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PUBLIC RESOURCES APPLICATION IN BASIC EDUCATION: DOES EXPENSE INTERFERE IN PERFORMANCE?*

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ABSTRACT

The overall purpose of this research was to compare the public expense and the performance of students in small municipalities in the state of Santa Catarina. This is a descriptive study, with a predominantly quantitative approach, based on survey and collection of documentary evidence. A sample of 25 municipalities with less than 50,000 inhabitants was analyzed in the period of 2011 to 2014, which identified the annual spending per student and its relation to the students' approval rate and their performance in IDEB. The average annual expenditure per student was R$ 8,529.68. A great disparity was found in the amounts charged by municipalities (difference of up to 462%), which, compared to the divergent and high average approval rates (96.6%) and different performances in IDEB, led to the conclusion that there is no relation between the public expenditures on public schools and the students' performance.

Keywords: *Public Accounting. Public Administration. Elementary School. Performance. Efficiency.*

1 INTRODUCTION

According to the Education Development Plan [Plano de Desenvolvimento da Educação – PDE] (2007), education can be defined as the process established between socialization and individualization of a person, through which individuals construct their autonomy and have the possibility of assuming a critical and creative attitude towards the world. For the United Nations

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(UN) (1948) it is an internationally guaranteed right, which requires the State to apply resources and to ensure the free and mandatory access to education.

In Brazil, the Federal Constitution (CF) (1988) establishes in article 6 that education is a social right of all and an obligation of the State and the family; it further defines that the State is responsible to offer basic, mandatory and free education from 4 to 17 years old.

For Daniel Cara, general coordinator of the National Campaign for the Right to Education [Campanha Nacional pelo Direito à Educação – CNDE] (2016), Brazil is still a long way from fulfilling the provisions of the National Constitution with regards to education. There are still alarming differences between Brazilian regions and social groups. According to a study published in 2007, Brazil needs to invest at least 10 years of its Gross Domestic Product (GDP) in basic education in order to make of education an instrument for prosperity and equality of all (CNDE, 2016).

For Souza, Silva and Araújo (2012), the development of education as one of the factors responsible for the social and economic progress of the population is related to the allocation of public resources.

Santa Catarina is elected one of the best Brazilian states in basic education, according to the Basic Education Development Index [Índice de Desenvolvimento da Educação Básica - IDEB]. In 2011, it got the second position in the IDEB for the first grade of elementary school (4th year / 5th grade) and the third position in 2013. With regards to the final years of elementary education (8th grade / 9th year), it got the first position in 2011 and the fourth in 2013 (INEP, 2015).

Taking into consideration the importance of education for the social progress and the prerogative that the allocation of public resources impacts on the students' performance, the question that guided this research was: Will public resources applied in the municipal school network impact the performance of students from small municipalities of the state of Santa Catarina?

As specific objectives, the annual expenses with education and the number of students enrolled in elementary education were assessed. The annual spending per student was assessed, as well as its relation to the students' approval rate and to the performance in IDEB.

Faria, Jannuzzi and Silva (2008) argue that this type of analysis is important because it shows to society if the public resources are being well managed by the government, in addition to the necessary transparency on the management of the public educational service.

The structure of this article was divided into introduction, theoretical reference on expenditure and efficiency in education, methodological aspects, description and data analysis, and conclusions.

2 DEVELOPMENT

Each municipality has a different reality with regards to education, making it impossible to standardize national expenditures, however, Souza et al. (2012) argues that public management is considered efficient when less resources are spent to achieve the results determined in its goals and objectives, reflecting the optimal transformation of inputs into quality products and services to be provided to the population.

Searching for the keywords "expenses", "cost" and "student" in Capes publications, 22 occurrences were found in articles from the last 10 years, but only four of them were related to expenditures per student. Among these four, three were national, addressing the cost of higher education in Brazil and one was an international article addressing the cost of basic education in California. Worth noting that the meaning used for the word *costs* in these articles does not match the standard accounting nomenclature

In accounting, the expenditure is understood as the accounting registration of debt or reduction of assets by payment. Expenditures include costs, expenses and investment (Martins, 2010). In public accounting, the concept of expenditure is in line with the term budgetary expenditure, used in the standardization of the area, for structuring the chart of accounts and public financial statements. Thus, the public expenditure researches on financial statements are understood to be applied to the concepts of accounting expenditures.

The National Treasury Secretariat (STN) (2015) establishes the Brazilian accounting standards applied to the public sector, in which the public budgets are classified by agency and unit, programmatic functional, nature of expenditure, economic category, nature group, expenditure elements, source of funds and other unfolding that are optional to the consolidation of national accounts.

Ordinance 41, dated April 14, 1999, establishes the standardized classification of the programmatic function, consisting of Functions and Sub-functions of public expenditure. The function reflects the institutional competence of the body, while the sub-function establishes the purpose of governmental action. In the case of this research, the expenditure on the function Education was used, downgrading it to the sub-funciton level: Elementary Education.

The performance of students in elementary education refers to the concept of efficiency in the use of public resources. Silva, Souza and Araújo (2013) define as efficient a smaller use of public resources to obtain a greater or better volume of services provided. In this sense, the manager that can still achieve the best performance per student using the smallest amount of public resources shall be efficient

2.1 Previous Studies

In the event of allocation of public resources in education, the following studies in Brazil should be highlighted: Souza et al. (2013) analyzing the efficiency of public expenditures on education in the Municipalities of the state of Rio Grande do Norte; Silva et al. (2012) analyzing the efficiency of public expenditures on education in Brazilian capitals; Afonso (2012), which addresses public policies of responsibility, aimed at accountability in education, comparing Brazilian evaluation methods with experiences from other countries; Gomes (2010), who analyzed the efficiency of municipal education systems in the city of São Paulo; Delgado and Machado (2008) assessing the efficiency of state public schools in Minas Gerais; and Faria et al. (2008) investigating the efficiency levels in the use of health and education resources in the state of Rio de Janeiro.

In the main studies analyzed, the efficiency calculation was made using the ranking of the official indexes of basic and elementary education, disregarding the relation between the expenditure and the students' performance. Souza et al. (2012) was the only who compared the performance of schools and the public expenditures, however, the value presented was only the annual total expenditures incurred with education by the Entity. Assessment by student or sub-function was not carried out

For the authors Gomes (2010), Delgado & Machado (2008) and Faria et al. (2008), the results of the research demonstrated that the higher the public resources expenditures the better the quality of education provided. Silva et al. (2013) do not follow the same line of thinking of these authors, instead, they argue that the quality of education is not related to the efficiency in the expenditures with education. In these researches, the sample and the variables chosen interfere directly in obtaining different results.

With regards to the evaluation method, Afonso (2012) reports that in the USA and in other countries the same devices are used for more than four decades to evaluate education (external evaluation, fixed tests with publication of school rankings, private explanations for public school deficits, accountability of schools, teachers and managers, connected to the academic results of students). The author suggests breaking with these methods and proceeding with the comparison of the school results based on public investments and the teaching methods, for a better view of the citizen and lower culpability by managers.

Considering international studies, we highlight the researches made by Pinto (2005), Yuan & Zhang (2015), Birchler & Michaelowa (2015) and Fabrino, Valle & Gomes (2014). If compared the levels of education analyzed in the mentioned article, they are all equivalent to what we call in Brazil elementary education.

Pinto (2005), who conducted a study on the spending per student in basic education in California - USA, where was found a discrepancy in education according to the location, even though the same value per student is passed on by the government, concluded that the expenditure itself do not provide quality education. According to the author, governments assist

only students with 95% attendance. In 2005, it was equivalent to US$ 4,306/ student. The government of the Municipality bears only $ 1,700 / attending student.

China, Yuan and Zhang (2015) made a comparison between the public expenditures on education and the demand for complementary education (private classes) combined with costs with teaching materials. They found that, as the Chinese government expenditures increase, there is a decline in the demand for private lessons, but there is no statistical change on the expenditure on textbooks or other articles required for Chinese students.

For Birchler and Michaelowa (2015), who analyzed the effects of financial aid on primary education, as a complement to the government expenditures in 34 member countries of the Organization for Economic Co-operation and Development (OECD), the aid was more relevant as to the number of registrations (enrollments) in basic education than to an effective improvement in the performance (quality education). The authors found that 1% increase in education expenditures results in an average increase of 0.06% in the enrollment in basic education.

For Fabrino et al. (2014), which assessed the effects of public expenditures on the effectiveness of education in Brazil and in other countries abroad, the educational outcomes can be affected by a combination of the evolution of public education expenditures and the rate of economic growth, which, according to the authors, impacts the effectiveness of the education system.

2.2 Methodological Aspects

The research is based on official financial statements through which the results are calculated and analyzed. It is characterized as descriptive research with a quantitative approach, based on the research and collection of documentary data.

The State of Santa Catarina currently has 295 Municipalities, among which 91% have less than 50,000 inhabitants. However, previous researches prioritized larger Municipalities or Capitals. The micro-region of Alto Vale do Itajaí, located in the east-central area of the state, comprising 28 municipalities, was intentionally chosen for having 96% of the municipalities with less than 50,000 inhabitants. Overall, it was possible to collect data from 25 municipalities that make up the sample of this research.

The evaluation period was from 2011 to 2014. Elementary Education expenditures were gathered in Attachments I, II and XVIII of the Summary Report on Budget Execution (Relatório Resumido da Execução Orçamentária – RREO), available at the website of the National Treasury Secretariat (STN). In cases where the statement was not available, the Municipal Accountant was contacted for data request.

All budgetary costs (current and capital) are recorded as expenditures, totaling the functional classification 12.361 (Education - Elementary School). The official public financial statements, available at the STN (2016), fail to provide details on the classification as to the nature, linked to the functional classification, therefore, it becomes impossible to separate the expenditures in costs, expenses and accounting investments.

Further, to calculate the expenditures, the accounting records that did not undergo the budget accounts subsystem (such as depreciations) were disregarded, since these records were optional to the Municipalities until 2015 and do not make up the budgetary classification of public expenditure, disclosed in the financial statements used in this research.

The performance per student was measured using the quantitative data provided by the Ministry of Education, at INEP (2015) webpage, where the approval rate and the IDEB indicator (from the 4th grade / 5th year to the 8th grade / 9th year). Therefore, it was possible to relate the annual spending per student from the municipal public elementary school and the educational performance.

2.3 Data Analysis and Description

Initially, the expenses with education and the number of enrolled students were found, and, subsequently the educational performance was determined, using the relation between the spending per student and the approval rate of these students, as well as the performance in IDEB.

2.3.1 Spending per student

The calculation of the spending per student was made considering the expenditures on Elemental Education, distributed by the number of students enrolled in each year.

Table 1
Annual Spending per Elementary School student - 2011 to 2014

Municipality	2011 (R$)	2012 (R$)	2013 (R$)	2014 (R$)	Average (R$)
Dona Emma	13.546,34	14.823,98	17.945,14	19.588,55	16.476,00
Rio do Campo	9.170,94	11.509,79	9.990,59	14.770,20	11.360,38
Ituporanga	10.113,78	12.948,42	10.379,30	8.033,50	10.368,75
Atalanta	10.582,29	12.672,55	8.781,34	8.757,23	10.198,35
Presidente Nereu	10.461,10	10.289,62	8.396,91	9.960,63	9.777,07
Mirim Doce	8.466,00	10.647,95	9.094,54	10.343,39	9.637,97
Aurora	7.680,86	8.115,15	10.451,06	12.145,39	9.598,12
Lontras	8.900,88	8.956,34	9.582,42	10.524,84	9.491,12
Chapadão do Lageado	10.561,16	7.866,14	10.665,06	8.264,61	9.339,24
Witmarsum	7.269,76	9.012,92	9.250,95	10.831,48	9.091,28
José Boiteux	11.108,87	9.503,51	6.755,27	8.530,34	8.974,50
Pouso Redondo	6.324,08	8.570,03	8.335,94	12.355,17	8.896,31
Imbuia	6.293,71	6.673,81	6.467,54	15.468,26	8.725,83
Agronômica	7.532,22	11.046,69	6.345,80	7.978,79	8.225,88
Vidal Ramos	8.130,06	7.102,98	7.432,45	8.568,19	7.808,42
Petrolândia	8.019,08	8.075,37	6.557,12	7.601,09	7.563,17
Rio do Sul	5.467,48	7.185,83	7.306,39	8.842,55	7.200,56
Vitor Meireles	5.797,18	7.233,41	6.289,55	8.934,57	7.063,68
Agrolândia	10.393,78	5.783,05	4.901,40	6.780,46	6.964,67
Laurentino	5.207,94	6.527,43	6.134,28	9.848,71	6.929,59
Braço do Trombudo	6.403,85	6.043,59	7.266,08	7.321,88	6.758,85
Presidente Getúlio	5.342,36	5.642,25	6.632,75	7.935,72	6.388,27
Ibirama	4.528,58	6.181,27	5.575,81	6.360,70	5.661,59
Taió	4.888,88	5.216,00	6.091,24	5.678,95	5.468,77
Rio do Oeste	4.241,14	5.273,03	5.089,96	6.490,23	5.273,59

Note. Source: research data.

The average annual spending per student, for the municipalities covered by the research, is R$ 8,529.68. Rio do Oeste is the smallest among those surveyed (R$ 5,273.59), while the largest is Dona Emma (R $ 16,476.00), representing three times the spending of that municipality.

Considering the evolution in time (2011 to 2014), it can be observed that Ituporanga, Atalanta, Presidente Nereu, José Boiteux and Petrolândia were the only municipalities among those covered by the research that reduced their expenses in the period. Most had increased spending and few remained stable

2.3.2 Spending per student x approval rate of the Municipal Elementary Education

The performance was measured using the approval rate and the annual percentages of approval in the Elementary School (Year 1 up to 9th Year) for the Years of 2011 to 2014 were calculated, based on INEP (2015) data. The average percentage was calculated by municipality and compared with the average values spent in the same period (data in Table 1).

The approval rate is high among the municipalities covered by the research, totaling the total average of 96.6%, while the average annual spending per student is R$ 8,529.68. Figure 1 shows the annual average spending per student related to the average approval rate for the period from 2011 to 2014.

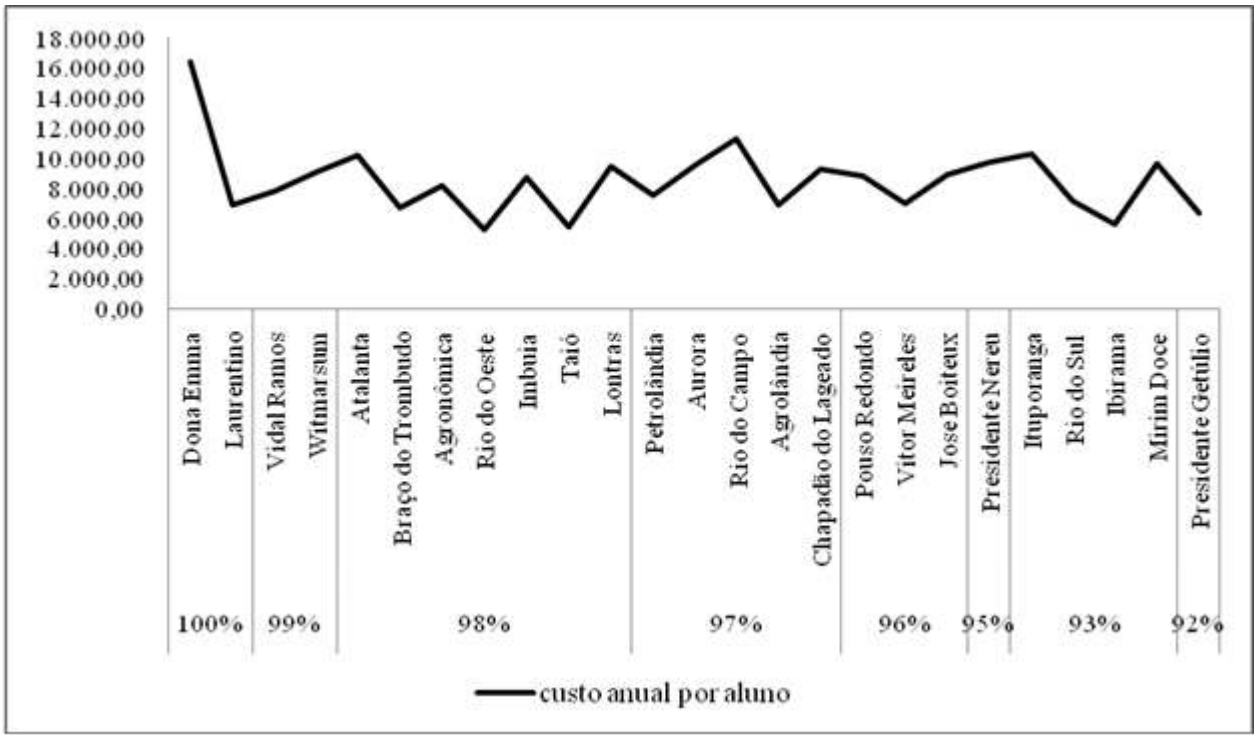

Figure 1: Average spending per student X Average approval rate
Source: research data.

Dona Emma had 100% approval and the highest average expenditure per student, of the sample researched, confirming the study by Fabrino et al. (2014), which concluded that the higher the expenditure, the better the student approval rate.

Rio do Oeste is the municipality with the lowest average annual spending per student, but its average approval rate is 98%, above the general average of the municipalities under analysis, supporting Silva et al. (2013), who argue that the quality of education has no relation with the efficiency in the education expenditure.

If the best approval results (100% and 99%) are compared, a variation of up to 238% of the average annual spending per student is found. (while Dona Emma spends an average of R$ 16,476.00, Laurentino spends only R$ 6,929,59). Likewise, if the worst sample approval results (93% and 92%) are compared, the variation found was equivalent to 183%. While Ituporanga spends an average of R$ 10,368.75, Ibirama spends only R$ 5,661.59.

2.3.3 Spending per student x Basic Education Development Index

INEP (2015) states that IDEB gather in a single indicator two key concepts for measuring the quality of education: the school flow and the average performance in evaluations. In this sense, spending per student was listed by IDEB, in order to identify the performance of elementary school students of the public system. Data from 2011 and 2013 were used, given that the indicator is only measured every two years, resulting in a limitation to the analysis hereof.

Table 2
Basic Education Development Index

Municipality	2011	2013
Taió	5.0*	4.9*
Ibirama	4.6*	4.7*
Aurora	5.3	4.9
Braço do Trombudo	-	4.8
Rio do Sul	4.3	4.6
Jose Boiteux	-	4.5
Ituporanga	4.8*	4.4
Agrolândia	5.3*	4.2
Pouso Redondo	-	3.5
Presidente Getúlio	4.2*	3.2

Note. Source: research data.
* Municipalities that reached the goal defined by INEP.

Among the 25 municipalities covered by the study, not all had data published on INEP website (2015). On Table 2, only two municipalities (Ibirama and Taió) reached the goal. Additionally, only Ibirama and Rio do Sul managed to increase the index over one evaluation to another.

Comparing spending per student and IDEB, we observe a better performance by Agrolândia and Aurora in 2011, which recorded the highest rate (5.3), despite the fact that none of the municipalities has the highest spending per student.

In the data of 2013, the best-evaluated municipalities in IDEB were Taió and Aurora, with a rate of 4.9, however, their average expenditures on education were not the highest observed. Ibirama, the only municipality that managed to stay above the goal established by MEC in the two years and increase the IDEB index, also presented the lowest spending per student in 2011 (R$ 4,528.58) and, in 2013, was the second lowest spending (R$ 5,575.81).

Thus, the analysis of the expenditure related to the student performance, using IDEB, provide evidence to the research of Souza, Silva and Araújo (2012), stating that the quality of education measured by IDEB has no relation to the application of public resources in the Area of education; However, it was negatively impacted by the calculation period of the indicator and the unavailability of data from all the municipalities at INEP (2015).

3 CONCLUSION

The growing popular demonstrations for better education in Brazil claim that the financial resources are insufficient to promote quality education, besides the common census to attribute the low performance of some students to the lack of public investments in education. However, previous studies demonstrated both possibilities: that the application of public resources can influence the performance of education and that financial resources do not interfere on quality education

The general objective of this research was to identify if the public resources, applied in the municipal education system, impact the performance of the students in small municipalities of the state of Santa Catarina. In spite of some limitations, all goals were achieved.

A sample of 25 small municipalities of Santa Catarina, located in the micro-region of Alto Vale do Itajaí, was investigated. The average annual spending per student in the municipal basic education system was R$ 8,529.68. Dona Emma spends an average of R$ 16,476 per enrolled student, while Rio do Oeste spends R$ 5,273.59 (difference of 462% in the same

micro-region). Therefore, it demonstrates a strong disparity in the application of municipal public resources in elementary School.

Students' performance, as measured by students' approval rate, ranges between 92% and 100; however, it shows no relation to the volume of public resources annually applied per student. The performance measured by IDEB was hampered by two reasons: not all municipalities had data available on INEP portal (2015) and IDEB was only measured every 2 years (in the research period, we used 2011 and 2013). The analysis was made anyway, and only the municipality of Ibirama was above the goal established by MEC, in the two years of IDEB evaluation. It had the lowest spending per student observed in 2011 (R$ 4,528.58) and the second lowest in 2013 (R$ 5,575.81).

Comparing this research with others mentioned in the article, we concluded that depending on the sample used the results may be different. In this research, which used as a sample municipalities with less than 50,000 inhabitants, the relation between the municipal public resources applied in the elementary school (per student) and the performance of students (measured by the approval and IDEB rate).

The research was limited to the data disclosed in official electronic website. Distinction was neither made between expenditures incurred (costs, investments or accounting expenses), nor determined the opinion of those involved (professors, managers, parents and students), as a matter of accessibility. In this sense, it is possible the extension of the research *in loco* concerning the perception of those involved and the justifications regarding the differences of expenditures between municipalities within the same micro-region.

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