

The Public Finances Of Bogotá Compared To Barranquilla, Medellín And Cali: A Case Study Analysis For The Colombian Quadricephaly

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Abstract .- The behavior of territorial public finances within the Colombian quadricephaly presents a particular scenario in recent years. These behaviors or dynamics have been related to the different regulations and decentralization processes that Colombia has had to experience. This article has the objective of showing the evolution of the main accounts of the governments that make up the quadricephaly in Colombia in the period between 2005-2017. The analysis is developed based on the fact that Bogota is the one with the greatest predominance according to its economic structure and also its special urban characteristic as it is called an "urban primacy". The results show that the behavior in public finances presents small particularities and that Bogotá as hegemony loses leadership in certain aspects.

Keywords: public finances; Colombian quadricephaly; Barranquilla; Medellin.

Introduction

The horizon followed by public finances in the Colombian quadricephaly has presented multiple changes in the last decades. Such dynamism may perhaps be a product according to Bonet et al. (2018) of the different decentralization processes and normative actions of regulatory type. The correspondence there is in Bogota's public finances and economic growth is very close. The capital district due to its economic and population dynamics symbolizes a great source of resources for Colombia, thus becoming, from its urban primacy in the urban center of greater generation of wealth and distribution of resources. The administration of Bogotá's public finances in recent years has been of great satisfaction, the institutional modifications and the different reforms have given rise to the positive effects and the good performance of public finances.

Nevertheless, the condition of urban primacies in the different urban systems is very regular in Latin America. In the Colombian case, the presence of the quadricephaly composed of Bogota, Barranquilla, Medellin and Cali is very noticeable. Evidencing the above, the presence of an urban

primacy on the part of Bogota where it is twice as large as Medellin, three times as large as Cali and four times as large as Barranquilla.

The main objective of this analysis is to present a recent panorama that shows how public finances have been evolving in the Colombian quadricity for the period from 2005 to 2017. Through this analysis, it will be feasible to show the different changes, especially in the income, expenditure and debt of the Colombian quadricity. In addition, this analysis also reigns over the recognition that there is a marking in terms of regional disparities in Colombia and that, therefore, will have to be considered in order to have a real approach of the different evolutions of public finances in the Colombian quadricity.

Finally, this comparative analysis of public finances in the Colombian quadricity is divided into the following sections: A first part, which includes everything related to the presentation and argumentative justifications that lead to the development of this analysis. Then, a literature review is carried out in order to obtain a significant background that evidences the behavior of finances in the Colombian quadricity. Consequently, the whole aspect of the analysis was developed in terms of figures and percentages on the evolution of finances in the Colombian quadricity. In the final part, the analysis and conclusions on everything developed will be presented.

1. Motivation and reasons for selection of the municipality to be analyzed

According to studies by the World Bank (2011), cities have been the main engine of the country's economy and the area in which most of the population has benefited from the infrastructure and services required to promote social development.

In Colombia, since 1930, the urban structure began to be configured in four large cities, due to the migration from the countryside and small municipalities to the city, demographic explosion and industrialization of the country; establishing what is known as Colombian quadricity: Barranquilla to the north, Cali to the west, Medellin to the northwest and Bogota to the east, make up the urban scheme under study.

These large metropolises are urban centers that offer important services to their inhabitants. The concentration around these four cities is not only a demographic phenomenon, they also represent almost half of the nation's gross domestic product (GDP), the result of their economic dynamics: historically, Barranquilla is the seat of an important port activity and a major commercial and industrial center; Cali represents the opening to the Pacific (through Buenaventura) and is known for its agro-industrial activities (mainly paper and sugar); Medellín is the city of mines, coffee and the textile industry; and Bogotá, which is the Colombian capital (Goueset, 1998).

However, in spite of the urbanistic similarities, during the last decades it has been possible to observe a growing primacy of Bogota, which has been increasing the gap that separates it from the

other cities¹, as the city with the greatest generation of wealth. The national capital, due to its economic and population dynamics, represents for the country an important source of resources and, the investments that are made in human capital and infrastructure and that generate positive externalities on the rest of the regions of the country (Bonet et al., 2018).

Therefore, it is important to analyze and explain how the fiscal behavior of Bogota, as an urban primacy, has been evolving in comparison with the other three cities that make up the Colombian quadricephaly phenomenon for the period 2005-2017.

2. Literature Review

The purpose of this section is to review the most influential works in the literature on public finances of the cities that make up the Colombian quadricephaly phenomenon.

One of the authors who began to touch on issues and elementary factors of urban concentration and spatial characteristics of the Colombian economy was Goueset, V. (1998) who comments that urban macrocephaly is nothing more than an urban imbalance characteristic of Latin American cities, in which the largest cities are disproportionately large with respect to the system of cities that support them, and considers the case of Colombia, whose macrocephaly is characterized by four urban heads, to be a singular Latin American phenomenon. He also states that this concentration of men and activities in Colombia occurred, between 1930 and 1990, first around several cities, mainly Bogotá, Medellín, Cali and Barranquilla, and then progressively re-centered around the first three and then around only one: Bogotá. Similarly, he states that the concentration indicators reveal a stagnation of Bogotá's urban primacy between 1918 and 1951, followed by an accelerated growth between 1951 and 1990.

The emergence and decay of this primacy model helps to explain the persistence of the three main characteristics that could be called the properties of the Colombian socio-spatial system: flexibility -in terms of the adaptability of spatial concentration-, multipolarity and duality -in a regional rather than an urban perspective -. The quadricephalic structure that characterized the country marked a sustained structure of the hierarchical order of urban concentration, whose most significant fact has been the permanent primacy of Bogotá (Cuervo et al., 1997 as cited in León et al., 2016).

¹ "In 1966 33% of the industrial value added of the 4 largest cities was generated in Bogota; in 1991, this proportion increased to 39.22%. In 1966, 36% of industrial employment in the four largest cities was generated in Bogota; in 1991 this proportion increased to 46%." Thus, for example, during the period from 1991 to 1996, when viewed as a whole, the participation of the four large cities declined in employment generation (from 81.5% to 75%) and value added (from 80% to 72%), between 1991 and 1995 the four cities recovered 5 points of the 4 lost in 25 years. Bogota benefited the most, followed by Medellin and Barranquilla. Cali shows some regression. Cuervo, L.M. and González, J. (1998) Op. Cit. Page 175.

Gutiérrez & Guzmán (2000) comment that the management of the public finances of the city of Bogotá in the 1990s is satisfactory; the institutional changes implemented, such as tax, budget and administrative reforms, yielded the expected positive results. The District's financial indicators are the exception to the fiscal crisis affecting territorial entities, which demonstrates the city's capacity and good financial management to meet the fiscal requirements of an economy that, like the rest of the country, is in recession.

Additionally, (Montoya, Jhon. 2013) argues that, although Bogota has an important participation in the primary and secondary sectors, it is in the concentration of the tertiary sector that the city derives most of its growing primacy over the national urban system. For example, in the financial field, in 2001 the Bogota Stock Exchange absorbed those of Medellin and Occidente (Cali); they merged into the Colombian Stock Exchange and concentrated all the country's stock market activity in the city.

For their part, Bonet et al. (2018) comments that another aspect that has great social and economic implications is the simultaneous reduction in operating spending and the increase in investment spending since the mid-1990s. Subsequently, starting in the early 2000s, although operating spending began to grow, investment spending continued to do so at much higher rates. This greater dynamism, especially in social investment, has coincided with a better economic performance throughout the country and significant reductions in poverty and misery levels, which have had an impact on the fiscal levels and behavior of urban centers.

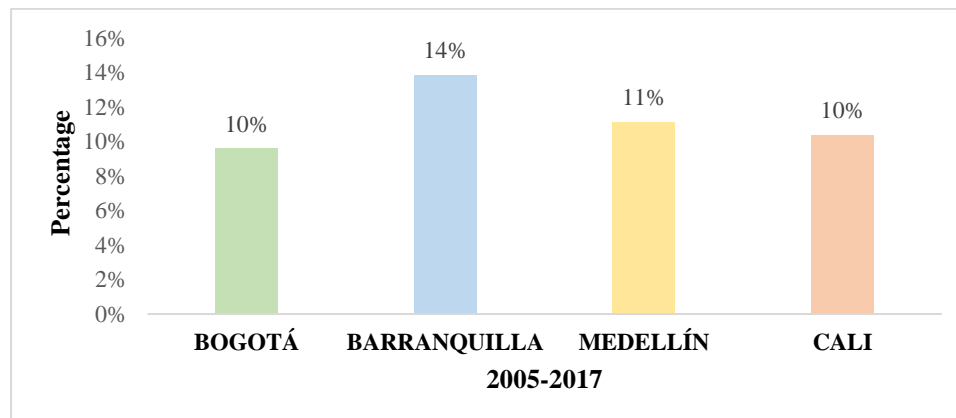
3. Evolution of Revenues

In this part of the analysis, the purpose is to show the behavior of Bogota's tax revenues as an urban primacy within the Colombian quadricity. In addition, to study these fiscal revenues in their main aspects: Total and Per Capita.

a. Total Revenues

The total tax revenues of Bogota as an urban primacy within the Colombian quadricity for the period 2005 -2017, presents a growth at an average real rate per year of 10%, which is equal to the growth rate of Cali. In addition, it is observed that within the Colombian quadricity, Barranquilla obtained the highest average growth rates with 14%. The above behavior is consistent with the study conducted by Bonet et al. (2019), where they find that the capital cities of the Caribbean coast have obtained growth rates in terms of total income slightly higher than the other cities analyzed in that study (Figure 1).

Figure 1 Real growth rate of total tax revenues in Bogota, Barranquilla, Medellin and Cali, 2005-2017 (Annual average)



Source: Own elaboration based on cash operations-DNP.

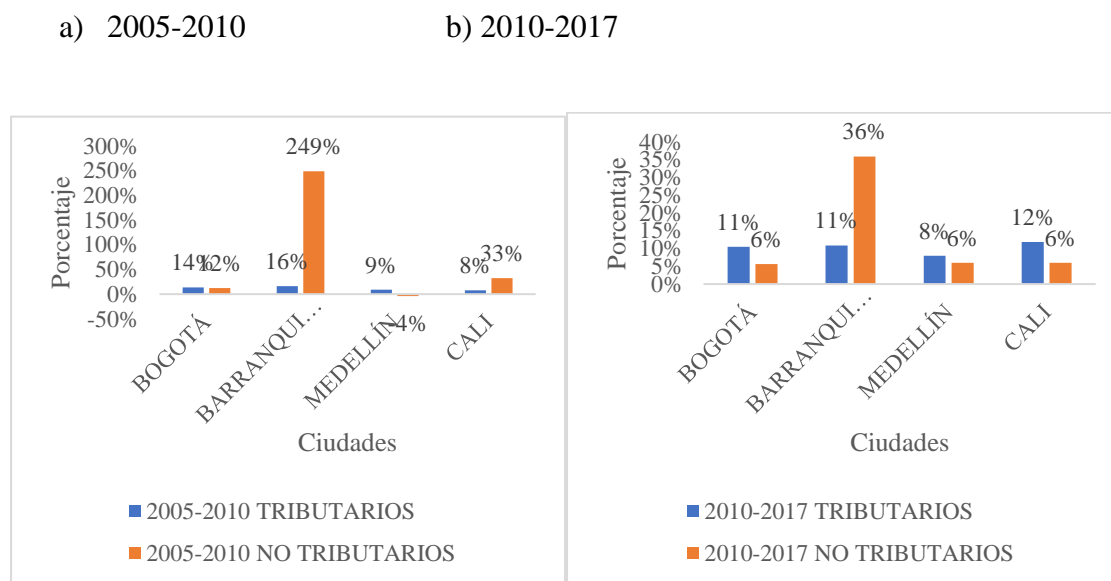
Table 1 Composition of tax revenues in Bogota, Barranquilla, Medellin and Cali, 2005-2017 (annual average)

	(Percentage)			
Revenues	Bogotá	Barranquilla	Medellín	Cali
Own (Taxable + Non-taxable)	63,3	45,8	47,7	54,0
Taxes	51,9	39,9	34,1	41,4
Predial	14,3	11,4	13,6	15,8
ICA	25,7	16,7	12,7	14,3
Gasoline surcharge	3,6	2,6	3,1	4,2
Others	8,3	9,3	4,7	7,1
Non-taxable	11,4	5,8	13,7	12,7
Transfers	36,7	54,2	52,3	46,0
National (SGP)	24,3	47,0	25,5	42,3
Royalties	0,1	1,5	0,2	0,4
Co-financing	0,0	3,5	0,2	0,0
Others	12,4	2,2	26,4	3,3
Total	100	100	100	100

Source: Own elaboration based on cash operations-DNP.

The evolution of income in the Colombian quadricity, shows that for the period 2005-2017, in annual average there is a predominance by Bogota as urban primacy in the generation of its income with a percentage of 63.3%. On the contrary, Barranquilla and Medellín show a high dependence on transfers with percentages of 54.2% and 52.3% respectively. The above allows the following statements to be made: i) Bogota as an urban primacy has a significant percentage that allows inferring that more than half of its total revenues are self-generated. ii) Medellín and Barranquilla are cities that within the Colombian quadricity show a significant dependence on transfers in percentages greater than 50%. iii) the vast majority of transfers for the city of Cali are from the general system of participations (SGP).

Figure 2 Real growth rate by type of income in Bogota, Barranquilla, Medellín and Cali, 2005-2017 (annual average)



Source: Own elaboration based on cash operations-DNP.

The analysis by type of revenue shows for Bogota a very similar behavior to that of Cali in the period 2010-2017, where both obtained a real growth rate in terms of non-tax revenues of 6%. On the other hand, a very important behavior is observed within the Colombian quadricity for the case of Barranquilla who has obtained in recent years growth rates of its non-tax revenues above 100%. In practice, it could be explained by the fact that Barranquilla has generated a great source of non-tax revenues that have been collected for its services and not for taxes, a clear example can be the valuation charge applied in Barranquilla where they collected 13 billion pesos and also a collection of 70 billion pesos for fines.

Analyzing by type of population within the Colombian quadricity, Medellín and Cali have very similar characteristics according to DANE projections. In that sense, it is observed that Medellín

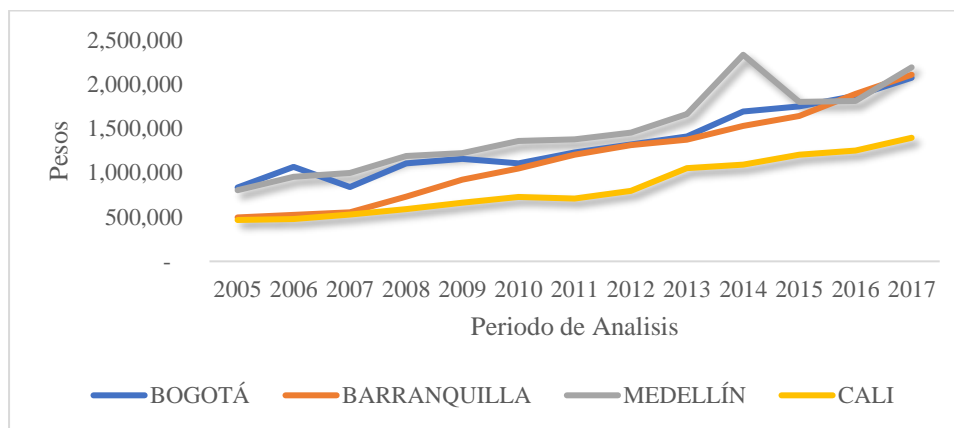
on its side has had during the period 2005-2017 growth rates in terms of tax revenues 1 percentage point above Cali. While non-tax revenues show that the city of Cali has achieved 15% more than Medellín, which has only obtained 2% of the real growth of its non-tax revenues.

It is also important to highlight and emphasize that during the periods of major governmental crisis experienced by the Capital District (Bogota), i.e., for the periods 2008-2011 and 2012-2016; where the city had about eight different administrations. It is possible to observe the period of higher growth rate of total real income, with figures of 12% for the first period of crisis and 9% for the second period of crisis. This allows to infer that even in periods of governmental crisis, the growth rates of total revenues for Bogota as an urban primacy show a better growth compared to the periods considered as normal governmental periods.

b. Per Capita Income

Per capita income within the Colombian quadricephaly shows a slight positive upward trend for each of the cities that comprise it (Figure 3). However, it is very noticeable that for the year 2014 the city of Medellín presented a very high growth compared to all the other cities, obtaining an average annual growth evolution of 40% for that year. In general terms of the complete analysis of the period of time (2005-2017), the city of Barranquilla has been the one who has obtained higher average annual growth rates than cities such as Bogota, Medellín and Cali. Following the previous order, beyond the urban primacy of Bogota, its annual average growth rates have been 9%, figures that express a lower average growth than that of cities in this Colombian quadricephaly and that obtain percentages of 13% and 10%, such as Barranquilla and Medellín, respectively.

Figure 3 Evolution of Per Capita Tax Revenues in the Colombian Quadricephaly: Bogota, Medellín, Barranquilla and Cali, 2005-2017 (Annual average)



Source: Own elaboration based on cash operations-DNP.

Bogota, as an urban primacy in Colombia, stands out in the analysis of the quadricephaly for having higher per capita income from property taxes than the other three cities that make up the quadricephaly. On average, between 2005 and 2017 Bogotá collected \$203,146 per capita in predial, while this figure was \$196,081 in Medellín, \$126,994 in Cali and \$131,936 in Barranquilla.

In per capita income from industry and commerce, Bogota continues to stand out with an average collection of \$341,059 per person, while Barranquilla and Medellin are the closest with figures of \$191,044 and \$184,431 respectively.

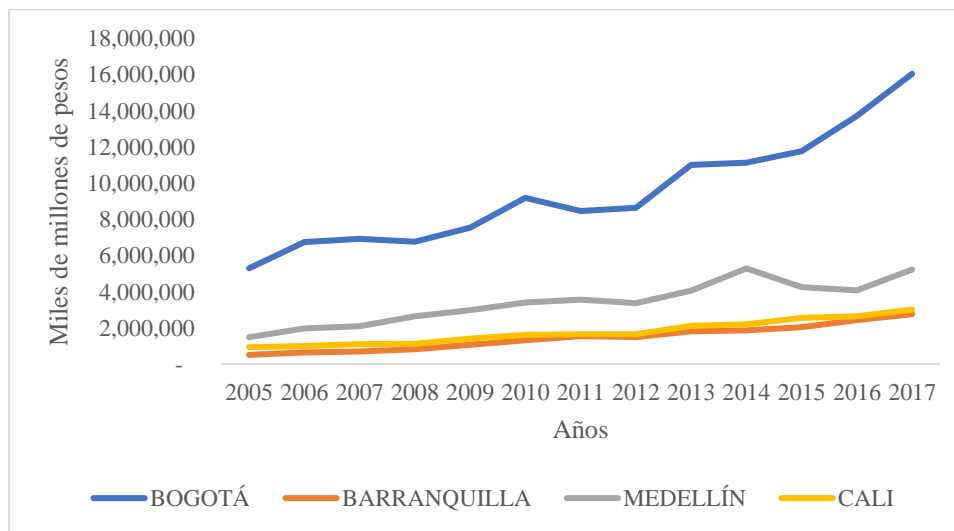
4. Evolution of Spending

In public finances and especially for the analysis of the behavior of the Colombian qudricephaly, it is necessary to study the expenditure to identify each of the sectors where such expenditure has been executed during the period 2005-2017.

a. Total expenditure

According to Bonet et al. (2019), total public expenditure quantifies the amount of resources that are executed in a given territorial entity and period, but with a specific destination in operation and investment. For the period 2005-2017, it is shown that all the cities that make up the Colombian qudricephaly obtained an average annual growth rate above 10%.

Figure 4 Evolution of total fiscal expenditures in the Colombian qudricephaly: Bogota, Medellin, Barranquilla and Cali, 2005-2017.

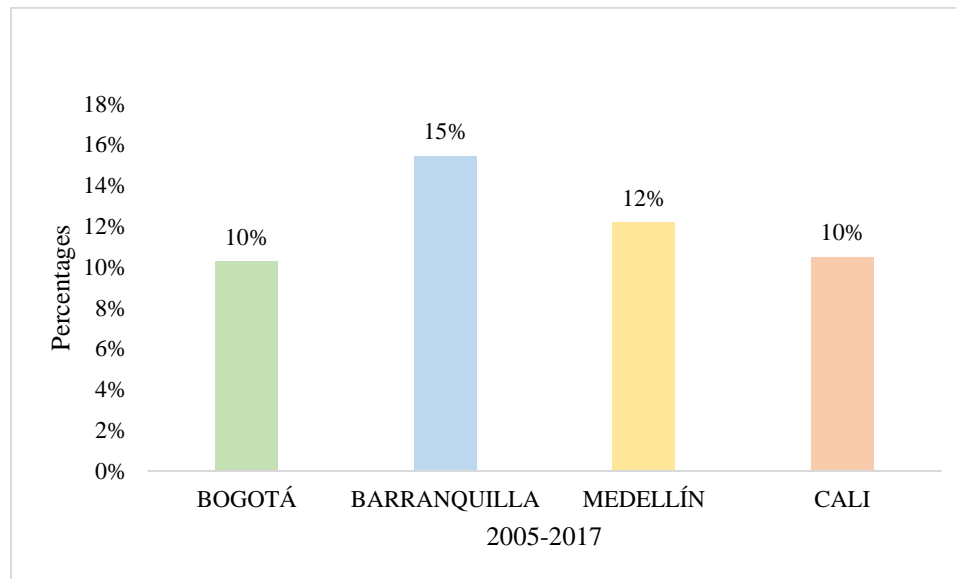


Source: Own elaboration based on cash operations-DNP.

When analyzing the behavior of the different governmental processes experienced by the city of Bogotá during the period under analysis, the following can be observed: First, that during the period of Luis Eduardo Garzón (2004-2007), the growth rate of total fiscal expenditures was 15% (the highest of the entire period of analysis). While in the periods of governmental crisis, a very strange behavior is denoted where it is evident that in the period (2012-2016) where Gustavo Petro was elected as mayor and that this administration was intervened by five different mayors (Petro repeats twice) presents a growth rate per annual average of 11% of its total expenditures, which allows that

period to be located above the growth obtained in the period (2008-2011) where Samuel Monero was elected as mayor and that during that period there were three different administrations.

Figure 5 Real growth rate of total public expenditure of the Colombian qudricephaly: Bogota, Barranquilla, Medellin and Cali, 2005-2017 (Annual average)



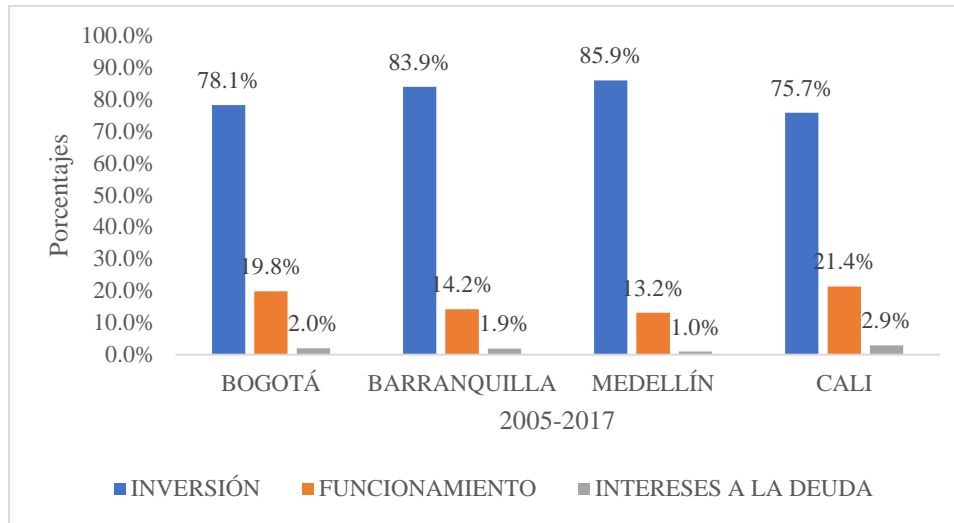
Source: Own elaboration based on cash operations-DNP.

Within the Colombian qudricephaly, Barranquilla is the city with the best performance in terms of real annual average growth rate of total public spending with a figure of 15%, followed by Medellin with a figure of 12%. On the other hand, Bogota and Cali show the lowest performance with figures of 10% for both cities.

Developing an analysis of the three fundamental categories of spending, the behavior is somewhat similar in almost all the cities that make up the Colombian qudricephaly. In reference to investment, this is the category that has the highest weight in all the cities of the qudricephaly for the period 2005-2017, ranging from 85.9% presented in Medellin to 75.7% in the city of Cali. For Bogota as urban primacy, investment represents 78.1% of total spending (Figure 6).

After investment, the next category that generates a greater weight on total spending is operation. In this sense, Cali and Bogota have the highest weight of operation, 21.4% and 19.8%, respectively. Meanwhile, Medellin is the one with the lowest share of operating expenditures, with 13.2% (Figure 6). The previous result and following Bonet et al. (2019) respond in part to the fact that the larger the urban centers are, so would be their operating expenditure. But specifically, this study shows that despite the fact that the size of Bogota as an urban primacy is three times larger than Cali, it is precisely the latter that presents the highest operating expenditure within the Colombian qudricephaly.

Figure 6 Distribution of public spending in the Colombian quadricephaly: Bogota, Barranquilla, Medellin and Cali, 2005-2017 (annual average)

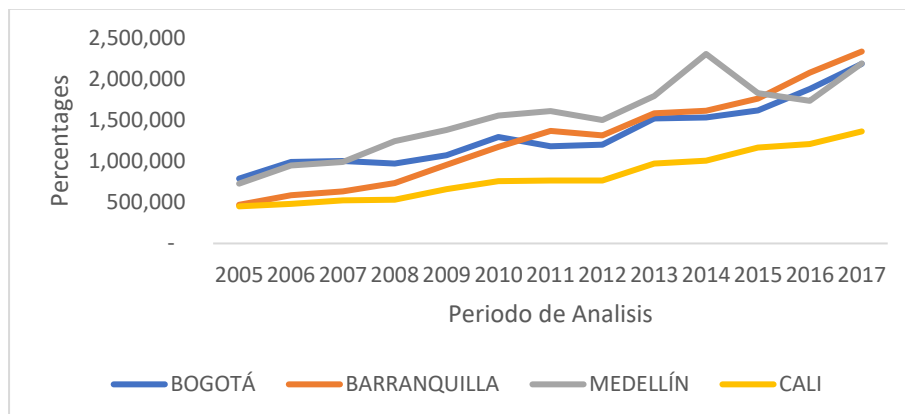


Source: Own elaboration based on cash operations-DNP.

b. Per Capita Expenditure

The analysis of per capita expenditure shows a growth of 9.4% for Bogota for the period from 2005 to 2017. This shows that it is precisely this city that presents the lowest growth in per capita expenditures within the Colombian quadricephaly. Contrary to the above, Barranquilla is the city within the quadricephaly that presents the highest real fiscal expenditures per capita growth with an average percentage of 14.7% for the period under analysis of this work.

Figure 7 Evolution of fiscal expenditures per capita in the Colombian Quadricephaly: Bogota, Barranquilla, Medellin and Cali, 2005-2007 (annual average)



Source: Own elaboration based on cash operations-DNP.

In the period 2005-2017, Bogota is the city with the highest per capita expenditures for operating terms, identifying according to the calculations of this analysis that it spent \$265,524 per inhabitant

for operating. Meanwhile, Barranquilla was the city that within the Colombian quadricephaly spent for this period less resources per inhabitant for operating matters. In terms of general expenses, Bogotá spent an annual average of \$29,356 per person. While in the other cities of the quadricephaly for Barranquilla it was \$28,245, Medellín \$24,784 and Cali \$17,662 (Table 2).

Table 2 Real per capita expenditures, 2005-2017 (annual average)

Expenditures per capita	(pesos)			
	Bogotá	Barranquilla	Medellín	Cali
Total	1.327.745	1.279.833	1.526.086	820.507
Operating expenses	265.524	170.226	192.073	171.814
Personal services	81.942	53.019	104.846	57.521
General expenses	29.356	28.245	24.784	17.662
Transfers paid	154.227	88.963	62.443	96.631
Interest on public debt	24.394	22.264	14.916	17.277
Capital expenditures (investment)	1.037.827	1.087.343	1.319.097	631.415

Source: Own elaboration based on cash operations-DNP.

The growth rates of per capita expenditures in the period 2005-2017, it is shown that Barranquilla is the one who obtained the best performance in per capita expenditure growth with a rate of 14.7%. In contrast to the above, Bogota is the one that obtains for this period the lowest performance in the per capita growth rate with an average annual percentage of 9.4%.

5. Debt Evolution

The public debt of the Colombian urban primacy (Bogota) according to the territorial fiscal viability report for 2018, shows that there are favorable behavior by the district for the management of public debt. In addition, according to the risk rating agencies BRC Standard & Poor's and Fitch Ratings as cited in DAF (MHCP, 2018) manifest six fundamental aspects that can attest to the favorable behavior of the Capital District in relation to public debt and that allow it to obtain an AAA rating (highest grade): i) Favorable tax behavior and strategies for collection and payment facilities to taxpayers. ii) Compliance with Law 617 of 2000. iii) The public debt management policy. iv) The District's financial capacity to cover expenditure pressures, particularly those associated with the structured mobility projects. V) Adequate liquidity levels. Vi) The levels of coverage of pension liabilities.

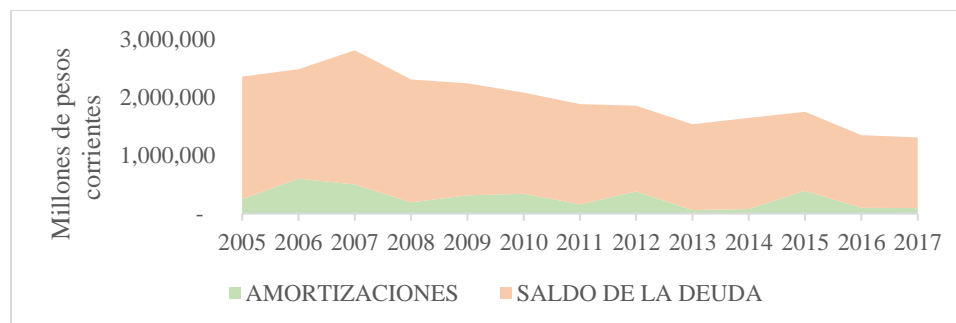
Table 3 Revenues and balances of public debt in Bogota, 2005-2017

Year	Debt balance (millions of pesos)	Total revenues (millions of pesos)	Debt balance/total revenues (%)	Tax + non- tax revenues (millions of pesos)	Balance of debt/own revenues (%)

2005	2.110.548	5.591.676	37,7%	3.232.789	65,3%
2006	1.883.935	7.258.756	26,0%	4.133.984	45,6%
2007	2.308.725	5.768.895	40,0%	3.640.843	63,4%
2008	2.116.018	7.696.790	27,5%	4.562.473	46,4%
2009	1.928.528	8.131.355	23,7%	4.939.039	39,0%
2010	1.740.845	7.843.649	22,2%	4.924.692	35,3%
2011	1.724.523	8.792.779	19,6%	5.424.483	31,8%
2012	1.477.069	9.483.416	15,6%	6.637.809	22,3%
2013	1.474.287	10.187.876	14,5%	6.773.013	21,8%
2014	1.567.166	12.273.105	12,8%	7.733.684	20,3%
2015	1.363.892	12.724.539	10,7%	8.322.755	16,4%
2016	1.253.888	13.638.610	9,2%	8.779.673	14,3%
2017	1.215.044	15.202.613	8,0%	9.282.070	13,1%

Source: Prepared by DNP and Secretaria Distrital de Hacienda Bogotá. Own elaboration

Figure 8 Overview of public debt in Bogota: Balance and Amortizations, 2005-2017.



Source: DNP and Bogota District Finance Secretariat. Own elaboration.

Conclusions

The neologism “quadricephaly” is a unique phenomenon in Latin America that has often been noted but little explained. This term is used to relate Colombian urban concentration, perceived through population and fiscal indicators.

With the development of this work, it was possible to specify that, for the period between the years 2005-2017, it is observed that -from the Colombian quadricephaly- the city of Barranquilla obtained higher growth rates of fiscal revenues. Likewise, the evolution of revenues in the quadricephaly shows that for the period 2005-2017, in annual average there is a predominance by Bogota as urban primacy in the generation of own revenues with a percentage of 63.3%. Meanwhile, Barranquilla and Medellín show a high dependence on transfers with percentages of 54.2% and 52.3%, respectively.

The above allows the following statements to be made: i) Bogota as an urban primacy has a significant percentage that allows inferring that more than half of its total revenues are self-generated. ii) Medellín and Barranquilla are cities that within the Colombian quadricephaly show a significant dependence on transfers in percentages greater than 50%. iii) the vast majority of transfers for the city of Cali come from the general system of participations (SGP).

In reference to spending, when analyzing the behavior of the different governmental processes that the city of Bogotá underwent during the period under analysis, the following can be observed: First, that during the period of Luis Eduardo Garzón (2004-2007) the growth rate of total fiscal expenditures was 15%, the highest of the entire period of analysis. Within the Colombian quadricephaly, Barranquilla is the one that obtains the best performance in terms of real annual average growth rate of total public spending with a figure of 15%. On the other hand, Bogota and Cali show the lowest performance with figures of 10% for both cities.

The public debt of the Colombian urban primacy (Bogota) according to the territorial fiscal viability report for 2018, shows that there is a favorable behavior on the part of the district for the management of public debt.

In general terms, the quadricephalic structure that characterized the country marked a sustained structure of the hierarchical order of urban concentration, whose most significant fact has been the permanent primacy of Bogota. The different population and fiscal characteristics among the four cities undoubtedly constitute some explanatory elements of the behavior of urban concentration and public finances of the different urban centers. However, in the last decades of the quadricephaly period, in the perspective of the city-municipality, it has been transforming and disappearing due to important social, economic and political changes in the country.

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