect on inflation, due to this higher nominal interest rate. As a higher nominal interest rate lead to a higher international interest rate differential and this is

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<sup>14</sup> Summa and Macrini (2014) found a positive relation between the rate of change of the nominal basic interest rate and overall inflation, while Braga and Summa (2014a), using disaggregated data for inflation show that this relation is circumscribed only to the industrial goods.

<sup>15</sup> Bastos and Braga (2010).

usually associated with a positive rate of change of the nominal exchange rate, a positive interest rate differential leads to a process of further changes of the exchange rate in the same direction due to the strong effect of the recently realized values of the actual spot exchange rate on exchange rate expectations<sup>16,17</sup>. So the positive interest rate differentials often lead in Brazil to a process of continuous nominal exchange revaluation, which has a strong effect of lowering tradable price inflation directly and monitored price inflation indirectly, and as those sectors prices lower the cost of production of all other sectors of the economy, also, with a lag to lower inflation in the so-called free price sectors. This is the effective channel of monetary policy in Brazil and it is this effect that explains how the authorities often managed to hit the inflation target band in spite of the inoperative demand channel of monetary policy (and the incomplete inflation persistence)<sup>18</sup>.

### **3. Three Phases of Brazilian inflation**

Looking at the Brazilian overall inflation data during inflation targeting system (figure 1), we can distinguish three different patterns. First, from the beginning of 1999 until 2003, inflation was very high and in almost every year above the upper limit of the target range. After that, inflation is gradually controlled and oscillates around the center

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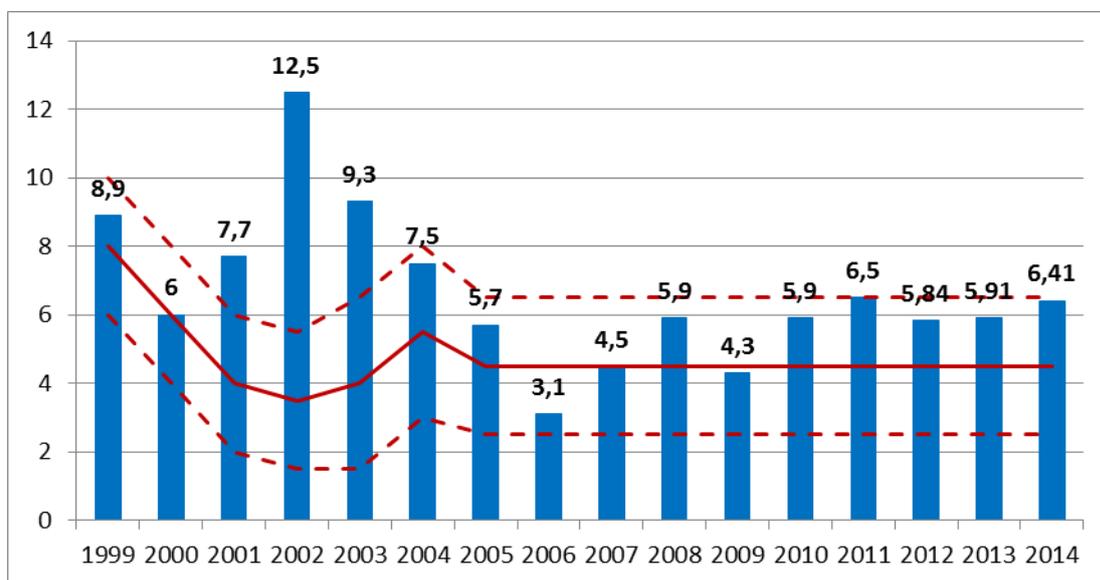
<sup>16</sup> Notice that we are saying that the interest rate is exogenous, in the sense that the central bank sets the basic interest rate (and thus to influence also the expectations of long term rate) and there is no market mechanism capable of changing this rate (Serrano and Summa (2013)), even in an open economy (Lavoie (2000, 2001, 2014), Serrano and Summa (2015a)). Therefore, the central bank does not actually faces a “trilemma” (Summa, 2015).

<sup>17</sup> The idea is that exchange rate expectations in Brazil are in part of the “adaptive” type. Thus, an actual change in the nominal exchange rate usually tends to change the expected exchange rate in the same direction, amplifying the process of revaluation or devaluation. For a theoretical explanation for this relation, see Summa (2012) and Serrano and Summa (2015a). For empirical evidence of this effect in Brazil, see Cieplinski, Braga and Summa (2015), that show that there is a relation between interest rate differentials (measured by Brazilian (selic) and US basic interest rate (Fed funds rate) plus the sovereign spread (EMBI br)) and the change (not the level) of the nominal exchange rate. In the same paper, it is also shown the relation between interest rate and changes in the exchange rate itself changes over time. In the period 1999– 2003 exchange rate devaluations forced the central bank to raise interest rate differentials. In the period since 2004, Brazilian Central Bank maintained large interest rate differentials and that drove a process of almost continuous nominal exchange rate appreciation until 2010 (the 2009 devaluation having quickly reversed itself).

<sup>18</sup> For empirical evidence, see Barbosa-Filho (2008), Modenesi and Araujo (2012), Braga (2013), Bastos, Jorge and Braga (2014), Summa and Macrini (2014). Summa and Braga (2014) shows that tradable inflation in local currency explains the evolution of inflation in all sectors, including tradable goods, like food and industrial goods, as expected, but also services (mainly restaurants) and monitored prices (since the price index used to adjust some monitored contracts – IGP-M – is very sensible to tradable inflation).

target rate from 2004 until 2009. Then, since 2010 inflation got very close the upper limit of the target range.

**Figure 1 – Overall Inflation and the inflation target**

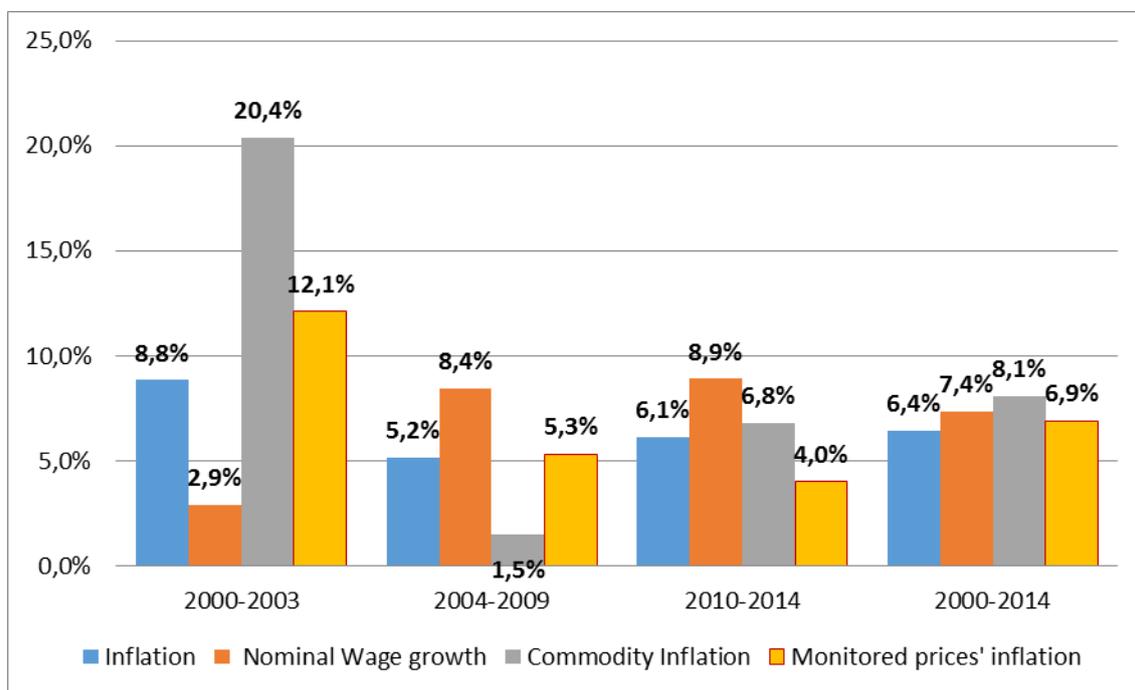


**Source: IPCA/IBGE; BCB.**

Let us then divide Brazilian inflation in these three different periods and take a closer look at the behavior of the main sources of cost increases, namely, monitored prices, money wages and tradable prices in local currency, in each of these periods (Figure 2). In 2000-2003, Brazilian average annual inflation was 8.8%, as a result of a strong external shock (inflation of tradable goods of 20.4% basically due to exchange rate devaluations) together with a high inflation of monitored goods and services (12.1%). Nominal wages grew only 2.9% on average, which surely helped to prevent an even higher level of overall inflation but resulted in a decrease in real wages. After this, in the years 2004-2009, overall average annual inflation was lower (5.2%). In this period nominal wages grow at an average of 8.4% a year. There was a series of changes in monitored prices' contracts (reducing both some markups and the sensitivity of these in relation to the exchange rates) and annual monitored goods and services inflation fell (to 5.3%). The low inflation of tradables (1.5%), due to the process of exchange rate appreciation driven in part by the interest rate differentials was thus crucial to lower overall inflation. Finally, in the years of 2010-2014, a higher overall inflation was a result of the continued growth of money wages (average of 8.9%) together with much higher tradable goods inflation (6.8%), but inflation was kept just below the upper range

of the target (6,1%) thanks to a policy that resulted on a lower inflation of monitored goods and services (4,0%).

**Figure 2 – Overall Inflation and its cost-push determinants**



**Source: IBGE; CAGED/MTE; BCB;**

Now we turn to analyze each one of these three components of cost inflation – change in nominal (and real) wages, local currency prices of tradables and monitored prices – in order to see why each of them behaved differently in each of the three periods.

### 3.1 Interest rate, nominal exchange rate and tradable prices in local currency

Turning first to changes in tradable prices in local currency, note that this variable comprises both international prices variations (in US\$) and nominal exchange rate changes. What matters to domestic inflation is the net effect of the change in international prices measured in local currency. Another important point to notice is that when we say “tradable” inflation, we are referring to both imported and also to exportable final and intermediate goods which, through competition, influence domestic prices.

As we saw in figure 2, tradable inflation in local currency behaved quite differently since 2000 in Brazil, and this is a result both of the evolution of exogenous international prices in US\$ and the Brazilian nominal exchange rate. International nominal prices in US\$ for tradable goods relevant to Brazil were stable in the years 2000-2002, then rose

fast from 2003 to 2008, fell quickly in 2009 and rose again until 2011. After that, prices in US\$ fell gradually (figure 3).

The transmission from international prices to domestic prices, however, depends on the evolution of the nominal exchange rate, and in Brazil this regime consists, since 1999, of a very “dirty” form of managed floating, where Brazilian central bank plays a decisive role in managing the evolution of the nominal exchange rate, by accumulating (or selling) foreign reserves, setting nominal interest-rate and by operating in the exchange rate futures markets by means of swaps.

**Figures 3 – Level of Brazilian Imports and Exports prices in US\$**



**Source: FUNCEX. Moving average for 12 months, 1998:12 = 100.**

Figure 4 shows the evolution of interest rate differentials (nominal Brazilian basic interest rate and US basic interest rate added by the sovereign spread). Until 2003, interest rate differentials are low or even negative, as a result of unfavorable external conditions and increasing sovereign spreads, despite the very high nominal basic interest rates set by monetary authority. As we can see in figure 5, there is a sequence of large nominal exchange rate devaluations in this period. The initial sequence of nominal devaluations, tended to lead to expectations of further devaluations.<sup>19</sup>

After this, in the years 2004-2009, due to an overall improvement in external financing and trade conditions which dramatically lowered the sovereign spreads of most developing countries<sup>20</sup>, it was possible for the monetary authority to set the nominal interest rate significantly above the international rate (plus sovereign spread) and thus to

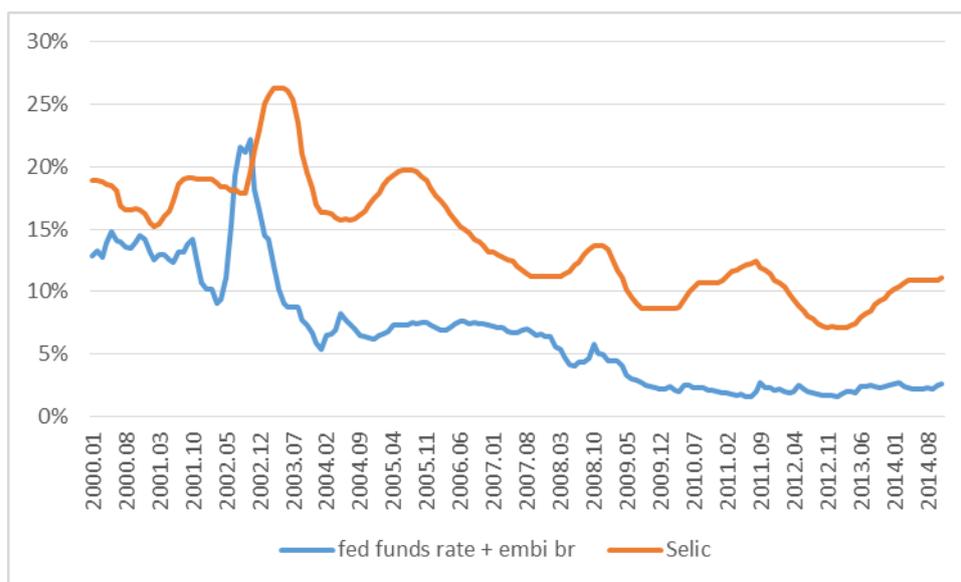
<sup>19</sup> See footnote 17 above.

<sup>20</sup> See Freitas, Medeiros and Serrano (2015).

gain some control over the trend of the nominal exchange rate. As a result, there is a process of nominal appreciation of the Brazilian currency, with the endogenous process of exchange rate expectations described above operating in the other direction, thus generating a trend of exchange rate appreciation (until mid-2011, despite the sudden, but quickly reversed, shock of the international crisis of late 2008).

Since mid-2011, despite the fact that Brazilian nominal interest rates remained well above the international rates (plus spread), the international turmoil generated by financial turbulence in the Eurozone lead to the devaluation of the Brazilian Real. As the new orientation of macroeconomic policy included the idea of devaluing the exchange rate, the government didn't try to avoid this process of devaluation and let the initial sequence of nominal devaluation turning into expectations of further devaluations.<sup>21</sup> As a result, between 2011 and end 2014 the domestic currency depreciated by 60% (figure 5).

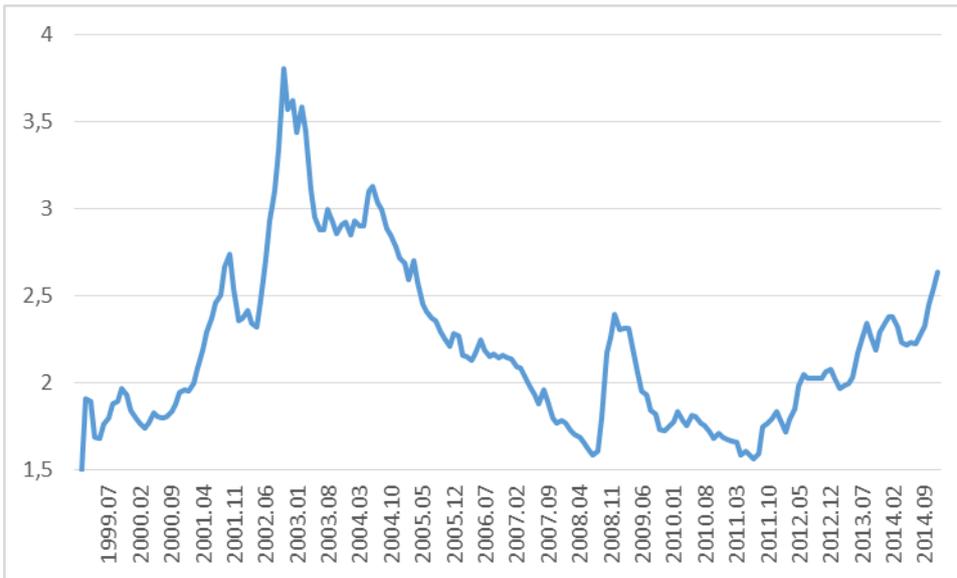
**Figure 4 Interest rate differentials**



**Source: FED, Morgan Stanley (IPEADATA), BCB.**

**Figure 5 Nominal exchange rate**

<sup>21</sup> For the reasons that led the Brazilian government to change the orientation of macroeconomic policies after 2011 toward an new policy mix in which a large real exchange rate devaluation would have to play an important role see Serrano and Summa (2015b).

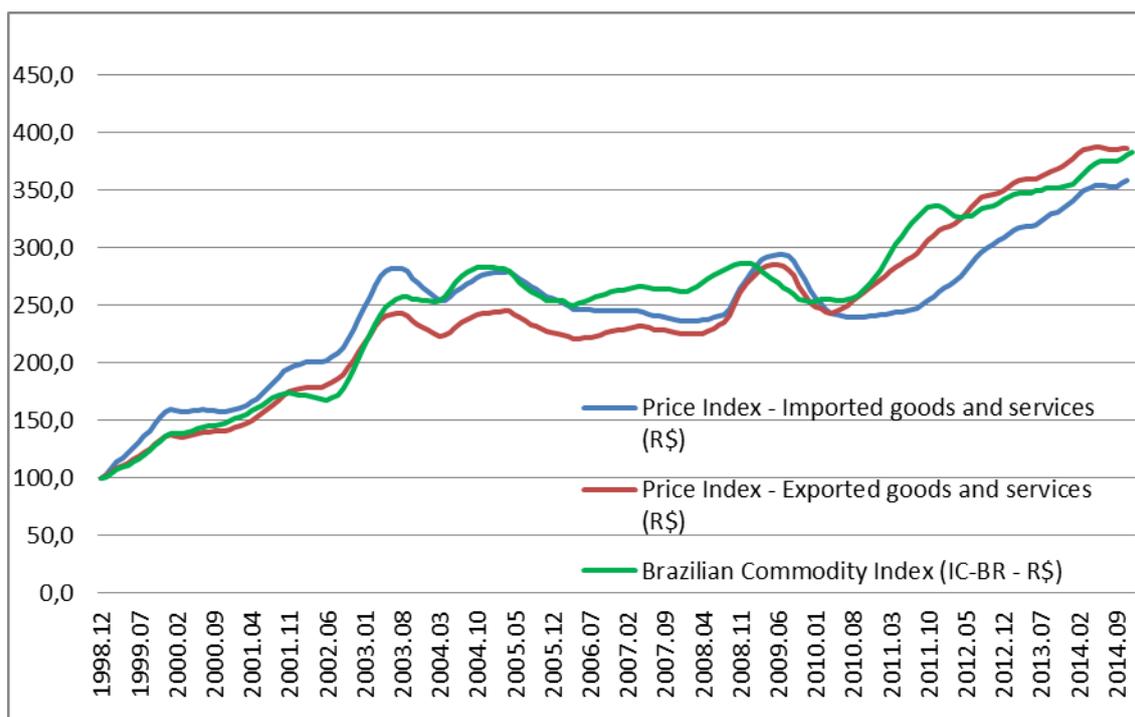


**Source: BCB.**

Summing up, the inflation-targeting system in Brazil in practice operates like this: when the Central Bank can increase or maintain a high interest rate differential and does not mind to appreciate the nominal exchange rate, it can keep inflation low. The higher interest rate increases the interest rate differential and speeds up the tendency of nominal appreciation of the currency, thereby it can transform, say, a negative supply shock in U.S. dollars such as an increase in international commodity prices, into a positive one in Brazilian R\$. However, when Central Bank is not able to appreciate nominal exchange rate, either because deteriorating external conditions (1999-2003 and 2008) or for political reasons (2011-2014), tradable inflation in local currency goes up and makes it much more difficult to reach the inflation target (Serrano and Summa, 2012).

Figure 6 shows the behavior of tradable prices in local currency. Notice that international commodity prices in local currency (measured by the Brazilian central bank index of commodity prices relevant to Brazil – IC-Br) strongly influence the overall behavior of prices of both total imports and total exports for Brazil, as the Brazilian economy is both a large importer and exporter of commodities.

**Figure 6 Tradable prices in local currency**



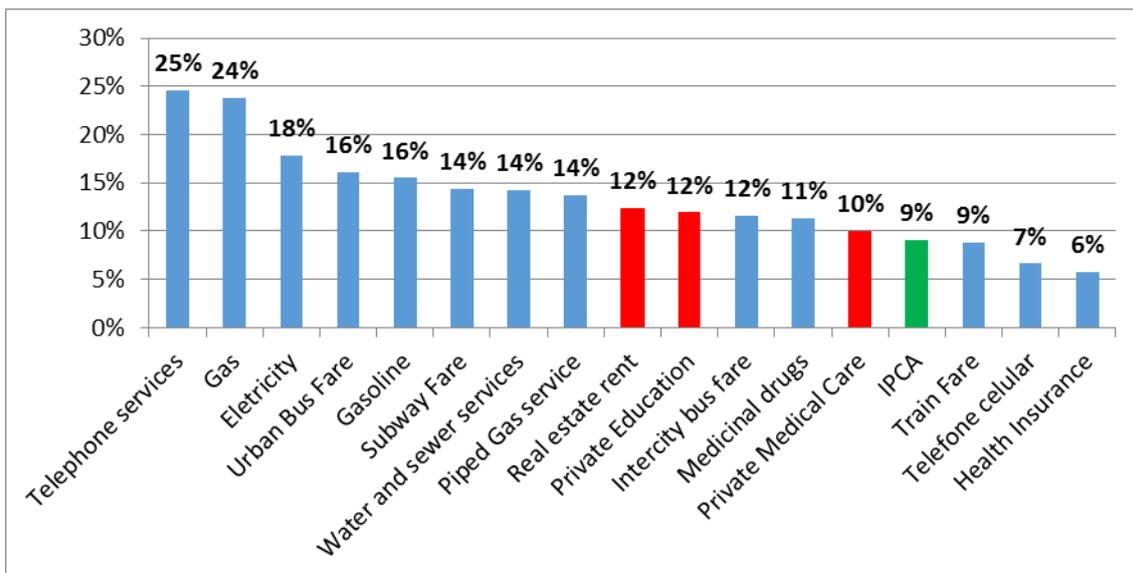
Source: Funcex; BCB. Moving average for 12 months, 1998:12 = 100.

### 3.2 The behavior of monitored prices

Monitored prices inflation, as we saw above (figure 2), was higher than overall inflation during 2000-2003, decreases in 2004-2009 and then decreases even more in 2010-2014, helping to control overall inflation in the latter period.

After the privatization process in the mid-nineties, many contracts of monitored prices were indexed by a price index - IGP-M – which is strongly affected by the wholesale or producer price index, and hence by tradable prices. In figures 7 to 9 we present the behavior of monitored goods and services inflation (blue) as well as other services that are not considered strictly as monitored but are covered by formally indexed contracts (private health, education and housing rents). Figure 7 shows that almost every monitored good and service (as well as other services included in the central banks category of free prices but that are in fact formally indexed service prices) price grew faster than overall consumer prices (measured by the target index IPCA) between 1995 and 2003.

**Figure 7 – Annual Average Monitored prices' inflation and overall inflation (IPCA): 1995-2003**



**Source: IPCA/IBGE.**

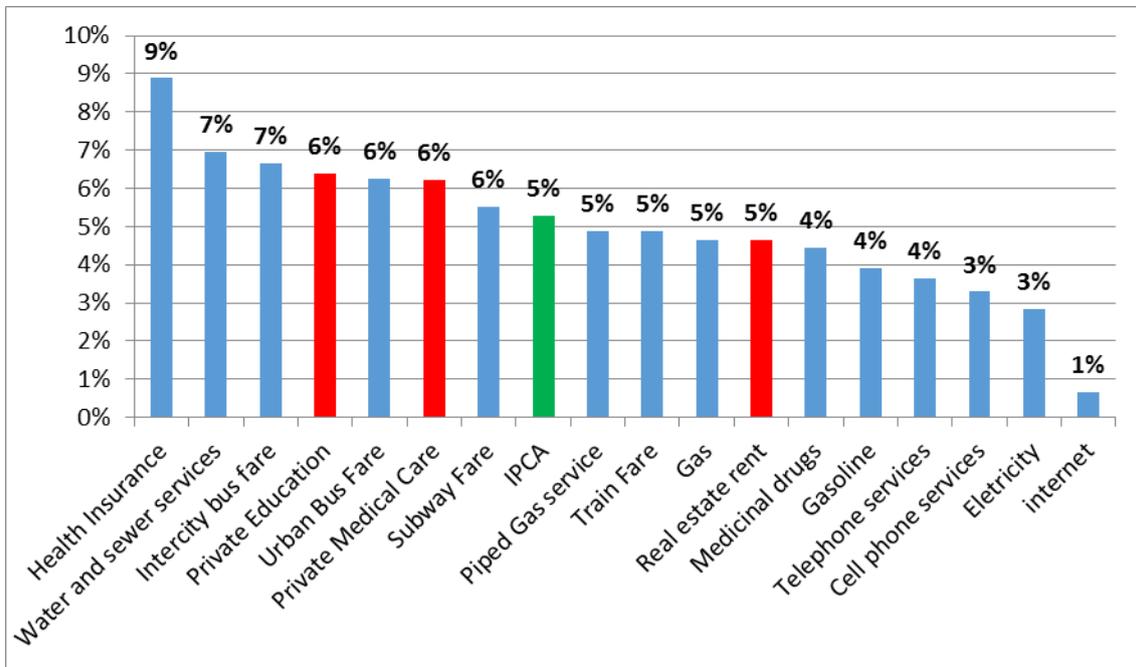
Up to mid-2005, monitored prices seemed in the aggregate to track the IGP-M index very closely and rise faster than the IPCA, amplifying the inflationary effects of the fluctuation of international commodity dollar prices and the nominal exchange rate. After 2006, the monitored prices begin to increase more slowly than IGP-M. These trends seem to be the result of a number of institutional changes that occurred in 2005 and 2006<sup>22</sup> in the indexing mechanisms of some administered or monitored prices and also a change in the pricing policy by Petrobras<sup>23</sup>. So it appears that after 2006 these regulatory changes were enough to reduce the degree of indexation of monitored prices in general, and the role of tradable inflation in local currency in particular<sup>24</sup>. Figure 8 shows that most administered goods and services prices grew more slowly than overall inflation during this period, including electricity and telecommunications fares, gasoline and gas.

<sup>22</sup> There was also a major overhaul of the regulatory framework in the electric power generation and distribution in 2004 and the introduction of new contracts regulating the pricing of private telephone companies' telephone call rates in 2006, with a new price index related to the actual costs of this sector and a variable "x per cent" reduction factor to take account of productivity growth. For more details see Martinez and Cerqueira (2013) and Serrano and Summa (2012).

<sup>23</sup> Petrobras held to a policy of stabilizing nominal domestic prices of oil fuels initially on its own; and then when it was not possible to keep prices from increasing due to the ongoing huge international oil dollar price increases in 2008, the Treasury helped to moderate the domestic price increases by temporarily lowering indirect tax rates on oil.

<sup>24</sup> These policies were also important to control and reduce the monopoly profit markups of some of these sectors.

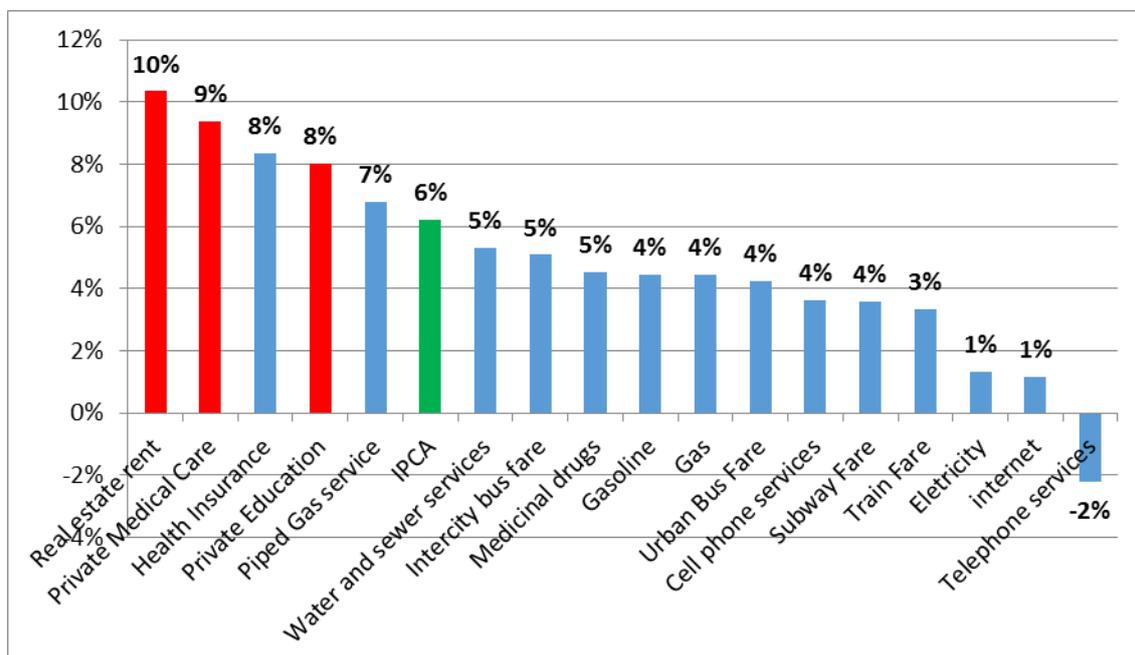
**Figure 8 – Annual Average Monitored prices’ inflation and overall inflation (IPCA): 2004-2010**



**Source: IPCA/IBGE.**

Since 2011, Brazilian Government began a more aggressive and discretionary policy of controlling electricity and oil prices. The Treasury lowered indirect tax rates on gasoline to zero in June 2012, and gave subsidies to consumers and producers since 2013, after a strong discretionary reduction in energy prices by state owned Eletrobras in the beginning of 2013. Also in the beginning of 2013 the Federal Government asked for some municipal governments to postpone the adjustment of public transport fare prices, which were again postponed in June 2013 as a reaction result to earlier mass street demonstrations sparked by announced increases (Martinez (2014)). These policies taken together decreased monitored inflation to 4.2% in the 2011-2014 period and so allowed the government to maintain overall inflation inside the inflation target acceptable range in every single year, in spite of the high tradables and wage inflation. Figure 9 shows that in this period prices grew above overall inflation only in those indexed services where the government has relatively less power to intervene, like rents and private health and education.

**Figure 9 – Annual Average Monitored prices’ inflation and overall inflation (IPCA): 2011-2014**



**Source: IPCA/IBGE.**

### **3.3 Workers’ bargaining power, wages and productivity**

As discussed in section 2, nominal (and real) wages can grow even if the economy is far away from a situation of general labor scarcity and this depends on the bargaining power of workers. The latter is a result of complex structural factors, as political and institutional aspects but depends as well on the concrete situation of the labor market. In this sub-section we analyze the role some of these structural factors and of labor market conditions to understand the relation between the bargaining power of workers and wage inflation in Brazil<sup>25</sup>.

First of all, in the case of Brazil in recent times it is very important to notice the role of the minimum wage policy. Real (nominal) minimum wage grew in average more than 5% (12.5%) a year since 2000 until 2014. This policy variable is important because it affects directly and indirectly both the labor market conditions and the general bargaining power of workers. As many Brazilian government social transfers (such as old age and disability pensions, unemployment benefits, etc, see Orair and Gobetti, 2010)) are indexed to changes in the minimum wage, increases in the real minimum

<sup>25</sup> Here we are inspired by earlier works such as Garegnani, Cavalieri and Lucii (2008) and Glyn (2006) applied to advanced countries in general and Pollin, R. (2002), Setterfield, M. (2005) and Setterfield, M. & Lovejoy, T. (2006) for the US.

wage has a strong impact on family poverty rates and social insurance conditions (Amorin and Gonzalez 2009) and this influences the bargaining power of poorer workers, their labor supply and reservation wages. Moreover, besides the substantial increases in minimum wages, in the recent period there was also an increase in the coverage of unemployment benefit<sup>26</sup> (Ibarra, 2013) and other social benefits (some estimate that more than 50 million people were taken out of poverty in the 2000s in Brazil, see Serrano & Summa (2012)).

Increases in the minimum wage has both direct and indirect effects on labor market conditions in Brazil. The direct effects are that of increasing the wages of less skilled workers. This works through many channels as: (1) the direct effect on public sector workers wages; (2) the strong effect on wages in the formal private sector; (3) the positive effects on the bargained wages in the informal capitalist sector (in Brazil called “lighthouse” effect) for urban and rural workers and (4) also for the informal personal services sector (such as housemaids, for instance) for which the minimum wage (or fractions of it) are an accepted social norm (Medeiros(2015b)).

The indirect effects work through higher average incomes for self-employed informal workers. A part of the higher income of both workers and recipients of government benefits that comes from higher minimum wages tends to increase the average income of self-employed informal sector workers who sell many of their goods and services to other low income workers. Taken together with the generally positive formal sector employment effect of higher wage incomes and government transfers (whose recipients tend to have a high marginal propensity to consume), the indirect positive effect on the average income of the self-employed workers in the informal sector works both through more aggregate income being spent on the services of the self-employed and through the reduction of the relative number of people in this sector as jobs in the formal sector increase. Through both of these indirect channels higher minimum wages tend to increase substantially the average income per capita of the self-employed informal workers.

Besides these strong positive effects on poverty reduction, increased bargaining power of unskilled workers and general labor market conditions (wages and employment) of

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<sup>26</sup> The coverage rate of unemployment benefit and “abono salarial” between 2000 and 2012 was relatively high, with the number of beneficiaries increasing 99.2% and 281.1%, respectively. (Ibarra, 2013, p. 259). In comparison with another countries, the Brazilian program is notable for the number of beneficiaries who have access to the system (Castro Pires and Lima Junior, 2014).

the policy of real minimum wage increases and social transfer, we must take into account the role of labor unions.

Although the general degree of unionization has not increased in recent years and the improvement in this regard being restricted to rural areas (Cardoso, 2014), Brazil is one of the few countries in the world in which unionization levels did not experience a fall in the last decade (Pichler (2011)). Also, again according to Cardoso (2014), there is no evidence that unions have lost strength in recent years, quite the contrary, as "union action, although invisible (because it does not cause the same commotion of other times), seems quite effective, and spread throughout the country, and in all economic sectors<sup>27</sup>".

Moreover, from 2004-2014, Brazil experienced a great improvement in the labor market conditions (Figure 10), with a boom in formal employment as a result of a period of faster economic growth together with improvement in labor inspection, changes in tax laws<sup>28</sup> and greater legal awareness among workers<sup>29</sup> (Berg (2010)). Labor informality fell from 56.2 % in 1999 to 44.8% in 2012<sup>30</sup>. Open unemployment rates fell continuously from 2003 until 2014, as a result of the faster growth of employment after 2004<sup>31</sup> together with a very large reduction in the rate of growth of the labor force. The latter seems to be due to both a change in demographical factors and in the labor supply of some groups benefitted by social security policies (for an extreme example, a marked reduction in child labor (Chahad and Pozzo (2013))). The labor force grew on average 3% a year in the period 2001-2005 but only 1.2% a year in 2006-2014. And the rate of growth of the working age population fell from 1.9% to 1.3% in each period.

### **Figure 10 – Formal employment and unemployment rate**

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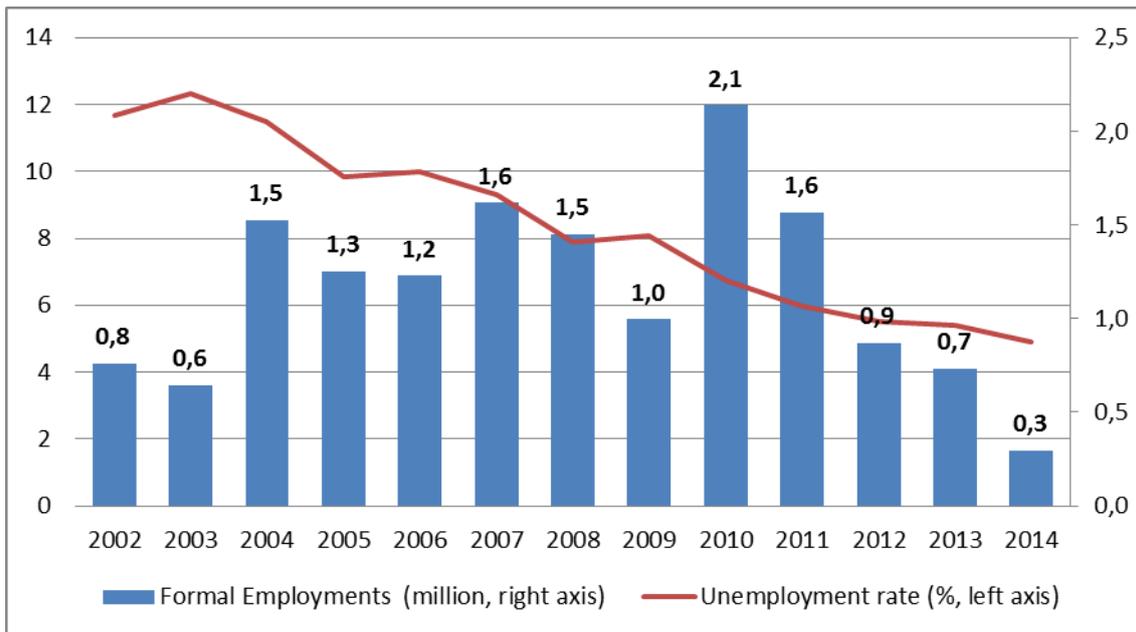
27 Also, we cannot forget the very good relations between the major labor union (CUT) and the workers party which is governing Brazil since 2003.

28 Berg (2010) points out the introduction of the SIMPLES law, which simplified and lowered taxes for small- and medium sized enterprises in exchange of then following formal labor laws. Another incentives for firms to enter the formal sector is that this gives them access to the formal credit market and allows them to make sales using credit cards, for instance.

29 Formal workers in Brazil enjoy important benefits and protections that informal workers are not guaranteed, according to Berg (2010). Other important point is that formal jobs give workers access to the formal credit market, and this makes it desirable for workers to demand formalization in order to have access to bank accounts, overdrafts and credit cards, for example.

30 Carvalho (2015) shows that labor informality rate dropped even sharply for more precarious kinds of jobs.

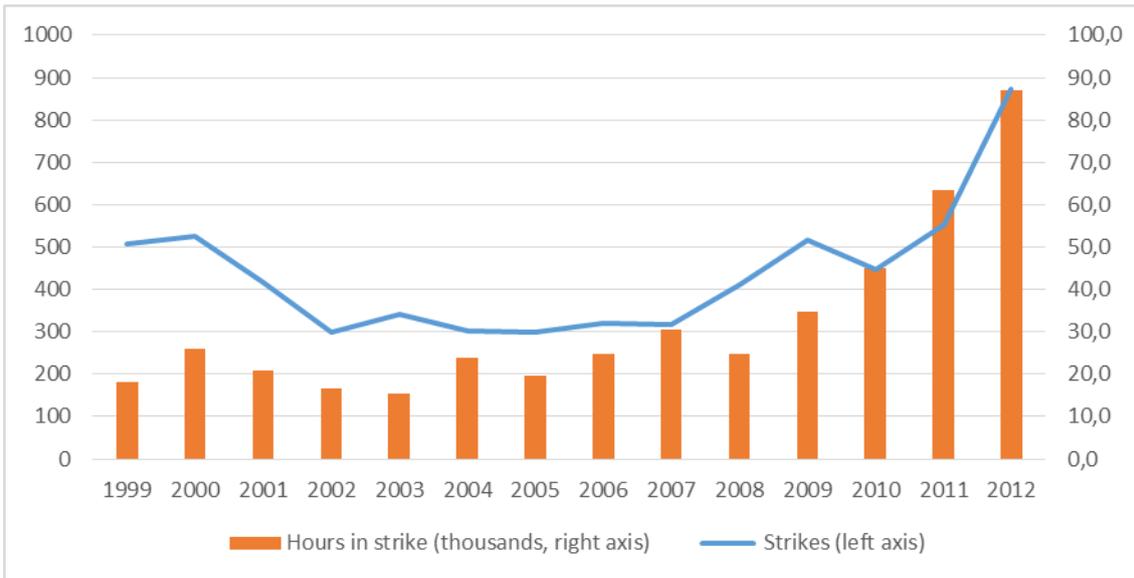
31 As Amitrano (2013) points out the sectors where employment grew faster were the construction industry, services (and commerce) and public administration, which are very labor intensive.



**Source: IBGE/PME; CAGED**

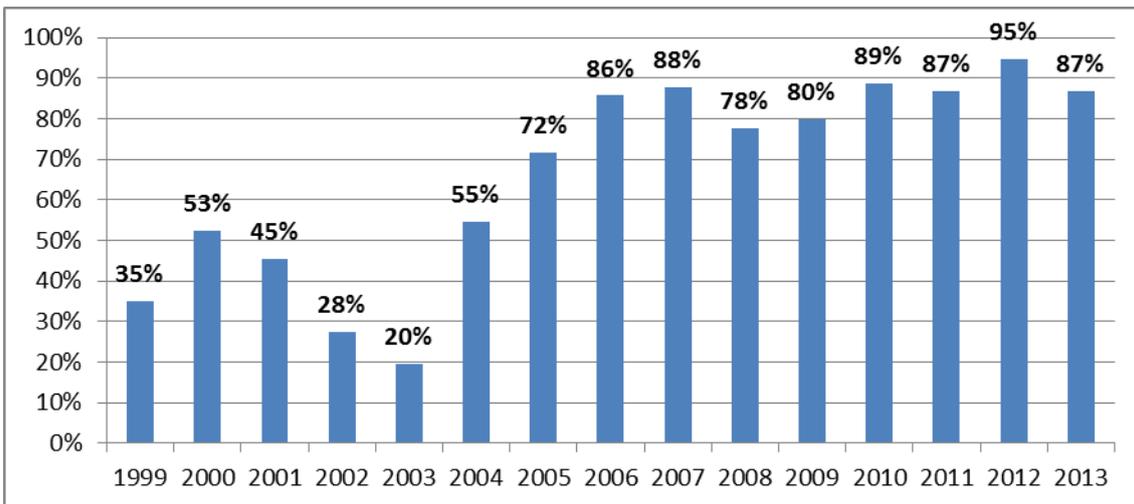
As a consequence of this increase in coverage of social and labor insurance with improved labor market conditions and a low rate of unemployment for a considerable period, there was a substantial increase in workers' bargaining power and thus a tendency towards higher nominal real wages especially since 2006, which intensified after 2010. The number and hours of strikes increased considerably in the years 2011 and 2012 (figure 11), there was an increasing number of collective agreements (9.8 thousands in 1997 against 32.7 in 2008 according to MTE) and a large percentage of those contracts which gave nominal wage increases higher than past inflation, a trend that became more evident after 2006 and that contrasts sharply with the numbers for the 1999-2003 period (figure 12). Taken together, all these trends indicate that a fast and substantial increase in the general bargaining power of workers happened in Brazil since 2006.

**Figures 11 – Number and hours in Strikes**



Source: SEADE/DIEESE

Figures 12 –Percentage of workers with real wage gains



Source: SEADE/DIEESE

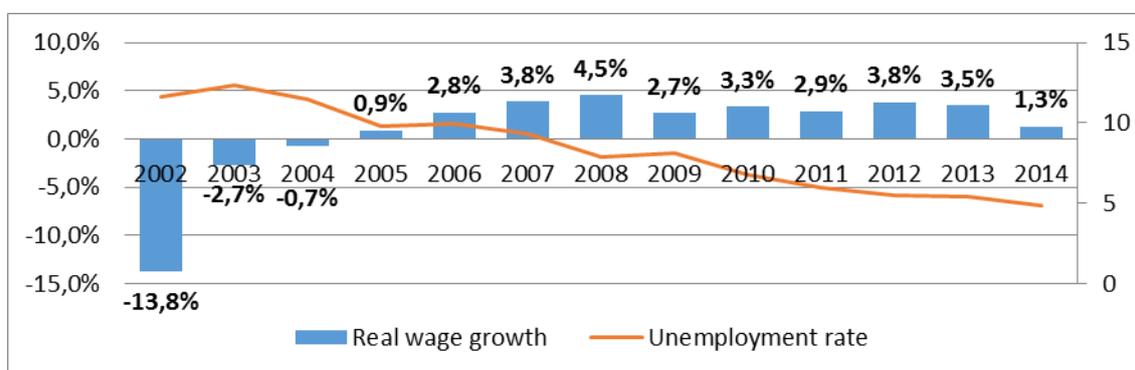
The result of the increased bargaining power appears clearly in the behavior of real wages<sup>32</sup>. Table 2 shows that the pattern of real wage growth is quite distinct if we compare the years 2000-2005 with 2006-2014. In the first period, real wage growth is either low or in most cases negative, both in aggregate (average -2.4 and -3.2%,

<sup>32</sup> Unfortunately, the quality of the data regarding wages in Brazil is not very satisfactory. In our view the most reliable source is the data from **CAGED/MTE**, which is concerned with **formal job contracts**. The main problem with this data, however, is that it do not encompass the wages of the whole formal labor force, but only the wages of new formal job contracts (admissions) and broken formal job contracts (terminations). The other source of data provided by **PME/IBGE** is related with average income received from all the workers, **both formal and informal**. The main problem with this source of data is that it is not a good proxy for wages in the sense of cost per working hour, since it includes self-employed workers in the informal sector whose average income is strongly affected by the level of sales in this sector.

according to IBGE and CAGED respectively) and in disaggregated activities. Real wages begins to rise after 2006 (average of 3.2% and 3.1%, according to IBGE and CAGED, respectively).

But as we discussed in section 2 , the emergence of a process of real wage growth do not necessarily means that the economy is operating above full employment in the sense that real wages grows because of labor scarcity<sup>33</sup> (unless you can only conceive real world phenomena through neoclassical lens). Figure 13 shows that real wage growth starts in 2006 when the open unemployment rate was about 10%, and that besides the continuous fall in the latter, real wages continued to grow at the same approximate average rate of 3% a year<sup>34</sup>.

**Figures 13 Real wage growth and unemployment rate**



**Source: CAGED; IPCA/IBGE; PME/IBGE**

The relation between nominal wage increase and inflation depends, among other things, on the degree of openness to foreign competition, technical intensity of labor per output and productivity growth of each economic activity. If we disaggregated the so called free prices index groups into “food and beverages”, “industrial goods” and “services”, it is clear that these three activities face quite different structural and institutional conditions. As can be seen in figures 14 to 16, since 2004 the growth of money wages in agriculture was in general higher than inflation for “food and beverages”, and this can

<sup>33</sup> Baltar (2015) argues that enterprises are not facing difficulties in finding workers willing to work, i.e., there is no scarcity of labor, but they have difficulty in keeping the employees working in the same enterprise because of a high turnover rate.

<sup>34</sup> Also data of unemployment rate from other sources suggests that this rate is higher than the official one from IBGE, as for example data from SEADE/DIEESE shows that total unemployment rate was in average 10.9% in 2011-2014 and 10.4% in 2014, as it incorporates also the disguised unemployment of 2.3% and 2.0 respectively. Also data from PNAD/IBGE shows that if you consider the whole country and not the most dynamic metropolitan areas (as data from PME/IBGE), unemployment rate was higher, 6.8% in average in 2014. Besides that also according to PNAD/IBGE, there were in average 6 million of domestic workers employed in Brazil in 2014, which amounts to 6.6% of total employment.

be explained because agriculture had high productivity growth<sup>35</sup> (5.1% in average, see table 1<sup>36</sup>) and “food and beverage” are highly exposed to foreign competition (according to Martinez (2014) more than 85% of the “food and beverage” goods are tradables). But nominal unit labor cost in agriculture rises less than “food and beverage” inflation in the whole period 2000-2014, probably implying high profits for this sector as a result of high international commodity prices.

Money wage increases in manufacturing industry were also higher than “industrial goods” inflation since 2005. The average growth of industrial productivity (which is strongly pro-cyclical (Summa and Braga, 2013)) in the period 2001-2014 was 1.6%. The nominal unit labor cost of manufacturing industry rose less than inflation in 2000-2003, but this relation is slightly reversed in the 2004-2009 period, getting even stronger since 2010, when productivity growth in manufacture industry stagnated. Since this sector is highly open to foreign competition, probably this sector’s profit markups have probably decreased since 2011.

Finally, money wage growth in the service sector was very close to the inflation in services since 2003, as most services are non-tradables, intensive in labor and tend to present low productivity gains (See Baumol, 2012). The data on productivity growth in service sector (0.9% in 2000-2011), taken together with that of money wages appears to show that overall prices followed the trend of unit labor costs in service sector.<sup>37</sup>

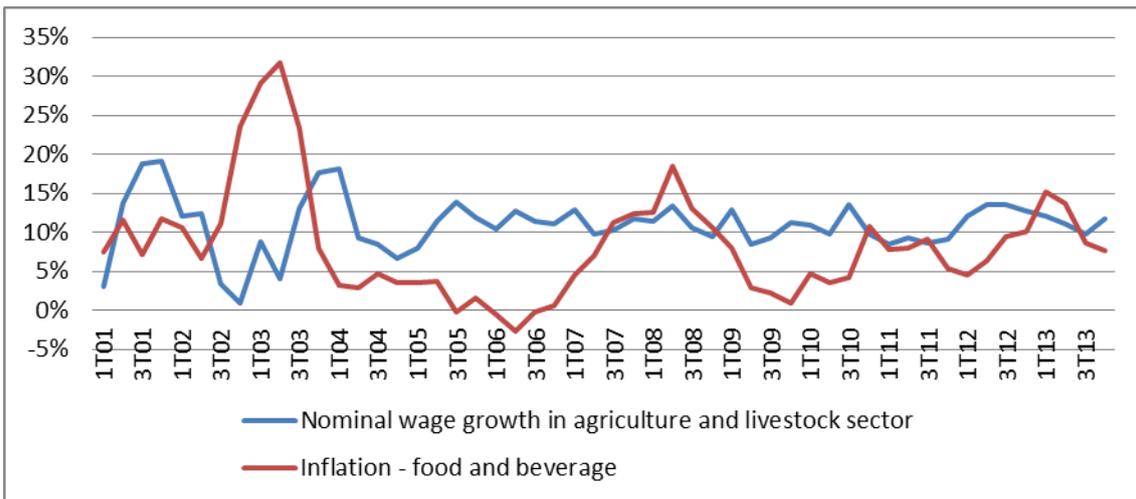
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<sup>35</sup> Measured as value added per worker.

<sup>36</sup> Unfortunately, the Brazilian National Account System of IBGE provided data about value added and total number of employees for these disaggregated activities only until 2011. For an analysis of the growth of aggregate and sectorial labor productivity of the Brazilian economy between 2000 and 2011 and the role of change in relative prices in the estimated results, See Fevereiro and Freitas (2015).

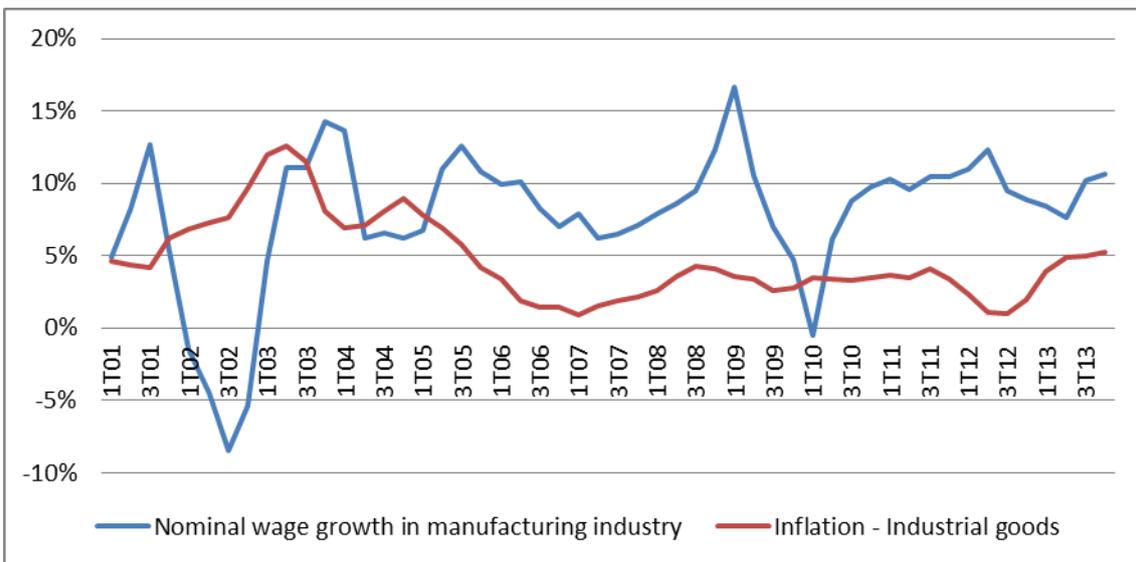
<sup>37</sup> Another important point to note in Figure 16 is that Brazil experienced a step change in the level of inflation in service sector after 2011, but services inflation is not accelerating. Similarly, the rate of change in nominal wages in service sector, after peaking in 2011, stabilized at this higher level and is also not accelerating over time.

**Figure 14 - Wage and price inflation: Agriculture and Food**



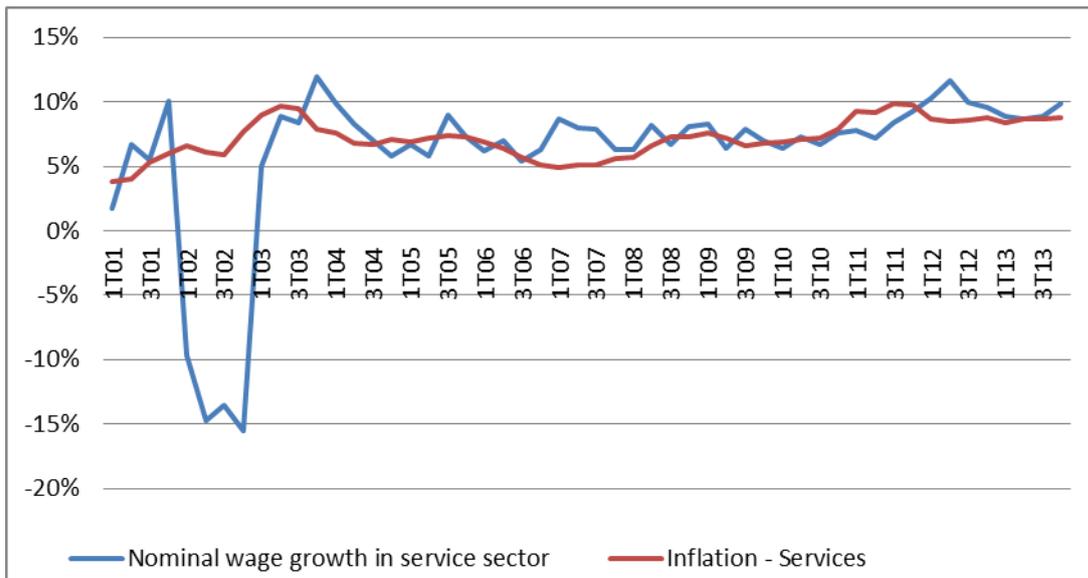
Source: CAGED/MTE; Martinez (2014)

**Figure 15 - Wage and price inflation: Industrial goods**



Source: CAGED/MTE; Martinez (2014)

**Figure 16 - Wage and price inflation: Services.**



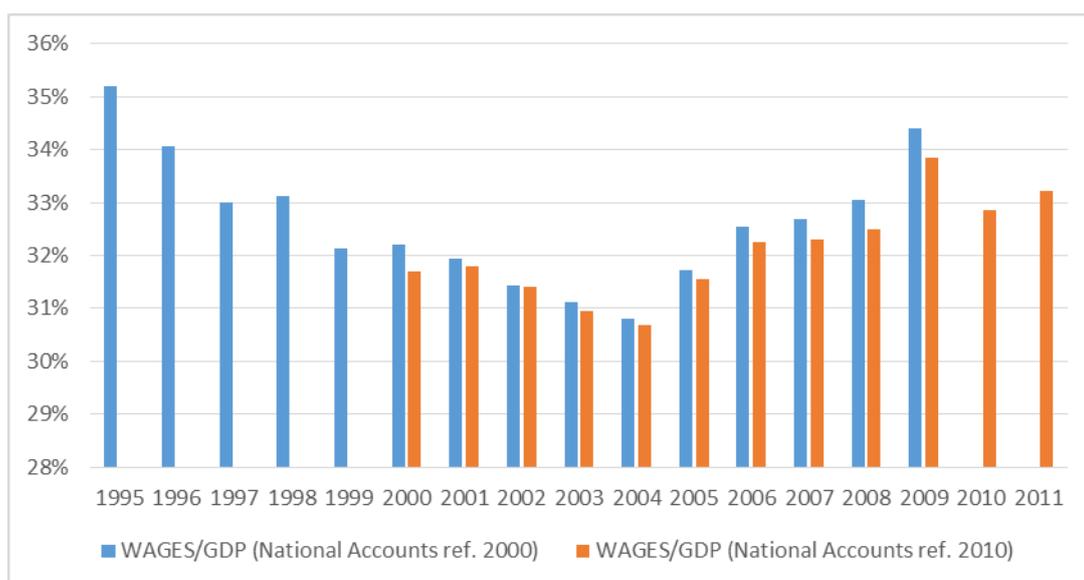
**Source: CAGED/MTE; Martinez (2014)**

#### 4 The Wage Share

Changes in the functional distribution of income are the end result of the process of cost push or conflict inflation. They depend on the behavior of nominal profit margins (of both monitored and free goods and services), the growth of money wages and labor productivity as well as the changes in the rates of interest and the exchange rate<sup>38</sup>. We can thus relate the changes in the dynamics of cost inflation to the observed changes in the functional distribution of income. Figure 17 describes the evolution of the wage share in Brazil, showing that it fell gradually from mid-1990 until 2004, when the trend is reverted and the wage share starts rising until 2011.

<sup>38</sup> From the relation between cost-push inflation and changes in the functional distribution of income distribution, see Serrano (2010b) and Stirati (2001).

**Figure 17 – Wage Share**



**Source: SCN/IBGE;**

In 2000-2003, wage share fell as average money wages grew less than overall inflation (despite very low growth of productivity). The higher inflation was a result of a strong external shock (due to the exchange rate devaluations) together with a high inflation of monitored goods and services (which grew more than overall inflation) that increased the markups of monitored goods and services plus a higher level of real rate of interest, which appears to have allowed also higher markups for “free prices” (Table 1).

After that, from 2004-2009, the wage share started rising since the productivity of the economy grew less than real wages (the rate of growth of money wages grew faster than the average overall inflation). The lower overall inflation was a result of a very low inflation of tradable goods - due to the process of exchange rate appreciation (in spite of very fast growth of international prices in dollars) - and institutional changes in monitored prices’ contracts, which reduced some markups (and the sensitivity of these in relation to the exchange rate) and lowered annual monitored goods and services inflation (very close to the rate of overall inflation). A downward trend of nominal and real interest rates also helped to explain this shift in income distribution.

Finally, in the years of 2010-2014, despite a higher level of tradable goods inflation, real wages continued growing at the same pace (faster than overall productivity). This was possible because government held down the increase of some monitored prices, resulting in a monitored prices inflation lower than overall inflation. The real interest rate was also even lower than in the previous period. So, although our National

Accounts data series ends in 2011, the rise of the wage share seems to continue in the years 2012-2014.

## **5 Final remarks**

In this paper we discussed the dynamics of Brazilian inflation as a cost-push phenomenon, focusing on the evolution of the three main direct determinants of the trend of the Brazilian inflation process, namely: a) tradable dollar prices and exchange rates, b) monitored prices and c) nominal wages and productivity growth.

In relation to inflation of tradable goods in local currency, we argued that the monetary authority can be successful in controlling domestic inflation when they can manage the exchange rate and to appreciate it in order to neutralize the increase in international prices in US dollars, but things become much more difficult when monetary authority is not able (or willing) to appreciate the nominal exchange rate, either because of adverse external conditions or for domestic political reasons. In what regards monitored prices, the policy of changing some price contracts between 2004 and 2006, taken together with other discretionary measures taken later helped Brazil to lower the rate of monitored price increases and get inflation near the central target in the years 2004-2009. Further discretionary measures to slow down the increase of monitored prices help inflation to remain just below the upper bound of the acceptable range since 2010, in spite of the higher increases in tradable prices in local currency and a stronger wage cost pressure, mainly in the service sector in the latter period.

In what concerns the evolution of the nominal wages, we observed that a seemingly structural amount of wage inflation due to the substantial increase in worker's bargaining power arose in Brazilian economy since 2006. This was being accommodated first by exchange rate revaluation. But this policy was abandoned more recently under complaints from firms in the tradable sectors that had more difficulty in passing on their wage cost increases to prices. More recently, a policy of delaying adjustments of monitored prices allowed prevented the large exchange rate devaluations from either accelerating inflation too much and/or reducing real wages.

For those who did not want the process of increasing real wages and improvement of the personal and functional income distribution to be reversed, a strong commitment to technological and industrial policies (that would lead to structural improvements and competitiveness of our economy) together with a some sort of broad "incomes policy" of controlling monitored prices (and also other service prices in which the government

has some influence, directly or indirectly<sup>39</sup>, like rents, private education and health care)<sup>40</sup> would be necessary. Only with something like this in place we would have a basis for a progressive and credible policy of negotiated nominal wage moderation, that could keep inflation from accelerating and generating instability, while at the same making sure the foreign exchange constraint would not reappear to hinder growth. But such approach would necessarily require a lot planning and public investment, things that have mostly been in practice already mostly abandoned by the Brazilian government (due to private sector complaints of excessive state interference in the economy) since 2011 (see Serrano & Summa (2015b)).

On the other hand, as we have seen above, the result of the substantial improvements in the bargaining power of workers that has happened as result of the period of relatively fast growth with social inclusion from 2004 to 2010 has been the steady increase of real wages (starting from quite low levels in 2006) and gradual increase in the wage share. As there was no really binding longer term foreign exchange constraint on the growth of the economy after 2003 (in spite of the 2008-9 world crisis) and the socially inclusive growth pattern actually tends to stimulate private investment through the fast increase in of the internal market, the political reaction against these changes in distribution (and in the more generally the marked improvements in social conditions in Brazil) was bound to take the form of attempts to make the government shift the orientation of macroeconomic policies to dismantle this growth regime. This is not too different from what happened at the end of the Golden Age in many developed economies in the early 1970s.<sup>41</sup>

Interestingly enough, more recently there was an apparently completely irrational further shift in the orientation of economic policy in Brazil starting in January 2015.

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<sup>39</sup> Directly, the federal government could regulate contracts of private education and rents to prevent the chosen price index to adjust price contracts could be higher than the official overall inflation. More indirectly, according to Medeiros (2015a), the provision of public health and education as well as urban infrastructure and public transport could tame the conflict over distribution and avoid that the great part of the workers living cost should be guaranteed only by nominal income. This seems to make sense since after analyzing the evolution of consumption patterns in Brazil in 2000s, Medeiros (2015a) showed that the increase in income of the bottom of the distributive pyramid where accompanied by the increased percentage of their income compromised with the acquisition of private education and health care services as well as automobiles.

<sup>40</sup> In the whole period (2000–2014) remained higher than official overall inflation. Also the real estate rents are a cost push factor of the inflation in service sector (like restaurants, private schools, personal services, etc) according to Summa and Braga (2014) and Dos Santos (2014).

<sup>41</sup> See Kalecki(1943), Garegnani et alli(2006), Serrano(2004).

The new policy consists of a simultaneous policy of allowing further major exchange rate devaluations, announcing large increases in monitored prices, with the government suspending the pursuit of the inflation target for this year (curiously with virtually no complaints from entrepreneurs or the media), together with a shift to a strongly contractionary monetary, credit and fiscal policy in an economy that is already in recession. But the new policy orientation makes perfect sense, and is in fact strictly necessary, as the beginning of an attempt to weaken the bargaining power of labor and the institutional capacity and power of the Brazilian State<sup>42</sup> (and help to create the climate necessary for conservative reforms on labor laws and the welfare state pass through congress). It is clear that these new policies, inconsistently justified by an embarrassing majority of Brazilian economists, including many who call themselves Keynesian, heterodox and even progressives, with a presumed need to restore the “confidence” of internal and external investors<sup>43</sup>, will certainly entail a deep and possibly prolonged recession and risks condemning the economy to a path of near stagnation, as acknowledged both by the Economist(2015) and the IMF(2015) (who both nevertheless also support these new policies).

Ironically, we can find a similar interpretation of what is really at stake now in Brazil the words of one of the very few lucid (though politically conservative) economists in the main Brazilian opposition party, PSDB. Mr Mendonça de Barros (2015) pointed out in an interview in January 2015 that president Dilma Rousseff who was reelected on a leftist progressive platform and immediately shifted to the conservative economic policy proposed of the opposition, appointing a Chicago trained economist (and a major PSDB policy consultant) as Minister of Finance. Mendonça de Barros (2015) argues that: “After a long period of rapid growth, unemployment rate reached 4.6%. There are horrible pressures in the labor market. Unions, as was expected, took advantage of the situation to impose wage increases and social gains, which increased the cost faced by firms and created a dramatic situation in the industry. What she [Dilma Rousseff] must

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<sup>42</sup> It is beyond the scope of this paper to study, but it is interesting anyway to notice, the happy coincidence between the interests of those who want to weaken the bargaining power of labor and those (in Brazil and abroad) who really do not want the Brazilian State to become a relevant Geopolitical player as a regional power, a risk that was real at least before 2011.

<sup>43</sup> Bresser-Pereira (2015) argues the new policies are “strange but unavoidable”. And the new minister of Planning, Barbosa-Filho (2015) said that “As paradoxical as it is, this new strategy is the first step for the recovery of growth. In spite of the negative impact that it might have in the short run, [the fiscal adjustment] is highly necessary. Growth depends on investment and investment depends on a stable macroeconomic scenario”

do – and the new policy is already doing is to make the labor market more flexible. In other words, to generate some unemployment. This is already happening in the automotive sector. Unions will become weaker and negotiate in more reasonable terms.” But warns: “in order to do it, the economy will not grow for two years. But it is necessary to be careful not to ‘spill the polenta [angu, in Portuguese]’ and generate a fall in consumption greater than it is socially acceptable. Common sense will be important”. Mr. Mendonça de Barros closes his interview saying that he is “optimistic”. But, perhaps luckily for the country in the long run, there is now in Brazil an incredible lack of this “common sense”. The new reactionary policies are being pursued with the usual fervor of new converts (by the president of the country and most of the economic team) which shows itself mostly clearly in the amazing lack of proper attention to both technical and political realities.<sup>44</sup>The “angu” is already beginning to spill.

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<sup>44</sup> An obvious example of the former is that the ministers of finance and planning seem to have forgotten the very procyclical nature of fiscal revenues and the size of the recession they are provoking in their rosy forecasts, which in a few months already had been revised downwards. Example of the latter is the equally obvious resistance in congress and even in part of ruling party’s own grassroots to the new policy regime.

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**Table 1 – Average annual nominal rates of change**

		2000-2003	2004-2009	2010-2014	2000-2014
Prices	Food and Beverages	14.2%	4.9%	8.4%	8.1%
	Industrial goods	7.9%	3.9%	3.5%	4.7%
	Services	7.2%	6.5%	8.8%	7.3%
	Monitored	12.1%	5.3%	4.0%	6.9%
	Overall Inflation	8.8%	5.2%	6.1%	6.4%
Wages	Overall wages	2.9%	8.4%	8.9%	7.4%
	Manufacture industry	4.1%	8.4%	8.9%	7.8%
	Service sector	-0.1%	7.3%	8.3%	6.0%
	Agriculture	5.7%	10.9%	10.4%	10.7%
	Minimum wage	16.0%	12.3%	9.5%	12.5%
Productivity	Agriculture	7.1%	3.0%	8.6%	5.1%
	Manufacturing Industry (PIM/PIMES)	2.2%	3.4%	-0.8%	1.6%
	Serviços	-0.9%	1.3%	2.4%	0.9%
	Total	0.0%	1.2%	3.3%	1.3%
Tradable goods in local currency	Commodities (IBC-Br)	20.4%	1.5%	6.8%	8.1%
	Imports	20.3%	0.8%	4.3%	6.7%
	Exports	18.7%	2.7%	6.9%	8.3%
	All Commodities (FMI)	30.2	4.6%	9.2%	12.8%
Real Interest Rate	Real Interest Rate	9.6%	8.5%	3.5%	7.1%

(1) Overall inflation from IPCA/IBGE; (2) Monitored prices inflation from BCB; (3) “Food and Beverages”, “Industrial goods” and “services” inflation from Martinez (2014) (time series goes until dec. 2013); (4) Overall and sectorial nominal wages from MTE/CAGED, average nominal wage (admission and termination) (time series goes until dec. 2013); (5) Nominal minimum wage from MTE; (6) Agriculture, Services and productivity of the economy from SCN/IBGE, calculated as Value Added/Employed Workers, deflated by sectorial deflators (Fevereiro and Freitas (2015)) (data goes until 2011); (7) productivity of manufacturing industry calculated as physical production of manufacturing industry (PIM/IBGE) divided by working hours in industry (PIMES/IBGE); (8) IC-Br from BCB; (9) Import and Export in R\$ calculated as Import and Export prices in US\$ from FUNCEX times nominal exchange rate (BCB); (10) All Commodities prices in US\$ from IMF times nominal exchange rate (BCB); (11) Real interest rate as yearly average nominal selic (BCB) deflated by IPCA/IBGE;

**Table 2 – Labor Market, Institutional and policy variables and real wage growth**

<b>Labor market</b>	<b>2001-2005</b>	<b>2006-2014</b>
Formal Employment (average, millions)	1	1.2
Unemployment rate	11.3	7.1
Labor Force (PEA)	3.0%	1.2%
Working age population (PIA)	1.9%	1.3%
Labor informality rate	53.9%	48.1%
<b>Institutional and policy Variables</b>	<b>2001-2005</b>	<b>2006-2014</b>
Real minimum wage	5.3%	5.2%
Number of benefited workers (million) -unemployment benefit and "abono salarial"	7.8	16.3
Public Social Transfers	6.3%	5.7%
<b>Workers Bargaining Power</b>	<b>2001-2005</b>	<b>2006-2014</b>
Turnover Rate	43.7%	50.3%
Strikes (number)	331	491
Strikes (thousand hours)	19	44
Percentage of workers with real gains	43.8%	86.0%
<b>Real Wages</b>	<b>2001-2005</b>	<b>2006-2014</b>
Manufacturing Industry	-2.3%	3.3%
Construction Industry	0.0%	3.8%
Commerce	-1.5%	2.9%
Services	-5.3%	2.3%
Agriculture	1.8%	5.1%
Total	-3.2%	3.1%
Workers average income	-2.4%	3.2%

(1) Formal Employment CAGED/MTE; (2) Unemployment rate, Labor force and working age PME/IBGE (beginning 2002); (4) Labor Informality rate PNAD/IBGE-IPEA/IPEADATA; (5) Real minimum wage = nominal minimum wage (MTE) deflated by IPCA/IBGE; (6) Number of benefited workers: MTE (data goes until 2012) see Ibarra (2013); (7) Public Social Transfers from DIMAC/IPEA; (8) Turnover rate RAIS/DIEESE (until 2011) see Ibarra (2013); (9) Strikes – Number and hours from SEADE/DIEESE; (10) Percentage of workers with real gains form SEADE/DIEESE; (11) total and sectorial real wages: Overall and sectoral nominal wages from MTE/CAGED, average nominal wage (admission and termination) deflated by IPCA/IBGE (time series goes until dec. 2013); (12) Workers average income form PME/IBGE (beginning in 2003).