

## THE IMPORTANCE OF STATE-OWNED ENTERPRISES: POLITICAL FRAGMENTATION AND SIZE OF GOVERNMENT IN BRAZIL (1985-2016)

Vladimir Fernandes Maciel<sup>187</sup>  
Ulisses Monteiro Ruiz de Gamboa<sup>188</sup>  
Mariangela Ghizellini<sup>189</sup>

### Abstract

In Brazil, state-owned companies were essential in the composition of the tripod - with local private and foreign companies - that characterized the plans and projects of 'state-guided' industrialization. State-owned companies also represent a powerful political space - as much disputed by politicians as ministries because the amount of resources they have. The purpose of this paper is to construct a measure for the size of government in Brazil by considering the standard international measure and the spending of state-owned companies from federal government. This allows us to observe the correlation between the measure and the number of parties and other political fragmentation measures. Our investigation takes place between 1985 and 2016 (from the beginning of the democratic period), although we build our measure of 'size of government' since 1980 data. They allow us to update the data and broaden the analysis made in Maciel and Arvate (2010). We found that, despite the adjustments and privatizations carried out since the late 1980s, the size of the Brazilian federal government has remained practically stable over the period analyzed: 15% of GDP. Much of the maintenance of this size occurs because there is an inverse correlation and inverse cointegration between the reduction in the cost of state-owned companies and the increase in the cost of the federal administration due to political fragmentation.

**Keywords:** state-owned enterprises; coalition presidentialism; public finance; Brazil

**JEL:** H11, H50, P48, O54

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<sup>187</sup> Head of the Mackenzie Center for Economic Freedom and Professor at the Graduate Program in Economics and Markets - Mackenzie Presbyterian University, Brazil.

<sup>188</sup> Researcher of the Mackenzie Center for Economic Freedom and Professor at the Graduate Program in Economics and Markets - Mackenzie Presbyterian University, Brazil.

<sup>189</sup> M.A. student in Economics and Markets and Research Assistant at the Mackenzie Center for Economic Freedom.

## Introduction

The historical experience of some developing countries, notably the Latin American countries, was based on a growth model based on the Import Substitution Industrialization (ISI). This experience lasted from the post-war period until the late 1980s. In ISI's theoretical conception and political praxis, the State was the 'captain of the industrialization process'.

In the theoretical conception, according to Bielchowsky (1996), the State was the great articulating agent of the process for planning the stages of industrialization, directing investments, creating incentives, changing relative prices and redistributing income in favor of the installation of manufacturing companies in the national territory. In practice, still according to Bielchowsky (1996), the State has not only acted within the scope supported by the ECLAC-UN theories but has gone further. In the absence of private capital with interest and the capacity for resources to invest in sectors called "basic industries" (infrastructure), the State acted directly as an entrepreneur. In this case, through so-called state-owned companies.

The term "state-owned company" encompasses distinct institutional arrangements, from publicly held companies to limited liability companies. One characteristic, however, is common to all of them: The State holds at least 51% of the decision capital.

Basically, the Latin American developmentalist ideology accepted the state-owned company within the scope of government intervention, but, particularly, as Bielchowsky (1996) details, there was a current in Brazilian thought that he called "nationalist developmentalist" defending not only state planning, but direct participation in the State to the detriment of foreign capital in sectors whose national capital would not be able to act.

Brazil is remarkably characterized by the existence state-owned companies, even after a large round of privatization in the end of 80's and beginning of 90's. But much of the empirical work in the literature related to the size of government used costing expenditures in terms of GDP as a proxy for this measure without any consideration about state-owned companies. Among these works we can mention Volkerink & De Haan (2001), Perotti & Kontopoulos (2002), Persson & Tabellini (2003) for OECD countries and Amorin & Borsani (2004) for Latin American countries.

The purpose of this paper is to carry on the discussion present in Maciel & Arvate (2010), by updating and recalculating the data used and extending the period of the historical series. Since Maciel and Arvate (2010), the discussion of analyzing the cost of spending by federal state companies in relation to that of the federal public administration has been left aside. We also performed unit root and Bai-Perron breakpoint tests on the data of the variables of interest and cointegration tests, aimed to test the existence of a valid statistical relationship among them, from the econometric point of view.

There was not any paper relating them to political fragmentation and the need for coalition for governance purposes. However, Brazil faced a presidential impeachment process in 2016 on the grounds of fiscal mismanagement. Furthermore, under the 'Operation Car Wash'<sup>190</sup>, the

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<sup>190</sup> It is an ongoing criminal investigation by the Federal Police of Brazil. It began in March 2014 and was initially headed by investigative judge Sérgio Moro (current Ministry of Justice). It has resulted in more than a thousand warrants of various types. According to the 'Operation Car Wash' task force, investigations implicate administrative members of the state-owned oil company Petrobras, politicians from Brazil's largest parties,

investigations revealed the use of the main federal state companies as a source of funds for illegal financing of parties and electoral campaigns. Scarano & Muramatsu (2019) argue that the findings of the investigations show the systemic and institutional nature of corruption in Brazil<sup>191</sup>.

To develop this work, this paper has four sections in addition to this introduction and the final remarks. The following section we will present our measure of government size: central government expenditure expenditures in terms of GDP (measure adopted in international literature) added to the expenditure expenditures of central government state companies in terms of GDP. The last section will serve to highlight the main results of this work.

## Theoretical References

The traditional source of expansion of government funding is associated with economic factors. For example, Santos (2017) argues that deteriorating fiscal policy in Brazil became more apparent as governments could no longer resort to inflationary tax after the Real Plan<sup>192</sup> and the rules then established did not alter the mandatory budget expenditures linked to revenues.

But economists such as Buchanan & Tullock (1965) brings about the importance of special-interest groups and the political factors underlying the government budget process. Vollkerink & De Haan (2001) and Perotti & Kontopoulos (2002) show the importance of fragmenting the political coalition that supports the government in determining its size.

The fragmentation measure that showed the greatest significance in the work of Volkerink & De Haan (2001) was the “number of spending ministers”, that is, those ministers who are not in the government's budgetary-financial area. According to Bäck, Müller & Nyblade (2017, p.33).

Multiparty government has often been associated with poor economic policymaking, with distortions like lower growth rates and high budget deficits. One proposed reason for such distortions is that coalition governments face more severe ‘common pool problems’ since parties use their control over specific ministries to advance their specific spending priorities rather than practice budgetary discipline

There may be political factors for the growth of expenditures - there is a positive correlation between the growth of central government funding and the number of parties participating in

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former presidents of the Republic, former presidents of the Chamber of Deputies and the Federal Senate, former state governors, and businessmen from large Brazilian companies. The Federal Police consider it the largest corruption investigation in the country's history.

<sup>191</sup> On the other hand, for public opinion and many actions conducted by non-governmental organizations, such as the ‘Instituto Não-Aceito Corrupção’, the discussion ends up being directed to the field of individual morality and accounting or procedural control. The core of the problem is left aside: the need for governance of the executive branch in the face of a politically fragmented legislature due to the multi-party institutional design and the costly proportional electoral system. In other words, the need to accommodate group interests and to have conditions of governability under the coalition presidentialism are largely responsible for the Brazilian fiscal problems and the corruption scandals. As implications, only small government and diminished States’ expenses can truly fight corruption.

<sup>192</sup> It was a set of measures taken to stabilize the Brazilian economy in 1994, during the presidency of Itamar Franco. The Plano Real was based on an analysis of the root causes of hyperinflation in Brazil that concluded that there was both an issue of fiscal policy and severe, widespread inertial inflation. The Plano Real intended to stabilize the domestic currency in nominal terms after a string of failed plans to control inflation.

the government coalition. This is a possibility presented in the works of Volkerink & De Haan (2001), Perotti & Kontopoulos (2002) and Bawn & Rosenbluth (2006).

Privatization is one of the main elements used by countries to reduce the size of government. It is also worth mentioning that since the second term of Fernando Henrique Cardoso (1999-2002), including the terms of presidents Luís Inácio Lula da Silva (2003-2010) and Dilma Roussef (2011-2016), there has been no net balance of privatizations of any federal state company. During this period, there was even a slight re-statement due to acquisition operations. One such example is the purchase of Agip-Liquigás by Petrobras (the national oil company) in 2004.

The reason for the interruption of privatizations, in the opinion of Pinheiro, Giambiagi and Moreira (2001), was the absence of popular support and the presence of political and ideological clashes over the privatizations that were yet to be carried out. But after the economic and fiscal crisis that led to Roussef's impeachment, privatization has become a current topic.

## **Methodology**

This work is a quantitative study of the historical series elaborated from the survey of the fiscal and financial data of the federal public administration and its state-owned companies in the productive sector. In addition, the exploratory study includes the elaboration of a historical series on the size of the ministries and the number of parties present in the government coalition.

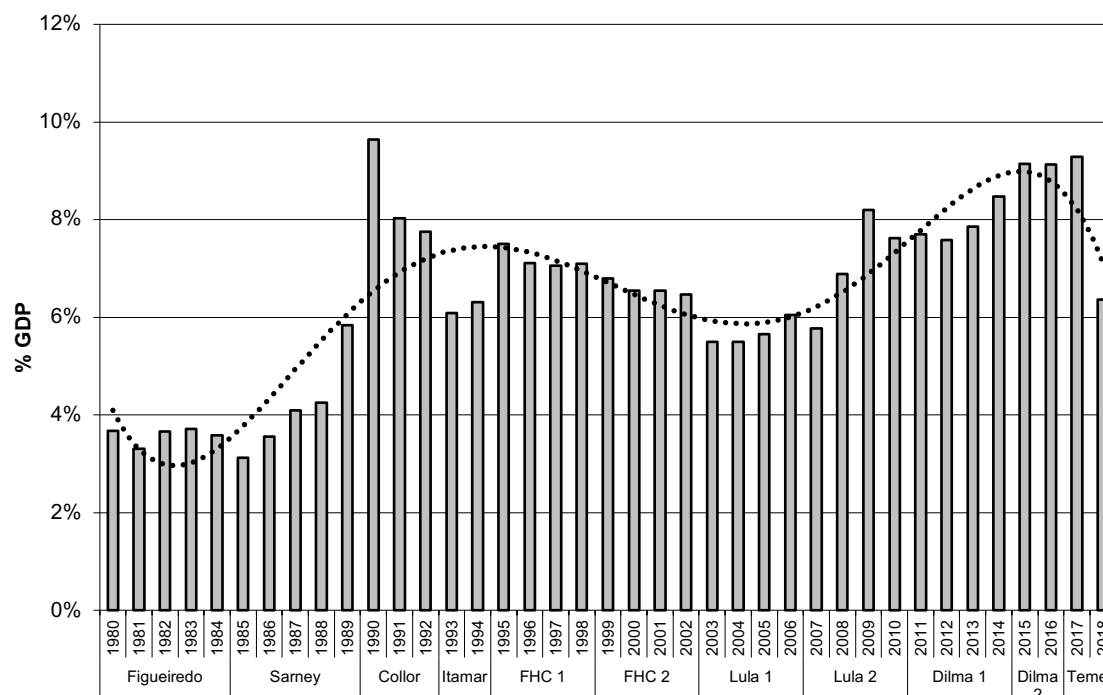
The contribution of our work to the debate on government size will be in the sense of building a time series that takes into account the central government's expenditure and the expenditure of the central government companies related to political fragmentation under a presidential coalition regime.

The main information for building the data series in this article uses current government expenditure. We chose to use government consumption data (cost expenses: labor, consumption materials, etc.). We limited ourselves to working with the federal government between the years 1980 and 2018<sup>193</sup>.

The data were calculated from the information by group of expenses provided by the National Treasury. Therefore, from current expenses, we subtract payments of interest and charges from public debt and transfers to States, Federal District and Municipalities. The resulting value was then calculated as a proportion of GDP. Figure 1 illustrates the behavior of this variable over time.

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<sup>193</sup> Unfortunately, the state-owned cost expenses information was available till 2016.



**Figure 1 – Federal administration cost expenses**

Source: Federal Government of Brazil

The Figueiredo government (1979-1984) was the last military government in Brazil. As of 1985, Brazil only had civilian governments. The first civilian president after the military period, José Sarney, was elected by the National Congress (indirectly). Collor de Mello (took office in 1990 and was impeached in 1992) was the first directly elected president. The entry of civilians in power stimulated the growth of current expenditure in terms of GDP (from 1985).

According to Pinheiro and Giambiagi (2006), a large part of the increase in spending between the end of the Sarney government and the beginning of Fernando Henrique Cardoso's (FHC) first term can be explained by the 1988 Constitution. It generated growth in Social Security expenses<sup>194</sup> (number and value of benefits). Another part of this increase, according to the same authors, can also be explained in the behavior of health care and personnel expenses. As we will show, there are political factors that can also justify this growth. Figure 1 shows that the inflection of spending began in 1985 and not in 1988 or 1989.

In the System of National Accounts (SNA), it is common to leave state-owned companies and their expenses out of the concept of “government spending”. Strictly speaking, companies are and should be accounted for as such. However, although their general budgets are not part of the composition of the federal government budget, their investments constitute an integral part of the General Budget of the Union (aka ‘OGU’) in the item “Investment Budget of State-owned Companies”. On the other hand, when calculating the consolidated result of the public sector (Public Sector Borrowing Need – aka ‘NFSP’), the surpluses and deficits of state-owned companies are accounted for (the concept of Net Borrowing Need – aka ‘NEFIL’) in the public sector as a whole.

<sup>194</sup> Different from Maciel and Arvate (2010) we took social security expenses out of federal administration cost expenses.

One of the main criticisms made of the paper of Maciel & Arvate (2010) was about the use of the concept of government expenditure, such as the definition of national accounts. This measure included transfers to individuals and subnational entities, in addition to social security expenses.

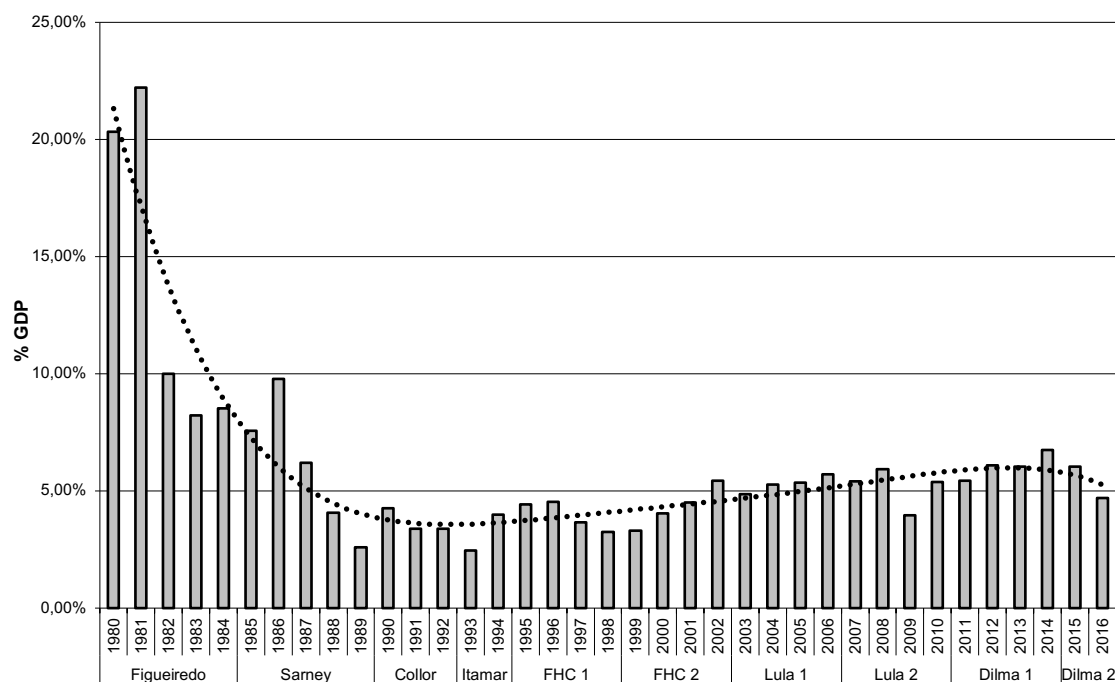
Many argued that the increase in public administration expenses was due to the 1988 Constitution and are due to the expansion of workers' rights and the increase in social benefits. The state, from 1988 to now, incorporated into Social Security the rural workers who were in Funrural (Rural Social Security System). The benefit of the camp retirees was half a minimum wage. With the change, it became one minimum wage. Similarly, there are more and more income transfer program. That have a positive social impact, but they press the state budget.

To counter-argue and show that costing expenditures grew as part of the growing effort to govern under coalition presidentialism, we recalculated federal public administration expenses excluding transfers and social security expenditures.

The information regarding the state sector was obtained from the Annual Reports of Federal State Companies prepared by 'SEST' (Secretary of State-Owned Enterprises Governance and Control). This department, formerly a component coordinator of the former Secretariat for Budget and Planning, was created in 1979 and is responsible for monitoring federal state-owned companies. Although state-owned companies have existed for decades, or even longer - as in the case of Bank of Brazil, which dates back to the 19th century - the production of systematic information about them only exists with the creation of SEST.

The data, whose oldest observation is 1980, were calculated from the cash flow information ("uses and sources") of the companies that are part of the Global Expenditure Program (aka 'PDG') to SEST - companies whose budgets are not directly incorporated responsible ministry. For the purposes of this article, companies in the 'State Productive Sector' (aka 'SPE') were highlighted.

To build the cost of state-owned companies, we use the item "Current Expenditures" excluding expenses with "Taxes and Parafiscal Charges" and "Interest and Other Financial Charges". It should be noted that until 1987 the item "Taxes and Parafiscal Charges" was not broken down separately, making it impossible for us to segregate it. These values are provided by the state segment in an aggregate manner. In this case, by the SPE. The cost of expenditure by state-owned companies was calculated in proportion to the GDP of the respective year. Figure 2 shows the result of this estimate over time.



**Figure 2 – State-owned companies: cost expenses for ‘state productive sector’**  
Source: Federal Government of Brazil

The unit root test applied was the Dickey-Fuller-GLS (DF-GLS), following Elliot, Stock and Rothemberg (1996), due to its best performance in terms of small size and power.

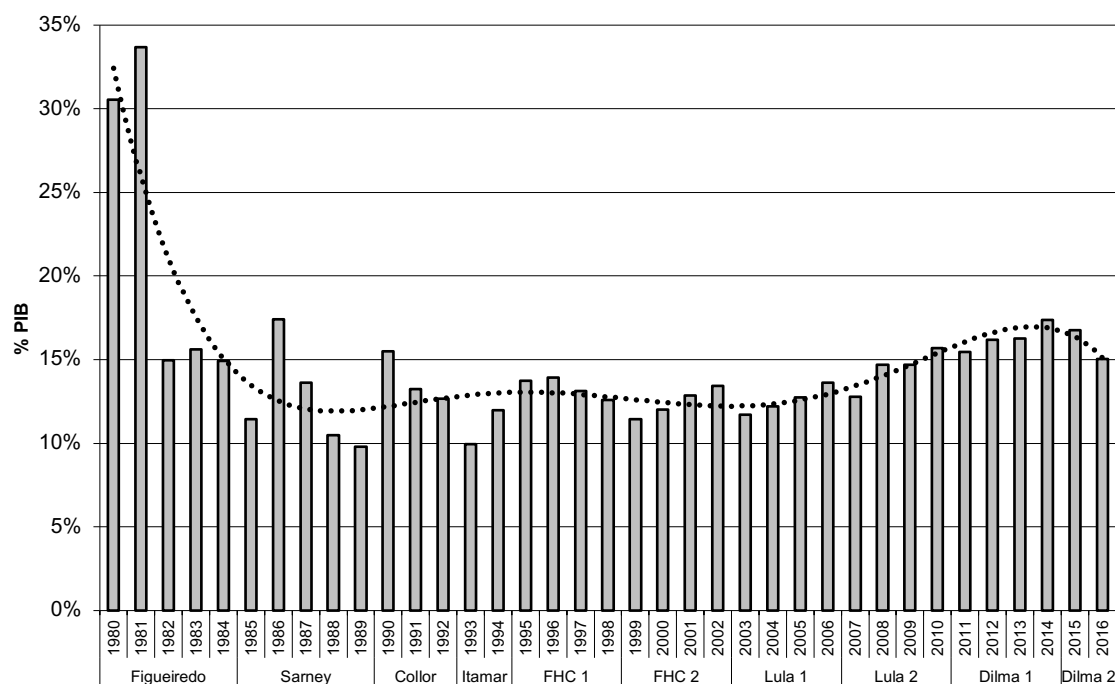
For cointegration tests, we followed the methodology developed by Johansen (1988), in a multivariate context:

$$\Delta X_t = \Pi X_{t-1} + \Gamma_1 \Delta X_{t-1} + \Gamma_2 \Delta X_{t-2} + \dots + \Gamma_{p-1} \Delta X_{t-p+1} + \Psi D_t + \varepsilon_t$$

where  $\Gamma_i = -\sum_{j=i+1}^p \Pi_j$ ,  $i = 1, 2, \dots, p-1$  e  $\Pi = \Pi_1 + \dots + \Pi_p - I_n$ .

## Results

The originality of Maciel and Arvate (2010) paper that we carry out is to add to the federal government's expenses of state-owned companies, historically relevant in Brazil. Added together, these two sources of expenditure reached only once the mark almost 35% of GDP in 1981, still under General João Figueiredo. At that time, the state-owned companies' cost and investment expenses reached almost 25%. All the rest of the state machine accounted for just over 10% of the national product. In 2016, when the state returned to 15% of GDP, the picture had reversed. The state companies accounted for just over 5%, and the government's costing reached close to 10%. With increased public spending on one side and privatizations on the other, the size of the government remained the same, around 15% of GDP - 33 years after re-democratization.

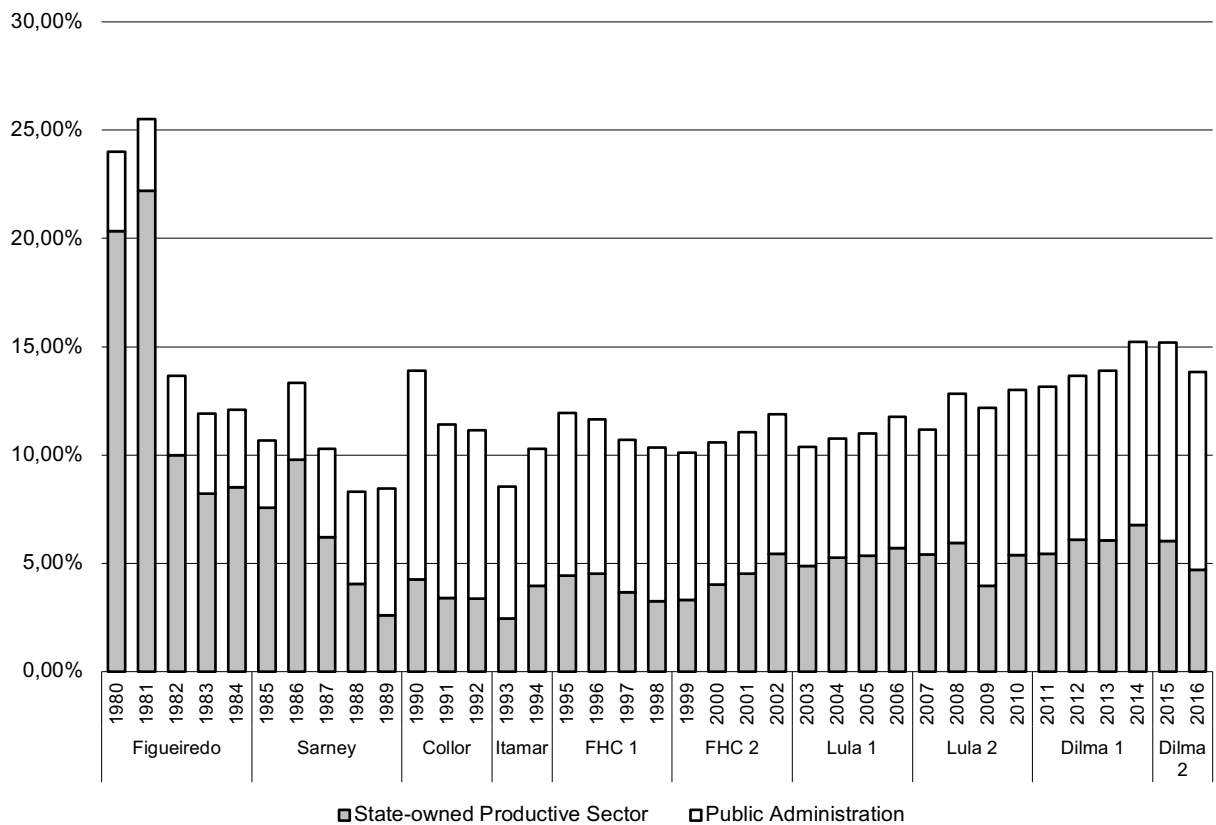


**Figure 3 – Total Federal Government Expenses (federal administration plus ‘state productive sector’ companies): cost and investment expenses**

Source: Federal Government of Brazil

If the measure of government size appropriate for the Brazilian case incorporated the state sector, we would have a variable of the type "federal government expenditure", which would comprise the sum of government expenditure expenses in terms of GDP and the expenses of state companies. federal productive sectors in terms of GDP. The result of this composition can be seen in Figure 4 below. As we can see, over time the growth of cost expenses from the federal administration is larger than the state-owned enterprises cost expenses.

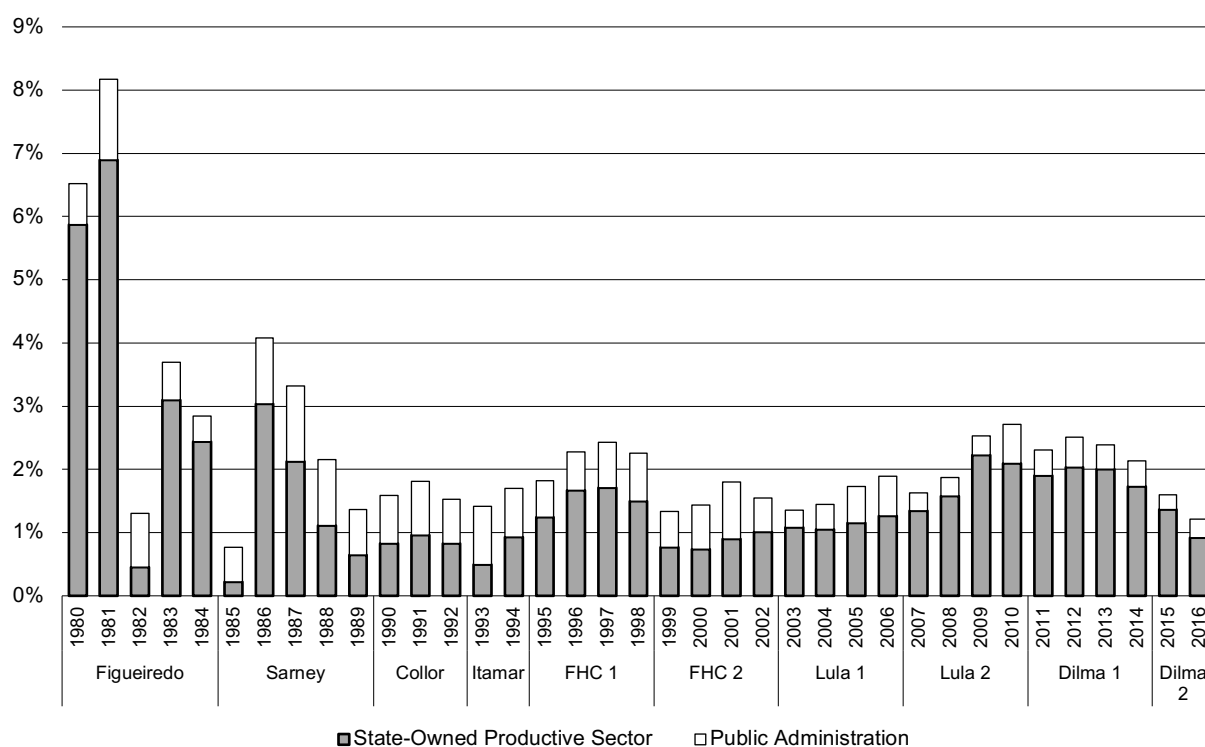




**Figure 4 – Federal Government Cost Expenses (federal administration plus ‘state productive sector’ companies) - %GDP**

Source: Federal Government of Brazil

On the other hand, as an opposition, the trend of public investment expenses is decreasing and floating around less than 3% since the end of the 1980s (see Figure 5). Particularly, the left-wing terms of Lula and Roussef relied in the state-owned companies’ investment, such as the National Oil Company (‘Petrobrás’). That expenses are in the root of corruption scandals at ‘Car Wash-Operation’.



**Figure 5 – Federal Government Investment Expenses (federal administration plus ‘state productive sector’ companies)**

Source: Federal Government of Brazil

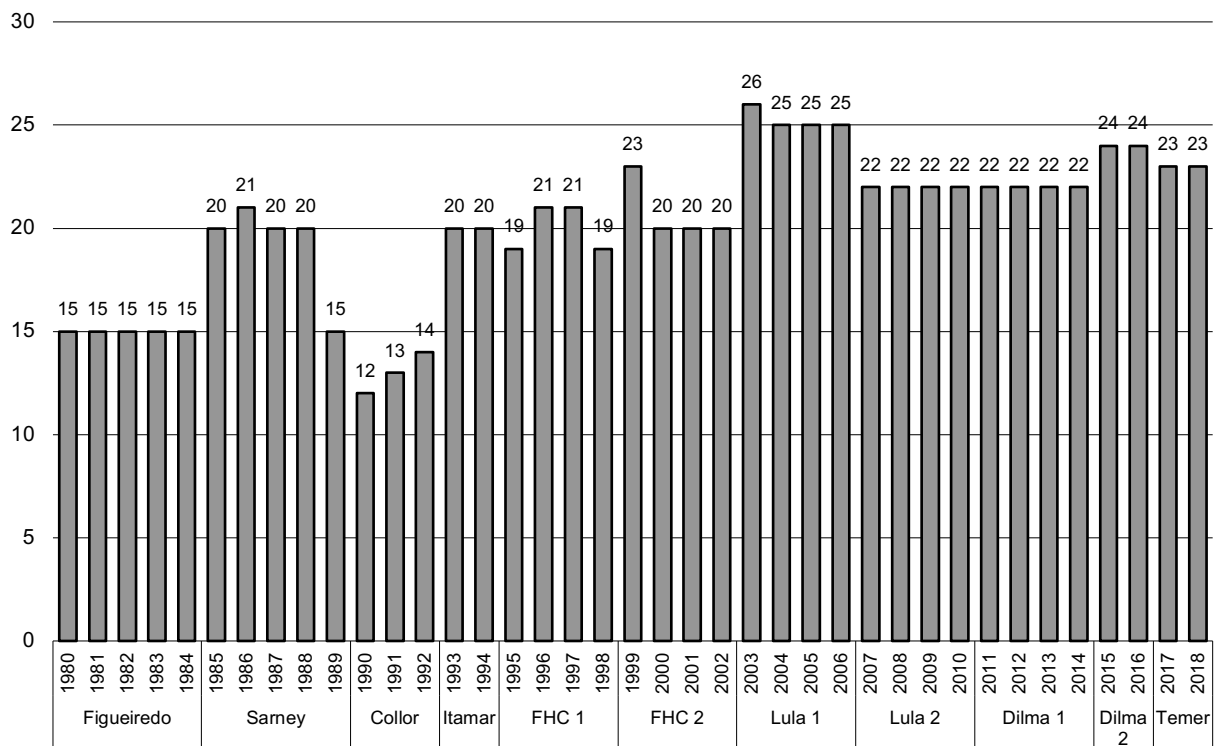
Once the series has been decreasing since the General Figueiredo’s government, it cannot be said only by observation that the behavior of this series is the result of privatizations. The adjustment of the public sector in the 1980s has its share of contribution.

### Analysis of Results

As we discussed in the previous section, the traditional source of expansion of government funding is associated with economic factors. However, Vollkerink and de Haan (2001) and Perotti and Kontopoulos (2002) show the importance of the fragmentation of the political coalition that supports the government in determining its size.

Although the time series covers the period 1980-2018, we only consider the period 1985-2018 in this section. The reason is that coalition fragmentation measures are pertinent to the question of governance in democratic regimes and the 1980-1984 years were the last military president: General João Batista Figueiredo.

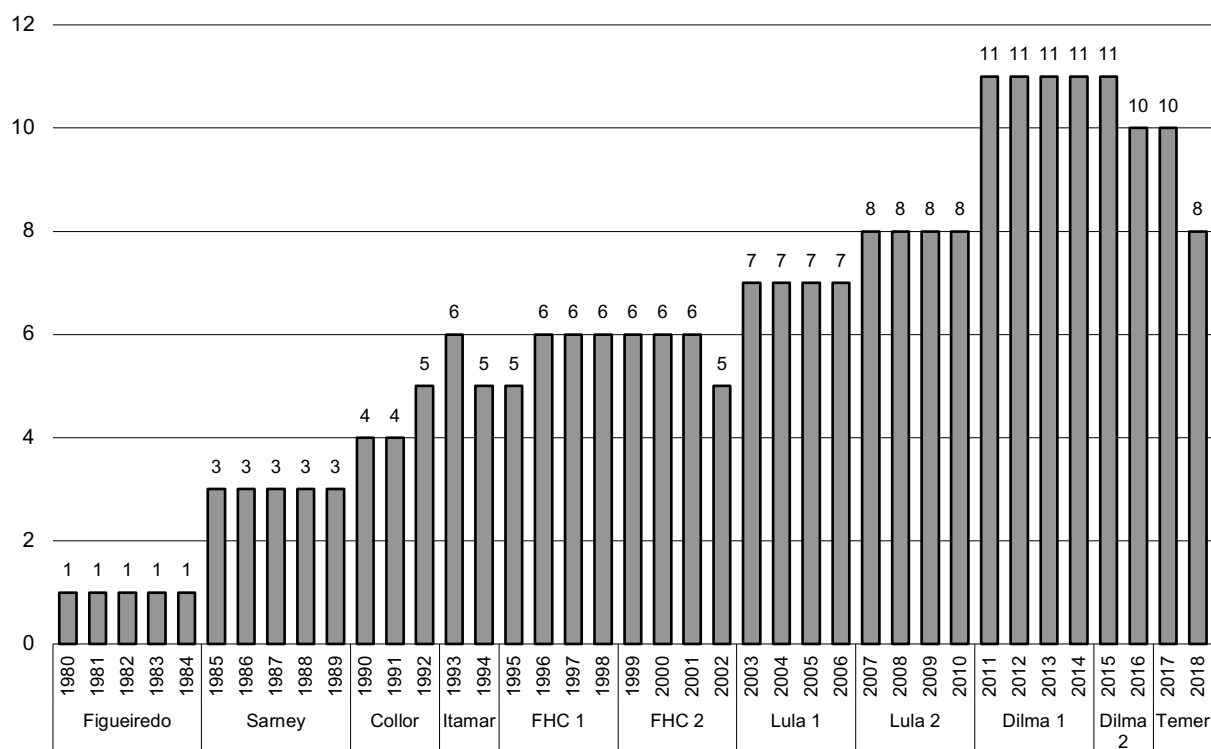
The measure of fragmentation that was most significant in the work of Volkerink and Haan (2001) was the “number of spending ministers”, that is, those ministers who are not in the government's budgetary-financial area. Using data initially provided by political scientist Octávio Amorim Neto of the Getulio Vargas Foundation of Rio de Janeiro (FGV-RJ) and later updated by the authors of this paper, it was possible to construct a similar measure for Brazil during the period of civil government. For that, we consider, among the total of ministers, the number of ministers that do not belong to the ministries of finance and planning. Figure 6 shows the evolution of this measure over the period 1980-2018.



**Figure 6 – Number of Spending Ministries**  
Source: Federal Government of Brazil

We observed that, except in the initial period of the Collor de Mello government, which implemented a ministerial reform, the trend was to maintain or increase the number of spending ministers (mainly in Dilma's mandates).

Alternatively, we also consider for Brazilian presidentialism the number of parties that make up spending ministries as a measure of the fragmentation of the government coalition. Figure 7 shows the evolution of this measure over time and by government.



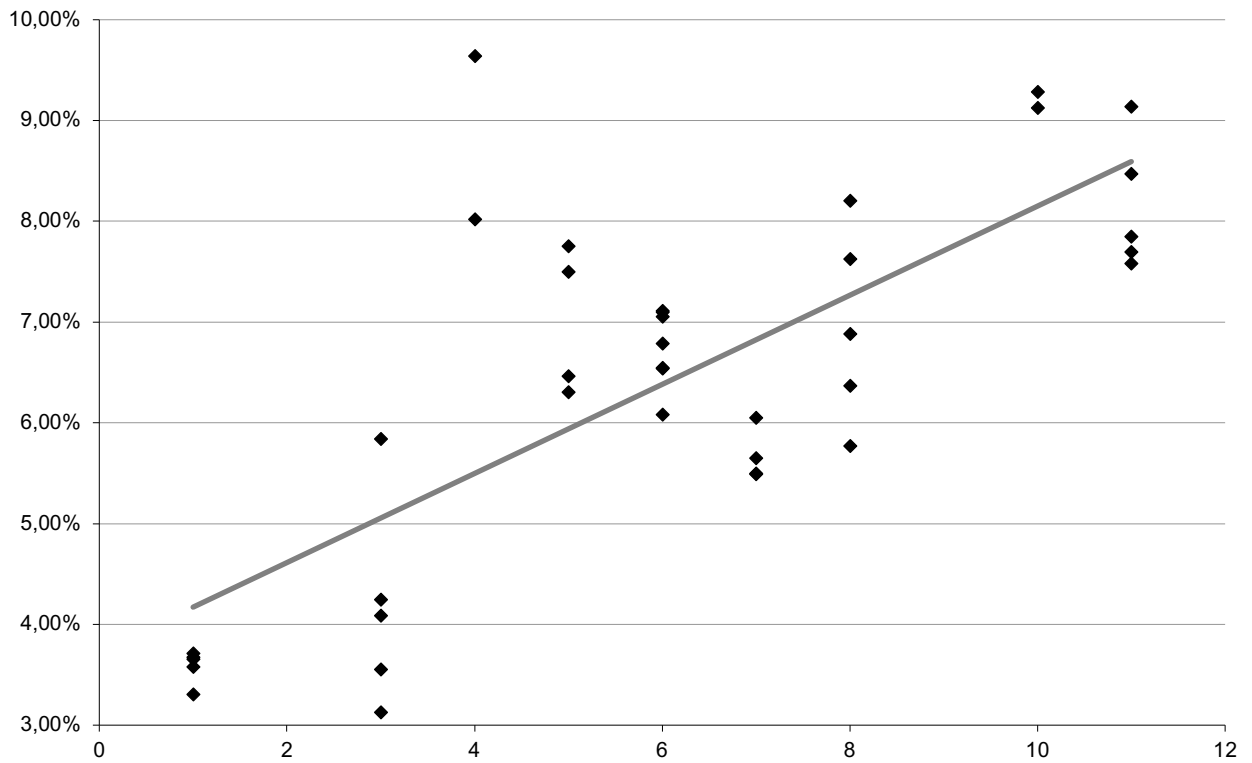
**Figure 7 – Number of parties in the coalition**

Source: Federal Government of Brazil

It can be seen in this graph that the number of parties participating in the government coalition has been growing over the years. The peak of the number of parties in the government coalition happened under the Dilma government: eleven parties.

Figure 8 show the correlation between central government costing in terms of GDP and the central government's coalition measure of fragmentation.<sup>195</sup> The linear correlation coefficient is 0.747. However, if the space for political power may not be disputed just by office, but by the budget to be realized, it is interesting to note the opposite behavior of this expenditure in relation to direct administration expenses. Expenditure costs of state-owned companies in the productive sector until 1990 was greater than the expenses on direct administration. This was later reversed.

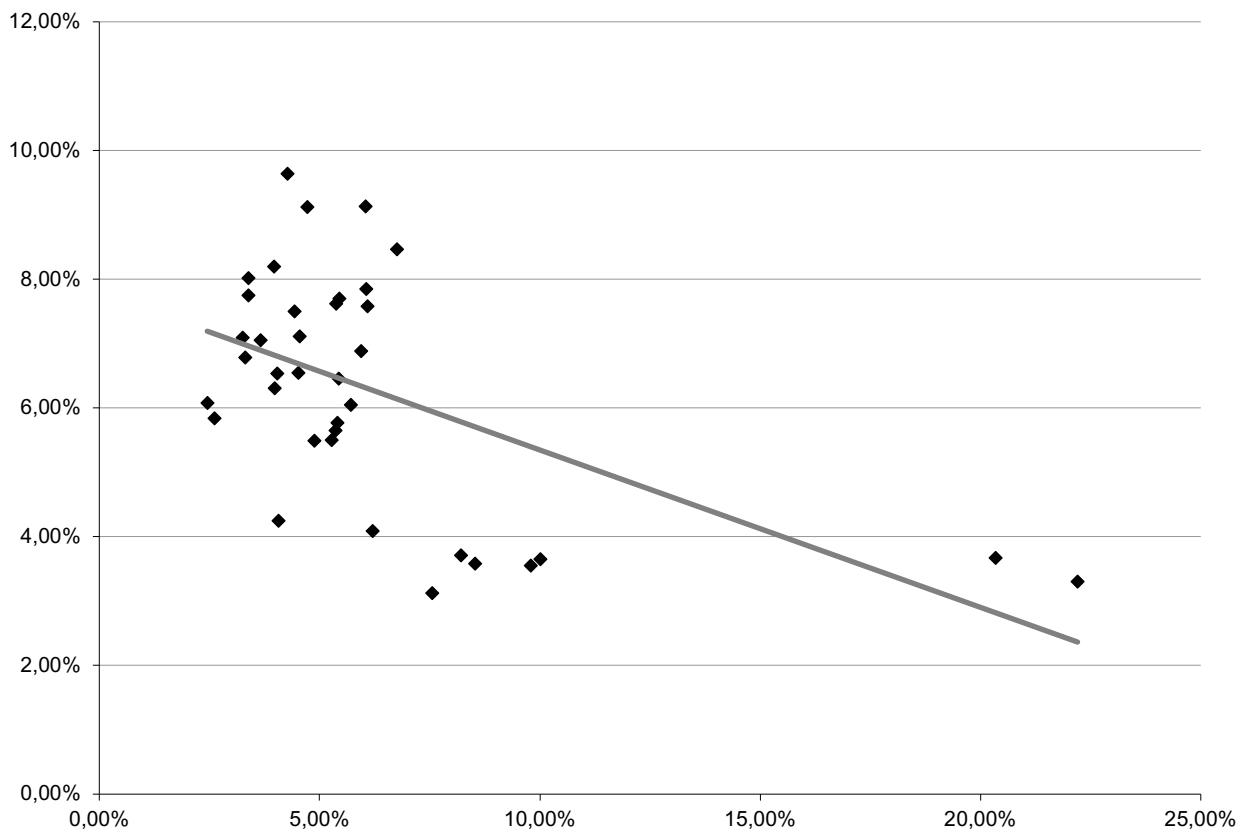
<sup>195</sup> In the paper of Volkerink and De Haan (2001) the fragmentation of the coalition was measured by two proxies: the first, the number of spending ministers (all ministers except the prime minister) and the second, the measure of fractionalization of the government coalition.



**Figure 8 - Federal Government Cost Expenses and Number of Spending Ministers**

Source: Federal Government of Brazil

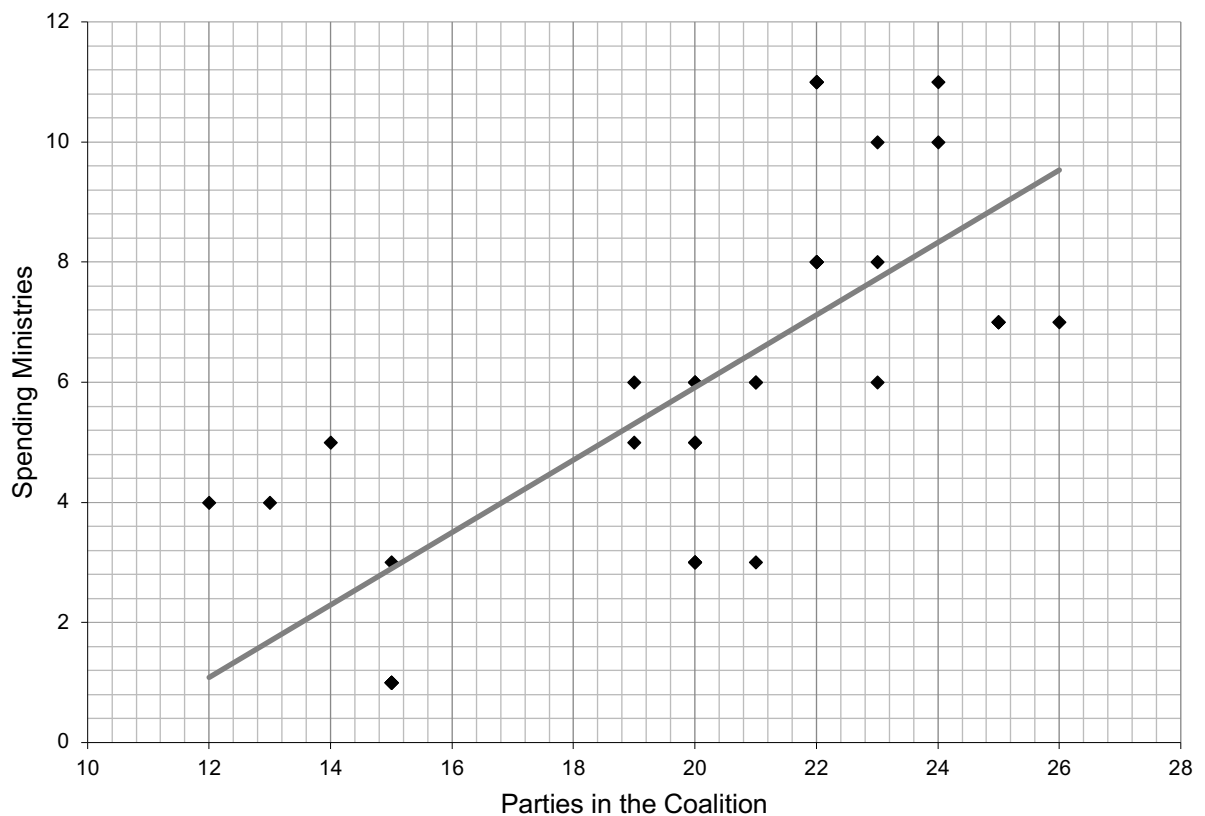
In general, the behavior of direct administration expenses and that of state-owned companies over time is moving in the opposite direction (see Figure 4 again). An exercise of association indicates a kind of “exchange” between expenses from the sphere of indirect administration (cost expenses of the SPE companies) in relation to direct administration (cost expenses of federal government) in the period 1980-2016. The linear correlation coefficient is -0.551. Figure 9 shows this correlation.



**Figure 9 - Federal Government Cost Expenses and Cost Expenses of the SPE companies**

Source: Federal Government of Brazil

The central government fragmentation measures presented are correlated. The number of spending ministers has a linear and positive association with the number of parties that make up these ministries. This is what we show in Figure 10.



**Figure 10 – Number of Spending Ministries and Number of Parties in the Coalition**

Source: Federal Government of Brazil

From the calculations performed, the correlation coefficient between the series is 0.712. This indicates that, throughout civilian governments, the increase in the number of spending ministries was associated with an increase in the number of parties participating in spending ministries.

Since the simple correlation does not necessarily imply causal relationship, we did more sophisticated statistical tests on the variables of interest. First, we performed DF-GLS unit root tests on federal administration cost expenses, State-owned companies cost expenses, number of spending ministers and number of coalition parties, founding non-stationarity in all cases (Model 1 = constant; Model 2 = constant and trend – Table 1).

**Table 1 – DF-GLS Unit Root Tests (all series in natural logarithm)**

	<b>DF-GLS Statistic: Model 1</b>	<b>Critical Value Model 1 (5%)</b>	<b>DF-GLS Statistic: Model 2</b>	<b>Critical Value Model 2 (5%)</b>
Federal Administration cost expenses	-0,17	-1,95	-1,86	-3,19
State-owned companies cost expenses	-0,76	-1,95	-0,86	-3,19
Number of spending ministers	-1,65	-1,95	-2,89	-3,19
Number of coalition parties	-0,66	-1,95	-1,90	-3,19

Source: Author's calculations.

We also found cointegration between the previous variables, in a way that we could corroborate the causal relationships suggested by the previous correlation analysis. Johansen test found one cointegrating vector for the three cases (all series in natural logarithm). The cointegration tests results are showed in Table 2 and the estimated elasticities from cointegrating vectors are showed in Table 3.

**Table 2 – Johansen Cointegration Tests (all series in natural logarithm)**

	<b>Trace Statistic (r = 1)</b>	<b>Critical Value (5%)</b>
Federal Administration cost expenses vs. State-owned companies cost expenses	6,03	12,52
Number of spending ministers vs. Number of coalition parties	8,05	9,16
Federal Administration cost expenses vs. Number of coalition parties	0,00	4,13

Source: Author's calculations.

**Table 3 – Estimated Elasticities**

	<b>Elasticity Coefficient</b>
Federal Administration cost expenses vs. State- owned companies cost expenses	-0,77
Number of spending ministers vs. Number of coalition parties	1,34
Federal Administration cost expenses vs. Number of coalition parties	0,66

Source: Author's calculations.

Finally, we performed Bai-Perron breakpoint tests on the data of the previous variables, founding most breaking dates around 1988 and through the Dilma's and Lula's periods (Table 4).

**Table 4 – Bai-Perron Breakpoint Tests (all series in natural logarithm)**

	<b>Number of Breaks</b>	<b>Break Dates</b>
Federal Administration cost expenses	2	1989, 2012
State-owned companies cost expenses	2	1987, 2002
Number of spending ministers	2	1993, 2003
Number of coalition parties	4	1985, 1992, 2003, 2011

Source: Author's calculations.

## Final Remarks

Basically, the Latin American developmentalist ideology accepted the state company within the scope of government intervention. There was a current in Brazilian thought called "nationalist developmentalist" that defended not only state planning, but the direct participation



of the State to the detriment of foreign capital, precisely in sectors whose national capital would not be able to act.

As a result, we decided to calculate the size of Brazil's government by not considering only the standard measure in the international literature: federal government funding expenses. We decided to incorporate the state productive sector in this measure considering its cost. Our series was built between 1980 and 2018. The result of this measure indicated that the size of government in Brazil remains practically the same, regardless of changes, adjustments, and privatizations: around 15% of GDP. This number is the result of an increase in the cost of expenditure by the federal administration and a decrease in the cost of expenditure by productive state companies.

Another interesting finding from this study is that the number of parties participating in the government coalition has not only a positive correlation with the federal government's spending expenses but they cointegrate over time. Additionally, there is a structural change in Federal Administration cost expenses after the 1988 Constitution and during the first term of Dilma Roussef (impeached in 2016 in middle of her second term).

Considering, on the one hand, the reduction in the number of state-owned enterprises and, on the other, the persistent increase in spending on the administrative machine, the size of the Federal Government has remained stable since 1982, around 15% of GDP. Expenses with payment of salaries, fuel for cars, computers, and everything else that goes under the "costing" heading of the federal budget do not stop growing. But the increases are directly proportional to the size of the political coalitions set up in Congress to ensure governability for the president. The more parties dividing power, the greater the need for positions to distribute and, consequently, the higher the bill to pay. Nothing to do with the executive's imperial powers. Unlike.

The political equation is no less legitimate than economic, because without it the president does not govern. The solution seems to be to accommodate, but legally and accountably. Less wage gap between career servers and employees with a position of trust. More emphasis on expenses containment and accountability under a less costly electoral system.

The Esplanade of Ministries lived its leanest period in 1990, the first year of the Fernando Collor term, which implemented an aggressive ministerial reform. And its most swollen phase since the first term of Dilma Roussef. This paper shows that expenditure accumulation occurs in direct proportion to the number of parties to which 'spending ministries' are distributed. And this variable only grew over this time, until it peaked in the Roussef years. Seven parties participated in the first term of Lula's coalition and 11 form during the peak of Roussef. An equation synthesizes reasoning: more parties equal to more ministries, which is equal to more expenses. Within a multi-party condominium, each legend struggles to expand its space in the public sector. Space, within a government, usually translates into budget and positions. That is, expenses. And the unwritten rule of every coalition is: no one vetoes anyone's spending not to be vetoed. Each party benefits from spending and divides the cost to society, by taxation.

Future research on the measurement of government size should consider the state-owned companies in the measure and how the political space can boost that size. Especially in the Brazilian case where the power in presidentialism is fragmented.

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