

Aggregate Demand and the Slowdown of Brazilian Economic Growth from 2011-2014

By Franklin Serrano and Ricardo Summa*

Center for Economic and Policy Research
1611 Connecticut Ave. NW
Suite 400
Washington, DC 20009

tel: 202-293-5380
fax: 202-588-1356
www.cepr.net

*Franklin Serrano is an Associate Professor at the Institute for Economics at the Federal University of Rio de Janeiro, Brazil and a Senior Research Associate at the Center for Economic and Policy Research. Ricardo Summa is an Adjunct Professor at the Institute for Economics at the Federal University of Rio de Janeiro, Brazil.

Contents

Executive Summary	1
Introduction	3
1. External Causes of the Economic Slowdown.....	4
External Financial Conditions	4
The Export Slowdown	6
‘Leaky’ Aggregate Demand	8
The External Sector and Economic Growth: Conclusion.....	11
2. Macroeconomic Policy and the Internal Market.....	11
Expanding Disposable Income in 2004-2010	12
Macroprudential Measures and Monetary Policy 2010-2014	16
The Fiscal Adjustment of 2011 and the Fiscal Policy Stance in 2011-2014.....	19
The collapse of investment growth.....	23
3. Rudimentary Arguments for the Change in the Orientation of Macroeconomic Policy	27
Conclusion: From Policy-Induced Slowdown to Policy-Induced Crisis	30
References	34

Acknowledgements

The authors thank Mark Weisbrot, Stephan Lefebvre, Dan Beeton, and Eileen O'Grady for helpful comments and editorial assistance.

Executive Summary

This paper looks in detail at the sharp slowdown in the Brazilian economy for the years 2011-2014, in which economic growth averaged only 2.1 percent annually, as compared with 4.4 percent in the 2004-2010 period. The latter level of growth was also more than double Brazil's average annual growth rate over the prior 23 years (although it was much lower than the pre-1980 period). It is important to understand why the higher rate of growth experienced from 2004 to 2010 was not sustained over the past few years.

The authors argue that the slowdown is overwhelmingly the result of a sharp decline in domestic demand, rather than a fall in exports and even less any change in external financial conditions. The sharp fall in domestic demand, in turn, is shown to be a result of deliberate policy decisions made by the government. This decision to slow the economy was not necessary, i.e., it was not made in response to some external constraint such as a balance-of-payments problem.

Brazil's exports, and the change in their quantity between the two periods, was too small to account for most of the large slowdown in GDP growth. From 2011-2014, exports amounted to 11.3 percent of GDP, as compared with 11.9 percent for 2004-2010.

The idea that a deterioration in external financial conditions could have driven the slowdown is also contradicted by the data. For example, the total foreign debt-to-exports ratio dropped from 4.7 in 1999 to 1.27 by the end of 2010, and was 1.54 in 2014. The ratio of total external debt to foreign reserves was reduced from 6.5 in 2000 to 0.89 in 2010 (and was 0.93 in 2014). Also, the percent of Brazilian foreign liabilities that are denominated in dollars fell from around 75 percent in 2003 to a minimum of 35 percent in 2010, and was about 40 percent in 2014.

All of this indicates that the economy had room to expand after 2010. But the government decided to reduce aggregate demand through changes in monetary, fiscal, and macroprudential policies. For example, the Central Bank began a cycle of interest rate increases after February 2010 that lasted until August 2011, raising the basic nominal interest rate from 8.75 percent to 12.5 percent. The nominal interest rate increases and the macroprudential measures – which reduced the growth of credit -- helped to a certain extent to end the consumption boom (especially of durable goods). Private consumption growth decelerated sharply until mid-2012, partially as a result of these measures.

At the end of 2010, the government also decided to promote a strong fiscal adjustment in order to increase the primary surplus and to meet the full target of 3.1 percent of GDP in 2011. Another sign

of this contractionary commitment of the new government was the decision, after years of high increases, not to raise the real minimum wage at all in 2011, something that had not occurred in Brazil since 1994. And despite the global economic slowdown in early 2011, the signs of which were evident from the first quarter, fiscal adjustment was maintained throughout 2011 and the full target for the primary surplus was achieved.

This rapid increase in the primary surplus was only possible thanks to a strong reduction in the growth of public spending. In 2011, public investment, both of the central government and the state-owned companies, fell dramatically, by 17.9 percent and 7.8 percent in real terms, respectively. The government's contractionary policies led to a pronounced decline in private investment as well, so that total investment (public and private) fell sharply. After growing at an average annual rate of 8.0 percent between 2004 and 2010, peaking at 18 percent in 2010, gross fixed capital formation over 2011-2014 grew by just 1.8 percent annually.

Thus it was the strong reduction in investment growth—not a process of “deindustrialization” related to the real exchange rate, as some have maintained—that explains the slowdown in industrial production since 2011. Manufacturing industry grew in the years 2007-2008 and in 2010, when the exchange rate was already appreciated. It is also worth noting that during the 2004-2010 period of higher growth, the appreciated real exchange rate was very important for controlling inflation and thus also for increasing real wages and the growth rate of household consumption.

This paper also shows that the analysis put forth to justify the government's post-2010 strategy was wrong. Even though the economy was already slowing in 2010, the argument was made that fiscal tightening was necessary in order to have a large reduction in interest rates. The lower interest rates, combined with tax cuts and other incentives for businesses, were expected to then allow the private sector to lead growth by stimulating private investment and also export-led growth as the real exchange rate depreciated due to the lower interest rates. However, as the pro-cyclical policies shrank aggregate demand, private investment plummeted; and for reasons explained below, export-led growth did not occur either. And the supposed link between public debt and sovereign risk also turned out to be an unfounded assumption.

The result is that the government's efforts to encourage the private sector to lead economic growth, through contractionary macro-economic policies, tax-cuts, and public-private partnerships, had the opposite result. To return growth and employment creation to the levels of the 2004-2010 period, the government will have to change course and return to some of the policies and strategy of those years, in which the government took responsibility for ensuring the growth of investment, consumption, formal sector employment, and necessary infrastructure.

Introduction

The Brazilian economy experienced a period of faster growth from the mid-2000s to 2010, after nearly a quarter century with very little growth in GDP per capita. The rebound was due to a major change in external conditions combined with a smaller but very important change in the orientation of domestic macroeconomic policy. The average growth of GDP in the period 2004-2010 was 4.4 percent, slightly more than twice that observed in the period 1995-2003.¹ However, the average growth rate of the period 2011-2014 dropped considerably to 2.1 percent and in 2014 the economy grew at a rate close to zero (0.1 percent).

The purpose of this paper is to argue that this sharp slowdown in the growth rate of the Brazilian economy since 2011 can be explained predominantly by changes in the orientation of domestic macroeconomic policy, rather than to changes in the external conditions of trade and finance. Moreover, we shall argue that, as the economy was neither constrained by foreign exchange nor by the general scarcity of labor or capital, these changes in macroeconomic policy led to a substantial decrease in the rate of growth of aggregate demand and are chiefly responsible for the lower growth of both output and business investment.

In the period 2004-2010, after the marked improvements in external trade and financial conditions since 2003, the government gradually, and initially with some hesitation, took responsibility for directly generating growth through an expansion of the domestic market. This was done through a series of policy measures boosting aggregate demand in order to promote economic growth; measures that were quite successful. However, since 2011, despite the continuity of the ease in financing the large current account deficits, the government changed the orientation of macroeconomic policy. The new strategy was first to make space and then to provide macroeconomic incentives for the private sector to lead growth in investment, and in the economy more generally. This was done in two phases. The first was a strong and deliberate contraction in aggregate demand growth in 2011, with its effects lasting until 2012. This included a large reduction in public investment to open up space for the presumed private investment and export boom. As investment and exports did not respond to these interest and exchange rate changes, and exchange rate devaluation began to accelerate inflation, interest rates were increased again. After that the government tried to revive private sector investment mainly through large tax breaks, hoping that the private sector would respond by expanding investment and aggregate demand. As the measures

1 See Serrano and Summa (2012). This happened with inflation near the target and with improvements in income distribution (personal and later also functional) and a large reduction in poverty rates (see also Barbosa-Filho and Souza (2010), Vernengo (2011), Hallack Neto and Saboia (2014)). See also Weisbrot et al. (2014) for an overview of recent Brazilian economic and social performance.

taken since mid-2012 did not significantly increase final aggregate demand—they increased neither the internal nor the external market—private investors naturally found no reason to expand investment and in the end the new strategy considerably reduced economic growth.

The contraction of Brazilian GDP growth rates since 2011 was sudden and considerable. After growing 7.6 percent in 2010, the Brazilian economy grew 3.9 percent in 2011 and only 1.8 percent in 2012. Growth increased modestly to 2.7 percent in 2013, but the economy entered into technical recession in 2014 with two consecutive quarters of negative growth, and grew only 0.1 percent that year. Manufacturing exhibited the same pattern, with an average growth rate of 3.6 percent in 2004-2010 and -0.9 percent in 2011-2014. Finally, formal employment creation was on average 1.46 million jobs a year in 2004-2010, but only 829,000 per year in 2011-2014, with 152,000 jobs created in 2014.²

Our argument will proceed as follows: Sections 1 and 2 discuss, respectively, the possible role of external and internal causes of this marked reduction in growth rates. Section 3 critically evaluates both the initial policy decisions made to supposedly make space for growth in 2011-12, and the phase of stimulus by means of offering incentives to investors, since 2012. Brief final remarks are made in the conclusion.

1. External Causes of the Economic Slowdown

The Brazilian economy greatly increased its resiliency during the 2004-2010 period of favorable external financial conditions. In this section, we review how, despite changes during the years 2011-2014, notably a significant depreciation of the exchange rate, the country maintained low debt levels, an improved debt profile, and large international reserves. We note that the size of the external sector in Brazil is relatively small compared to the overall economy, and thus slower trade growth does not explain Brazil's economic downturn.

External Financial Conditions

Rising commodity prices and abundant and cheap credit in international markets were especially helpful to developing countries from 2003 to 2010. Many of these economies took advantage of the improved external conditions to boost growth through their internal markets. There was also a large increase in south-south trade and a substantial improvement in the management of capital flows by a

2 Most of the data presented in this paper and its sources are summarized in Table 1, found at the end of this paper. For the data not included in Table 1, we will cite the source in footnotes.

large number of these countries by means of heavily managed floating exchange rate regimes and a massive accumulation of foreign exchange reserves.³ World trade in general grew fast until 2008, and had recovered from the world crisis already by 2010, only to fall again after 2011—the contraction being greater in the case of trade in industrial goods (**Figure 1**). On the other hand, especially due to very low interest rates in the rich countries, abundant and relatively cheap private international capital flows to developing countries not only recovered quickly from the crisis, but are still available in large quantities.

These improvements in external conditions since 2003 were very important for the performance of the Brazilian economy.⁴ External conditions can influence a country's GDP growth in two ways; one directly, due to the role of exports as a source of aggregate demand, and the other indirectly by providing foreign exchange and thus loosening the external constraints on growth based on the expansion of the internal market.⁵ Due to the continued availability of large foreign capital flows, the general external conditions of the Brazilian economy have improved since 2003 and are still quite comfortable now, despite the fact that the growth of exports, and thus the direct contribution of this to aggregate demand, has fallen (as we shall see below).

Given these changes in the world economy and the improvement in the management of its financial account in the current dirty floating exchange rate regime, Brazil has not faced a scarcity of foreign exchange since 2003, in spite of its large current account deficits and the turbulence in international financial markets since 2008. Accumulated foreign exchange international reserves reached a high of \$ 375 billion USD by mid-2012 and have been oscillating around this level since then. This massive accumulation of foreign exchange reserves improved the indicators of external solvency and external liquidity.⁶ Therefore, in spite of the increasing current account deficits, the total foreign debt-to-exports ratio dropped from 4.7 in 1999 to 1.27 by the end of 2010 (and was 1.54 in 2014). The ratio of total external debt to foreign reserves was reduced from 6.5 in 2000 to 0.89 in 2010 (and was 0.93 in 2014).⁷ The external debt profile has also improved and short-term external debt relative to international reserves has been declining, from 0.83 in 2000 to 0.19 in 2010 (and was 0.15 in 2014). In addition, Biancarelli (2011, 2014) and Lara (2014) call attention to the fact that a great part of Brazilian foreign liabilities are now ultimately denominated in Brazilian currency, so that a large part of the exchange rate risk is borne by international investors. In fact, Biancarelli (2014) shows that the part of Brazilian foreign liabilities denominated in dollars fell from around 75 percent in 2003 to a

3 Note that, unlike what happened in the 1990s, the improvement in the external conditions of most developing economies in the 2000s, together with improvement in the management of their financial accounts, prevented the occurrence of major balance-of-payments crises in developing countries and associated international “contagion.” (Freitas, Medeiros e Serrano (2015); Serrano (2013)).

4 Serrano and Summa (2012).

5 Medeiros and Serrano (2006).

6 See Serrano and Summa (2012); Lara (2012a).

7 Data from BCB. External debt does not include “intracompany loans.”

minimum of 35 percent in 2010, and was just a bit above 40 percent in 2014. As a result, in spite of large current account deficits of 2013 and 2014, the actual dollar value of Brazilian net foreign liabilities *decreased* in those years, due to the large exchange devaluations of the real.

Moreover, it is important to note that in spite of large exchange rate devaluations since 2011, Brazil has not (at least up to now) faced a domestic financial crisis in banks or corporations based in Brazil that were overly indebted in dollars for speculative reasons (contrary to what happened in the case of several large Brazilian companies in the late-2008 world financial crisis), nor was there a sudden stop in international credit (as there was during the 2008 crisis) that could have explained, through the short term impact on business spending and on available credit conditions by private banks, the rapid slowdown in Brazilian GDP growth since 2011. Thus, from the point of view of external financial conditions, it is clear that these have not been responsible for the slowdown of growth in Brazil.

The Export Slowdown

The negative impact of international conditions on Brazilian economic growth seems thus to be restricted to the direct impact on aggregate demand of the lower growth of exports. The average annual growth of Brazilian exports of goods and services in 2011-2014 (1.6 percent) was indeed much lower than in the period 2004-2010 (5.2 percent). This is a result of a slowdown from 11.6 percent in 2010, to 5.1 percent and 0.1 percent in 2011 and 2012, respectively, followed by a modest recovery of 2.2 percent in 2013 and a drop of -1 percent in 2014.

This substantial fall in the growth of exports was undoubtedly relevant. However, as total exports account for a small share of aggregate demand in Brazil,⁸ and even taking into account possible further effects of the lower growth rate of exports on induced consumption and investment, it is difficult to explain such a large reduction of the growth rate of the economy as solely a result of this factor.

However we should first ask, what explains slower export growth in Brazil? Many Brazilian economists, and especially those who call themselves “new developmental economists” such as Bresser-Pereira (2010, 2012) argue that the stagnation of Brazilian exports of manufactured goods (as opposed to commodities) are a result of the overvaluation of the real exchange rate. We hold a

8 See Freitas and Dweck (2013). The ratio of exports and GDP hovers around 11 percent and many of our exports have a high import coefficient. Lara (2012b) and Silva and Lourenco (2014) show that the contribution of exports to GDP growth is very small and much lower than the contribution of domestic components of aggregate demand.

very different view: that the lower growth of exports seems to have been almost entirely determined by the slowdown of the growth of demand and trade in the world economy.

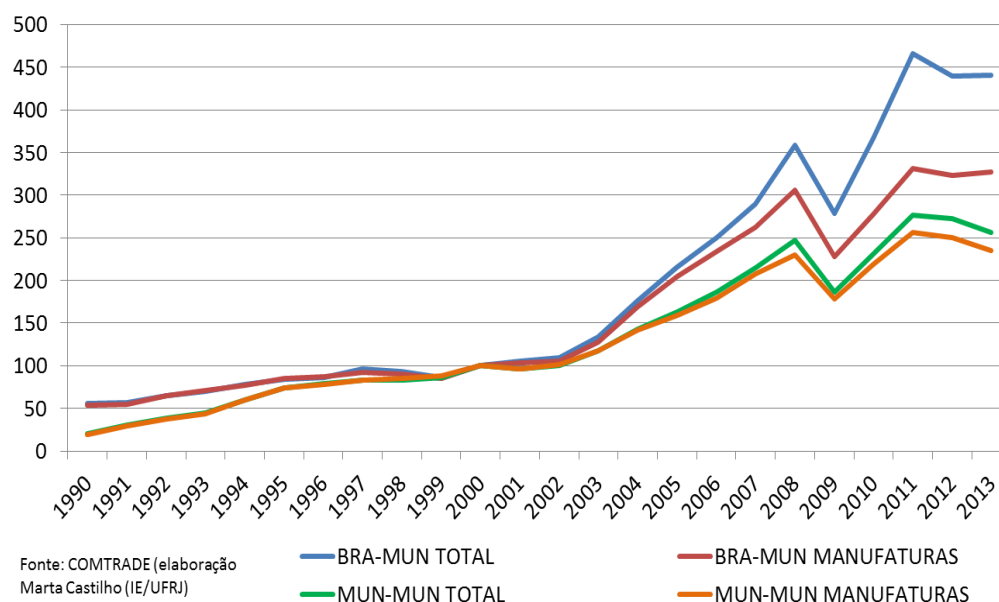
Econometric evidence from estimations of export functions for Brazil using many different methods suggests that price effects are very weak and income effects are quite strong.⁹ Moreover, despite a depreciation of 45 percent of the real exchange rate from 2011 to 2014, the rate of growth of Brazilian exports of goods and services in 2011-2014 is still quite low (an average of 1.6 percent) and negative in 2014 (-1 percent). In the specific case of the export of manufactured goods, their volume index actually fell 7.9 percent from 2010 to 2014.¹⁰

Looking at **Figure 1**, we can see that total world exports, and exports of manufactured goods in particular, shrank in 2012 and 2013, while Brazilian exports of manufactured goods remained relatively constant. Indeed, while Brazil's market share of world commodity exports had a substantial increase in the 2000s (from 1.65 percent in 2000-2002 to 3.61 percent in 2010-2), Petrelli Correia and Xavier (2013) show that Brazil also slightly increased its market share of the world's manufacturing exports during the period 2000-2012 across the whole range of technological intensities of such exports, with the single exception of high-tech industrial exports, which fell slightly from 0.5 to 0.47 percent. Therefore, the country's slower export growth since 2010 reflects a global trend, with Brazil outperforming the world average by some measures in 2012 and 2013.

FIGURE 1

Brazilian and World Exports

Index = 100 in 2000, reflecting export values in nominal USD.



Source: COMTRADE; Elaborated by Castilho, M. (2015).

9 For a survey, see de Paula, Modenesi and Pires (2015).

10 Data from Funcex.

‘Leaky’ Aggregate Demand

One explanation for how the external sector has caused slower economic growth since 2010 is based on a popular belief among “new developmental” economists that the manufacturing industry in Brazil was hurt by an overvalued real exchange rate. The way the story goes, aggregate demand in the period 2011-2014 continued to grow fast but, due to the real exchange rate, an increasing part of it leaked out of the country, through imports of goods and services. This view is usually illustrated by comparing some index of retail sales (as a proxy of demand for industrial goods) with industrial output, as the former kept increasing while the latter have remained stable since 2011.¹¹ A big problem with this analysis, however, is that a retail sales index is totally inadequate as a proxy for the demand for industrial goods, and it is surprising that so many analysts use such an indicator. First of all, this index does not include, of course, the sales or the demand for capital goods, and as we shall see the rate of growth of investment in machinery and equipment fell drastically in 2011-2014. And second, it does not include industrial exports, which also stagnated.

There is, however, a much better proxy for the domestic demand for industrial goods: the index of apparent consumption of manufacturing industry. Apparent consumption means production minus exports plus imports, and is equal, by definition, to domestic demand plus the accumulation of inventories. Assuming that over a longer period of time the accumulation of inventories (positive or negative) must be small, the index becomes a good proxy for the evolution of domestic demand for manufactured goods. Using the available estimates¹² in **Figure 2**, it can be seen that, after growing about 40 percent in the 2002-2010 period as a whole, domestic demand for manufactured goods stopped growing and at the end of 2014 was a bit lower than its peak in 2010. As the demand for Brazilian exports of industrial goods also fell, the stagnation of Brazilian industry is largely explained by the stagnation of both domestic and foreign demand for Brazilian industrial goods.

Note also that in **Figure 2** below there is a change in the difference between apparent consumption and industrial output. From 2004 to 2008, industrial production grew faster than apparent consumption or domestic demand (abstracting for inventories), which means that industrial exports increased faster than imports in the period of real exchange rate revaluation. On the other hand, in the period after 2010, industrial production grew less than domestic demand. But, this necessarily means that industrial net exports are falling, since industrial production is equal to industrial net exports plus domestic demand. Furthermore, **Figure 3** shows the real exchange rate in Brazil since 2004, and we can see that industrial net exports were increasing in the period of real exchange appreciation and decreasing in the more recent period of real depreciation of the currency. In

11 See, for example, Paula, Modenesi and Pires (2015).

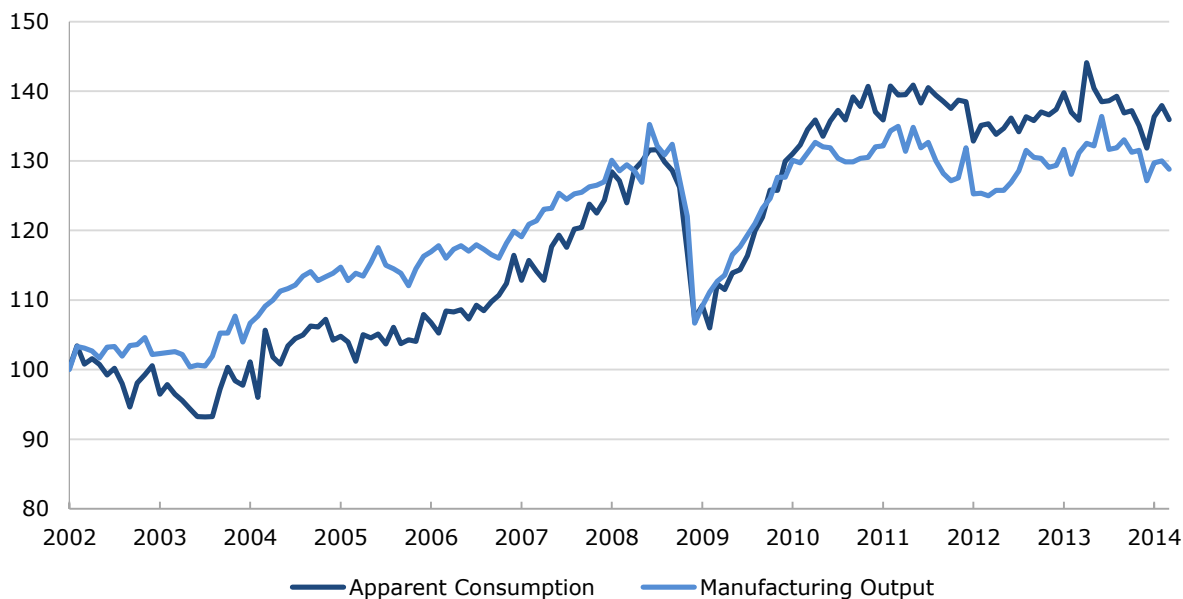
12 Carvalho and Ribeiro (2012).

general, both the idea that domestic industrial demand was still growing fast but leaking out abroad, and that these leakages are mainly a consequence of the overvalued real exchange rate-- popular as they may be in Brazil-- find no support in the available data.

FIGURE 2

Apparent Consumption and Manufacturing Output

Index = 100 in 2002.

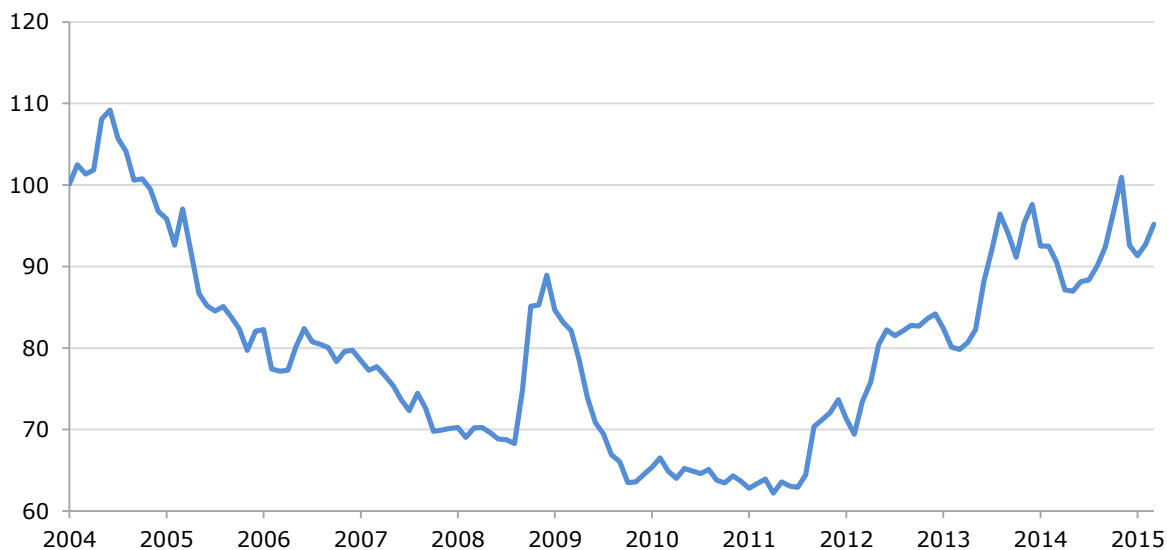


Source: Instituto Brasileiro de Geografia e Estatística/ Pesquisa Industrial Mensal de Produção Física; Instituto de Pesquisa Econômica Aplicada (IPEADATA).

FIGURE 3

Real Exchange Rate

Index = 100 in 2004, (n.b. an increase means a real depreciation).

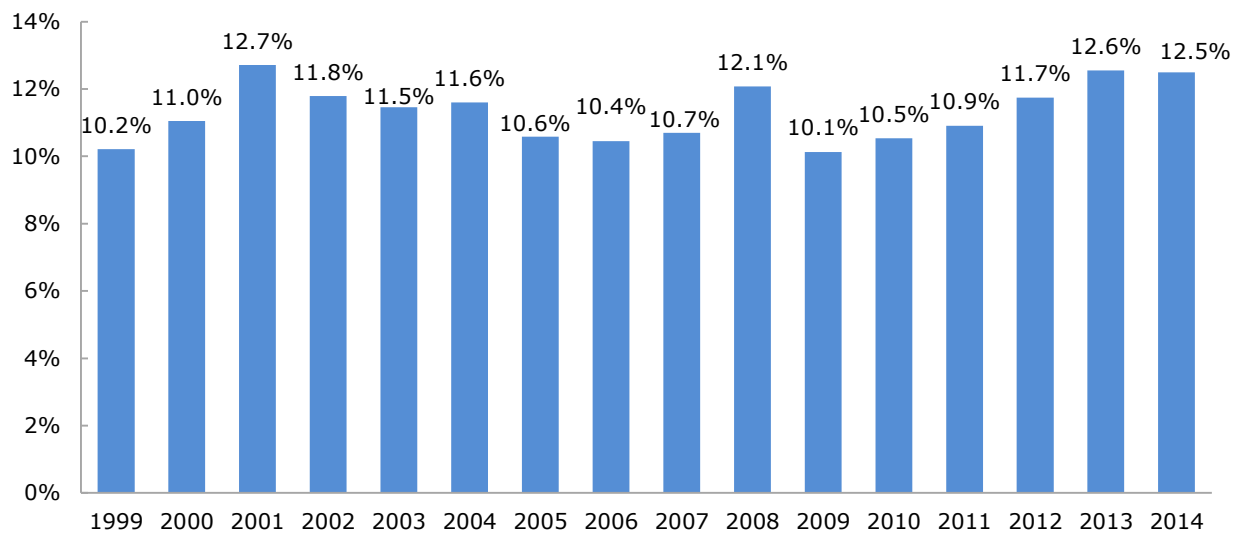


Source: IPEA (Real effective exchange rate, Índice Nacional De Preços Ao Consumidor).

Turning from the manufacturing sector to the economy as a whole, we can calculate the import content coefficient¹³ of Brazilian aggregate demand (**Figure 4**), which shows the share of total (domestic and foreign) demand of the economy that is met by imports. We can see that this index has been growing since 2009, but in 2011 it was lower than the average of 1999-2008 (11.3 percent). The average of 2011-2014 (11.9 percent) is very close to the year 2008 (12.1 percent). And we should remember that its value is affected directly by the real exchange rate (it increases with real depreciation even if nothing else changes). The import content coefficient fluctuates a lot and does not tend to grow over time as imports grow faster than aggregate demand in the long run, but is still quite small. We can see that imports are 12.5 percent of the total supply (in the year 2014) of the economy, meaning that 87.5 percent of the supply is from domestically produced goods and (mainly) services. This also makes it impossible to sustain the view that after 2011 the expansion of aggregate demand suddenly stopped influencing GDP and mostly leaked out as imports.

FIGURE 4

Import Content Coefficient



Source: Sistema de Contas Nacionais/IBGE.

Finally, regarding the structural aspect of Brazilian imports and its relation to the real exchange rate, Dos Santos, Cieplinski, Pimentel and Bhering (2015) found that the real exchange rate elasticity of Brazilian imports is very low and that this reflects mainly the low elasticities of intermediate goods,

13 We constructed this index by dividing imports by total supply (GDP plus imports), in current prices. Squeeff (2015) shows that the relation between the real growth rates of imports and the growth of GDP is stable in the period 1996-2013. Using our periodization, the growth rate of imports was 13.4 percent in 2004-2010 and 4.1 percent in 2011-2014, while the growth rate of GDP was 4.4 percent and 2.1 percent in the respective periods. For more evidence for the rigidity of the structure of the Brazilian economy, see Medeiros (2015b).

oil and fuel, and services such as transportation, royalties, and rents paid on machinery and equipment,¹⁴ which amount to about two-thirds of aggregate Brazilian imports.¹⁵

The External Sector and Economic Growth: Conclusion

We can thus reach four conclusions from the analysis presented in this section. First, that the Brazilian economic slowdown is not a consequence of any important changes regarding the balance-of-payments position and capital flows because there was no shortage of foreign exchange in the economy after 2011. Second, although the overall import content coefficient has been growing over time, and there has been a steep increase in the industrial trade deficit after 2009, neither of these can plausibly be attributed to the exchange rate appreciation nor are they of a magnitude that could have made aggregate demand mostly leak abroad as imports.¹⁶

Third, that the drop in world trade in general and in trade in manufactured goods in particular fully explains the slowdown in Brazilian export growth from 2011-2014. And fourth, that the fall in Brazilian GDP growth in 2011-2014, as seen above, was too large to be explained only by the fall in the growth of exports. This indicates that the most important causes for the recent slowdown of the Brazilian economy are internal, not external.

2. Macroeconomic Policy and the Internal Market

The faster growth rates of the Brazilian economy in the 2000s were due to the great improvement in external conditions since 2003, together with an increasing activism in economic policy from 2004 on. In this process, it is important to distinguish three different factors that operated together, leading to the sustained growth of domestic demand from 2004-2010.¹⁷ The first of these factors was the expansion of household consumption (and of housing investment), which came as the combined result of a rapid increase in household credit, strong job creation in the formal sector, rising real wages, and growing public sector transfers to households.

14 A substantial part of these rental fees pay for equipment (e.g., offshore oil rigs) registered as belonging to the foreign subsidiary of the state-owned Petrobras oil company and thus do not really represent proper “imports.”

15 After disaggregating Brazilian imports into seven different groups, Dos Santos, Cieplinski, Pimentel and Bhering (2015) found that several of these imports have very low or null possibility of substitution by domestic products, due to structural technological deficiencies of the local economy. The Brazilian industries of semiconductors, electronics, chemicals and petrochemicals, together with fuel and oil, are listed as examples of sectors that suffer from these structural deficiencies.

16 Note that in Serrano and Summa (2012), we overestimated the extent by which import coefficients were rising (by quoting secondary data for the import penetration coefficient, instead of import coefficients). The former, being defined as imports over apparent consumption (and thus excluding exports) gives a wrong impression that the latter is increasing fast in sectors where exports (and their imports) are rising fast. We also overestimated how much exchange rate devaluations could help improve the balance of trade.

17 Serrano and Summa (2012).

The second element was the expansionary impact of fiscal policy on aggregate demand. And this is also connected to the dynamics of household consumption. Due to the increased tax revenues that resulted from both the boom in new jobs and higher real wages in the formal labor market, as well as from rising commodity and financial asset prices, the government was able to implement a more pragmatic economic policy aiming to directly stimulate aggregate demand growth through higher government expenditures and social transfers even without abandoning its primary surplus targets. These included substantial increases in the real value of the minimum wage (and therefore also social and social security pension transfers that are linked to the level of the minimum wage), the resumption of rapid growth of investment by state-owned enterprises and by the government, and higher growth of government consumption (including through increased civil servants' wages).

The third factor was the response of private nonresidential investment, which tends to adjust the productive capacity of the private sector to the trend growth in aggregate demand. As soon as the faster pace of demand growth was perceived as a more sustained phenomenon (based on the two mechanisms mentioned above), the growth of nonresidential investment accelerated and grew more than the other components of aggregate demand. The (flexible) accelerator mechanism operated as usual in the Brazilian economy and, together with the other two mechanisms mentioned above, contributed both to the growth of aggregate demand as well to the generation of the productive capacity necessary to meet that higher growing demand.¹⁸

The change in the orientation of macroeconomic policy since 2011, we will argue, was the main cause of the progressive dismantling of the first two of the three above-mentioned factors that generated the faster demand-led growth of the Brazilian economy up to 2010. And the resulting lower growth of the internal market (and also, for external reasons, that of exports) naturally made the accelerator process work in reverse, with a pronounced fall in the rate of growth of private induced investment, in an attempt to adjust the creation of new productive capacity to the much lower new trend of growth of the market after 2011. Let us turn then to analyze the evolution of the domestic components of aggregate demand and the role of the new orientation of macroeconomic policy in reducing the rate of growth of each of these components in the 2011-2014 period.

Expanding Disposable Income in 2004-2010

After a period of slow growth that lasted until 2003, annual household consumption grew, on average, 5.3 percent between 2004 and 2010, peaking at 6.4 percent in 2010. After that, growth rates of consumption dropped to 4.8 percent in 2011 and to 3.1 percent in mid-2012, recovering slightly

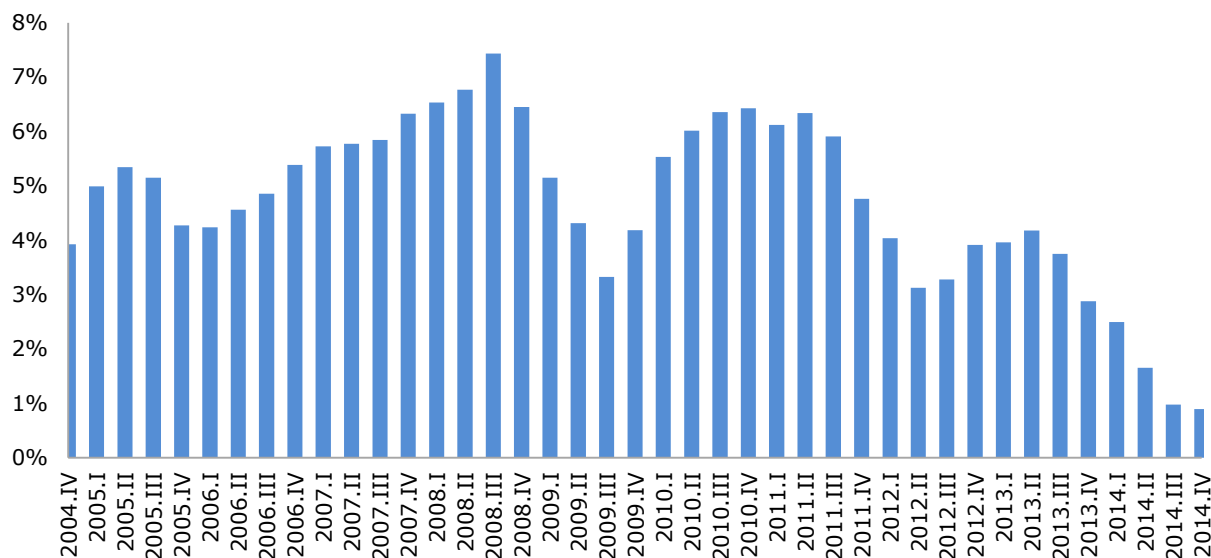
18 Dos Santos (2013); Dos Santos et al. (2015).

until mid-2013 and decelerating again since then.¹⁹ In 2014, private consumption grew only 0.9 percent and the average growth rate in the period 2011-2014 was 3.1 percent, substantially lower than in the previous period (**Figure 5**).

FIGURE 5

Private Consumption

Growth rates, accumulated over 12 months.



Source: SCN/IBGE.

The growth of household consumption in Brazil depends on the evolution of real disposable income, the availability of consumer credit, and the real interest rates of these lines of credit.²⁰ To this we can add the little-noticed but important effect of the public sector wage bill, given that the consumption expenditures of public sector workers (both active and retired) also appear as private consumption. And all of these elements helped consumption to grow quickly in the period 2004-2010.

The improvement in international conditions after 2003 brought with it lower interest rates in the U.S. and significantly lower interest rate spreads for emerging markets in general, including Brazil. As the external interest rate (international rate plus country spread) was falling considerably, this allowed the Brazilian Central Bank to cut domestic interest rates and stimulate consumption (and housing investment) while at the same time maintaining a positive interest rate differential and thus a tendency toward revaluation of the exchange rate. And this trend for the nominal exchange rate played a very important role for the Central Bank to hit its inflation target.²¹

19 For a detailed structural analysis of the evolution of consumption patterns in Brazil and in particular the connection of these patterns to changes in income distribution, see Medeiros (2015a, 2015b).

20 Dos Santos (2013).

21 Serrano and Summa (2012).

Besides lowering real interest rates, many measures were taken to increase the availability of bank credit, and to improve access to credit for poorer households. One policy that turned out to be important was the creation of the so-called *crédito consignado* in 2003. Under this system, those with fixed income collateral such as a public pension or formal sector job (mainly in the public sector, but also private sector) enjoy reduced interest rates because banks are able to automatically deduct compulsory payments from retirement benefits or wages.²²

Moreover, the economic growth experienced in these years was accompanied by a process of growth in employment, increasing labor formalization and growing real wages in particular due to large increases in real minimum wages.²³ The federal government increased public social transfers, broadening coverage and increasing real benefits,²⁴ and also increased the public sector wage bill.²⁵ As a consequence, private consumption increased both directly, through the effect of disposable income on consumption, and indirectly, through the effect of incorporating more workers into the formal sector, thus granting them easier access to consumer credit lines.

The problem with a rapid expansion of consumer credit is related to its sustainability over time. As Barba and Pivetti (2009) point out, in the long run it is important to compare the growth rates of the real disposable income of consumers with the real interest rate at which they are borrowing. But this should be analyzed carefully. For even if real interest rates are lower than the growth rate, and given that the ratio of debt to disposable income will not grow without limit, depending on circumstances, the debt-to-income ratio may climb so high that banks impose credit constraints or consumers themselves stop asking for new loans and repay (or default) on existing ones. On the other hand, in the unsustainable case in which interest rates are higher than the growth of disposable income, the growth of the debt-to-income ratio may be slow or fast and the time it takes for credit constraints and repayment difficulties to arise may be accordingly longer or shorter. Thus, the amount of time that rising consumer credit levels can increase the rate of growth of private consumption depends not only on the difference between interest rates and growth rates, but also on the initial ratio of household debt to disposable income, loan terms, and other credit conditions.

If we look at the data of the Brazilian consumption boom, we can see that this long-run sustainability condition did not hold. The real interest rates of some of the cheaper credit lines

22 Lavinias (2015).

23 Serrano and Summa (2015).

24 See Dos Santos (2013). The majority of these social transfer benefits were formally indexed to the minimum wage, which grew considerably in this period (Orair and Gobetti (2010)).

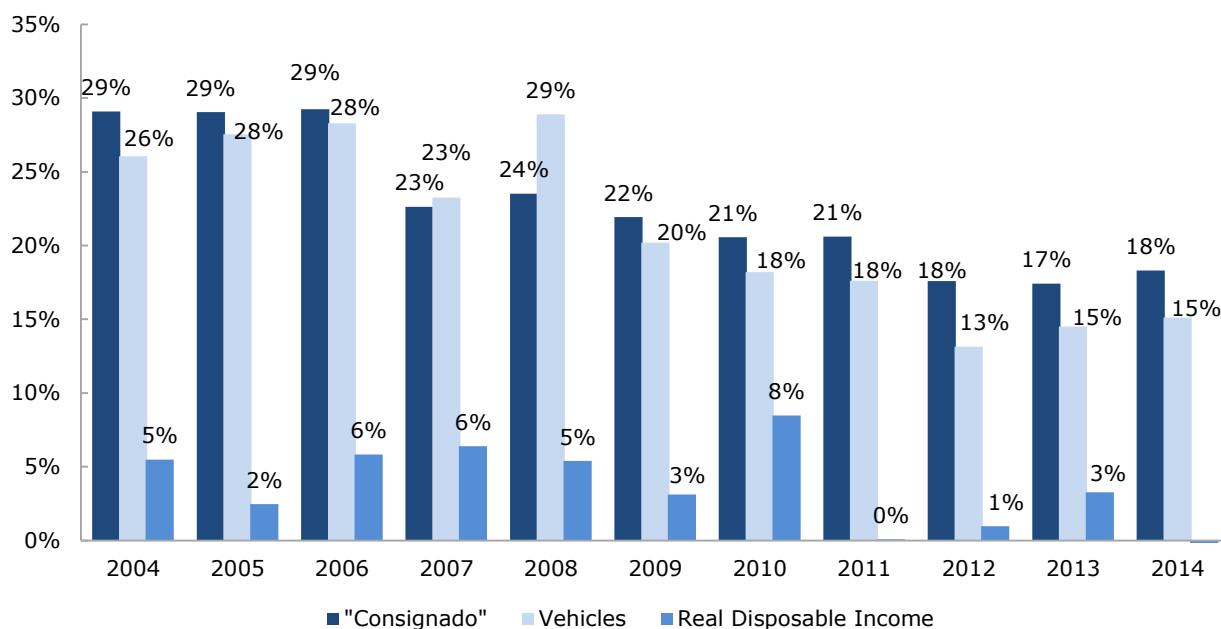
25 Besides the direct effect of the expenditure of the public sector wage bill on consumption, there was also an increased availability of credit for these workers. In general, public servants' wage agreements last for three years, and the combination of this increase in the government wage bill with three years' predictability and access to cheaper credit lines further helped to stimulate private consumption.

(*credito consignado* and credit to buy cars) averaged around 24.5 percent in the years 2004-2010, while real disposable income grew around 5 percent per year in the same period, as shown in **Figure 6**. At the same time, there was a clear tendency toward a reduction of the difference between the rate of interest and the rate of growth of disposable income within that same period, shown in **Figure 7**.

FIGURE 6

Consumers' Real Interest Rate and Growth Rates of Households' Disposable Income

Including public sector workers.



Source: BCB, Diretoria de Estudos e Políticas Macroeconômicas/IPEA (methodology in Dos Santos et al., 2012).

Let's look at some events that helped the growth of consumer credit to continue, initially delaying a faster rise in the debt-to-income ratio. First, it is important to note that in the beginning of the consumption boom (January 2005) the ratio of household debt to 12-month household income was very low, at only 18 percent. By 2014 it had risen to 46 percent (if we exclude residential housing credit, the ratio was 15.3 percent in 2005 and 28.4 percent in 2014).²⁶ Second, as we can see in **Figures 6 and 7**, from 2005-2006 to 2010, real interest rates fell over time and the loan durations in general (to buy cars and durables in particular) increased (**Figure 8**). Third, this process appeared to be “extensive” in the sense that it continued by incorporating new households, which previously had no access to bank credit, into the formal credit market, given the fast rate of job creation in the formal sector.²⁷ In the 2004-2010 period, 10.2 million new formal jobs were created. This process of increasing consumer credit under these conditions is not sustainable for an individual household, since as the household gets access to the formal credit market and increases its consumption, it

26 Data from BCB.

27 For example, as Lavinias (2015) noticed, in 2008-2009, 9.9 percent of the bottom 20 percent of the population in the distribution of personal income owned a credit card, as opposed to 2.2 percent in 2002-2003.

increasingly gets into debt and after some time is not able to continue increasing consumption at the same pace. At the aggregate level, however, the process continued through incorporating many new (and not yet indebted) households into the formal credit market.

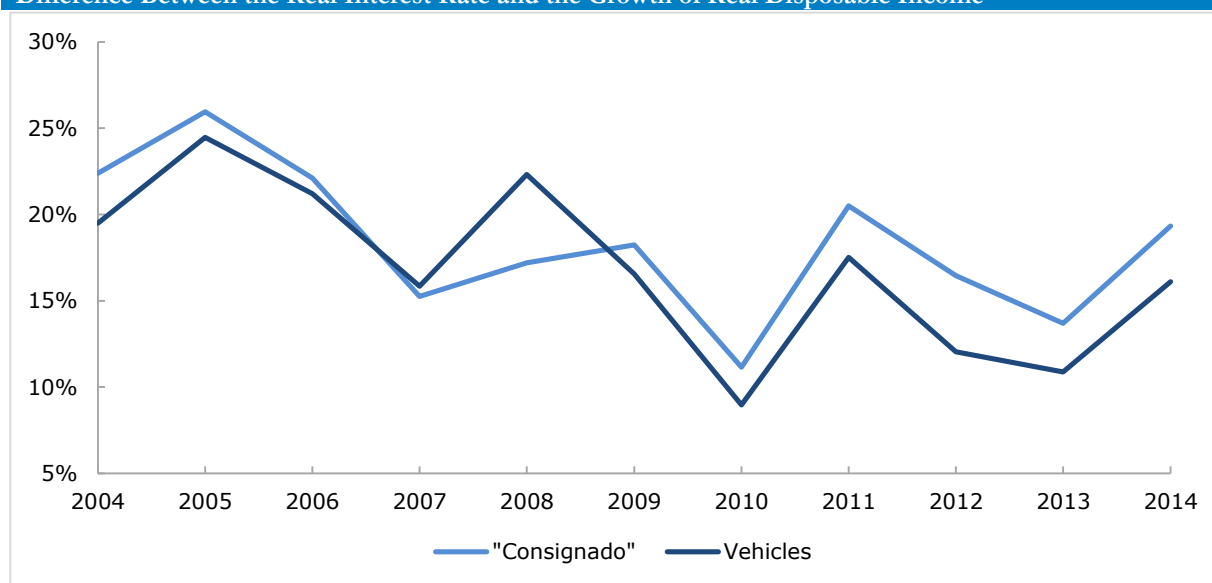
The problem with this extensive model is that, in order for credit-based consumption to remain growing at the same pace, the process of reduction of consumers' real interest rates and longer loan terms must continue; the economy must also continue to incorporate new borrowers in the formal market, and the rate of growth of aggregate disposable income should be at least stable (or preferably increasing).

Macprudential Measures and Monetary Policy 2010-2014

In 2010 and then again in the beginning of 2011, the government took measures that went against the conditions required to maintain the growth of consumer credit and real disposable income (as shown in **Figure 6**). The Central Bank began a cycle of interest rate increases after February 2010 that lasted until August 2011, raising the basic nominal interest rate from 8.5 percent to 12.5 percent.

FIGURE 7

Difference Between the Real Interest Rate and the Growth of Real Disposable Income



Source: BCB, DIMAC/IPEA (methodology in Dos Santos et al., 2012).

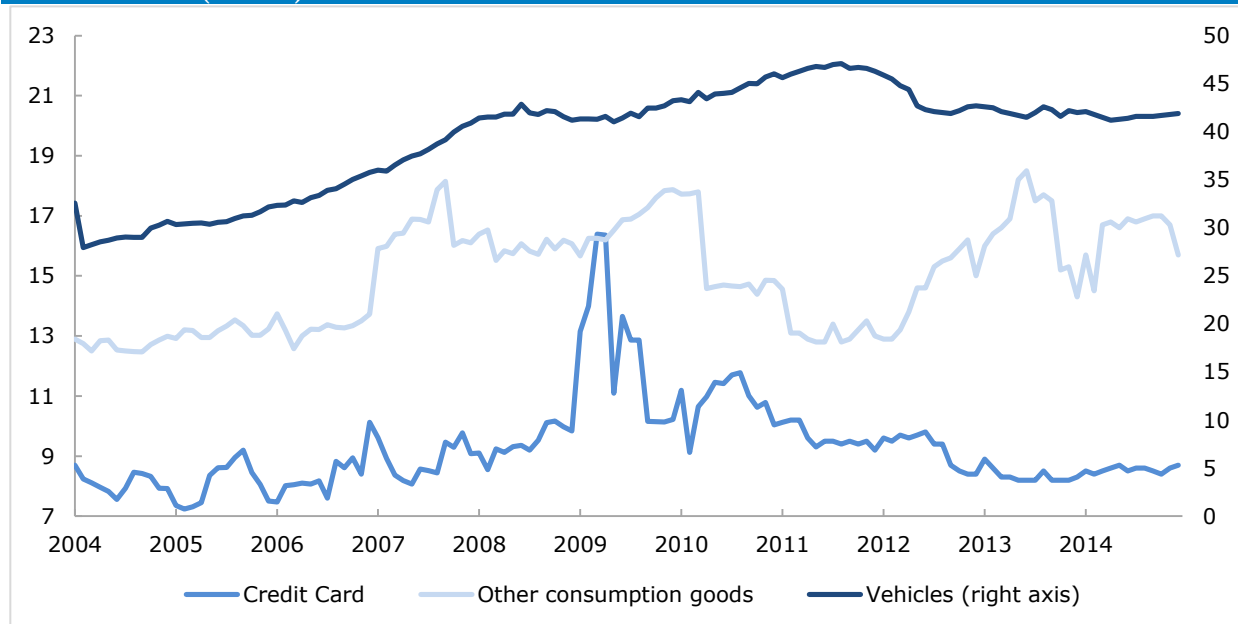
The government then decided to reduce the growth in aggregate demand more quickly and in late 2010 and early 2011 adopted some measures to control consumer credit.²⁸ These so-called

²⁸ These measures, although some of them have been widely used since the 1970s, are now called “macroprudential” since the global crisis of 2008. They included: a) an increase in the compulsory deposit of deposits in banks, which

macroprudential measures, along with the increase in the basic interest rate, in fact led to some increase in interest and consumer credit spreads and to shorter loan terms for consumer credit lines, such as those for durable goods and vehicles, as shown in **Figure 8**.^{29,30}

FIGURE 8

Loan Durations (months)



Source: BCB.

The nominal interest rate increases and the macroprudential measures helped to a certain extent to end the consumption boom (especially of durable goods) and contributed to an increase in default

acts as a tax and tends to increase the bank spread; b) an increase in the minimum capital required of banks for consumer loans of longer maturities (such as car financing, but not mortgages), which discourages banks from expanding these lines of credit; c) increasing taxes on financial transactions for consumer credit in general, which increases the interest rate paid by the consumer; and d) raising the minimum payment percentage on credit card balances, which tends to reduce their use for financing by consumers (see Prates and Cunha (2012)).

29 It is important to note that the loan durations of overall credit to households keep rising due to the increasing participation of mortgage loans in total credit (which are in general much longer than consumer credit), despite the fall of loan durations for consumption goods and services.

30 It is not very easy to understand the logic behind the adoption of these measures. If the concern was the stability of the financial sector, it is at least curious that the Central Bank was worried about a supposed consumption bubble financed by credit, while at the same time encouraging the expansion of housing mortgages that could generate more dangerous bubbles. If the priority was to control defaults by workers and consumers in general, the simultaneous increase in retail interest rates and the reduction of personal credit availability seems to have had the opposite and predictable effect, because at a time of slower income growth, debt service as a percentage of monthly income increased from the beginning of 2011 (IPEA (2012a)). As a result, the default rate of households increased substantially in 2011, from 5.83 percent in the first quarter of 2011 to 7.53 percent in the first quarter of 2012, and to 7.8 percent in the second quarter of 2012 (data from BCB). On the other hand, if the main aim of the macroprudential measures was to control inflation, it is at least curious that the Central Bank is trying so hard to reduce the growth of credit specifically for durable goods, where there was a tendency toward the stability of the nominal prices of these products in Reais (Braga (2013), Summa and Braga (2014)).

rates.³¹ Private consumption growth decelerated sharply until mid-2012 partially as a result of these measures. Even so, these measures were considered a success by all and only began to be reversed in late 2011 when the Central Bank finally realized the extent and severity of the ongoing slowdown in the growth of the Brazilian economy.

At this time the Central Bank again reversed the direction of monetary policy. The BCB quickly lowered the basic nominal interest rate and took other credit and tax measures to try to stimulate private consumption again.³² Private consumption growth recovered slightly until mid-2013, but still grew much slower than the average of the 2004-2010 period. By mid-2013, the Central Bank once more changed the direction of monetary policy. The growth rate of consumption was once again reduced and by the end of 2014 private consumption was growing only 0.9 percent annually.

It is important to note that, despite this erratic management of the country's monetary policy, real interest rates on the better lines of credit to consumers remained high, especially if compared with the growth rates of real disposable income. In fact, in **Figure 7** we see that from 2011 to 2014 the general tendency is for the gap between the rates of interest and the growth rate of disposable income to increase. Therefore, in terms of conditions for consumer debt sustainability in the years 2011-2014, the monetary authority was unsuccessful in sufficiently reducing the interest rates of consumer credit in order to maintain the growth of credit-based consumption.

Moreover, as a result of the lower rate of economic growth, the rate of job creation in the formal sector has been lower each year since 2010, which also harmed the “extensive” incorporation of new borrowers. In fact, the rate of growth of real disposable income fell from 5.3 percent in 2004-2010 to 1.2 percent in 2011-2014. Finally, it is important to note that households became much more indebted compared with 2004. In 2005, the ratio of mortgage household debt to 12-month household income was 3 percent, while in 2014 it was 18 percent. Servicing this debt forced many indebted households to cut consumption.

31 This clearly did not have any effect on the dynamics of inflation. The option of using macroprudential measures rather than larger increases in the basic interest rate makes these policies ineffective against inflation because it does not make use of the main transmission channel of monetary policy in Brazil: the impact of the increase in the difference between domestic and foreign interest on the exchange rate, and from that on to the costs of all sectors, both through the prices of tradable goods, and later through the impact of changes in tradable goods prices on the wholesale price index that is used in formal indexation contracts of many services that have monitored or regulated prices (Serrano and Summa (2012), (2015)).

32 In early 2012, the government forced publicly owned retail banks (Banco do Brazil and Caixa Economica Federal) to reduce their interest-rate spreads, and through competition, the private banks also quickly lowered their spreads, confirming the thesis that the very high bank spreads in Brazil are supported by a collusive and anti-competitive relationship between the major public and private banks. In May 2012, the government changed the rules of remuneration of savings accounts, eliminating a potential institutional obstacle to greater reductions in base interest rates. In addition, it promoted in 2012 a set of temporary reductions in indirect taxes to try to lower the retail price and stimulate the purchase of some durable consumer goods (including automobiles).

The Fiscal Adjustment of 2011 and the Fiscal Policy Stance in 2011-2014

With the improvement in external trade and financial conditions since 2003, the Brazilian government decided to take responsibility for generating economic growth. At first they began timidly, with measures to improve credit, raise the minimum wage and increase social transfers, but after 2006 the government more openly and deliberately took measures to increase public investment.³³ From 2004-2010, real spending on government consumption grew on average 3.2 percent per year, social transfers and social security grew 5.6 percent per year, public administration investment had an average annual growth rate of 14 percent, and investment by state-owned enterprises had an average annual growth of 16.3 percent. On the other hand, public sector revenues grew on average 7.2 percent annually in real terms from 2004-2010, faster than GDP.

Although government spending and social transfers grew very fast from 2004-2010, tax revenues did as well. The result was that, as a share of GDP, the primary surplus fell only a little over this period. According to Dos Santos and Gouveia (2014), fiscal revenues grew quickly mainly due to a large increase in the formal sector workforce and rising commodity and financial asset prices. The net effect of such large simultaneous increases in spending, social transfers, and tax revenues on aggregate demand was clearly expansionary. As we have known since Haavelmo's balanced budget theorem,³⁴ raising expenditures and taxes by the same amount has a unitary multiplier. So even raising taxes a little more than spending may still have positive effects on aggregate demand (although with a multiplier lower than one), especially if the propensity to spend by those who are taxed is smaller than that by those who receive government social transfers, as was clearly the case in Brazil from 2004-2010. Thus, even with a small positive multiplier the very fast increase in government expenditures and social transfers during this period made an important contribution to the growth of aggregate demand.

In addition, some amendments were made to relax the rigid official targets for the primary budget surplus in order to allow for faster growth of public investment. The PPI plan (Projeto Piloto de Investimentos Públicos) made it possible to exempt a share of public investment from the official primary surplus target, and also investments made by the main state-owned enterprises (Petrobras and Eletrobras) were excluded from computation of the official target in an attempt to boost investment in federal and state-owned enterprises and to promote the PAC public investment plan.

33 See Serrano and Summa (2012).

34 Haavelmo (1945).

The result of both a large increase in expenditures and revenues and a small reduction of the actual primary surplus-to-GDP ratio expanded aggregate demand.³⁵

However, at the end of 2010, the government decided to change its economic policy orientation and to begin opening space and giving macroeconomic incentives for the private sector to take over the responsibility to generate economic growth. The hallmark of this change was the decision taken at the end of 2010 to promote a strong fiscal adjustment in order to increase the primary surplus and to meet the full target of 3.1 percent of GDP in 2011 even though the rules of the Programa de Aceleração de Investimentos (PAC) and PPI programs could have been used to exclude a share of public investment from the official primary surplus target, bringing it down to 2.42 percent of GDP. Another sign of this contractionary commitment by the new government was the decision, after years of high increases, not to raise the real minimum wage at all in 2011, something that had not occurred in Brazil since 1994. These measures show the strong commitment, by late 2010, of both the administration that was coming to an end and the one that started in 2011, both from the Workers' Party, to greatly reduce growth in domestic aggregate demand. Furthermore, despite the global economic slowdown in early 2011, the signs of which were evident from the first quarter, fiscal adjustment was maintained throughout 2011 and the full target for the primary surplus was achieved.

This rapid increase in the primary surplus was only possible thanks to a strong reduction in the growth of public spending. Real spending on government consumption grew only 2.2 percent in 2011, but more dramatic was the behavior of public investment, both by the central government and by state-owned companies in 2011, which decreased 17.9 percent and 7.8 percent in real terms, respectively. These cuts were so deep that there was a reduction in the nominal value of both of these types of investment. The fiscal impulse in 2011 was strongly contractionary and even bigger than the one in 2003.³⁶

Note that these cuts occurred while the Aceleração do Crescimento (PAC) plan, which was designed specifically to promote public investment, was supposedly in effect. The 2011 experience demonstrated once again the fact that strong fiscal adjustments almost always lead to substantial and disproportionate falls in discretionary public investment, instead of other current public spending and transfers that are more rigidly fixed by legal rules and/or rights. Given the endogenous nature of tax revenue and public transfers, as well as the practical impossibility of very large cuts in the public sector payroll in the short run, both the international and the Brazilian experience show that

35 This is confirmed by estimates of a fiscal impulse index by Lara, Rodrigues and Bastos (2015), which has always positive in the years 2004-2010 in Brazil, in spite of the large primary surpluses.

36 Lara, Rodrigues and Bastos (2015).

invariably it is public investment that becomes the adjustment variable during large fiscal contractions.

In 2012, the government further signaled that it had given up on the idea that public investment should play a key strategic role in generating growth.³⁷ Instead, the government decided to promote public-private partnerships through concessions for infrastructure projects with favorable financing conditions for entrepreneurs (National Plan of Integrated Logistics). Public administration investment recovered slightly after 2012, but the average annual rate of growth over 2011-2014 was -1 percent. The growth rate of investment by state-owned enterprises recovered more strongly in 2012-2013, but a drastic fall in 2014 of 20.8 percent resulted in an average real growth rate of -2.7 percent over 2011-2014. Adjusted for inflation, public investment in 2014 was a bit below that of 2010.

After 2012, the government also promoted large tax breaks and social security exemptions on the payroll of firms in many sectors, in an attempt to promote private investment and exports. In addition, there were temporary indirect tax breaks for producers of durable goods (IPI) in order to boost consumption. To try to spur innovation, there were exemptions for the import duty for purchases of capital goods as well as other exceptions and subsidies.

There are various problems with these policies. First, the government decided to diminish its role in public investment precisely in the sectors that have crucial positive logistical externalities. These sectors, like energy and infrastructure, to a lesser extent also help support aggregate demand. The government attempted to convince members of the private sector to invest, but interest in these partnerships depends on the willingness of the private sector and on a complex negotiation of the terms and conditions, which is costly in terms of time, human and monetary resources.³⁸ Second, the large tax relief for firms did not expand aggregate demand since private investment unsurprisingly did not respond at all to these measures (for more details see the next section).³⁹ And finally, because the tax breaks, taken together with the economic slowdown, considerably reduced the evolution of fiscal revenues, the primary surplus fell in 2013 and became negative in 2014. This combination of

37 Public investment has a double role. On one hand it is a component of aggregate demand, usually with a low import content. But its most important role is that of generating positive externalities, increasing the productivity and competitiveness of the private sector and as a vehicle for industrial policy. In the latter role, government and state-owned enterprise purchase policies, when connected with strict technological upgrade requirements for contractors, have been shown over and over again to be the most effective form of industrial policy in Brazil (the role of the formerly state-owned Embraer for the development of aircraft technology in the 1970s and 1980s, and more recently that of Petrobras in developing many technologies related to deep sea oil drilling being the best known examples).

38 It is important to remember that the 2007 PAC plan to boost public investment was decided after an earlier effort by the federal government to promote public-private partnerships (from 2003 to 2006) led to nothing.

39 For empirical evidence, Pires (2014) shows that the multiplier effect of a change in public investment is much stronger than the multiplier effect of a change in the net tax burden.

lower growth in government spending and transfers and the fact that the greatest part of tax breaks were given to firms that did not increase their investment expenditure meant that fiscal policy from 2011-2014 was less expansionary than it was from 2004-2010. This occurred in spite of the fact that the average primary surplus in the more recent period was 1.7 percent, much smaller than the 3.2 percent average primary surplus of the earlier period, even when including the sharp fall of the primary surplus and revenues during the crisis year of 2009. The evolution of the primary surplus-to-GDP ratio is shown in **Figure 9**.

FIGURE 9

Primary Surplus/GDP



Source: BCB.

Brazil's gross and net public debt-to-GDP ratios increased slightly due to this lower primary surplus, in combination with other fiscal costs such as those related to maintaining a large stock of foreign exchange reserves,⁴⁰ financing the BNDES development bank, and paying for subsidies to increase loan durations for the private sector.⁴¹

Under this policy the public sector contributed much less to aggregate demand, despite the government maintaining lower primary surpluses and allowing gross and net public debt to rise

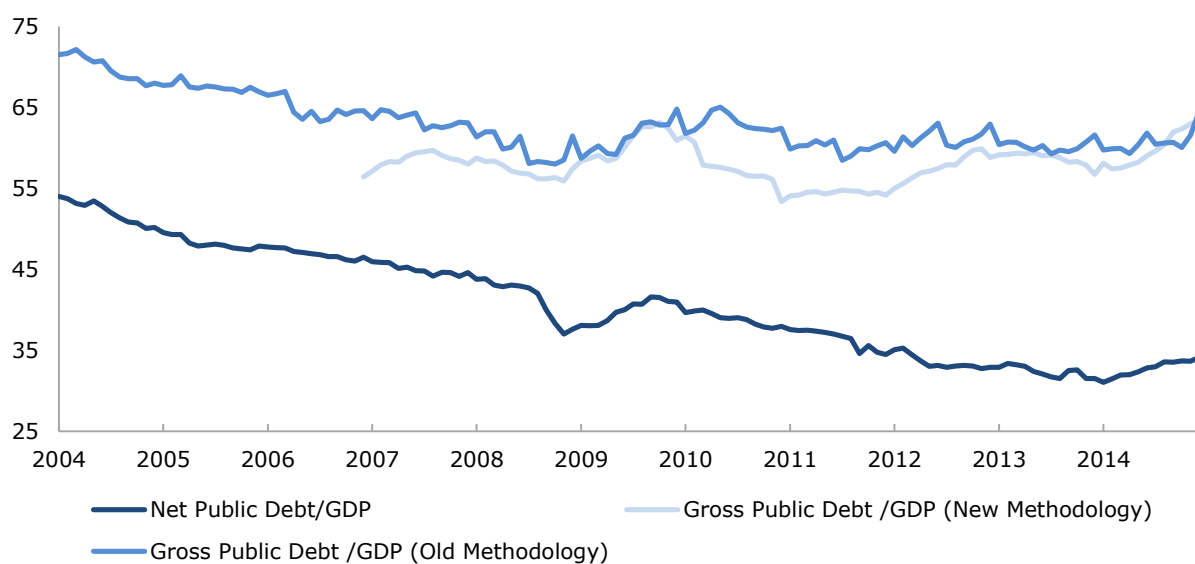
40 Forex reserves have a fiscal cost because the nominal interest rate paid on domestic public bonds is higher than the interest rate paid on U.S. Treasury bonds. However, as we have noted, there is a qualitative difference between “Reais (R\$)” and “dollars” in a context of the floating dollar standard and in which a country can issue its domestic currency but not the international (USD) (Serrano, 2003). In this sense, and regarding the improving external conditions discussed in Section 1, we think that this policy was very successful. Note however that given that the public sector has been a net creditor in dollars since 2006, any exchange rate devaluation yields a windfall capital gain to the public sector (Serrano and Summa (2012)).

41 This occurs because the basic short-term interest rate (Selic) is much higher than the long term interest rate charged by BNDES on its loans (TJLP). Thus, when BNDES loans expand quickly and the public sector has to supplement its funding, there is this fiscal cost.

during 2014 (**Figure 11**). Crucially, the latter change gave ammunition to supporters of “sound finance,” both inside and outside the government, generating a near consensus around the necessity for another contractionary fiscal “adjustment” in 2015. In truth, this has no basis in economics. Brazil’s net public debt is much lower than it was in the past, and the country’s gross public debt is still below the 2004 level; there is also the obvious fact that this debt is issued in Brazilian currency.⁴²

FIGURE 10

Gross and Net Debt / GDP



Source: BCB.

The collapse of investment growth

Let us now take a closer look at the behavior of aggregate investment spending in fixed capital, with public and private investment combined. After growing at an average annual rate of 8.0 percent between 2004 and 2010, peaking at 18 percent in 2010, the real growth rate of gross fixed capital formation fell to 6.7 percent in 2011 and actually shrank -0.6 percent in 2012. Investment recovered in 2013, growing 6.0 percent, but soon contracted again in 2014, with investment collapsing -4.3 percent. The average annual growth rate over 2011-2014 was 1.8 percent, lower than the growth rate of private consumption and substantially lower than investment growth over the previous period.

Turning to the different components of gross fixed capital formation, total investment in construction (residential and non-residential, public and private) which grew at a rate of 5.8 percent on average in the period 2004-2010, grew at a much lower rate of 2.8 percent in 2011-2014, probably largely as a consequence of the large reduction in the growth of public investment. However, most

⁴² See Serrano (2001) for a critical view on the limits to expansion of domestic public debts.

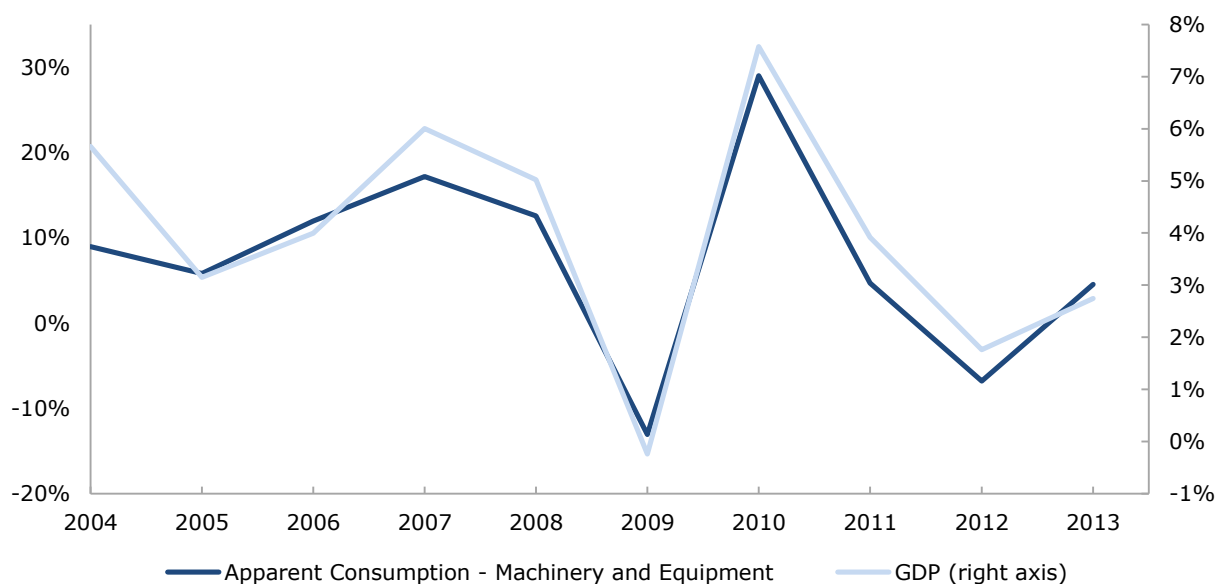
dramatic was the behavior of investment in machinery and equipment, which grew at an average rate of 12.3 percent in the period 2004-10 and -0.7 percent from 2011-2014. This category includes investment spending by the private sector, but also by state-owned companies.

The private component of investment in machinery and equipment is basically driven by the need to adjust the stock of capital to trend growth in effective demand. There is thus a virtuous cycle, sometimes called the flexible accelerator mechanism, wherein a rise in effective demand spurs private investment. Moreover, private investment in machinery and equipment tends to overshoot and increase temporarily more than aggregate demand when the latter gives signals of stronger and sustainable growth. The correction period follows and we typically see private investment in these categories grow less than aggregate demand as a whole. This is what allows the actual degree of capacity utilization to oscillate within a fairly narrow range. **Figure 11** shows this close relationship between growth of capacity output and growth of effective demand.⁴³

FIGURE 11

Growth Rates of GDP and Investment

Apparent Consumption of Machinery and Equipment



Source: IBGE/SCN; IPEA.

Since there were clear prospects for a tendency for lower demand growth after the quick and intense recovery from the 2009 crisis, a certain slowdown in the growth of private investment in machinery and equipment in 2011 would have been expected anyway. In fact, during the year 2010, the annualized (quarter-over-quarter) growth rate of apparent consumption of machinery and

43 There is strong econometric evidence of investment being largely induced by demand in Brazilian data. For a survey, see Dos Santos et al. (2015). For a theoretical demand-led growth with induced business investment, see Serrano (1995) and Serrano and Freitas (2015).

equipment was already falling continuously and quickly from 37.9 percent in the first quarter, to 13.58 percent in the fourth quarter. This strong deceleration of nonresidential investment during 2010 makes it even more difficult to understand the government's strong commitment to monetary and fiscal contraction at the end of 2010. Also, real annualized quarterly GDP growth fell continuously during each successive quarter of 2010, from 9.34 percent in the first quarter to 5.33 percent in the last, so evidence of a domestic slowdown was clear by the end of 2010, regardless of the situation of world trade and before the change in the orientation of macroeconomic policy.⁴⁴

Real investment in machinery and equipment nevertheless still grew 5.4 percent in 2011, a result that, when taken together with the large reduction in the investment of state-owned enterprises in 2011, was a very good performance, probably reflecting the fact that private induced investment tends to react to changes in the growth prospects of the economy with a lag, as confirmed in the negative real growth rate (-5.9 percent) of investment in machinery and equipment in 2012. Investment of state-owned enterprises grew 12 percent that year.

The government responded to the general fall in investment by trying to stimulate the private sector through policies that reduce investment costs and increase profit margins. It reduced the basic nominal interest rate and the rate charged by BNDES, the national development bank. The government also allowed the currency to depreciate, which tends to increase profit margins in the tradable sectors because Brazil is a price taker in the majority of its export markets. Tax exemptions for wages in some sectors and for import duties for some capital goods were passed, along with other tax exemptions and subsidies for innovation.⁴⁵ The government also announced in August 2011 the so-called "Plano Brasil Maior," which included very modest measures for public sector purchases with local content clauses. Later, the National Plan of Integrated Logistics was introduced, in an attempt to stimulate public-private partnerships with concessions on investments in infrastructure in very favorable financing conditions for entrepreneurs. The real growth rates of aggregate investment (and machinery and equipment) of -0.6 percent (-5.9 percent) in 2012, 6 percent (8.3 percent) in 2013, but -4.3 percent (-9.5 percent) in 2014 show that overall these measures were quite unsuccessful in reversing the negative trend of investment expenditures.

The dismal performance of investment allows us to conclude that the change in the orientation of the macroeconomic policy since 2011, with the government trying to stimulate private investment and employment not through increases in aggregate demand but primarily by reducing costs and/or

44 Data from IPEA.

45 The specific case of cheapening machinery import costs also brings the additional problem that, if it leads to amplified investment, it will stimulate production in other countries and not in Brazil, which increases foreign competition and tends to reduce demand and/or the profit margins of domestic capital goods producers. And it is at least curious that in the same plan where we have measures meant to increase the local content of intermediate inputs and capital goods, there are subsidies to imported capital goods.

increasing net corporate profit margins, was a failure. These measures do not seem to have stimulated investment spending at all.⁴⁶

Moreover, the behavior of investment growth, particularly in machinery and equipment, allows us to better understand the performance of the Brazilian manufacturing industry. As we discussed in Section 1, there is a broad consensus in Brazil that industry has not been growing, mainly because of the overvalued real exchange rate. In fact, given the small impact of the real exchange rate on the external competitiveness of our industry, it is seems clear that the main cause of the fall in manufacturing output growth was the large reduction in investment growth, especially investment in machinery and equipment, both from private and state-owned enterprises.

Since all machines and equipment not imported are produced by the manufacturing industry, in the short term, when the investment share of GDP increases (decreases) investment and industrial production necessarily increases (decreases) more than production in all other sectors. So it was the strong reduction in investment growth, not a supposed process of "deindustrialization" related to the real exchange rate, that explains the slowdown in industrial production. The manufacturing industry grew in the years 2007-2008 and in 2010, when the exchange rate was already appreciated, and therefore it is hard to believe that suddenly the exchange rate has become a barrier to the growth of industry as a whole. Note also that the appreciated real exchange rate was very important for controlling inflation and thus also for increasing real wages and the growth rate of household consumption.⁴⁷

On the other hand, total imports, which grew on average by 13.4 percent in real terms in the period from 2004 to 2010, also decreased pace to 4.1 percent in 2011-2014. This decrease is also explained by large variation in the growth rate of investment in machinery and equipment (given the strong complementarity between domestic and imported components of investment in machinery and

46 This outcome should have been expected since there is no good reason to think that private firms will invest without an expectation of increasing demand, regardless of any increase in their profit margins. Profit margin increases may occasionally prevent the closure of some firms that are on the brink of failure without minimum conditions of profitability in their internal or external markets. But the vast majority of firms that are producing and investing regularly clearly have current profit margins way above the minimum viable levels. For those firms, additional increases in margins tend to have no effect on their investment decisions. This also may well be the reason why large exchange rate depreciations after 2011 had so little impact. For the majority of firms already operating in the tradable sector this devaluation seems to have been unnecessary and just helped them increase profit margins. And for the few sectors in which cost competitiveness is an important issue the depreciations, large as they were, seem to have been insufficient, since the cost advantages of Asian exporters seem nowadays to be way too large to be correctable with feasible real exchange rate depreciations.

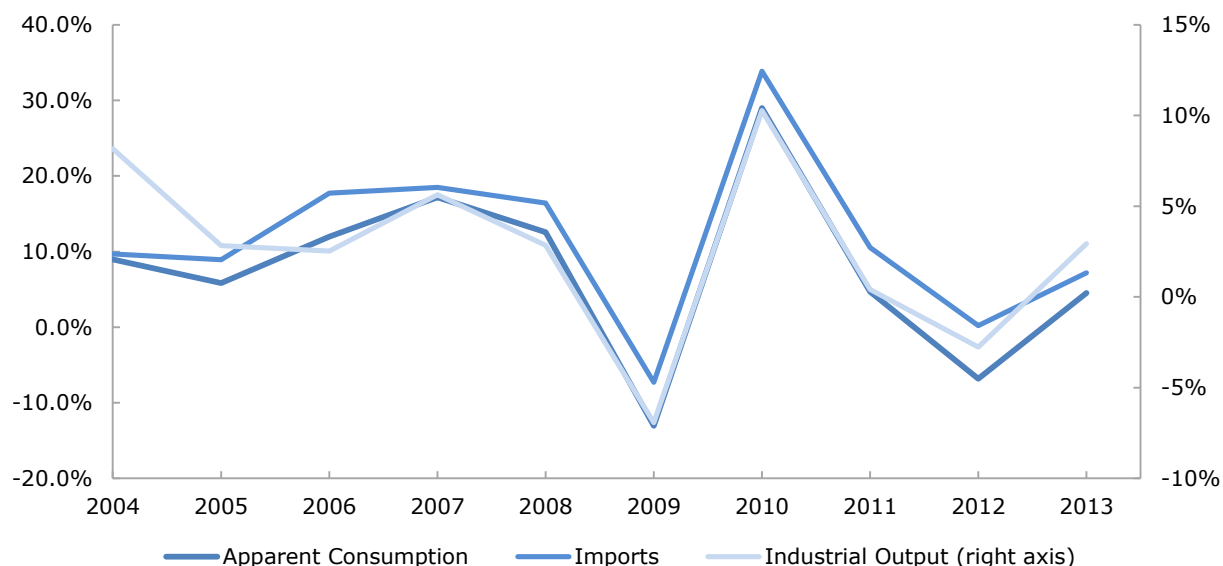
47 As expressed also by Barbosa-Filho (2013, p. 69) "...generated a substantial appreciation of the Brazilian Real, which by its turn had a large positive impact on consumption and private investment in the short run. More specifically, mentioned above, Brazilian economic history indicates that periods of strong exchange rate appreciation are generally accompanied by strong demand expansion, given that the fall in the exchange rate tends to increase workers' real wages and provide capital gains to firms in the short run"(our translation). See Dos Santos, et al (2015) for econometric evidence of the negative impact of a real devaluation on investment.

equipment, and its high import content). Thus, in the short run, investment in machinery and equipment, industrial production, and total imports oscillate together in Brazil, whatever the level of the real exchange rate, as we can see in **Figure 12**.

FIGURE 12

Growth Rates of Industrial Output, Imports and Investment

(Apparent Consumption of Machinery and Equipment)



Source: IBGE/PIM; IBGE/SCN; IPEA.

3. Rudimentary Arguments for the Change in the Orientation of Macroeconomic Policy

To justify continued fiscal adjustment in an economy that was already slowing down in late 2010,⁴⁸ President Dilma Rousseff’s new government resurrected the notion that tight fiscal policy was necessary, a principle which she once regarded as “rudimentary.”⁴⁹ According to this view, a large reduction in Brazil’s interest rates could only happen if there was a change in the macroeconomic policy mix because an expansionary monetary policy required a tighter fiscal stance. Further, this held that Brazil had two overly high rates preventing the private sector from leading economic

48 The new Central Bank president publicly stated in 2011 that the growth rate of “potential output” in the country was somewhere between 4.5 and 5 percent per year.

49 In a 2005 press statement, Dilma Rousseff, then the president’s chief of staff, called the long-term plan for fiscal adjustment “rudimentary” and helped to win over the more pragmatic and expansionist vision of fiscal policy stance among government staff. This plan, discussed by entrepreneurs, academics and economists of the state bureaucracy, consisted of the idea of “zero nominal deficit,” implying an increase in the primary surplus target of something like 7.5 percent of GDP for a few years (Delfim Netto (2005)). The rejection of the proposed “rudimentary” fiscal adjustment helped to ensure both a more virtuous cycle of growth until 2008, and a rapid recovery in 2010, after the subprime crisis.

growth through investment and exports; real interest rates were too high and the real exchange rate was too appreciated. Therefore, to stimulate the private sector, it would be necessary to lower these two rate levels, but at the same time the government should avoid generating an excessively strong demand pull that could jeopardize the inflation target. To prevent this, a tight fiscal policy would be necessary.

There are roughly two general lines of argument in favor of the idea that a fiscal adjustment is necessary for the reduction of interest rates. The first and more traditional view, which we can call the flow version, comes from the usual orthodox “crowding out” story. Here, fiscal adjustment is needed to increase the domestic potential savings rate of the economy and reduce the “natural” interest rate, which is required to prevent excess aggregate demand relative to potential output.⁵⁰

A second version of the argument in favor of permanent fiscal adjustment concerns the relationship between interest rates and the public debt. The general idea of this second version, which we might call the stock version (or “fiscal dominance”), is that fiscal adjustment is a precondition for a sustained reduction in domestic interest rates, and the transmission mechanism appears to be based on two arguments. The first is that somehow some public debt indicator affects the sovereign risk premium. The second is that this risk premium affects the neutral or “natural” real interest rate, reducing the level of the domestic real interest rate, which leads to an exchange rate devaluation and expands net exports and aggregate demand. Thus, a reduction of public debt that would reduce the country risk spread would reduce the real neutral (or natural) rate of interest because it would make the aggregate demand curve, the so called IS curve, less elastic, reducing the so-called “fiscal dominance.”⁵¹ Note that an important link in the second step of this argument is that real exchange rate depreciation is always expansionary, something that simply has not happened in Brazil in recent

50 This view has to assume that output is supply constrained, although even the Central Bank itself has officially considered the level of aggregate effective demand to be very low and below potential output (at least since the third quarter of 2011). In fact the validity of the flow version requires that: 1) A substantial drop in interest rates would have a direct effect of increasing productive private investment; 2) The fall in interest rates, indirectly, through the devaluation of the exchange rate, would generate a significant boom in net exports; (3) This large increase in aggregate demand, caused by (1) and (2) would generate inflationary pressures, given that the economy is assumed to be already operating at full capacity and potential output is not affected by changes in aggregate demand.

51 This idea was recently defended again by Delfim Netto (2012): “The moment requires a huge government responsibility, which should keep healthy their accounts not to press the increase in interest rates by the increase in the fiscal deficit and the increase of the gross debt / GDP, hovering around 65%. Like it or not, this is the parameter, certainly imperfect, by which one measures universally that relationship that affects the ‘Brazilian risk’ and in the end, the internal real interest rate.” (Delfim Netto (2012), our emphasis). Note that Delfim Netto (2012) insists that now is the gross public sector debt that “like it or not” influences “Brazilian risk” while Delfim Netto (2005) said that “the world considers ‘virtuous’ the country where the net debt / GDP is around 30%” (emphasis added), and all the arguments at the time were in terms of net debt. Apparently, according to Delfim Netto, the world “universally” changed its perception of net debt to gross debt indicators since 2005, which shows that Brazil is really a very unlucky country. For just as net public debt to GDP dropped to levels that the “world” considered “virtuous,” and were around 35 percent over the first half of 2012, there was meanwhile a “universal” change in the parameter by which risk is evaluated, from net to gross debt.

years given the strong positive effect of currency appreciation on wages and consumption and the low price elasticity of our net exports, mentioned in Section 1.⁵²

But the most “rudimentary” mechanism in the stock version of the expansionary fiscal contraction is the supposed relationship between public debt and sovereign risk. Even quite orthodox authors accept the fact, which is quite obvious, that a country cannot be forced to default on its domestic debt denominated in its own currency, and therefore the technical risk of default of a country’s debt issued in its own currency is zero.⁵³ Therefore, it is at least a curious claim to make that a “market” composed of totally irrational agents who do not understand that country risk depends on the country honoring payments (both by private agents and by the public sector) in foreign currencies and not on the non-existent risk of a government failing to pay debts in local currency.

In the real world, where the market knows the qualitative difference between a U.S. dollar and a Brazilian Real, the sovereign spread depends largely on the situation of international financial markets, particularly the interest rates of more risky bonds in the U.S. market and some specific factors of the country in terms of the situation of its balance of payments. Given the large accumulation of international reserves and the improved external situation of the Brazilian economy since 2004, the country has seen its risk spread fall continually until 2012 and,⁵⁴ a process that was interrupted (but not reversed) by the international financial crisis in late 2008 (**Figure 12**). Over the period 2004-2012, the general trend has been a drop in the net and gross debt as a percentage of GDP, following (and *not* causing) the series of domestic interest rate reductions that were facilitated by the decrease in sovereign spreads.⁵⁵ Since 2013 there has been a slight increase in the sovereign spread and real interest rates, but only in 2014 did net public debt/GDP start to rise.

Many authors in Brazil (sometimes even Delfim Netto) use the primary surplus as a better indicator of the sustainability of a presumed “intertemporal budget constraint of the government” in the long run. The primary surplus-to-GDP ratio has indeed had a strong correlation of 0.58 with country risk in the period 2004-2014. Unfortunately for those advocating the notion of “fiscal dominance” and

52 See also Serrano and Summa (2012).

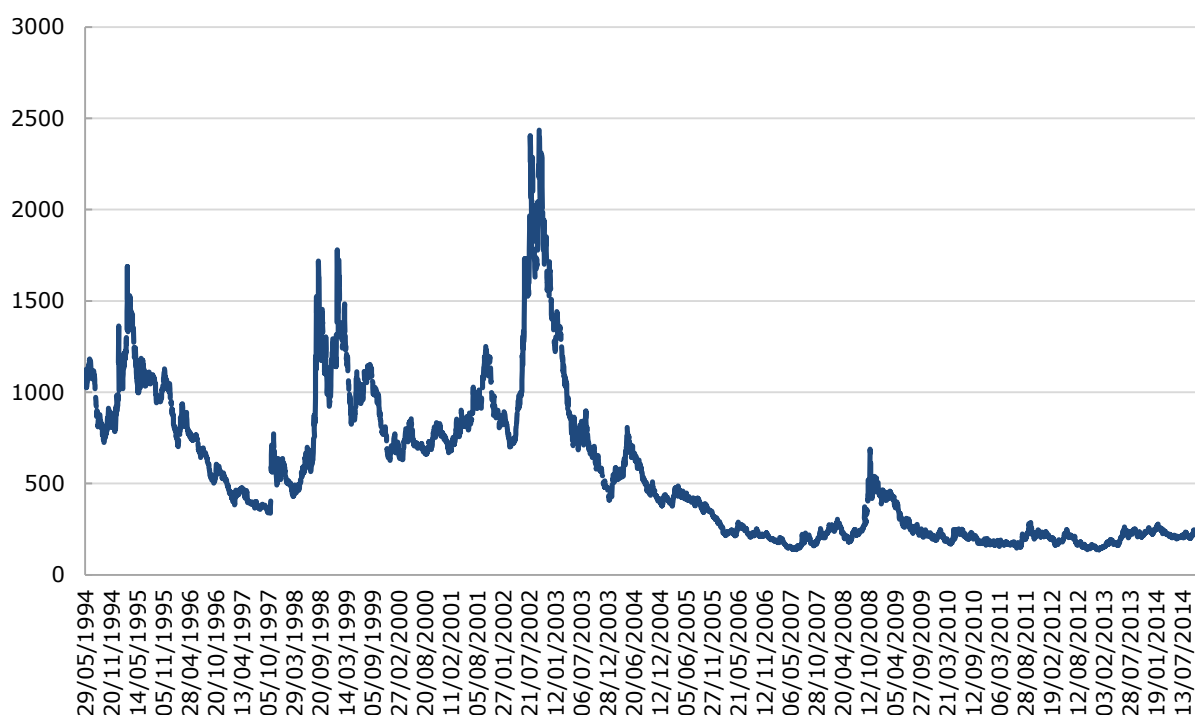
53 Tcherneva (2011) calls attention to this quote from the orthodox economist Michael Woodford (2001): “A government that issues debt denominated in its own currency is in a different situation than from that of private borrowers, in that its debt is a promise only to deliver more of its own liabilities. (A Treasury bond is simply a promise to pay dollars at various future dates, but these dollars are simply additional government liabilities, that happen to be non-interest-earning.) There is thus no possible doubt about the government’s technical ability to deliver what it has promised...” See also Serrano (2001)

54 Frenkel and Rapetti (2011); Ferreira (2012).

55 See Santiago (2012) for a critical view on the relation between fiscal indicators and the interest rate in Brazil.

preventive fiscal adjustment, the correlation is positive, implying that higher primary surpluses were associated with higher “risk” of the alleged “state default.”⁵⁶

FIGURE 13
Sovereign Spread
 (EMBI BR)



Source: JP Morgan (IPEADATA).

We can thus conclude that the theoretical and empirical basis of the stock version, in which a prolonged fiscal adjustment would be a necessary condition for a reduction of Brazil's interest rate, was and still is really “rudimentary.”

Conclusion: From Policy-Induced Slowdown to Policy-Induced Crisis

In this paper we have argued that Brazil's economic slowdown since 2011 can be explained by the lower rate of growth of the domestic components of demand, and that these lower rates of growth of domestic demand are mainly the result of changes in the orientation of macroeconomic policy, more than due to changes in external trade or financial conditions. In the period 2004-2010, after external conditions improved and external constraints were loosened, the government gradually took responsibility for generating economic growth directly by boosting aggregate demand through

56 See Carneiro and Rossi (2012) for further evidence of the lack of empirical basis for the fiscal dominance thesis in Brazil.

measures that increased mass consumption, and through a large increase in public investment. The latter measures were also crucial to begin to address Brazil's serious infrastructure deficiencies. This policy as a whole was very successful in attaining high growth. The main problem was that it did very little to change the productive structure of the country, and so it led to a rising current account deficit, although, as we have seen, the negative effects of the real exchange rate appreciation on the competitiveness of Brazilian industry appear to be grossly overestimated. In any case, the favorable changes in the world economy and the improved management of the country's financial accounts under a heavily managed floating exchange rate regime allowed these large deficits to be easily financed.

Despite the continuity of generally favorable external financing conditions, the government changed again the orientation of its macroeconomic policy in late 2010 and early 2011. The priority was shifted to opening space and generating incentives for the private sector to lead growth through autonomous investment and exports. This led the government to deliberately promote a major contraction in aggregate demand growth rates in 2011. We have shown that both monetary and fiscal policy accounted for most of the sharp slowdown in output growth in 2011, with effects lasting until 2012. After that, the government tried to stimulate private investment by creating incentives for the private sector, such as reduced interest rates for investment projects, large tax breaks and a large exchange rate devaluation. In general, these incentives had little positive effect on aggregate demand and served just to increase profit margins in some sectors. The failure of this new policy orientation largely explains the much lower growth trend in the 2011-2014. **Table 1** summarizes and contrasts what happened to the growth of aggregate demand and some of its main determinants in the two periods.

The obvious, massive failure of the 2011-2014 policy regime appears only to have convinced the government to double down on its bets. In early 2015, a new economic cabinet began by publicly declaring another major shift in the orientation of macroeconomic policy. Now the main stated objective is to reduce the **gross** public debt, and the new strategy involves an attempt to reduce the size and importance of government spending and of the credit offered by government-owned banks in the economy. The adjustment plan consists of a strong fiscal adjustment with cuts in government current spending and social transfers, tax increases (credit, consumption, fuel), an increase in the interest rates controlled by the government (the basic interest rate, the interest rate for BNDES loans and mortgage rates from Caixa Economica), and other measures to constrain the growth of credit by state-owned banks. The new policy contains a further strong depreciation of the real exchange rate⁵⁷ and large increases in prices monitored by the government (mainly fuel and

57 Which supposedly is floating and started depreciating after the minister of finance said that the government would stop spending money to keep it "artificially over appreciated."

electricity). Although the focus of the economic cabinet is to reduce the gross debt-to-GDP ratio, they declare that this adjustment is strictly necessary and will be expansionary in the medium run.

It is not easy to find logic in all these measures, but the main rationale seems to be that fiscal adjustment achieved through cuts in spending, and tax increases on consumption, will prevent Brazil from losing its “investment grade” status with international investors and avoid increases in the external interest rate spread and possible external credit constraints, in accordance with the “rudimentary” fiscal dominance view described above. This will also supposedly improve the credibility of macroeconomic policy and simultaneously raise the state of confidence of internal investors and stimulate private investment, while reducing consumption, thus leading to an increase in domestic savings, according to Finance Minister Levy.⁵⁸ Correcting relative prices like the exchange rate and monitored prices will supposedly boost exports and private investment in infrastructure,⁵⁹ presumably stimulating public-private partnership projects.⁶⁰

These measures are so obviously contractionary and inflationary, because of higher costs, that the government itself admits there will be a recession in 2015 and that inflation will rise substantially above the upper limit of the inflation target band. That this new policy is in fact inimical to the resumption of growth is quite obvious. But it makes a lot of sense if its real purpose is to begin to roll back state intervention in the economy in general and check the growth of the welfare state while simultaneously shifting the distribution of income away from wages.⁶¹

58 See Levy (2015).

59 See Barbosa-Filho (2015).

60 This rather unusual set of theoretical arguments seems to have first appeared in Barbosa-Filho (2014).

61 See Serrano and Summa (2015).

TABLE 1**Brazilian Macroeconomic Indicators 2004-2014 (Real Yearly Average Rate of Growth Unless Stated Otherwise)**

Economic Activity	2004-2010	2011-2014
GDP	4.4%	2.1%
Industrial output	3.6%	-0.9%
Formal Employment (average)	1,458	829
Unemployment rate	9.0%	5.4%
Aggregate Demand	2004-2010	2011-2014
Household consumption	5.3%	3.1%
Public Adm. consumption	3.2%	2.2%
Investment	8.0%	1.8%
Machinery and Equipment	12.3%	-0.7%
Construction	5.8%	2.8%
Exports	5.2%	1.6%
Imports	13.4%	4.1%
Fiscal Policy Variables	2004-2010	2011-2014
Primary Surplus/GDP	3.2%	1.7%
Public Sector Revenues	7.2%	1.2%
Public transfers to households	5.6%	4.9%
State Owner Enterprises (Federal)	16.3%	-2.7%
Public Adm. Investment*	14.0%	-1.0%
Credit and household income	2004-2010	2011-2014
Credit to households	21.5%	4.6%
Mortgages	20.1%	29.3%
Real Wage (formal employments)	2.9%	2.9%
Household Real Disposable Income**	5.3%	1.2%

Notes: * Jun. 2014; ** Sept. 2014

Sources: (1) GDP and Aggregate Demand (SCN/IBGE); (2) Industrial Output (PIM/IBGE); (3) Formal Employment (CAGED/MTE); (4) Unemployment rate (monthly PME/IBGE); (5) Primary Surplus/GDP from BCB; (6) Real Revenues calculated as nominal Total Revenues from Central Government (STN/MF) deflated by IPCA (IBGE); (7) Public Transfers to households calculated as nominal TAPS (DIMAC/IPEA) deflated by IPCA (IBGE); (8) State-owned Enterprises Investment calculated by Afonso and Fajardo (2015); Public Administration Investment calculated by Nominal Public Administration Investment (DIMAC/IPEA) deflated by INCC (IBGE); (9) Credit to households calculated as total nominal credit to households (“pessoa fisica”) (BCB) deflated by IPCA; (10) Mortgages calculated as total nominal Housing Credit (BCB) deflated by IPCA; (11) Real wage calculated by nominal average wage of formal employment (CAGED/MTE) deflated by IPCA; (12) Households real disposable income at average prices of 1995 (DIMAC/IPEA).

References

- Alfonso, J.R. and B. Fajarado. 2015. “Investimentos das Empresas Estatais Federais em 2014: A Grande Retração.” Notas Técnicas. IBRE. February.
- Barba, A. and M. Pivetti. 2009. “Rising household debt: Its causes and macroeconomic implications—a long-period analysis.” *Cambridge Journal of Economics* 33.1: 113-137.
- Barbosa-Filho, N.H. and J.A.P. Souza. 2010. “A inflexão do governo Lula: política econômica, crescimento e distribuição de renda.” In *Brasil: entre o Passado e o Futuro*, edited by Emir Sader and Marco Aurélio Garcia. São Paulo: Boitempo.
- Barbosa-Filho, N.H. 2013. “Dez anos de política econômica.” In *10 anos de governos pós-neoliberais no Brasil: Lula e Dilma*, edited by Emir Sader. São Paulo: Boitempo.
- Barbosa-Filho, N.H. 2014. “O Desafio Macroeconômico de 2015-18.” Paper presented at 10^o Fórum de Economia da Escola de Economia de São Paulo (EESP/FGV), San Paulo, Brazil, September 15-16.
- Barbosa-Filho, N.H. 2015. Interview in *Folha de Sao Paulo*, April 1.
- Biancareli, A. 2011. “Perspectivas da economia brasileira: notas sobre o setor externo.” In *Encontro Internacional da Associação Keynesiana Brasileira*, 4: 1-16. Rio de Janeiro: AKB.
- Biancareli, A. 2014. “Vulnerabilidade externa, estoques e ‘desdolarização’.” *Jornal do Brasil*. February.
- Braga, J. 2013. “A inflação brasileira na década de 2000 e a importância de políticas não monetárias de controle.” *Economia e Sociedade* 22.3: 697-727.
- Bresser-Pereira, L.C. 2010. *Globalization and Competition*. Cambridge Books.
- Bresser-Pereira, L.C. 2012. “Structuralist macroeconomics and the new developmentalism.” *Revista de Economia Política* 32.3: 347-366.
- Carniero, R. and P. Rossi. 2012. “The Brazilian experience in managing the interest exchange rate nexus.” *Textos para Discussão Instituto de Economia* 206. June.
- Carvahlo, L. and F. Ribeiro. 2012. “Indicadores de consumo aparente de bens industriais.” *Nota Técnica Carta de Conjuntura*.
- Castilho, M. 2015. “Exportações brasileiras de bens manufaturados e integração regional: evolução recente e perspectivas.”
- Corrêa, V. and C. Xavier. 2013. “Modelo de crescimento, dinâmica do balanço de pagamentos e fragilidades.” In *Padrão de acumulação e desenvolvimento brasileiro*, edited by Vanessa Petrilli Corrêa. São Paulo: Editora Fundação Perseu Abramo.

Delfim Netto, A. “Déficit Nominal Zero”

<http://www.economiaetecnologia.ufpr.br/revista/2%20Capa/Antonio%20Delfim%20Netto.pdf>

Delfim Netto, A. 2012. “Projeto Nacional e Greves do Funcionalismo.” *Valor Econômico*. August.

Dos Santos, C.H.; C.R. Amitrano; G.C. Squeff; M.B. Ribeiro; R.R. Gouvêa; R.O. Orair and T.S. Martínez. 2012. “Novas evidências empíricas sobre a dinâmica trimestral do consumo agregado das famílias brasileiras no período 1995-2009.” *Economia e Sociedade* 21.3: 607-641.

Dos Santos, C.H. 2013. “Notas sobre as dinâmicas relacionadas do consumo das famílias, da formação bruta de capital fixo e das finanças públicas brasileiras no período 2004-2012.” In *Padrão de acumulação e desenvolvimento brasileiro*, edited by Vanessa Petrilli Corrêa. São Paulo: Editora Fundação Perseu Abramo.

Dos Santos, C.H.; A. Modenesi; G.C. Squeff; L. Vasconcelos; M. Mora; T. Fernandes; T. Moraes; J. Braga; and R. Summa. 2015. “Revisitando a dinâmica trimestral do Investimento no Brasil: 1996-2012.” Presentation at IE-UFRJ meeting, May.

Dos Santos, C.H.; A. Cieplinski; D. Pimentel and G. Bhering. 2015. “Por que a elasticidade-câmbio das importações é baixa no Brasil? Evidências a partir das desagregações das importações por categorias de uso.” Presentation at the IPEA meeting.

Dos Santos, C.H. and R. Gouveia. 2014. “Finanças públicas e macroeconomia no Brasil : um registro da reflexão do Ipea (2008 – 2014).” Brasília: IPEA.

Ferreira, S. 2012. “Condições Externas e a Dinâmica da Inflação no Brasil 1994-2010: Uma Interpretação Estrutural” Doctoral thesis, IE-UFRJ, 2012.

Frenkel, R. and M. Rapetti. 2011. “Fragilidad externa o desindustrialización: ¿Cuál es la principal amenaza de América Latina en la próxima década?” *Serie Macroeconomía del Desarrollo* 116.

Freitas, F. and E. Dweck. “The Pattern of Economic Growth of the Brazilian Economy 1970–2005: A Demand-Led Growth Perspective.” *Sraffa and the Reconstruction of Economic Theory: Volume Two: Aggregate Demand, Policy Analysis and Growth* 158.

Freitas, F.; F. Serrano and C. Medeiros. 2015. “The Decoupling of Economic Growth of the Developing Countries in the Last Decade.” Mimeo.

Haavelmo, T. 1945. Multiplier effects of a balanced budget. *Econometrica: Journal of the Econometric Society*: 311-318.

Hallak Neto, João and João Saboia. 2014. “Distribuição funcional da renda no Brasil: análise dos resultados recentes e estimação da conta da renda.” *Economia Aplicada* 18.3: 483-513.

Instituto de Pesquisa Econômica Aplicada. 2012 “Conjuntura em Foco, n. 20.” August.

- Lara, F. A política econômica e os condicionantes externos ao crescimento na economia brasileira recente. *Indicadores Econômicos FEE*, v. 40, n. 1, 2012a.
- Lara, F. Desaceleração da demanda doméstica. In: *Carta de Conjuntura FEE*, Ano 21 n. 06. 2012b.
- Lara, F. Comportamento do passivo externo líquido brasileiro entre 2001 e 2013: o papel dos fatores patrimoniais. *Indicadores Econômicos FEE*, v. 42, n. 1, 2014.
- Lara, F.; R. Rodrigues. and C. Bastos. 2015. “As finanças públicas e o impacto fiscal entre 2003 e 2012: dez anos de governo do Partido dos Trabalhadores.” *Ensaio FEE 31.1* (forthcoming).
- Lavinas, L. 2015. “New trends in inequality: the financialization of social policies.” In *Combating Inequality: The Global North and South*, edited by Alexander Gallas, Hansjörg Herr, Frank Hoffer and Christoph Scherrer. London: Routledge (forthcoming).
- Levy, J. 2015. Inaugural address of the france minister.
- Medeiros, C. 2015a. “A evolução da composição da demanda das famílias brasileiras entre 2003-2009.” In *Inserção externa, crescimento e padrões de consumo na economia brasileira*, edited by C. Medeiros. Brasília: IPEA.
- Medeiros, C. 2015b. “Evolução da estrutura de oferta da economia brasileira na última década e da demanda das famílias Brasileiras entre 2003 e 2009.” In *Inserção externa, crescimento e padrões de consumo na economia brasileira*, edited by C. Medeiros. Brasília: IPEA.
- Orair, R. and S. Gobetti. 2010. “Governo gastador ou transferidor? Um macrodiagnóstico das despesas federais no período de 2002 a 2010.” *Brasil em desenvolvimento 1*: 87-112. Brasília: IPEA.
- Paula, L.F.; A. Modenesi and M.C. Pires. 2015. “The tale of the contagion of two crises and policy responses in Brazil: a case of (Keynesian) policy coordination?” *Journal of Post Keynesian Economics* 37.3: 408-435.
- Prates, D.M and A.M. Cunha. 2012. “Medidas macroprudenciais e a evolução do crédito em 2011.” *Indicadores Econômicos FEE* 39.4.
- Pires, M.C.C. 2014. “Política fiscal e ciclos econômicos no Brasil.” *Economia Aplicada* 18. 1: 69-90.
- Santiago, M. 2012. “Limites e procedimentos da política monetária: evidências do Brasil e dos E.U.A. nos anos 2000.” *Doctoral thesis, IE-UFRJ*.
- Serrano, F. 1995. “Long period effective demand and the Sraffian supermultiplier.” *Contributions to Political Economy* 14.1: 67-90.
- Serrano, F. 2011. “Cinco dúvidas sobre o ajuste fiscal.” *Indicadores Econômicos FEE*. Porto Alegre 28.4.
- Serrano, F. 2003. “From ‘static’ gold to the floating dollar.” *Contributions to Political Economy* 22.1: 87-102.

- Serrano, F. "Continuity and Change in the International Economic Order: Towards a Sraffian Interpretation of the Changing Trend of Commodity Prices in the 2000s." Sraffa and the Reconstruction of Economic Theory: Volume Two: Aggregate Demand, Policy Analysis and Growth 195.
- Serrano, F. and F.N.P. Freitas. 2015. "Growth Rate and Level Effects, the Adjustment of Capacity to Demand and the Sraffian Supermultiplier." *Review of Political Economy* (forthcoming).
- Serrano, F. and C. Medeiros. 2006. "Capital flows to emerging markets: a critical view based on the brazilian experience." In: *Monetary Integration And Dollarization: No panacea*, edited by Matias Vernengo. Edward Elgar.
- Serrano, F. and R. Summa. 2012. "Macroeconomic Policy, Growth and Income Distribution in the Brazilian Economy in the 2000s." *Investigación Económica* 71.282: 55-92.
- Serrano, F. and R. Summa. 2015. "Cost-push inflation and inflation target in Brazilian Economy in 2000s." Mimeo.
- Silva, J.A. and A.L.C. Lourenço. 2014. "Uma análise da evolução dos componentes da demanda agregada: Brasil, anos 2000." *Indicadores Econômicos FEE* 42.1.
- Squeff, G. 2015. "Rigidez produtiva e importações no Brasil: 1995-2009." In *Dinâmica macrossetorial brasileira*, edited by G. Squeff. Brasília: IPEA.
- Summa, R. and J. Braga. 2014. "Estimação de um modelo desagregado de inflação de custo para o Brasil." Presentation at IE-UFRJ meeting.
- Tcherneva, P. 2011. "Modern Monetary Theory and Mr. Krugman: A Way Forward." *New Economic Perspectives*, March 8.
- Vernengo, M. 2011 "The Brazilian Economy after Lula: What to Expect?" CESifo Forum, Ifo Institute for Economic Research at the University of Munich 12:1 17-22.
- Weisbrot, M.; J. Johnston and Stephan Lefebvre. 2014. "The Brazilian Economy in Transition: Macroeconomic Policy, Labor and Inequality." Center for Economic and Policy Research, Washington, D.C.