

## **Fiscal Responsibility: An Investigation into the Credibility of Brazilian Tax Policy after the LRF**

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### **Abstract**

The Fiscal Responsibility Law (LRF) promulgation in 2000 was a milestone in the establishment of fiscal rules nationwide. The balance of public accounts and debt sustainability are necessary conditions for prolonged economic growth and, through the expectations of private agents, affect the economy's investment rate. The objective of the research was to verify whether, during the 20 years of the LRF, there is a perception of credibility in the Brazilian fiscal policy. For this, the VAR model was used to ascertain the behavior of private agents' expectations in relation to public debt and the primary result, obtained in the Focus report of the Central Bank (BACEN). As an additional contribution, it analyzed the effects of the expectations of these fiscal indicators on the investment rate. The results showed that these effects are relevant and suggest a compromise in the credibility of private agents in national fiscal policy in the analyzed period.

**Keywords:** LRF, fiscal rules, credibility, public debt and primary result.

**JEL:** H30, H62, H63.

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## **Introduction**

Throughout its history, Brazil has experienced several economic cycles, starting with the exploration of pau-Brasil and, later through the cultivation of sugarcane, the extraction of gold, the planting of cotton, the large coffee plantations, and the rubber production cycle. Until, upon the beginning of the second half of the twentieth century, the country experienced a vigorous process of replacing imports from the developmental state.

After the World War II, a representative portion of the financing of national development projects occurred through monetary issuance and external indebtedness, so that in the early 1980s, after the second oil shock, with the increase in international interest rates and the decrease in credit supply, the country's inflation span out of control. At that time, after an expansionary phase of public spending, the country was largely in debt.

Then came a new focus for Brazilian economic policy: the search for the stabilization of the currency, which materialized in several economic plans. Cruzado Plan (1986), Bresser Plan (1987), Summer Plan (1989), Collor Plan (1990) until, finally, the implementation of the Real Plan in 1994. Due to the scarcity of resources in the international market, Brazilian economic policy began to focus on generating trade surpluses through currency devaluations and administrative controls. However, even with positive results for trade balances throughout the 1980s through the middle of the following decade, performance was not enough to stem the growth of Brazilian net foreign debt.

Throughout the 1980s and 1990s, initiatives aimed at balancing public accounts emerged, especially after controlling for inflation. Moreover, the path to fiscal responsibility had its milestone highlighted by the promulgation of Complementary Law No. 101 of May 4, 2000, better known as the Fiscal Responsibility Law.

This article recognizes the importance of this milestone as a great pillar of long-term fiscal policy and aims to contribute to the analysis of the credibility of economic agents in fiscal policy in the period between its entry into force until the present day, after 20 years of the Fiscal Responsibility Law (LRF). The analysis conducted by Pires (2006) until 2006 is here extended until the current period and, as an additional contribution, the effects of debt expectations and

primary results on investments are observed. Data were extracted from the Focus Report, a survey of the market expectations of the Central Bank (BACEN).

In this sense, the article is composed of this introduction, followed by a fiscal contextualization of the last decades, a theoretical framework, an econometric exercise, a discussion of the results, and, finally, a conclusion, presented in the final section.

## **1. Fiscal Contextualization**

Initiatives to control public expenditure started in the mid-1980s. In 1985, the movement account was closed at Banco do Brasil. The following year the National Treasury Department was created, and started to manage the Treasury Single Account as well as the public debt in 1987. In addition, in 1988, the Federal Constitution was promulgated, providing for the redaction of a Complementary Law that would discuss public finances, which would later become the Fiscal Responsibility Law – LRF.

Another important milestone in the reorganization of Brazil's public finances was the change in the relationship between the Union and the states and municipalities, which occurred in the following decade. In 1997, two remarkable events occurred: the first was the establishment of the Program of Incentives to the Reduction of the State Public Sector in Banking Activities – PROES and the second was the approval of Law 9,496, which established the Financial Support and Debt Refinancing Program of states and municipalities. Finally, the Fiscal Stability Program (PEF) in 1998 introduced fiscal adjustment to the public agenda.

Thus, at the end of the 1990s, the stabilization of the debt-to-GDP ratio, the debt control of subnational entities, the restructuring of the budget process and the focus on transparency of fiscal information became a priority for the economic policy. In 1999, the country began to adopt the so-called macroeconomic tripod, with floating exchange rate, fiscal targets, and inflation targets, seeking to be guided by a responsible fiscal policy with primary surpluses. In 2000, the LRF was promulgated.

Thus, this period marked a unique moment in the history of Brazilian fiscal policy, when the balance of public accounts finally became a priority for the ruling class, and, as a result,

also gained an echo in the longings of the society as a whole. Hence, the importance of this milestone should be recognized as a great pillar of long-term fiscal policy, which placed fiscal responsibility as a condition for sustained national economic growth, due to the effects that it entails, such as the economy's investment rate.

This transmission mechanism via investments occurs through the expected effects of a fiscally responsible policy that is recognized by the confidence of private economic agents in the government policy.

Accordingly, the LRF was indispensable for fiscal management, since it aimed at a planned action to prevent risks and correct deviations capable of affecting the balance in public finances, through the fulfillment of fiscal goals and the control of the indebtedness of federal entities.

However, Brazil experienced a period of fiscal control that lasted from the late 1990s to 2006. From then on, an expansion of public expenditure configured a change of route in the country's fiscal policy. In fact, the federal government has made only two adjustments to its expenditures, the first in 1999, and the second in 2003.

This change became more pronounced after the global financial crisis of 2008, increasingly distancing itself from the macroeconomic tripod adopted since 1999. The government's economic policy, in an attempt to maintain economic growth, has converted itself into a set of interventionist measures to expand expenses, grant tax benefits and forward credit to the private sector, via BNDES, known as the New Economic Matrix (NME).

And to make matters worse, a ruling class movement was put into motion to circumvent control mechanisms proposed by the LRF, often corroborated by the State and Municipal Court of Accounts. Despite the advent of the LRF having technically trained the actions of the Court of Auditors in the control and evaluation of federal entities, the autonomy of such Courts, their legal mandates, the attributions of judging the accounts of governments, the power to impose fines or sanctions and the fact that they do not subordinate to each other, have allowed distinct interpretations for the calculation of the tax limits presented by their jurisdictions.

In addition, divergent interpretations of the tax results of federal entities by the respective Court of Auditors, as well as the tardiness in their rulings also culminated in reports

of creative accounting practices.<sup>4</sup> Together, these facts have contributed to the restriction of the effectiveness of the fiscal rules defined in the LRF, promoting a reduction in the containment of excessive expenditure, with negative repercussions on the level of public indebtedness and in the fiscal space of federal entities.

Thus, despite the efforts manifested in the principles of the LRF, after 20 years of its implementation, some studies show that public management in some states and municipalities has led the fiscal results to a fragile situation. The fiscal lack of control, followed by the increase in indebtedness and amounts to be paid in the four largest Brazilian states illustrate the different levels of fiscal responsibility in the national level.

In this context, attention needs to be paid to the relevance of the LRF as well as to the need of improvement of the adjustment mechanisms, considering, for instance, the numerous debt renegotiation requested to the Union in recent years by several states, since these exceeded the limits of public expenses specified by the LRF without the necessary balancing entry of revenues. From this perspective, Constitutional Amendment No. 95 is justified and makes the compliance with the expenditure ceiling rule beneficial, since government accounts have been recording a primary deficit, with the issuance of new debts, notified by the commitment of the budget to personnel expenses.

The theoretical basis for the elements presented in this contextualization and that allow the later analysis and discussions of this article are presented in the next section.

## **2. Theoretical Framework**

The LRF established regulations for government finances, with specific rules for the Union, states, and municipalities, which required actions from the public managers related to fiscal responsibility. The law allowed citizens to participate in financial social control, monitoring budgets, verifying the application of public resources and government action. For

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<sup>4</sup> The term “creative accounting”, which has recently gained publicity in Brazil, was born in a branch of accounting sciences, aiming to designate situations in which the true equity situation of an entity, public or private, was significantly altered through artifices put into practice based on omissions or interpretations of accounting standards (GOBETTI, 2014).

the public manager, it offered conditions to manage government resources with greater fiscal rigor.

As a control mechanism, the LRF required managers to administer public resources according to their interests, at the risk of being awarded penalties, based on stricter tax obligations, aiming at the balance of public accounts, greater transparency, and better application of these resources (De Magalhães et.al., 2005).

Mora (2016) points out that, like taxes, public debt is an important instrument for financing public spending, because through investments arising from indebtedness, it promotes economic development and leverages revenue. Thus, the purposes of the LRF played an indispensable role in controlling public expenditure and maintaining public debt at sustainable levels.

Guided by the general conceptions and parameters determined by Article 163 of the Federal Constitution of 1988, the LRF was designated as the legal framework for government indebtedness. Endorsed with stricter mechanisms and principles, the law stipulated limits and penalties with the purpose of ensuring the financial health of federal entities, guiding them to the correct application of public resources (Nascimento and Debus, 2002). It reinforced the fiscal criteria stipulated by Law No. 9,496/1997, which established conditions for the renegotiation of state debts, under the Program of Fiscal Adjustment and Financial Restructuring of the States (Caldeira et al., 2016).

Several studies have been conducted in Brazil to evaluate changes in public management, influenced by the LRF. Caldeira et al. (2016), when analyzing the role of the law in the dynamics of fiscal management of the State of Rio de Janeiro and in the sustainability of the public debt of that state, in the period from 2001 to 2017, highlighted the important role of the LRF in reconducting the fiscal balance and sustainability of public debt, as a governance instrument.

Positive results in compliance with public debt limits, after the release of the law, were reported in the studies by Giambiagi and Mora (2007) and Cruz and Afonso (2018), as reported in Nunes et.al. (2019), emphasizing the existence of a vast empirical literature published in Brazil with emphasis on the impacts of LRF on public finances.

Sodré (2002) highlights the substantial changes resulting from the LRF in the planning and control of public accounts, seeking the coordination of the fiscal policies of the various federative units, preventing the fiscal policy implemented by the central government from being weakened by a fiscal management that followed other parameters and principles by states and municipalities.

Several studies have been developed on the impact of LRF on the finances of the municipalities. Santolin et al. (2009) investigated the municipalities of Minas Gerais. Dos Santos and Alves (2011) analyzed 419 municipalities in Rio Grande do Sul. Macedo and Corbari (2009) surveyed cities with more than 100,000 inhabitants. Gerigk et al. (2011) studied municipalities in Paraná with a population of less than five thousand inhabitants and the municipalities between 10,000 and 20,000 inhabitants. Linhares et al. (2013) evaluated the effects for the municipalities of the state of Piauí. Among the results pointed out by these authors are the reduction of personnel expenses, greater control of financial resources, balance of public accounts, reduction of discretion of expenditure, reduction of indebtedness and expansion of the fiscal space of these federative entities.

In commemorating 20 years of the promulgation of the LRF, the initiative to establish principles and rules of fiscal responsibility for Brazilian economic policy is celebrated. The balance of public accounts and the commitment to the sustainability of public debt are essential conditions for prolonged economic growth, both for its foundations and for the impact it causes on the expectations of economic agents.

Goldfajn and Guardia (2003) state that the fiscal position has improved since 1998 with the introduction of a rules-based fiscal policy system and that, especially, the LRF is an important component of the fiscal consolidation process that was underway, reinforcing the credibility of monetary stability and economic growth.

Correia and Oliveira (2013) highlight the importance of imposing fiscal rules to minimize the discretionary content of the public budget. The results found in their research indicate that there was a reversal of the cyclical nature of Brazilian fiscal policy under the influence of the LRF. This evidence indicates a transition of the country's economy from a procyclical to a countercyclical situation, which would represent a sign of macroeconomic credibility.

The balance of public accounts allows the achievement of the economic conditions necessary for monetary stability, the maintenance of the basic interest rate at a reduced level and, better yet, the drop in the tax burden of the Brazilian economy, thus stimulating the investment component of aggregate demand. To achieve long-term economic growth conditions, the investment rate must remain higher than the current ones.

Castelar, Linhares, and Penna (2010), when investigating the effects of fixed capital investment on the economy, point out that the effect of investment depends on the average level of past growth. If the level is relatively low, as in the Brazilian case, the effects on the economic growth rate are permanent.

For Rocha, Moreira, and De Bragança (2018), the impact of the qualitative and quantitative increase in infrastructure investment is positive on economic growth. Therefore, they investigated the determinants of private investment in emerging countries and concluded that economic freedom and institutional quality have positively affected the number of investment projects in these countries.

When making their investment decisions, entrepreneurs take into account the current scenario and their prospects. Hence, both the credibility of the government's economic policies and the business environment influence the willingness of the entrepreneur to invest.

There is a line of research that investigates the credibility of economic agents in the government's economic policies, with a prevalence of studies on monetary policy, such as Mendonça (2002) and Mendonça (2004), however, in recent years, there has been a growth in research lines that have sought to exploit credibility in fiscal policy.

Credibility in fiscal policy is strongly related to the perspective on the sustainability of the country's public debt. Montes and Tiberto (2015) point out that since 1999, after the adoption of the inflation target regime, the tax authority has strived to keep public debt low and sustainable, which has contributed to an increase in the reputation of the tax authority and, in turn, to greater stability of the economic environment and to the reduction of country risk.

By investigating the effects of the government's fiscal commitment on business confidence and how it affects production decisions, Montes e Almeida (2016) conclude that the government's greater commitment to public accounts promotes an increase in the optimism of entrepreneurs and stimulates industrial production. To assess the fiscal reputation, the authors



consider that the achievement of primary surplus targets signaled to entrepreneurs a greater commitment from the government.

The central idea of this article for the investigation of the credibility of Brazilian fiscal policy, in the period between 2000 and 2020, has its basis in Pires'(2006) research, that seeks to analyze the fiscal results of expectation of primary surplus and debt expectation, from the information obtained in the Focus Report, available on the Central Bank's website.

The repetition of previous studies aimed at updating the data and verifying whether the results obtained initially remain the same can also be seen in Araújo and Besarria (2014) that continue the investigation of the relationship of fiscal dominance, verified by *apud in* Blanchard (2004) for the Brazilian economy from 1999 to 2003. The authors seek to verify whether the relationship remained valid for the period from 2003 to 2009, thus, demonstrating that there is room for research of this nature.

Analyzing the period between January 2001 and June 2006, Pires (2006) concludes that there was a gain in credibility in Brazilian fiscal policy since agents projected a lower public debt for the future and, in turn, an increase in the fiscal space that would allow the gradual reduction in obtaining primary surpluses by the government. Finally, he says that if public debt shocks occurred, the results indicate that economic agents would expect a reaction from the government to ensure the sustainability of fiscal policy by increasing the primary surplus.

Thus, after a decade and a half, this research aims to verify whether the credibility of economic agents was maintained after 20 years of the LRF. Research that is justified, in view of the various economic moments that Brazil and the world have gone through in the last 15 years, especially the global financial crisis in 2008 and the Brazilian recession of 2015 and 2016.

It is worth mentioning the change that occurred in the orientation of the national fiscal policy in the period studied. As Gobetti and Orair (2015) highlight, the years between 1999 and 2005 characterized a contractionary phase of fiscal policy, while the period between 2006 and 2014 marked nine years of an expansionist phase.

Araújo and Besarria (2014) attribute to 2007, with the launch of the Growth Acceleration Program, as a point of change to a more expansive fiscal policy through increased spending and public investments and the creation of mechanisms to facilitate credit. Gobetti

(2015), also points to the growth of public investments from 2007 and, later, to the expansion of current government spending, through the expansion of several social programs, from the first government of Dilma Rousseff.

The period that followed 2010 has fundamental relevance in this investigation, since it was the period in which the so-called New Economic Matrix (NME) began in the country. According to Barbosa Filho (2017), this matrix was marked by strong government intervention in the economy combining reduction of interest rates in inflationary periods, realization of primary deficits, growth of public debt, management in investment and price intervention. The author points to a slowdown in the national economy, from 2014 accompanied by a sharp reduction in the investment rate.

Analyzing the economic stagnation experienced by Brazil, from 2015, Mendonça (2019) states that the crisis was due to interventional policies with expansion of indebtedness, artificial expansion of credit and price-making measures. Finally, it points to the reversal of the trajectory of public indebtedness that has been decreasing since 2003, as a result of structural improper adjustment resulting from the expansion of targeted credit and the promotion of demand based on increased public spending.

In addition, the subnational entities perceive a certain distancing from what was sought with the LRF. When analyzing the financial situation of twelve Brazilian states after the advent of the LRF, in the period 2000-2009, Santos (2010) concludes that they are adjusted in a tenuous way, with minimal margins for investments and susceptible to the influence of eventual falls in revenue due to the vegetative growth of payroll, for which a new pension reform is necessary.

The study by Cruz and Afonso (2018) conducted in 282 Brazilian municipalities, with a population of more than 100,000 inhabitants, in the period from 2010 to 2013, did not find a positive relationship between the indicators of compliance with LRF fiscal targets and limits and responsible fiscal management. He suggested that one of the reasons is the difference between the incentives that public managers have to meet goals and to meet the other pillars, which do not present well-defined enforcement or punitive mechanisms.

The authors affirm that transparency in our country is still in its beginning, due to delays in accountability and publications regarding the planning and management of public resources, generating inconvenience and little credibility to governments.

The reflection of the LRF in the fiscal management of the state of Rio de Janeiro, between the years 2001 and 2017 was investigated by Cruz et al. (2018). This work interrelates the indicators of compliance with goals and fiscal limits with variables of planning, transparency, and control. It concludes that, although the LRF played a disciplinary role in the management of the state's finances, until mid-2012, the legislation did not limit the mismanagement of resources and was not sufficient to avoid fiscal unsustainability installed from 2014.

The research work of Ferreira Júnior (2006) and Aquino & Azevedo (2017) relates fiscal lack of control with the increase in public debt and leftovers to pay in the four largest Brazilian states.

Despite the effort to discipline spending through the LRF instruments, Santos et al (2017) argue that the average annual growth rate of total personnel spending in the states was significantly higher than that of the Net Current Revenue of state public administrations and GDP during the period 2006 to 2016. It is noteworthy the increase in inactive expenditures cannot be diagnosed by observing the indicators of the Fiscal Management Report due to the blatant heterogeneity in the understanding of what states classify as deductions from personnel expenses presented in this report.

It is evident, therefore, a misalignment between the principles of fiscal responsibility and the results achieved in several federal entities, culminating in the need to strengthen the paths to a sustainable fiscal policy. The resumption of sustained growth in the Brazilian economy involves realignment with a responsible fiscal policy, as proposed by Salto and Almeida (2016).

"Thus, the only way to resume growth with social justice and monetary stability is to rescue the fiscal responsibility agenda. Without this, we will continue to be trapped in a 'stop-go' pattern, sustained, repeatedly, by external cycles of bonanza. Fiscal austerity is not a sufficient condition, but it is essential for any development strategy that wants to be taken seriously." (SALTO and ALMEIDA, 2016, p.25).

In Gobetti's view (2014) for Brazil to free itself from the low economic growth and the resulting deteriorating fiscal results it has presented in recent years, a reform in its tax regime would be necessary. The current model of fiscal policy has been found for a decade in strict fiscal rules that do not consider the effects of the economic cycle. Therefore, Brazilian fiscal

policy has lost credibility because it cannot respond to the new challenges of the economic situation, due to the lack of structural reform and increasing access to non-recurring revenues to close public sector accounts.

To this end, his study proposes that the experiences of the European Union, the United Kingdom, Chile, and Switzerland should be followed. These countries, in the last ten years, have adopted a new generation of fiscal rules, with methodology based on structural result targets adjusted to the economic cycle, more flexible and aimed at alleviate problems such as the pro-cyclical bias of fixed targets, the reduction of investments, the loss of transparency and the increase of so-called creative accounting.

After 20 years since the implementation of the LRF, in which even though this law has increased more rigor in the management of the fiscal management process, aiming at financial health in all national entities (CRUZ et al. 2018), it is perceived that its foundations have not yet been consolidated, needing to be improved for better efficiency of fiscal policy and consistency in controlling debt and financial sustainability. On the other hand, according to Sodré (2002), the LRF is a necessary condition, but not sufficient for the Brazilian fiscal adjustment.

### **3. Methodology**

The research sought to investigate the credibility of the Brazilian government's fiscal policy through the perception of economic agents from the standpoint of the sustainability of public debt and fiscal policy actions carried out by the government to keep it at sustainable levels.

Based on Pires' (2006) work, the expectation data for the primary result and the public debt of the Focus Report, available on the Central Bank of Brazil page, were collected. Data include the expectations for the three years following the reference period, i.e.,  $t+1$ ,  $t+2$  and  $t+3$ .

The Auto-Regressive Vectors (VAR) model was used for primary outcome expectation and public debt data, both in t3. The period included in the research was from January 2001 to August 2020, totaling 224 observations.

Other studies also used the VAR model to verify the relationship between variables. Aidar and Deus (2019) used the model to analyze the performance of Brazilian exports with their main trading partners. Montes e Almeida (2016) used the model in the study that relates the fulfillment of surplus targets to the government's fiscal reputation and the increase in industrial production due to the perception of entrepreneurs of the existence of greater commitment to public accounts. Santos and Pires (2009) applied this methodology to determine the sensitivity of investments to the tax burden.

From the collected data, the Software EViews version 11 was used for the analysis and procedures of the econometric model. First, the series were stationary by augmented Dickey Fuller (ADF) and Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) tests. The test results showed that both series are not stationary at the level, but are stationary at first difference.

The ADF test was performed with intercept and tendency and using the automatic criterion for selection of lags based on the Schwarz criterion. The KPSS Test also included trend and intercept and used the Newey-West Bandwidth automatic selection criterion, suggested by Eviews.

Table 1 - ADF and KPSS Test Results

Series	ADF	ADF	KPSS	KPSS
	T statistics	5% Level	LM statistics	5% Level
DIVIDA_T3	-0.012118	-3.430013	0.468905	0.146000
D_DIVIDA_T3	-10.18518	-3.430013	0.068052	0.146000
PRIMARIO_T3	-2.266666	-3.430013	0.333191	0.146000
D_PRIMARIO_T3	-12.68405	-3.430013	0.074899	0.146000

Source: Prepared by the authors based on the expectations data of the Focus Bulletin.

To define the ideal number of lags for the VAR model, it was executed with the data at first difference in the statistical software and the option was made for lag criterion considering Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion

(SC) and Hannan-Quinn information criterion (HQ). The results in asterisk are those indicated by each criterion. In this case, 1 lag was defined.

Table 2 - Number of Model Lags

Lag	FPE	AIC	SC	HQ
0	0.012529	1.296048	1.326899	1.308507
1	0.009230*	0.990452*	1.083005*	1.027827*
2	0.009498	1.019044	1.173300	1.081336
3	0.009322	1.000337	1.216295	1.087547
4	0.009473	1.016352	1.294013	1.128479
5	0.009650	1.034829	1.374192	1.171873

Source: Prepared by the authors based on the expectations data of the Focus Bulletin.

To verify the ordering among the variables, the Granger causality test was used. Thus, we can verify which variable temporally precedes the other. The test results point to a bicausal relationship between the variables in the sense that the expectations of primary outcome precede the expectations of the debt and vice versa. For the purpose of ordering the variables, the primary direction for debt was used, since the result has a higher level of significance. However, the change in the ordering of variables did not modify the results of the VAR model.

Table 3 - Granger Causality Test

Null Hypothesis	No. of Observations	F Statistics	Probability
D_PRIMARIO_T3 does not Granger Cause D_DIVIDA_T3	224	20.6493	9.E-06
D_DIVIDA_T3 does not Granger Cause D_PRIMARIO_T3	224	5.17224	0.0239

Source: Prepared by the authors based on the expectations data of the Focus Bulletin.

Another important point about the methods and techniques used in the research concerns investment as a component of national GDP. The data used were from the gross fixed capital

formation (GFCF) produced by IBGE and refer to table 1846 with the series of GDP values at current prices.

By using the GFCF to analyze the behavior of investments, it is known that the variable also comprises the gross fixed capital formation of the public administration, which, according to Brazilian Institute of Geography and Statistics (IBGE), who coordinates national statistical services, is based on the survey of the expenses of investments in civil construction, machinery, and equipment carried out by public administrations. Public investments cannot be expected to respond in the same way as private investments to the credibility of fiscal policy. That's because a government that takes on debt with the goal of increasing its country's productive capacity could do so even in an environment of uncertainty in which private investment did not take effect.

Symmetrically, in the scenario of high indebtedness and persistent increase in mandatory expenses such as what is currently the case in Brazil, there is little room for public investments. In this case, it cannot be assumed that the behavior of greater fiscal credibility would consist in the expansion of investments, since it would not meet fiscal targets. Although public investments do not necessarily assume the same relationship with fiscal credibility as private investments, their little significant participation in total investments<sup>5</sup> allow us to assume that GFCF is a good approximation for private investments.

#### **4. Results Analysis**

The focus of this research is in the period after the year 2000, when the LRF was promulgated, considered a milestone in the search for the balance of national public accounts. The last 20 years have been marked by low economic growth. By 2019, the average national growth rate was 2.35% per year. In 2004, 2007, 2008, and 2010 alone, the country had growth rates of more than 5% per year.

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<sup>5</sup> According to IBGE (2018), between 2010 and 2018, the participation of the public sector in GFCF was, on average, 21%, registering a maximum of 26% in 2010.

One of the factors that certainly limits the growth of the national economy is its low rate of investment. When the investment rate is low, the country strangles the supply of goods and services and limits its long-term growth capacity. Thus, every time there is an increase in demand, the pressure on inflation increases.

During this period, household consumption accounted for, on average, 62% of aggregate demand. While government consumption was 19% and the investment rate was around 18% of GDP.

It is worth emphasizing the sensitivity of investments to the expectations of economic agents who make their decisions based on the results of the economy, to a large part, anticipating their decisions according to their expectations for the coming periods. The decision to make large investments in production is made based on long-term scenarios, in which economic agents project their costs and revenues.

To reflect the agents' expectations about fiscal policy, this research collected data on public debt projections and primary results for periods  $t_1$ ,  $t_2^6$  and  $t_3$ . Thus, in addition to determining the trajectory of these expectations, it was possible to verify the maintenance or loss of credibility of fiscal policy through the behavior of the curves of the following year,  $t_1$ , and the curve of 3 years after the base period,  $t_3$ .

In the results obtained during the period from 2001 to August 2020, for the expectations of the agents about public debt as a proportion of GDP, we can verify the perception of a decreasing trajectory for public indebtedness, between the years 2001 and 2012. From 2013, agents are beginning to predict a growth in public debt.

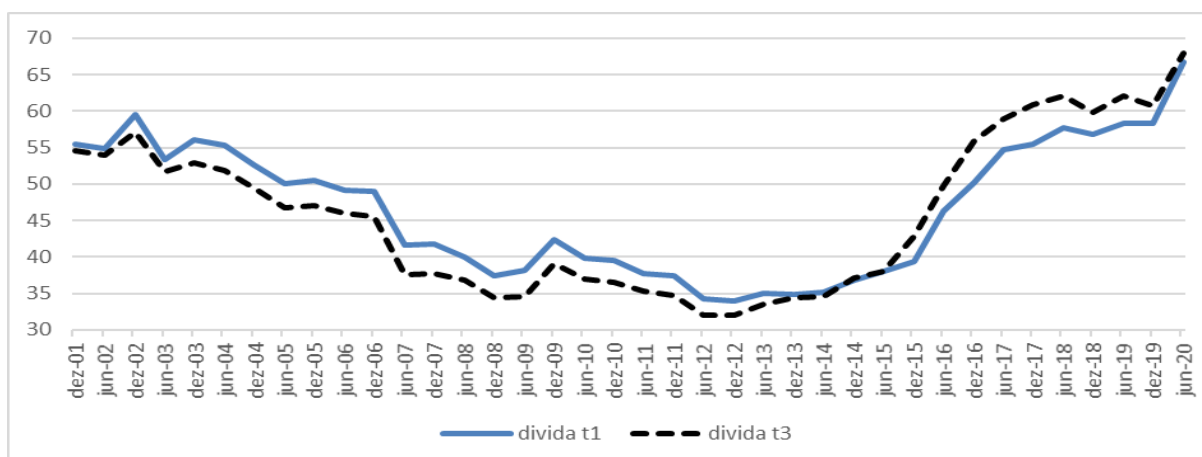
Another important fact is that, since the beginning of the series, the expectation for the period  $t_1$  is a debt greater than in  $t_3$ , which represents the existence of credibility in fiscal policy since economic agents project an improvement in the trajectory of indebtedness in later periods. This dynamic prevailed until June 2015, when the expectation of public debt in  $t_3$  becomes higher than in  $t_1$ . This demonstrates a loss in the confidence of agents that the government will be able to slow debt growth in the following periods.

Figure 1 - Expectation for Debt in  $t_1$  and  $t_3$  from Jan/2001 to Jun/2020 (%GDP)

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<sup>6</sup> The period  $t_2$  was not shown in the graphs for the purpose of facilitating the visualization of the series. This did not incur a loss of interpretation, given that their series roughly indicate an intermediate trajectory of  $t_1$  and  $t_3$ .





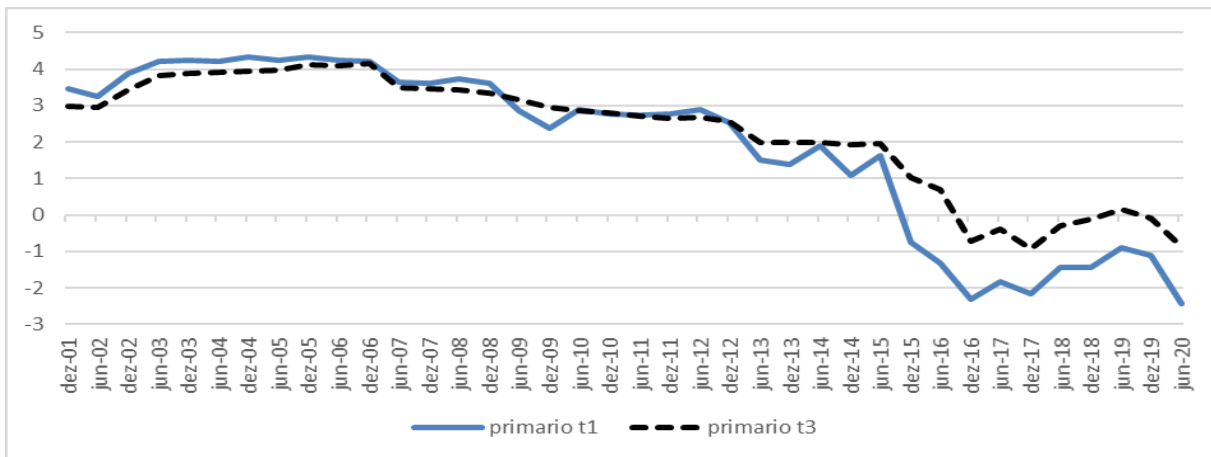
Source: Prepared by the authors based on BACEN data.

It is also observed that between the years 2016 and 2018, the loss of credibility was greater, represented by the increase in the distance between the curves of the periods t3 and t1. From 2019, the curves will approach again.

Similar situation occurs with expectations for the primary outcome. We noticed that this expectation is higher for the t1 period than for the t3 period at the beginning of the series. One possible interpretation for this is that agents believe that the present fiscal effort will allow the government to reduce its surpluses in the future.

It is verified that the curve of the t3 period crosses the curve of t1, first in 2009, year in which GDP suffered a sharp decline compared to the previous year, as a reflection of the global financial crisis of 2008. From 2010, expectations for the primary result in t1 again exceed expectations for t3, indicating that agents again predict that a greater fiscal effort at present will allow for softer measures in the later period. Until, from December 2012, the curves intersect again and, from there, they began to distance themselves more and more, until 2019, demonstrating the loss of credibility in the government's fiscal policy, in the period. From 2019, we have the indication of a rapprochement of these curves of expectations.

Figure 2 - Expectation for Primary Surplus in t1 and t3 from Jan/2001 to Jun/2020 (%GDP)

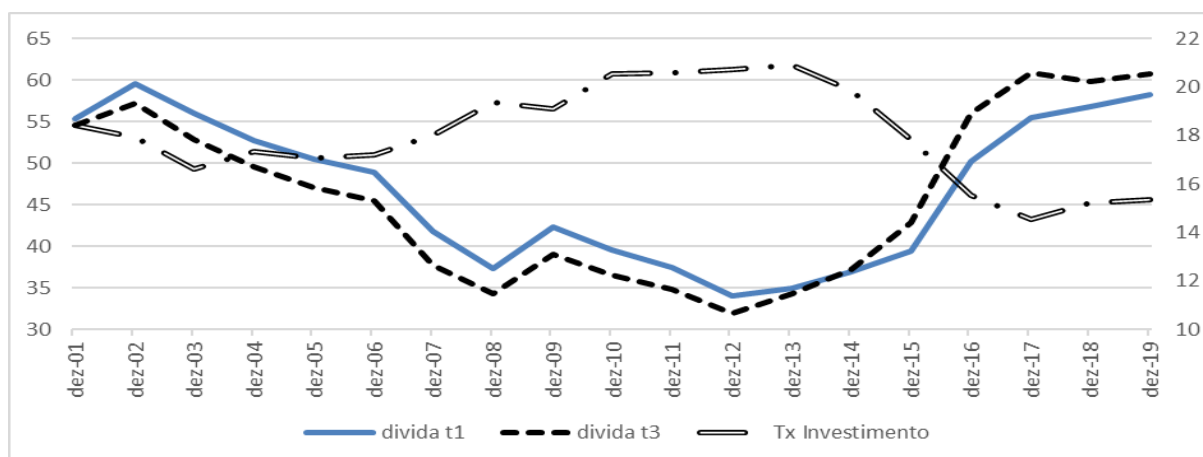


Source: Prepared by the authors based on BACEN data.

Thus, in an environment in which an increase in public debt and a fall in the primary result are projected and, in addition, there is a loss of credibility in the government's economic policy, the consequences will be felt in the willingness of economic agents to make their investments.

The relationship between the investment rate of the Brazilian economy and the expectation of agents regarding the fiscal situation of the country is reflected in the figure below that shows that, while the projections for public indebtedness fell, the investment rate rose. On the other hand, when there was a reversal in expectations regarding indebtedness, the investment rate began to fall.

Figure 3 - Debt Expectation x Investment Rate from 2001 to 2019 (%GDP)



Source: Prepared by the authors based on data from BACEN and IBGE.

It is also important to note that the drop in the investment rate was more pronounced, precisely at the point where the debt expectation curve in t3 exceeded the expectation in t1, in 2015, signaling that agents began to project that the government could not change the debt trajectory and therefore start to project an even higher public debt in the future.

It is worth noting that even though expectations in 2018 and 2019 were still of increased indebtedness, there seems to be a relationship between the improvement of the credibility of fiscal policy, represented by the rapprochement of the curves of expectations in t1 and t3, and a slight recovery of the investment rate in the period.

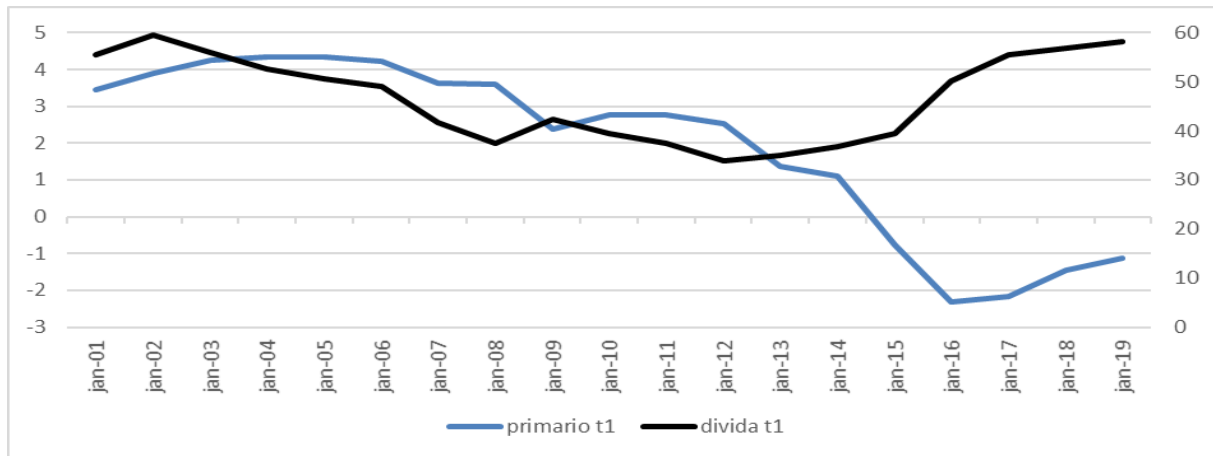
In relation to the primary surplus, the results obtained for the expectation of the agents in comparison to the behavior of the investment rate also allow identifying a relationship between the loss of credibility and the fall of this component of aggregate demand.

For the period between 2001 and 2019, we noticed 3 moments in this relationship. In the first period, until 2008, expectations for the primary result remain high (between 3% and 4% of GDP), being higher in the t1 period than in t3. On the other hand, the rate of investments remains reasonably stable around 17% of GDP.

Between 2008 and 2013, while agents began to project a fall in the primary result, the rate of investments rises and reaches a level of 21% at the end of this period. This result can be explained when analyzed in conjunction with expectations for public debt. As debt expectations continue to fall, it can be concluded that agents, in fact, start to expect a need for less fiscal effort from the government, which would set a good scenario for investments.

This trend changes from 2013 when the path to debt expectation is reversed and the expected drop for the primary result is accentuated.

Figure 4 - Expectation for primary result in t1 and debt in t1 (%GDP) from 2001 to 2019

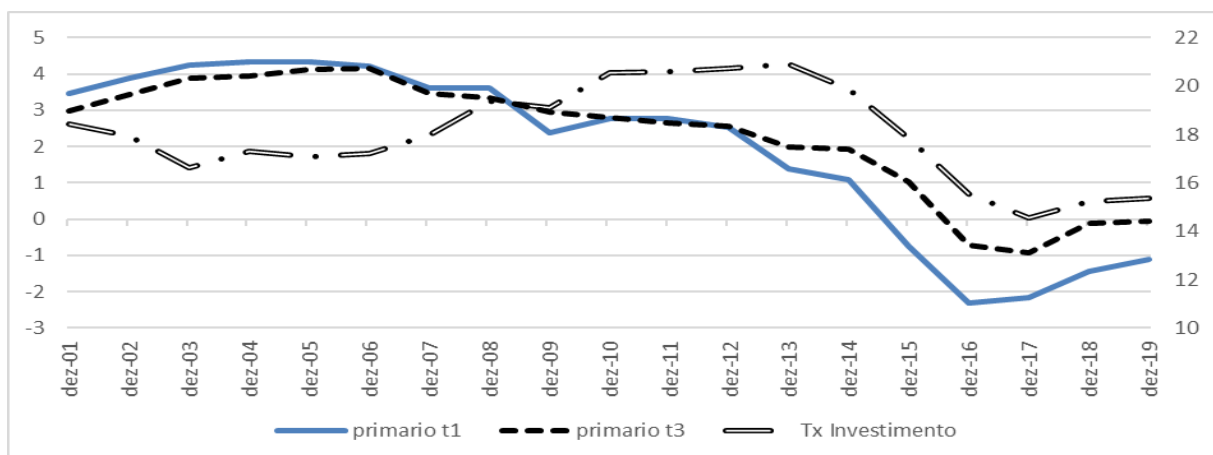


Source: Prepared by the authors based on BACEN data

Finally, after 2013, the investment rate starts to show a fall, following expectations for the primary result. It is worth mentioning here, two points. The sharp drop observed from 2013 on the back of investment follows a decline in credibility in fiscal policy, represented by the crossing of the curves of t3 and t1 in 2012.

Secondly, from 2018 on, when there is an apparent recovery in credibility by the rapprochement of curves, there is also a slight recovery in the investment rate.

Figure 5 - Primary Surplus Expectation x Investment Rate from 2001 to 2019 (%GDP)



Source: Prepared by the authors based on data from BACEN and IBGE.

The investment rate is related to the expectation that economic agents have about the economy. When agents project a path of debt growth, for example, they also expect the government to have to make surpluses in the future to put debt back on a sustainable path. Predicting, porting, cutting government spending or raising taxes.

In addition, an expansionary trajectory of fiscal policy means stimulating aggregate demand. In a country that has a low investment rate and therefore a limited supply of long-term goods and services, this will mean that monetary policy must be contractionary to contain inflation. Therefore, there is an increase in the interest rate of the economy, which is also a stimulating factor for making investments in the productive sector. Thus, the credibility that economic agents have in government fiscal policy as an inducing factor of investment and, in turn, of economic growth, is of great importance.

To confirm the perception obtained by graphical analysis of the data, we used the Auto-Regressive Vectors (VAR) model for the data of primary outcome expectation and public debt, both in t3. The period included in the research was from January 2001 to August 2020.

The analysis of the VAR model is usually performed by the variance decomposition and the functions of impulse response. In the first case, the results indicate that, after 12 periods, expectations about the primary result were attributed at 2.33% to debt expectations and to 97.67% to the primary result expectation itself.

On the other hand, after 12 periods, 9.39% of the expectations for debt were affected by expectations for the primary result and 90.61% by themselves.

Table 4 – Variance decomposition

Months	D_PRIMARIO_T3		D_DIVIDA_T3	
	D_PRIMARIO_T3	D_DIVIDA_T3	D_PRIMARIO_T3	D_DIVIDA_T3
1	100.0000	0.000000	0.003357	99.99664
2	98.35603	1.643973	7.029757	92.97024
3	97.85380	2.146197	8.789834	91.21017
4	97.72099	2.279011	9.231773	90.76823
5	97.68617	2.313825	9.346044	90.65396

6	97.67704	2.322955	9.375904	90.62410
7	97.67465	2.325351	9.383730	90.61627
8	97.67402	2.325979	9.385784	90.61422
9	97.67386	2.326144	9.386322	90.61368
10	97.67381	2.326187	9.386464	90.61354
11	97.67380	2.326199	9.386501	90.61350
12	97.67380	2.326202	9.386510	90.61349

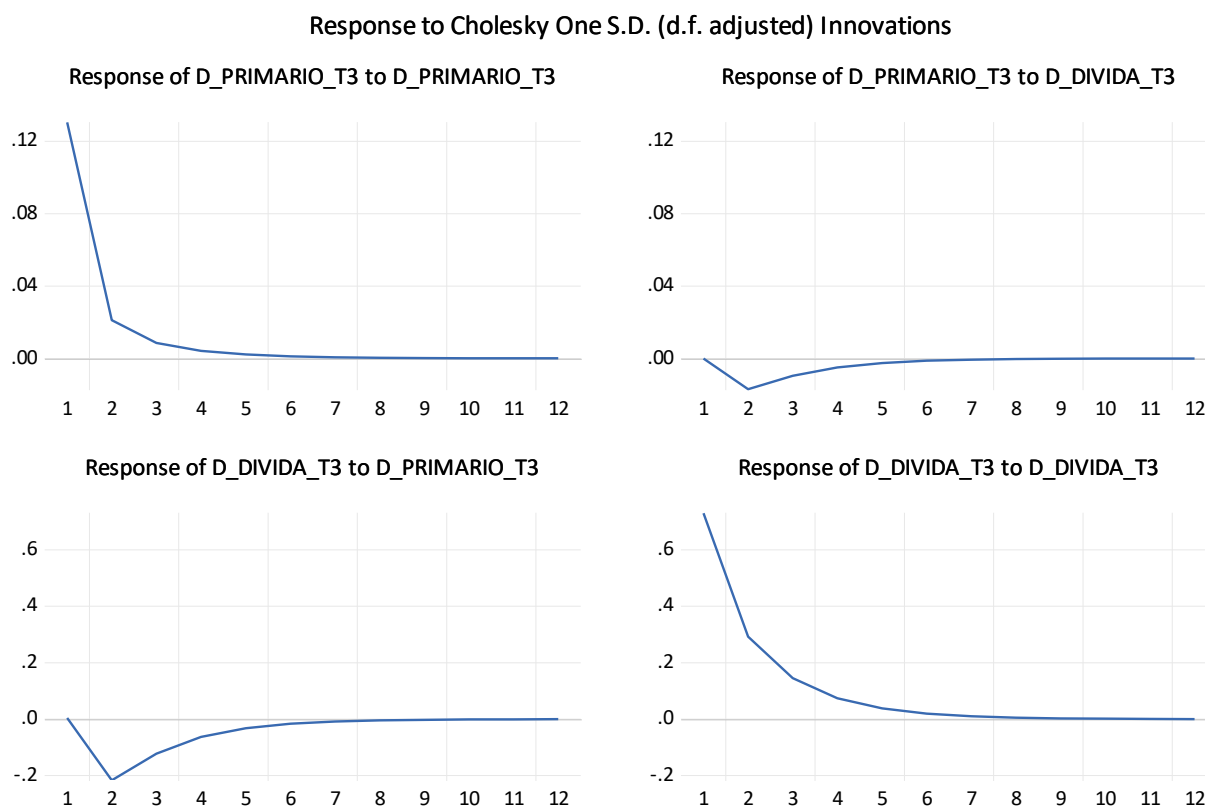
Source: Prepared by the authors based on the expectations data of the Focus Bulletin.

The results show that, roughly speaking, agents do not seem to expect a response from the government, via fiscal effort, to contain increases in public debt. On the other hand, there is a greater influence of the expected primary results on the level of government indebtedness, in the sense that primary deficits will be responsible for the increase in public debt.

In the case of impulse-response functions, by definition, shocks in the primary result have as response an increase in the primary, but not permanently. This also occurs with the debt response to debt shocks.

When a shock occurs in the primary result, agents expect a reduction in debt in the second period, but that does not remain permanent, returning to zero in the sixth period. When a debt shock occurs, the initial response goes against the expected economic logic. Agents project a reduction in the primary result in the 2 period, but that is also transient.

Figure 6 - Impulse-Response Function



Source: Prepared by the authors based on the expectations data of the Focus Bulletin.

In the experiment carried out by Pires (2006), which used a similar methodology for the period between January 2001 and June 2006, the author found that when there were shocks in the expectation of public debt, that is, forecast of the increase in debt, agents expected a permanent reaction via fiscal policy by increasing the primary surplus. Thus, the results of this research indicate that the perceived credibility until June 2006 has not remained to this day.

## Conclusion

The LRF represented an important milestone in the establishment of fiscal rules for the Brazilian economy. Fiscal responsibility is a necessary condition for the country's sustained economic growth.

However, the principles established by the law were not sufficient to keep national finances on the path expected. It is perceived, especially from the years 2006 and 2007, an expansionary fiscal policy out of concern with the long-term fiscal balance. Fiscal policy is only believable if economic agents believe in its sustainability, so fiscal credibility is understood here as debt sustainability.

In this sense, the research found whether there is a perception of the credibility of economic agents on the government's fiscal policy in the period between January 2001 and August 2020, based on data from the Focus Report. The results can be summarized in:

1. When agents project debt for the future, they expect an increase of this in the farther time horizon ( $t_3$ ) compared to the most recent ( $t_1$ ), as verified after June 2015 to the present day;

2. When agents project primary results for the future, they expect an insufficient result on the most recent time horizon ( $t_1$ ), indicating that the fiscal effort will have to be greater on the far horizon ( $t_3$ );

3. As indicated in the variance decomposition analysis, expectations for the primary result suffer very little influence from expectations for debt. That is, roughly speaking, agents do not believe that the government sets outcome targets in response to debt behavior. However, agents attribute a higher percentage of representativeness of fiscal results to debt expectations, thus demonstrating that they believe that the fiscal effort influences the size of the debt;

4. In the face of shocks in Brazil's public debt, agents do not expect the government to react by increasing its primary results, as demonstrated by the impulse-response function.

Therefore, given the understanding of credibility exposed and based on the methodology adopted, the results suggest a diagnosis of impairment of credibility in Brazilian fiscal policy in the period between January 2001 and August 2020.

In addition, the data showed that the investment rate tends to follow the expectations of economic agents about the country's fiscal landscape. When expectations for fiscal indicators



are negative, there is a fall in the investment rate of the economy. When expectations improve, investment grows.

Thus, it is essential to improve the mechanisms of fiscal responsibility that allow a fiscal adjustment ensuring the sustainability of the debt, the existence of favorable conditions for private investment and the improvement of the confidence of economic agents. After all, what is sought is sustained economic growth, with balance of public accounts and monetary stability, in contrast to the unwanted 'stop-go' pattern.

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