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Analysis Of The Efficiency Of Public Education Policy: A Political-Economic Perspective

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Abstract
Background*: This article examines educational policy and the efficiency of public spending on primary education in the Brazilian context. It emphasises the significance ofevidence-based approaches for enhancing education quality and optimising the use of public resources. The expenditure on municipal education is growing, drawing resourcesfrom other areas. In this situation, there is an expansion of the supply of public educational goods, the depletion of other public goods, and a loss of well-being for taxpayers. Given budgetary constraints, this expenditure growth must be contained to meet other demands. Reducing expenditure on primary education could provide government revenue for financing other priority expenditures, such as infrastructure, health, and other social expenses. Spending on education is 6% of Brazil's GDP,evidencing the budgetary priority of the sector with a higher percentage than the averageof the OECD countries. The incentive system in education policy has an intrinsic flaw: the more inefficient the public policy appears, the higher the likelihood of increasing theallocation of additional funding for improvements. Hence, this government failure necessitates a reformulation of public policy. This allocation decision highlights the imperative to reconsider the decision-making process regarding utilising public resources.*
Methodology*: This study employed the Data Envelopment Analysis (DEA) methodologyto assess the marginal efficiency of municipal expenditures in primary education. DEA isan analytical tool used in operational research and economics to evaluate decision- making units' relative performance and efficiency, such as municipal expenditures on education. The process comprises two main phases. In the first phase, the researcher determines the selection of decision-making units (DMUs) to include in the analysis. In the second phase, academics select relevant and appropriate variables (inputs and outputs) to establish the relative efficiency of the DMUs. This methodology offers an approach to evaluate the allocation of resources and the formulation of educational policies.*
Results*: The results reveal the potential fiscal benefits of equalising efficiency levels among municipalities, reducing the need for additional austerity measures. Regional factors, including state size and educational performance, are key fiscal efficiency determinants.*
Conclusion: *This article underscores the necessity of adopting a more efficient and evidence-based approach to educational policy formulation in Brazil. It asserts that merely increasing resources is insufficient and calls for a revaluation of resourceallocation and policy design. By embracing more effective, performance-oriented practices, Brazil can elevate the quality of its education system, ensure the efficient utilisation of public funds, and contribute to overall economic growth.*

Keywords: *Efficiency, Public Education Policy, Data Envelopment Analysis, Budget. economic growth.*
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I. Introduction

The government outlined public education policy through comprehensive regulations covering the Federal Constitution, laws, decrees, ordinances, and normative instructions. Ruiz and Bucci (2019) emphasise that this legal system is fundamental to ensuring the effectiveness of government action, as it establishes the responsibilities andcompetencies of each entity involved in the process and, above all, the objective of publicaction. While these guidelines define the roles and responsibilities of federative entities and their respective bodies, Lassance (2022) emphasises that public policies often need a comprehensive framework for effective implementation. Consequently, there is a need toreview and revise the normative acts and reformulate public policies to fill these gaps andimprove efficiency.

This need for reform is evident in the case of education policy. Despite the comprehensive legal framework, education policy must improve the country's educationquality. This need is evident when we look at statistical indicators, which consistently reflect a persistent stagnation in the quality of education. Data from the International Student Assessment Programme (PISA) show a fall in Brazilian education indices from 2009 to 2019.

In addition to educational issues, it is also essential to consider the challenges associated with

implementing public policies, as discussed in the literature. According toBuchanan (1985), implementing public policies determined by political criteria fails dueto the influence of pressure groups. Lassance (2022) states that this kind of influence canresult in public policies with objectives that disagree with the approved legal system.

In response to this challenge, a proposal for public policy grounded in scientific evidence has gained traction. According to Segone (2008), many countries have realisedhow important it is to use evidence-based tools for making decisions based on data to ensure that government policies are effective at meeting the needs of the people.

Considering these insights, the study emphasises the urgent need to reformulate educational policies by incorporating measures guided by the scientific method. The primary goal is to establish performance indicators for municipalities and then benchmarkthem against the most efficient ones within each state. This approach could develop moreeffective and evidence-based educational policies.

The proposed prescription suggests raising the efficiency of municipal primary education. The economics and applied administration theories underpinned the proposal,combining literature with evidence. The association between theory and matter establishes a relationship between cause and effect. Thus, the proposal focuses onimproving the efficiency of municipal spending through education. The literature provides empirical evidence about how these recommendations can contribute to the solution of the practical problem.

The increase in public primary education expenditure did not enhance education levels or boost municipal GDP growth, disappointing the population, which hoped for improved well-being. High illiteracy rates indicate that a substantial portion of the population lacks adequate access to fundamental education. The PISA test results, whichmeasure school achievement for primary education students, are still unchanged. The belief is that expanding government spending would improve teaching and level school performance across the country at the expense of spending in other areas of established public policy. Thus, using educational policy to stimulate the economy's growth was frustrating because there was no improvement in education or labour productivity. Such frustration arose from the state's activity not corresponding, thus, to the prevailing aspirations of society. Consequently, this result frustrated voters who saw spending on education as a silver bullet that would solve all the evils of society.

The rationale for this disparity lies in the tendency to exaggerate the advantages of public policy while simultaneously underestimating its associated costs. According toFlyvbjerg & Bester (2021), this public policy prescription with naive foundations is recurring. The authors support their findings by stating that, on average, the costs are 43% higher and the benefits 17% lower than initially estimated in a sample of public investment projects.

The country's educational policy results are controversial, with some studies showing and others denying the improvement of primary education. It involves differentideological positions and paradigms with a narrative policy. In short, researchers can approach education from different perspectives, such as focusing on the importance of equity and economic growth.

Gramsci & Coutinho (1968) affirm that education is essential for promoting socialequality and reducing inequalities of opportunity among individuals. They also say that it is a long-term investment. In this way, these researchers no longer consider other population's needs.

Meanwhile, the strictly economic approach to education emphasises the efficiencyand financial return of educational investment. In this perspective, researchers see education as improving their productivity and employability. Weber (2013) calls this form of education training pedagogy, which the rationality of capitalist society would impose. In this light, the authors point to the deterioration of education as fundamental totheir statistical-based conclusions.

This article contributes to this debate using non-parametric statistical analysis and substantiates its proposals based on economic theory. Therefore, essays on the "economy of education" and "economic development" have supported this research. In this manner,the study analyses the issue from an economic perspective, proposing a measure to increase spending productivity in less efficient schools. This measure aligns with the National Guidelines and Bases of Education Law (NGBEL), aiming to reduce disparitiesin educational performance among schools. Evidence shows that there has been no improvement in educational performance or even a reduction in educational performancedisparities among schools. The evaluation of primary education by Nunes & Nunes (2023) indicates that the costs of municipal educational policy have exceeded the benefitsand have depleted resources from other sectors. Therefore, the study seeks to measure and quantify the fiscal benefits by introducing goals to enhance municipal spending productivity.

Statistical analysis and academic studies reveal the diagnosis of the ineffectiveness of education policy. The parameters used for the database survey includedBrazil's exam results, per capita income, primary education expenditure, and economic growth. These descriptors made it possible to reflect on the stagnation of students' gradesin Pisa, the distance between good and bad municipal public schools, and the lack of resources in other sectors. The academic survey used criteria from the Brazil Test, including per capita income, expenditure on primary education, and economic development. These descriptors made it possible to reflect on the stagnation of students' grades in Pisa, the distance in educational performance between municipal public schoolsand the lack of

resources in other sectors.

The diagnosis shows a decline in well-being in society. The overall social welfareof taxpayers has decreased due to increased spending on elementary education. The priority of this government spending is the establishment of salary gains for teachers without corresponding productivity. The percentage of salaries in allocating resources tothe sector of 49.21% demonstrates the significance of teachers' salaries within this policy. This wage priority reduces the financial resources to act directly on the elements that canimprove students' learning. Thus, the prioritisation of the payment of the national floor ofteachers extrapolated, in essence, the scope of the initial intention that justified the publicpolicy of improving public education.

This phenomenon occurs because allocating more funds to elementary education has reduced the availability of other public goods. In particular, public policy withdrawsresources from GDP growth financing and limits funding for primary education. This lower GDP growth reduces funding sources for education and resources from other headings that could increase incomes. Therefore, the current incentive package for public education policy creates a vicious circle of low growth and low investment in areas crucialto promoting economic growth, thereby preventing increased funding for the social sectors.

The prognosis for the poor quality of public education spending is government intervention. Public intervention would occur when the social cost of producing goods was higher than the private cost. In such cases, the government would ensure adequate funding allocation towards improving public education quality. The government could implement policies and regulations that mandate increased spending on education, alongwith stricter accountability measures for how funds are utilised as part of this improvement in education. Also, establishing the criteria for guiding and evaluating municipalities' allocation decisions is helpful. Only in this way would it be possible to actdirectly on the elements that undermine the total efficiency of public policy. By prioritising the social benefits of schooling over individual costs, government intervention can help bridge the gap between public education's poor quality and the needfor equitable and effective learning opportunities for all. Thus, for this state action to be successful, it is necessary to correct its design and carry out its evaluation repeatedly, as presented in Fischer, Dornbusch e Startz (1985).

This review of government initiatives should follow evidence-based scientific criteria. Thus, this article investigated scientific literature, aspects of public education policy, and economic and educational data. This way, articles on the "economy of education" and economic development supported research to correct this budgetary distortion. This research included these annals of congresses to find a theory that would subsidise government interventions and mitigate the high cost of educational policy. Therefore, we would have an approximation between public management and academic research findings. Scientific research has criteria of scientific rigour that ensure the legitimacy of the data generated in its use (Flick, 2008).

With this in mind, the work aims to measure the increased productivity of education spending. The suggestion is that the scores of the schools in Brazil Test measureeducational performance and be a relevant criterion for receiving resources along with the number of students. Thus, only the score on the Brazilian test and the number of students would be the criteria for obtaining funding resources.

This format is helpful for users of public goods and their families to track schoolmanagement outcomes. In this resource-sharing format, people would be encouraged to follow the progress of municipal education through school results. This way, the students'families could associate the distribution of educational resources with the schools.

Thus, this work suggested measuring the performance of municipal educational expenditures using DEA for municipal schools by state. Each municipality aimed to achieve the educational result of the municipality with the best position in the state's ranking. Establishing these targets would lead school managers and policymakers to spend on items that can leverage educational performance.

This proposed redistribution of resources differs from the regulations in the FMDB. The calculation of this fund is complex and challenging to understand. These multiple objectives can jeopardise the transparency and effectiveness of FMDB, reducingthe population's involvement. As a result, the need for greater understanding and complexity of calculations and targets may discourage monitoring and the population's participation in monitoring educational performance.

Building upon the complexities of education funding, let us now delve into the changes introduced in 2020 through the New FMDB, which altered the landscape of educational resource allocation. The New FMDB, implemented in 2020, hastened the fundamental structure of the FMDB, making criticisms of its current configuration morerobust.

While examining the implications of the New FMDB, it becomes evident that policymakers must consider the efficiency of education spending. This exam brings us tothe broader discussion of how maximising resource utilisation can benefit students and society. However, since the standards of educational policy design are constitutional, thiswork is limited to suggesting increasing the productivity of education spending to serve the users of the educational public good and enable the generation of social benefits overcost. Thus, the policymaker must seek the efficiency of education policy in restructuringthe budget. The policymaker can ensure that limited

resources are utilised in the most efficient manner possible. Focusing on efficiency in education policy can lead to a moreproductive and successful education system that benefits students and society.

II. The design of educational policy municipal

Resources available for spending on basic education.

The Maintenance and Development of Education (MDE) receives funding from both the federal government (Union) and subnational governments to support public education policies. The Union provides additional resources to the MDE and makes supplementary allocations to the least economically developed subnational entities to ensure the minimum expenditure on education. One of the sources of funding for the MDE is the National Fund for Education Development (NFED). Consequently, the publication of constitutional and extra-constitutional norms has established the financialframework for implementing public policies. The Union has made these public actions viable through regulations, including the Federal Constitution and Law 14.113/2020, which set out education financing and expenditure regulations. These regulations have determined the structure of education spending.

Furthermore, Article 212 of the Federal Constitution outlines the sources of education financing. It mandates an annual allocation of 18% by the Union and 25% by the states, Federal District, and municipalities for the maintenance and development of education. The Education Maintenance and Development Act (MDE) governs the revenue derived from taxes, transfers, education salaries, and expenses related to the NFED programs.

The income from the education salary is destined for the NFDE to fund educationwith federal resources, providing resources for programs such as food, school transportation, and educational materials.

The MDE, in turn, has as its main source of funding the Fund for the Maintenanceand Development of Basic Education and Valorisation of Education Professionals (FMDB), composed of 25% of a set of revenues to finance actions and programs of the MDE. In addition, federal resources in the form of a basket comprising 18% of federal appropriations are allocated as supplementary funding to the MDE.

It is crucial to emphasise that federal and state sharing revenues finance most municipal education expenditures. These municipal taxes and shared revenue are progressive. The federal and state sharing of revenue favoured a lower GDP per capita. This distribution of shared revenue assists regions with lower economic development. Byallocating a more significant portion of funds to areas with a lower GDP per capita, the government aims to stimulate educational growth in disadvantaged communities. Thus, the education funding scheme transfers federal and state income to municipalities with lower GDP per capita. Such a scheme works to equalise the expenses for students betweenthe municipalities. This financing policy with progressive taxation redistributes income according to Keynes (1936) and Kalecki (1954) guidelines.

These municipal taxes and shared revenue are progressive. Federal and state revenue sharing favours municipalities with lower GDP per capita. This distribution of shared revenue is intended to address income inequality and assist regions with lower economic and educational development. By allocating a larger portion of funds to areas with a lower GDP per capita, the government aims to stimulate educational growth in disadvantaged communities. Financing education redistributes national and state incometo municipalities in response to the constitutional mechanism to reduce regional inequalities. This resource redistribution mechanism aims to ensure that all municipalitieshave equal opportunities to offer education to their citizens.

The complexity of the calculations for the referral criteria to municipalities, which include multiple objectives, serves as additional proof of this poor design of public action.This bad design is because the resource transfers of the FMDB privilege replace teachers'salaries and adopt socio-economic criteria rather than student performance. The data analysis in the table 3 reveals a limited allocation of resources for funding equipment and materials in public schools. This data indicates a limitation in investments in this crucialarea of education.

The diversity of criteria prevents the user from tracking improvement in teaching.This complexity in calculating the requirements for referral to municipalities removes transparency and clarity in defining objectives. Furthermore, more clarity is needed to make accountability and evaluating the results achieved with public resources easier. Thediversity of criteria prevents the user from tracking improvement in teaching.

This lack of transparency is because the evaluation of the school may derive fromother parameters. Therefore, the format of public education policy needs to be corrected.This correction can be achieved by further simplifying and standardising these criteria toensure an efficient distribution of resources. Education policy should prioritise expenditure on pupils and investment in school infrastructure, continued training of teachers, an adequate school curriculum, and pedagogical support. Then, it is possible topromote a real improvement in education and guarantee a reasonable allocation of publicresources. The diversity of criteria prevents the user from tracking the progress of teaching. This incapacity is because the evaluation of the school may derive from other indicators not related to school performance. These additional criteria make it difficult toclearly understand school performance, as they divert the focus from academic results. Inaddition, including many parameters undermines assessments' transparency andreliability.

In this way, the revenues linked to the MDE should be applied to actions of educational programmes,

such as the remuneration of teachers, capital expenditure, expenses with school snacks, and educational transportation, among others, listed in the Law of Guidelines and Bases of National Education.

The MDE and the equalising role of primary education opportunities

The Union also strengthens the distribution of educational resources by providingNational Fund for Education Development (NFED). This Fund allocates 10% of the contribution collection to fund basic education projects. This appropriation finances the National School Feeding Program (NSFP), popularly known as a school snack, the DirectMoney at School, the National Program for Supporting School Transport and other assistance through conventions, as pointed by Cavalcanti & Oliveira (2019). In turn, the Ministry of Education provides technical assistance to municipalities.

Another income redistributive element is the FDMDB. This fund leads to municipalities with lower GDPs receiving more resources per capita. The FDMDB criteria for equalising educational opportunities meet the constitutional objective of reducing regional inequality. The goal is to redistribute education resources to reduce differences in education funding capacity between municipalities. Thus, municipalities finance education with the resources they receive from taxes (own resources) and revenuesharing.

Essentially, the overall objective of FDMDB is to promote equity and equal accessto education, ensuring that it distributes educational resources in such a way as to supportpupils and schools from regions with different economic capacities. This Fund promisesto reduce disparities in educational opportunities and improve the quality of education offered in different municipalities or regions. However, there is an apparent inconsistencyin the allocation of resources since about 60% of its resources are destined for magisterialprofessionals, which can be interpreted as a discrepancy concerning the legal system since the Fund allocates more resources for paying professionals than for expenses directly withstudents. This allocation of resources restricts the resources that could be devoted to acquiring educational materials and technological devices, such as Internet access and maintenance of buildings and facilities. There needs to be more consistency between theobjective of the FDMDB and the allocation of most of the resources for the payment of teachers, which limits the purpose of the Fund to invest in students.

The discrepancy between the objective of FDMDB and its legal system creates the need to reformulate its rules for the effectiveness of its purposes. The configuration of the FDMDB responded to the plea of the trade unions for higher remuneration withoutthe requirement of increased productivity through institutional evaluation. This lack of alignment between the norms governing FDMDB and its purposes is envisaged in the literature and is pointed out as the reason for the failure of public policies. Borcherding, Bush & Spann (1977), Marlow and Orzechowski (1996), Nunes (1997) and Anzia & Moe(2015) corroborate this finding by stating that trade unions in the public sector play a significant role in influencing government spending decisions. This outcome shows howthe public service unions' actions can contribute to state intervention's failure.

III. Formulation of Public Policies

Ideal settings

The effective configuration of public policies requires clear goals, reliable data, stakeholder involvement, flexibility, ample resources, and ongoing monitoring to all be factors in the design of an educational policy. The formulators of this state action must establish objectives, strategies, and programmes aligned with and based on scientific evidence, as pointed out by Oxman et al., (2009). Creating tests to evaluate all elementaryschool students and enable knowledge of the performance of public schools and making these tests available on-site for all's knowledge brings transparency. In this context, publicpolicy actions reduce social costs to the lowest possible level. At the same time, these government initiatives expand private benefits.

This ideal scheme should be confronted with the characteristics and results of stateeducational action to measure the changes necessary to shrink the gap between achievedand idealised. Those in charge of formatting the public action should make the corrections. Actors from academia, Congress, and the bureaucracy have shaped public policy through an institutional-legal arrangement. They are responsible for shaping publicpolicy.

Academics produce knowledge that can subsidise government decision-making. Their experience and expertise in the field can help identify problems and propose solutions with a theoretical and practical basis. Through legislation, Congress members can establish guidelines, standards, and targets for the education system and allocate financial resources for the area. They are supposed to represent the interests and demandsof society. The government bureaucracy is responsible for implementing the educational policies defined by the Law. They manage programmes, develop action plans, monitor outcomes, and carry out monitoring and evaluation actions for ongoing policies.

Academic contributions help to find causal relationships between educational policy variables. These causal relationships are crucial to understanding how certain policies directly affects the educational system and what the effects of these actions are. Academics can use research and studies to identify the factors that positively or negativelyinfluence student performance and the quality of teaching.

Knowledge of the explanatory variable allows for an impact assessment of socialpolicy design and

possible corrections. However, it is important and equally difficult to find. Its discovery requires careful analysis and experimentation to identify the causal relationship between the explanatory and dependent variables. In addition, it is necessaryto control all other variables that may influence the result to ensure its validity.

Educational Policy Challenges: Assessing Current Settings

The payment of teachers without increasing productivity is a contentious issue. Hanushek (2016) argue that increasing teachers' salaries without any corresponding increase in effectiveness will only lead to a waste of resources. He believes a performance-based pay system should be implemented, where teachers are rewarded based on their students' academic achievements. He argues that this approach would incentivise teachers to continuously improve their teaching methods and ensure studentsreceive a high-quality education.

This importance is evidenced by the percentage of teachers' salary expenditure onthe MDE financial allocation of 49.21%. This pay-pay priority reduces the financial resources needed to act directly on the elements that can improve students' learning. In other words, the pedagogical training of teachers, the distribution of teaching material, the delivery of computers and Internet access, and the school's transportation receive fewer resources. In short, the actions of the MDE seek to equalise the educational fundingcapacity of municipalities. However, the resources are directed towards teachers' pay without compensating for increased productivity. Thus, schools' educational training, infrastructure programs, and access to school materials have been secondary. Therefore,the success of educational policy depends on changing the status of secondary programsto priority programs and thus promoting the continued training of teachers, the improvement of school infrastructure, and offering extracurricular activities.

Having discussed the role of teacher salaries in the previous paragraph, it is now essential to deepen the meaning of investing in educational pedagogy. Investment in educational pedagogy is the primordial element for improving teaching for Lamas and Seabra (2022). The determination that the schools with the lowest results receive financialsupport and help from the winners to raise the learning rate of their students explains thesuccess of Sobral for Muniz (2016). Muniz et al. (2021) present other measures to improve the administration of schools in the municipality. The authors highlight the selection of managers by public tender and not by political nomination. There are investments in pedagogical assignments to assist in the planning of lessons and developing teaching materials specific to the disciplines. Another relevant measure is thepayment of bonuses to reward performance. Specifically, the Municipality of Sobral (CE)performs recurrent training of educators and invests in infrastructure. This municipality has a successful history of promoting the improvement of education, which couldsubsidise the framework of national public policy.

Contrary to the country's successful experiments, national public policy follows political criteria. The configuration of educational policy favoured the attention of interestgroups with ideological arguments. The rules implemented allowed educators to earn wages without correlation with work productivity, as required by the unions. These associations have also managed to exclude changes to the criteria for promotion and progress in public service careers and access to benefits from the educational standards. Such corporate achievements were based on declassifying proposals for determining productivity gains for wage increases as a liberal matrix, as described by Rosa (2018). For the author, there are better approaches than choosing productivity gains for teacher salary increases since education cannot be measured only by quantitative results, and thisform of remuneration can lead to harmful competition among educators.

However, the contrast between successful localised experiments and the overall national approach raises concerns about using scientific studies in shaping education policy, leading us to consider the importance of evidence-based decision-making. In viewof the disregard for using scientific studies in public policies, the World Bank has developed a manual for evaluating and monitoring public policies. Also, the Civil Houseand the Institute of Applied Economic Research (IAER), have a guide for the same purpose. In addition, the National School of Public Administration (NSPA) has a core study for measuring the costs and benefits of these state actions.

However, despite protocol and governmental and institutional guidelines, the formulation of public education policy has been far from ideal. Thus, the absence of a strictly technical configuration of government action contributed to the low performanceof these schools. Among the interests served, one can quote the national minimum level of teachers' salaries that does not act on the result of Brazil's Test grades.

The abandonment of previous studies in public policy formulation allowed municipalities to be treated with unequal administrative capacity and income. The Act ignored that not all municipalities had the management capacity to improve education. As a result, many small municipalities need more school materials. Thus, many municipalschools need more equipment and with precarious school administration.

However, the population believes feasibility studies anticipate these public actions and government monitoring without political influence. Given this belief, adjusting educational policy is not even on the public agenda, according to Oliveira (2017).

Whereas an appropriate analysis should be based on a scientific assessment beforethe editing of the constitutional norm, considering the role of pressure groups, it should be noted that the conception of public policy

without prior scientific studies is the reasonfor the failure of this state action. With research, a diagnosis of the nature of educationalproblems was made, and the real elements that could improve students' learning were sought. Due to these constraints, there has been a low learning rate for students in municipalities with a smaller population. Therefore, the education system failed in abouta thousand municipalities, with Brazil's Test scores below 3 in 2019.

The authors of the TFC emphasise that the formulation of public policies followspolitical measures. By this theoretical framework, parliamentarians commit themselves to adopting the Public Policy Rules in exchange for votes. This interpretation of public policies as a purely technical instrument is surprising.

While the authors of the TFC highlight certain aspects of policy formulation, it isalso crucial to explore what educational literature has to say on the matter. According toeducational literature, practical measures would increase students' learning. This learningwould be measured by the student's grades in the Brazil Test. An increase in theproductivity of teachers could be achieved by paying additional fees to teachers who would take their students to the best grades. This variable remuneration system is recognised as an instrument that brings out the best performance in public servants.

In sum, implementing public policies without a scientific basis caused the failureof Brazil's education initiatives. Public policy guided by political interest also prevents the improvement of education. This political action led Easterly (2001) to assert that politicians are as ineffective as well-intentioned and Friedman (1975) to say that: *One ofthe great mistakes is to judge policies and programmes by their intentions, rather than their results. We all know a famous paved road with good intentions*.

In conclusion, the discussion thus far has underscored the importance of evidence- based policy formulation, which brings us to whether increasing spending in the sector isthe right approach. Instead of simply increasing expenditure in the sector, it is crucial to choose government initiatives grounded in solid theories to identify government actions that genuinely contribute to the effectiveness of public policies.

It is essential to recognise that an increase in expenditure can both enhance the effectiveness of a programme and compromise its results. The success of government initiatives in the education sector depends on targeted investments in programmes to improve education quality.

In summary, the first essential step in designing educational policies is identifyingthe variables that explain educational improvement. This action reinforces the need for an evidence-based approach and careful consideration of how financial resources are allocated to maximise positive impact on the education system.

Building upon the discussion of the importance of evidence-based policyformulation, let us now discuss the role of consistent educational theory in shapingeffective education policies. Consistent educational theory points to a causal relationshipbetween the pedagogical training of teachers and the teachers' learning. This adherencerequires that the explanatory variable follow theoretical principles and concepts throughlogical means. Nevertheless, it is still necessary that the theory and the explanatoryvariable chosen allow the realisation of projections. Thus, the adopted theory needs toexplain reality and have empirical support in different contexts, as Christenson (1983)pointed out. Thus, if the theory is appropriate, it serves as a roadmap for public discussion.

However, there is a discrepancy between the design of the educational public policy recommended by the theory and its implementation, as recognised by Bečvářová & Krátká (2017). The actions of pressure groups that incorporate measures of their interest in the Law regulating government action explain this lack of alignment. Thus, public policy promotes the salary enhancement of education professionals rather than directly improving public education.

Nevertheless, there is no causal relationship between these variables. There is notheoretical reason to recommend an increase in teachers' salaries without a correspondingincrease in productivity to improve teaching. The New FMDB allocates 70% of its resources towards the payment of wages, which jeopardises the efficacy of education policy. Politicians can support these public servants' desires in exchange for re-elected votes.

This linking privileges the financing of public expenditures to the detriment of other public activities. This trade-off is because linking resources for specific purposes perpetuates priorities and reduces the management scope of implementing the appropriations set out in the budget. Moreover, they generate asymmetrical effects: if there is frustration with the linked revenue, the corresponding expenditure, even if of low priority, is not automatically reduced. So, these expenses add to the fight over free programming resources, which, because of too many links, are already a small part of theprimary income and cut into the public budget's management margin, making it harder for the government to set priorities based on the needs of the time. Therefore, the mandatory allocation of budgetary resources effectively reduces the budgetary share of free resources to satisfy other pressing demands at the discretion of public managers.

The education policy implementation has employed measures contrary to those recommended in the academic and government environments, such as linking revenue to expenditure. The theory of budgetary administration and public managers reject such budgetary practices. This inflexibility results from linking expenditure to revenue, which,as Giacomoni (2011) pointed out, petrifies past priorities for the future and enriches

budgetary execution. Thus, this procedure deprives the government of the ability to set priorities based on existing needs in each period. Furthermore, according to Serra (1994),the rigidity of the budget is an important factor in explaining the fiscal crisis.

This budget tightening concerns public managers because it is an obstacle to balancing public accounts. The high percentage of interest expenditure and budgetary revenue (82%) limits the government's ability to invest in infrastructure works and projects, impacting the country's economic development. Magalhães Neto (2014, p. 14) corroborates this concern: *When you account for the obligations of education and health,there is no money left for absolutely nothing* (...) *causing the everyday problems of Brazilian municities: mobility, chaos in traffic, and the critical situation of infrastructure.*Thus, financing these discretionary expenditures requires financing that can only be obtained by increasing the tax burden, compensatory reductions of other expenditures, orpublic debt in each period.

This section presents the theory of government failures of the School of Public Choices to point out the inefficiency of educational policy that generates waste of publicresources. This loss is due to the increased allocation of resources to provide meritoriousgoods to educational pressure groups at the expense of other goods demanded by the remaining population. Thus, the total utility of the consumption of goods by the educational group is high at the expense of the losses to the rest of the population. The result is a decrease in the potential well-being of the population. Therefore, this theory emphasises the importance of efficient governance and adequate government supervisionto ensure the best use of resources.

The theoretical explanation for the inverse relationship between the consumptionof a good and marginal utility is that increased consumption results in diminished marginal utility. Consequently, as the supply of the good increases, the total utility of thegood also rises. However, this leads to a decline in marginal utility, commonly referred to as the law of diminishing marginal utility. As more units of the good are consumed, each additional unit yields less satisfaction or utility than the preceding one. This phenomenon elucidates the reason behind the growth in total utility with an increase in the supply of goods and the concurrent decrease in marginal utility.

The traditional microeconomy states that the optimal point of provision of goodsis one where the marginal utility of the goods is the same. The point of providing these public goods is not optimal because their marginal utility is distinct. This difference in the marginal utility of goods is an inefficiency that generates a loss for the user of the public good. It is a point of imbalance where a gap between benefits (total utility) and costs is not maximised. Also, according to orthodox theory, the benefit of educational policy being less than the opportunity cost of providing other public goods is another wayof portraying inefficiency.

This loss is called a deadweight in literature. Le Grand (1991) asserts thatineffective budgetary allocation based on public policy is the cause of this deadweight. Such inadequate budgetary allocations serve the interests of pressure groups that disregard public welfare. Furthermore, bureaucracy and a lack of transparency can increase the deadweight (waste of public resources).

The outcome of public policy would be different with the proper choice of the foundations of government action. Public policy should identify and direct expenditure on the items that allow for achieving the desired results based on scientific methodology.Meeting the elements that explain the improvement of education allows us to map the explanatory variables of the performance of these policies and the degree of their influence on the effectiveness of public policy. In this way, the choice of government actions and programs is crucial to public policy success.

The inappropriate educational policy design can lead to the loss of public resources without improving education, perpetuating regional inequality. It is, therefore,essential that the mechanism of state action be well-planned and implemented efficiently.Furthermore, it is necessary to have a rigorous monitoring of results and a continuous evaluation of education policy to identify and correct possible shortcomings and ensure regional equality.

Diagnosing the inadequacy of education policy can make it more effective. Identifying the main weaknesses of education policy enables an in-depth analysis of its shortcomings and, consequently, the adoption of more assertive measures to correct them.

Moreover, by presenting the diagnosis of the inadequacy of education policy, it is possibleto involve different actors and institutions in the debate. In this way, education policy canbe redirected more effectively to provide quality and equitable education for all students.The reason for the inefficiency was the inclusion of political measures in government action. The configuration of educational policy favoured the attention of interest groups with ideological arguments. The rules implemented allowed educators toearn wages without correlation with work productivity, as required by the unions. For theauthor, there are better approaches than choosing productivity gains for teacher salaryincreases since education cannot be measured only by quantitative results, and this formof remuneration can lead to harmful competition among educators. Thus, the distance between theory and practice underlying public actions explains its failure (Kopittke and Ramos (2021)).

The political equation in adopting standards covers the conflicts that hinder the objectives that can

improve the population's well-being. This finding is expected for a developing country due to inadequate state regulation in the economy (Restuccia & Rogerson, 2017). This regulatory structure allows political groups to dictate the course ofpolicies to the detriment of the diffuse interests (of the collectivity) and the public, albeit wider, less organised, and underrepresented in the political system, as pointed out by Wu,Ramesh, Howlett, Fritzen (2017).

The authors of the Public Choice School theory emphasise that the formulation ofpublic policies follows political measures. By this theoretical framework,parliamentarians commit themselves to adopting the Public Policy Rules in exchange for votes.

In view of the disregard for using scientific studies in public policies, the World Bank has developed a manual for evaluating and monitoring public policies. Also, the Civil House and the IAER have a guide for the same purpose. In addition, NSPA has a core study for measuring the costs and benefits of these state actions.

However, despite protocol and governmental and institutional guidelines, the formulation of public education policy has been far from ideal. The configuration of the educational policy falls within this diagnosis by privileging the payment of educators andnot the expenditure of students. The main purpose of FMDB is to ensure the payment ofthe national level of teachers without a commitment to increasing productivity.

This wage pay priority reduces the financial resources to act directly on the elements that can improve students' learning. In other words, the pedagogical training ofteachers, the distribution of teaching material, the delivery of computers and Internet access, and the school's transportation need more resources.

Thus, schools' educational training, infrastructure programs, and access to schoolmaterials have been secondary. Therefore, the success of educational policy depends on changing the status of secondary programs to priority programs and thus promoting the continued training of teachers, the improvement of school infrastructure, and offering extracurricular activities.

According to educational literature, practical measures would increase students' learning. This learning would be measured by the student's grades in the Brazil Test. Anincrease in the productivity of teachers could be achieved by paying additional fees to teachers who would take their students to the best grades. This variable remuneration system is recognised as an instrument that brings out the best performance in public servants.

In short, the actions of the MDE seek to equalise the educational funding capacityof municipalities. However, the remuneration of teachers without increasing productivityreceives the majority of the resources. Thus, schools' educational training, infrastructure programmes, and access to school materials have been secondary. Therefore, the successof educational policy depends on changing the status of secondary programs to priority programs and thus promoting the continued training of teachers, the improvement of school infrastructure, and offering extracurricular activities.

Public education policy provides educational goods at the expense of products andservices. In other words, for one user of public goods to gain, another had to lose. Due tothis provision of educational goods, there has been an increase in resource scarcity in municipal economies. As a result, society has yet to achieve greater well-being with a diversified supply of public goods. The reduction in public investment in infrastructure affects the volume of private investment. This reduction in investments induces a decreasein demand for private labour in the country, and the result of these movements in the economy reduces the added value of society.

The change in the provision of public goods mitigates the inoperability of this public action. Such allocation revision requires restricting spending on education and increasing the supply of other public goods to alter the marginal utility of all goods. Theresult would be an increase in the marginal utility of the educational good and a reductionin that of other public goods. Equality between the productivity of these goods is possiblewith the continuous increase in the supply of other public goods and a reduction in educational goods.

However, this adjustment of the provision of public goods is not allowed in Brazilian budgetary legislation. This allocation rigidity prevents greater mobilisation forpublic investment financing and financing other priority expenditures, such as health andother social expenditures. Thus, Paiva (2020) summarised this situation by reporting thatalthough there is a lack of resources in one area, at the same time, there is an excess of resources in another that cannot be used outside the planned linkages. Such a restriction inhibits the state's initiative to promote economic growth. The return of the state's role inthe economy would be possible with the constraint of government spending and the improvement of the quality of public spending. This inefficient use of public resources exemplifies the action theory of "misallocation" to explain the lower income and GDP growth proposed by Feidler and Staal (2008).

The tragedy of the communes arises from the dispute between the groups for budgetary resources, leading to overconsumption for some and underconsumption for others. The groups claim more to ensure the desired supply of goods, decreasing the quantity available to the others, as Baden, Baden, and Noonan (1998) noted. This result arises from the fierce dispute between the groups, which are subject to the so-called "effect of voracity" of Tornell and Lane (1999).

This voracity effect tends to be greater in less developed countries with high- income concentrations because there is a greater demand for public goods. This higher demand is due to the high percentage of voters

with incomes below the median. These citizens have a greater need for public goods to supplement their income. In response to the higher demand for goods, there are more groups. More significant pressure groups forpublic goods and the greater need for government goods result in a more intense voracityeffect.

This limited supply of public goods frustrates the population's eagerness to expandpublic goods. This result is called the "tragedy of the communes". Thus, a budgetary allocation that offers public goods to meet the demand of one group at the expense of others is a misuse of public resources. In this allocation scenario, the taxpayer can access products of distinct marginal utility. Therefore, budgetary policy could be more efficient. This ineffectiveness is because the total utility of the consumers of public goods could beincreased by the decrease in the supply of goods of lower marginal utility and the increase in the provision of goods of higher marginal utility. This result does not maximise the users' utility of public goods and indicates the misuse of public resources.

Adjustment Measures as described in the literature.

Government revenues for education are resources from society to finance its public policies efficiently. As managers of these rents, governments must generate the greatest benefits at the lowest cost to provide taxpayers with a return.

The continuity of the format of this educational policy jeopardises the return of population resources managed by governments. The loss of educational resources resultsfrom the stagnation of municipal GDP. The lower GDP growth compromises the expansion of basic education spending and the supply of other public goods to these municipal economies. A municipality without resources to finance the investment does not generate the incentives necessary to stimulate its development process.

This allocation situation leads municipal economies into poverty traps. Increasingdisbursements in an activity with a low impact on GDP prevents investment in sectors that can leverage economic growth. This scenario inhibits capital accumulation and perpetuates lower income levels. Therefore, the significant obstacles to economic development are the low return on spending on education and the low volume ofinvestment.

In view of this framework, changing public policy is necessary and possible withthe identification of the distortions of education policy. A new format for distributing FMDB resources and establishing and disseminating a ranking of educational performance by state could mitigate the misallocation of resources and communal tragedy.

The incorporation of the performance of the municipality as a criterion for the allocation of FMDB resources would indicate efforts to improve education. Currently, the distribution of resources from this Fund is calculated based on the number of studentsenrolled, accompanied by a minimum level established nationally. To ensurereimbursement to the institution, considering the specified criteria, there is the Union's forecast for the transfer of resources, the so-called Union Supplement, which is 23% of FMDB 's revenue.

This correction of the configuration of an ongoing public policy is difficult. Conflicting interests between managers and families, on the one hand, and teachers, on the other, impede change. Public administration often relies on information provided by the supervised ones, who have strong incentives to be omitted, Stigler (1976).

However, this convergence of interests would be possible by setting objective targets for municipalities and providing financial rewards for achieving them. This settingof objective targets would allow for greater transparency and accountability in the actions carried out by municipalities. Providing financial rewards for achieving these targets would stimulate the commitment and efficiency of municipal managers.

The determination of the school performance of municipalities as the maincriterion for distributing FMDB resources would contribute to increasing the effectiveness of education policy. Adopting these evaluation elements would allow the municipality whose administrative management showed better educational performance to receive more resources from FMDB.

This study points out the result of the Brazil Test and the number of students to establish the amount of resources for municipal public education with features to motivateusers. These indicators present the "RACER" qualities: relevant, acceptable, credible, easy to monitor, and robust.

IV. Model

Budgetary scarcity imposes the need to enhance educational performance within a budgetary framework primarily centred on funding educational expenses. However, thispursuit of efficiency can create a conflict of interest among education stakeholders, including users of public education, taxpayers, and educators. Faced with this budgetarychallenge and the conflicting interests of various stakeholders, it becomes imperative to explore strategies to improve educational performance while addressing budget limitations.

This study selected two non-financial input variables and one output variable as prerequisites for employing Data Envelopment Analysis (DEA) to assess the operationalefficiency of municipal public schools. This careful selection of input variables reflectedthe intention to prevent past expenses from influencing the scores. The chosen output variable was the score on the Brazil Test received by municipalities, which is considered the superior learning metric and an essential performance indicator. Due to its decision toexclude elements related

to school approval and dropout rates, which the IDEB includes,it differs from the IDEB, an alternative index for student performance evaluation.

In this way, using these input variables and one output variable allowed for an objective comparison of educational performance among municipalities, enabling the assessment of relative efficiencies. Subsequently, the model compared the performance of the k municipalities in 2019 and established a ranking focusing on scores in Portugueseand mathematics.

It is essential to emphasise the goal of reducing costs and improving school scoresin the Brazil Test. Savian and Bezerra (2013) previously used this approach to develop an efficiency index for evaluating public resources' use in the early elementary educationyears (1st to 5th grade) in Paraná municipalities. Additionally, a study conducted by Lourenço et al. (2017) analysed the effectiveness of education spending in the 250 largest municipalities in Brazil based on the number of enrollments in elementary education. Based on technical efficiency scores, the study discovered that only 5.2% of the sample performed in a way that was considered efficient. Researchers found most of these resultsin the country's North and Northeast.

In this institutional arrangement, there is the need to equalise the maximisation ofthe well-being of the educational group, demanding the improvement of the quality of educational service at the lowest cost, with the latter wishing the highest remuneration with the least effort. Jensen and Meckling (1976) corroborate this finding by pointing outthe need for control to minimise this dilemma.

Continuing our exploration of strategies to address budget constraints in the educational sector, it is crucial to consider potential sources of financing for public expenditures. One possibility is creating savings in the education sector by reducing costs.Given the budgetary shortage to finance national priorities, there is a need to find new sources of financing for public expenditures. Among the possibilities is creating savingsin the education sector by reducing costs. This increase in the efficiency of municipal spending would allow leftover resources for the respective treasuries. These surplus resources would make it possible to shift spending on public primary education to investments in other areas.

Building on the idea of creating savings in the education sector, we can now delveinto a specific method for assessing the fiscal gains and efficiency improvements associated with this approach. The Data Envelope Analysis (DEA) estimates the fiscal gain. This calculation begins with identifying the most efficient municipalities by state toserve as a reference for the least efficient. The more efficient municipalities, which haveachieved better results with less resources, are used as benchmarks for the others. The fiscal economy is then calculated with the equalisation of public primary education to show that the adequacy of the sector's productivity would release resources for investmentin other social areas and public investment in the municipalities. The salary items and other expenditures of the municipal public primary education, present in the subfunctionof basic education, were taken from the FINBRA-STN to calculate the efficiency of eachmunicipality with the DEA. The product, the 2019 Brazil Test data, and the number of students were collected on the Ministry of Education website. The product is calculated with the score achieved by the municipality in Brazil Test multiplied by the number of students in public primary education per municipality. Thus, it attempted to objectively compare performance and relative efficiencies using two input variables and one product.The use of DEA identifies municipalities that can produce more with less resources by comparing the results achieved by the municipalities.

This calculation is possible because Charnes, Cooper, Lewin, and Seiford (1997) developed a non-parametric technique to measure the relative efficiency of Decision-Making Units (DMUs), establishing an indicator of the assessment of these units' input/product ratio. The technique, called DEA in the CCR model, of constant scale returns defines the curve of efficiency, or maximum productivity, considering the optimal input/product ratio.

Equation 1 provides the scope of the k-third municipality's efficiency score. Inthis equation, the goal is to minimise the sum of the multiplication between the inputs x_{jk} and the weights v_j. This equation is subject to three restrictions. The first, presentedin equation 2, expresses that none of the inputs can be reduced without the other being increased or the products being reduced. Equation 3 sets in a unit the sum of the multiplication between the quantities produced y_{ik} and their respective weights u_i.

Thus, for the same product y_{ik}, there is a minimisation of the x_{jk} inputs used. If the sum for the k-third municipality equals 1, the minimum possible result obtained for θ_k is 1, which is the result of the efficient municipalities. If the sum of the k-third municipality is greater than 1, it will be classified as inefficient. The third restriction, expressed in equation 4, states that the product, inputs, and weights are non-negative.

(1) $Efic(municipality_k) = \min \theta_k = \sum_{i=1}^{m} v_j \, x_{jk}$, subject to restrictions:

(2) $\sum_{i=1}^{m} u_i y_{ik} - \sum_{j=1}^{n} v_j \, x_{jk} \leq 0$

(3) $\sum_{i=1}^{m} u_i y_{ik} = 1$

(4) $y_{ik}, x_{jk}, u_i, v_j \geq 0$

Where:

θ_k = the efficiency index of k –and k = 1,..., z ésimo município e k = 1,..., z

z = number of municipalities, in this case z = 4959
u_i = product weight i, being i = 1,..., m and u _i > 0, sendo i = 1,..., m e u_i> 0
v_j = weight of input j, being j = 1,..., n e v_j > 0
m = number of product types, in this case m = 1
n = number of input types, in this case n = 2
y_{ik} = quantity of product i for municipality k
x_{jk} = quantity of input j for municipality k
y_{i0} = quantity of product i for the municipality under analysis,
x_{j0} = quantity of input j para o município em análise

V. Results

Promoting Efficiency in Primary Education and Evidence-Based Policies.

For a more comprehensive approach to the issue of municipal spending on primaryeducation, it is crucial to assess the efficiency of these expenditures and examine the development and implementation of public education policies. Within discussions on the effectiveness of primary education provision, it is crucial to recognise the importance ofevidence-based policies. Therefore, politicians cannot compensate for the inefficiency ofpublic policy with additional resources, which would be a backward action. Thus, the only way to adequately address societal needs is by increasing efficiency and rationalisingpublic spending.

The incentive system in education policy has an intrinsic flaw: the more inefficientthe public policy appears, the higher the likelihood of increasing the allocation of additional funding for improvements. The new FMDB has precisely increased theallocation of federal resources for public education policy. In this regard, the only true way to meet social demands is by promoting efficiency and rationalising public expenditures.

Mueller (2020), May (2012) and Howlett & Cashore (2020) cite inadequate identification of a central problem and poorly formulated clear objectives as causes of theobserved inconsistency of in public policy. The Public Choice School attributes these deficiencies to the actions of interest groups and voters. This analysis, in turn, often leadsto recommendations that resource allocation should predominantly adhere to technical criteria and comply with a list of good governance requirements, as indicated by scholarssuch as Robinson (2015 and 2007) and Dunleavy and Hood (1994).

Ferguson (1990) argues that it is impossible to eliminate politics from public policies completely. This contention arises because public policies are unlikely to be entirely free from political influences and diverse interests. This is why political analysisplays a crucial role in studying and understanding public policies. Authors can work to reshape public policies and thus mitigate the actions of politicians. Many initiatives are working to reduce the influence of lobbying groups on public policies. Regulatory Impact Analysis (RIA) and Post-Implementation Assessment of Regulations in Brazil and OECDcountries are two types of regulations meant to improve public policy.

In line with the concern to improve public policy efficiency, as mentioned earlier,municipal efficiency analysis has revealed that reducing unnecessary municipal expenditures in primary education can yield significant fiscal gains. However, for these gains to be lasting and improve education quality, it is crucial to consider how resourcesare allocated and how educational policies are designed.

This outcome would be different if education policy were evidence-based. In thisway, optimising the available financial resources for education would be possible, directing them more effectively. Allocating resources based on one-earmarked revenue exacerbates this unsatisfactory outcome by limiting the government's flexibility to address other urgent needs. For example, the ageing population has led to a decrease in the number of school-age children, as observed by Nunes & Nunes (2023) and Rigotti (2012), and has escalated the demand for pension and healthcare services, as highlighted by Jesus & Spengler (2019).

Therefore, when promoting efficiency in primary education, it is equally important to consider how educational policy is formulated, how resources are allocated, and how empirical evidence can guide these decisions. By adopting evidence-based and performance-focused approaches, municipalities can save resources and provide higher-quality education for their citizens, thereby contributing to a more prosperous and equitable future.

By linking two inputs—salaries and other costs—and the output, the municipality's score on the Brazil Test, the DEA determined how well state-funded municipal public primary education spending was working. This analysis estimated the relative efficiency of municipal educational expenditures by comparing them with the performance of the most efficient municipality in each state. As a result, Table 1 in the work lists the two most efficient municipalities for each state, individually identified by their respective IBGE codes.

Table 1
Municipalities with the highest efficiency concerning education expenditure resulted in Brazil Test by state in 2019.

City Code	State	Municipality	City Code	State	Municipality	City Code	State	Municipality
110146	RO	Pimenteiras do Oeste	231090	CE	Piquet Carneiro	330240	RJ	Macaé
110148	RO	São Felipe D'Oeste	230100	CE	Aquiraz	330270	RJ	Maricá
120010	AC	Brasiléia	240450	RN	Guamaré	355020	SP	São Miguel do Arcanjo
120040	AC	Rio Branco	241142	RN	Santana do Seridó	354720	SP	Santana da Ponte Pensa
130440	AM	Urucurituba	251065	PB	Parari	412555	PR	São Manoel do Paraná
130220	AM	Juruá	250485	PB	Coxixola	412627	PR	Saudade do Iguaçú
140002	RR	Amajari	261160	PE	Recife	420075	SC	Alto Bela Vista
140010	RR	Boa Vista	260720	PE	Ipojuca	420209	SC	Barra Bonita
150215	PA	Canaã dos Carajás	270850	AL	São Luís do Quitunde	431725	RS	Santa Tereza
150553	PA	Parauapebas	270680	AL	Piaçabuçu	432235	RS	União da Serra
160015	AP	Pedra Branca do Amapari	280200	SE	Divina Pastora	500080	MS	Anaurilândia
160030	AP	Macapá	280150	SE	Carmopólis	500797	MS	Taquarussu
171515	TO	Novo Alegre	291992	BA	Madre de Deus	510729	MT	São José do Povo
170950	TO	Gurupi	292920	BA	São Franciso do Conde	510680	MT	Porto dos Gaúchos
210005	MA	Açailândia	316190	MG	São Gonçalo do Rio Abaixo	520910	GO	Goiatuba
210015	MA	Água Doce do Maranhão	316660	MG	Serra da Saudade	521225	GO	Lagoa Santa
220198	PI	Brejo do Piauí	320430	ES	Presidente Kennedy			
220207	PI	Cajazeiras do Piauí	320280	ES	Itapemirim			

Source: Elaborated by author.

The analysis of municipal efficiency revealed the fiscal benefits of raising all municipalities to the same primary education level. Cutting down on wasteful municipalspending on primary education and using the most efficient municipality in each state asa model could make significant fiscal gains without needing more austerity measures. Table 2 presents state-specific data regarding the resources needed to enhance theperformance of the less efficient decision units.

Table 2 presents the results by region, offering a comprehensive breakdown of thefindings based on geographical areas. This table compares municipalities' efficiency levels in different regions, shedding light on any variations or trends that may emerge across the study area.

In the northern region, the state of Roraima exhibited the lowest efficiency inequality among its municipalities. These municipalities demonstrated comparable levels of efficiency. This consistency can be attributed to the state's relatively small number of municipalities, which fosters a more equitable allocation of resources and encourages collaborative efforts. Moreover, these municipalities lack significant socio- economic disparities.

Drawing from the theory of public choice, a convergence of circumstances in a state like Pará—characterised by a high-income concentration, a substantial number of municipalities, and concurrently, a low Human Development Index (HDI)—can cultivatean environment conducive to politicians driven by self-interest, resulting in more assertive behaviour. Consequently, the state experienced an output slack of R$ 3,022,263,219.11.

In this context, the heightened demand for public services emerges due to a largerpopulation of voters with incomes below the median and reduced expectations from public service users. Because powerful interest groups often influence policies, this situation makes political appeals more important while reducing the role of public serviceusers. This framework favours the endeavours of lobbyists as they pursue their specific interests.

In the northeast, Pernambuco was the northeast state where municipalities could obtain the most significant fiscal gain. It is a state with greater potential for increasing itsfiscal revenue in the Northeast region. However, it is noteworthy that, at first glance, thereis no clear, obvious reason to explain this phenomenon. The state does not necessarily stand out for the highest income concentration in the region or the absolute number of municipalities. In this context, a possible explanation for this disparity is the need to improve the state's educational management. On the other hand, Ceará exhibits a smallerdisparity in educational performance compared to the region. The state boasts the best educational outcomes in the country. There is a strong government effort to improve theeducation of its municipalities.

In the Southeast region, it becomes evident that disparities in fiscal gains and educational performance are also noticeable among the states. The state of Rio de Janeiropresents a distinct scenario, as indicated by Table 2, showing that Rio de Janeiro exhibitsa lesser fiscal gain. This can be attributed largely to the relatively smaller disparities in educational performance among its municipalities. However, São Paulo, which has a highlevel of education, exhibited a high output slack. This result is explained by the high educational expenditure in the state and the large number of municipalities.

In the South Region, Rio Grande do Sul showed the highest fiscal gain. This resultcan be attributed to it being the state with the most municipalities and the highest GDP. Conversely, Santa Catarina had the lowest output slack due to having the lowest GDP andthe fewest municipalities. Compared to other regions, the South Region exhibits a strongeducational performance.

Goiás exhibited the highest output slack in the Midwest, while Mato Grosso do Sul had the lowest. These results can be attributed to the number of municipalities and the GDP of these federative entities. Larger municipalities tend to allocate more resourcesto education, which can result in higher output slack. Additionally, states with more municipalities may experience greater fiscal gains within the state.

In summary, the analysis conducted through DEA underscores the importance ofoptimising municipal spending on primary education across Brazil. Balancing municipalities to achieve a similar efficiency level can yield significant fiscal benefits without additional austerity measures. Identifying the less efficient decision units in eachstate allows for a fairer allocation of resources and an opportunity for policy improvement. Furthermore, our study highlights the influence of regional factors, such asstate size and educational performance, on fiscal efficiency. These findings provide insights that should be taken into account by policymakers and public administrators, aiming to enhance the quality of education and the effective use of public resources nationwide.

The existence of many municipalities with small populations and budgets makes it difficult to equalise the conditions of public schools. There are numerous municipalitieswith populations below 5,000 inhabitants across the country. These small municipalitiesare funded through federal and state resources. Furthermore, the cost of public services in these municipalities is higher due to diseconomies of scale. There is a state department structure for a small number of students, which increases the cost of education.

Table 2
DMUs, Expense and Output Slack

Northern R gion			
DMUs (States)	(a) Education expenditure	(b) output slack	(b/a)
Rondônia	1,108,197,452.53	613,931,462.96	55.40%
Acre	441,399,399.87	75,139,030.65	17.02%
Amazonas	355,826,916.27	102,394,898.44	28.78%
Roraima	473,864,616.26	29,972,104.15	6.33%
Pará	6,410,155,122.43	3,022,263,219.11	47.15%
Amapá	343,892,428.65	171,147,194.61	49.77%
Tocantins	1,063,961,256.80	478,252,500.62	44.95%
Total	10,197,297,192.81	4,493,100,410.53	

Northeast Region			
DMUs (States)	(a) Education expenditure	(b) output slack	(b/a)
Maranhão	3,068,716,906.23	3,068,716,906.23	100.00%
Piauí	2,391,652,753.26	1,148,806,965.69	48.03%
Ceará	6,775,847,335.38	2,232,332,876.36	32.95%
Rio Grande do Norte	1,943,716,601.93	1,158,657,732.82	59.61%
Paraíba	2,578,058,398.11	1,531,179,844.83	59.39%
Pernambuco	5,754,253,884.27	3,513,319,042.04	61.06%
Alagoas	2,546,615,201.31	1,117,696,938.48	43.89%
Sergipe	1,513,662,152.24	690,746,284.66	45.63%
Bahia	11,011,669,165.17	6,579,328,045.59	59.75%
Total	26,572,523,232.73	14,461,456,591.12	

Southeast Region			
DMUs (States)	(a) Education expenditure	(b) output slack	(b/a)
Minas Gerais	11,282,526,259.36	7,683,331,441.55	68.10%
Espírito Santo	3,458,545,533.18	2,431,131,078.26	70.29%
Rio de Janeiro	11,574,217,883.09	5,437,514,840.34	46.98%
São Paulo	39,062,361,177.14	28,485,948,119.94	72.92%
Total	65,377,650,852.77	44,037,925,480.09	

Southern Region			
DMUs (States)	(a) Education expenditure	(b) output slack	(b/a)
Paraná	8,413,942,652.41	4,542,291,274.92	53.99%
Santa Catarina	5,330,401,544.59	2,930,883,336.62	54.98%
Rio Grande do Sul	4,484,295,932.17	3,320,755,739.48	74.05%
Total	55,812,832,527.07	31,834,714,987.73	

Central-West Region			
DMUs (States)	(a) Education expenditure	(b) output slack	(b/a)
Mato Grosso do Sul	1,804,312,530.23	921,332,535.51	51.06%
Mato Grosso	2,572,711,088.39	1,498,722,012.83	58.25%
Goiás	3,276,200,529.57	2,102,869,707.00	64.19%
Total	81,694,696,804.43	47,151,569,594.08	

Source: Elaborated by author.

VI. Conclusion

The article addresses educational policy and the efficiency of public spending oneducation in the Brazilian context. The paper emphasises the importance of adopting evidence-based approaches to improve education quality and optimise public resource use. To preserve the interests of taxpayers, the government must efficiently spend what requires public policies to optimise the use of resources. This public intervention requires recurrent re-evaluations of public action with measures to increase the benefit and reducethe cost. Public spending in the education sector must increase society's well-being. It presents measures to expand students' learning and improve the economic return on educational expenditures.

Section II outlines the structure of municipal educational policy, showing how theMaintenance and Development of Education (MDE) received federal and subnational government funding to support public education policies. The federal government contributes resources to the National Fund for Education Development (NFED) and allocates additional funds to the lowest-income subnational entities to finance minimum education expenditures. The FMDB is one of the funding sources for the NFED. Constitutional and extraconstitutional norms establish the financial conditions for implementing public policy, with the Federal

Constitution and Law 14.113/2020 playingprominent roles in shaping education expenditure.

Notably, federal and state revenue sharing plays a significant role in financing municipal education expenditures, particularly benefiting municipalities with lower GDPper capita. This progressive tax distribution aims to reduce income inequality and support underdeveloped regions, promoting educational growth in disadvantaged communities. Itensures that all municipalities have equal opportunities to educate their citizens.

However, the complexity of criteria for resource allocation, including multiple objectives, reveals shortcomings in the design of public action. These transfers favour replacing teachers' salaries and utilising socio-economic criteria rather than student performance, hindering transparency and clarity in defining objectives.

Nonetheless, allocating resources to reduce income disparities among municipalities fails to equalise their disparities. Public policy requires a larger budget to address the needs of municipal schools in small municipalities because its revenue is primarily dedicated to personnel expenses. This inequality reflects a flaw in current education policies. The varying performance of schools can be attributed to inadequate school infrastructure in certain municipalities and unequal educational access. Some schools have access to a broader array of educational resources, including well-equipped libraries, scientific laboratories, and up-to-date technology, while others still need these conditions. These schools are situated in municipalities with higher revenue. Therefore, the disparate performance of municipal schools within the same state underscores the necessity of reforming the configuration of education policy. Federal public policy shouldincorporate the practises implemented in the Municipality of Sobral, given that this municipality has a successful track record of enhancing education.

In Section III, the discussion centers on the allocation of financial resources for education, its impact on the public budget, and the government's flexibility to address other needs. The section argues that evidence-based education policies can potentially optimise available resources by directing them more effectively. It underscores the importance of earmarking revenues for specific objectives and prioritising student investment, school infrastructure, teacher training, and appropriate curriculum.

The Model (Section IV) and the Results (Section V) analyse municipal efficiencyin public spending on primary education in Brazil. It employs Data Envelopment Analysis(DEA) to identify each state's less efficient decision units. The findings demonstrate thatbalancing municipalities to achieve a similar efficiency level can lead to significant fiscalgains without additional austerity measures. The text highlights the influence of regional factors, such as state size and educational performance, on fiscal efficiency.

In summary, the study emphasises the importance of a more efficient and evidence-based approach in formulating educational policies in Brazil. It suggests that simply increasing resources is not enough; it is necessary to rethink how these resourcesare allocated. By adopting more effective and performance-driven practices, Brazil can enhance the quality of education and ensure a more efficient use of public resources, allowing education spending to contribute to GDP growth.

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Glossary

tax

- Industrial Product Tax – export (IPT- export): The Industrial Product Tax - export (IPT-export), or "Imposto sobre Produtos Industrializados - exportação" in Portuguese, is a tax related to industrial products in Brazil. It is a federal tax levied on products that are manufactured and destined for exportation. The IPT-export is designed to tax industrial products produced in Brazil but intended for foreign markets.
- Inter Vivos Property Transfers Tax (IVPTT), also known as Imposto sobre Transmissão de Bens Imóveis Inter Vivos (ITBI) in Portuguese, is a tax imposed by Brazilian municipalities on the transfer of real estate or property between living persons. It is a local tax, meaning that each municipality in Brazil may establish its own rules and rates for ITBI, subject to certain federal guidelines. ITBI is an essential source of revenue for municipalities, and it helps fund various local services and infrastructure projects.
- Municipal Participation Fund (MPF): The Municipal Participation Fund (MPF), known as "Fundo de Participação dos Municípios" in Portuguese, is a fund established in Brazil to distribute federal tax revenue among municipalities. It is one of the mechanisms used to ensure that local governments receive a portion of the taxes collected by the federal government.
- Property Tax on Motor Vehicles, known as "Imposto sobre a Propriedade de Veículos Automotores" (IPVA) in Portuguese, is a tax levied on motor vehicles in Brazil. It is an annual tax that vehicle owners are required to pay. IPVA is a state-level tax, and each state in Brazil has its own legislation and rates for this tax.

- Rural Land Property Tax (Imposto sobre a Propriedade Territorial Rural or ITR) is a tax in Brazil that is levied on rural properties. It is similar in some aspects to property taxes in other countries but specifically applies to rural land in Brazil. ITR is governed by federal law and is collected by the federal government.
- Tax on Circulation of Goods (TCG): The Tax on Circulation of Goods (TCG), known as the "Imposto sobre Circulação de Mercadorias e Serviços" (ICMS) in Portuguese, is a state-level tax in Brazil.
- Tax on Services, known as "Imposto Sobre Serviços" (ISS) in Portuguese, is a municipal-level tax imposed on the provision of services in Brazil. ISS is one of the main sources of revenue for municipalities, and it is governed by municipal legislation. Each municipality in Brazil has the authority to establish its own ISS rates, rules, and regulations within the framework of federal law.
- Urban Real Estate and Property Tax (UREPT), or Imposto Predial e Territorial Urbano in Portuguese, is a municipal tax imposed on urban properties such as land, houses, apartments, and commercial establishments in urban areas. This tax is a significant revenue source for Brazilian municipalities and is used to finance local public services such as infrastructure maintenance, healthcare, education, and security.
- Tax on Financial Operations (TFO), applies to transactions involving "gold financial assets" with a 1% tax rate or, in portugue, IOF-ouro.

Funds

- Articulated Actions Plan (AAP)- eqp; Program for financing equipment acquisition for Municipal Schools of Early Childhood Education and Municipal Schools of Elementary Education in Brazil. In Portuguese, it is denominated FNDE/PAR-aquisição de equipamento para as escolas. In Portuguese, it is denominated FNDE/PAR- aqui eqp.
- Articulated Actions Plan (AAP) Program by FNDE and the Ministry of Education to enhance primary public education in Brazil. It consists of a set of actions and goals that are planned and implemented in partnership with states and municipalities to promote improvements in the quality of education. The AAP involves voluntary and supplementary technical and financial assistance from NFED and the Ministry of Education to support educational networks in achieving their educational objectives. In Portuguese, it is denominated FNDE/PAR.
- Direct Money to Schools Program (DDMSP) is a Brazilian government program that directly provides financial resources to public basic education schools, allowing these institutions greater autonomy in managing funds and making decisions for improving infrastructure and educational quality. The main feature of PDDE is that funds are transferred directly to schools' bank accounts without other agencies' involvement, which helps prevent misuse and excessive bureaucracy. In Portuguese, it is denominated Programa Dinheiro Direto na Escola (PDDE).
- Fund for the Maintenance and Development of Basic Education and Valorization of Education Professionals (FMDB), or Fundo de Manutenção e Desenvolvimento da Educação Básica, is a special fund established in Brazil to finance basic education in the country. It was created by Constitutional. It comprises resources from various sources, including the collection of state and municipal taxes, transfers from the federal government, and other sources. These resources are allocated to early childhood education, elementary education (including high school), and youth and adult education. An important feature of FUNDEB is that it establishes a minimum percentage of resources that states and municipalities must allocate to education, helping to ensure adequate funding for the sector.
- Maintenance and Development of Education (MDE) refers to the financial resources allocated to maintain and enhance the educational system. It is governed by constitutional provisions that mandate different levels of government to allocate a specific percentage of their revenue toward education. These allocations are vital to ensure that the education sector receives adequate financial support for its continued operation and improvement. The MDE serve various purposes, including:
    - Professional Development: Funding for ongoing professional development programs for educators is another important component of MDE.
    - Quality Improvement Initiatives: MDE may be used to fund programs to improve the overall quality of education and educational outcomes.
    - School Transportation: In some cases, MDE funds may be used to provide transportation services to students, especially in areas where access to schools is challenging.
    - Special Education Programs: Some MDE funds may be allocated to support special education programs and services for disabled students.
    - Teacher Salaries: A significant portion of MDE funds is designated for paying teachers' salaries.
    - Technology Integration: Investment in educational technology and digital resources to enhance the learning experience.
    - Educational Materials: These funds are used to purchase textbooks, learning materials, and educational resources necessary for effective teaching and learning.
    - Infrastructure Maintenance: MDE funds are used to maintain and repair school facilities, ensuring they remain safe and conducive to learning.
- Ministry of Education/AAP-scholar bus. Allocate resources for the acquisition of equipment for Municipal Schools in Brazil. MEC/PAR - School Bus.
- National Fund for Education Development (NFED) is an agency under the Ministry of Education in Brazil; this fund has a Brazilian denomination de Fundo Nacional de Desenvolvimento da Educação (FNDE). It plays a fundamental role in the financing and management of educational policies in the country. Among its main responsibilities, the NFED administers programs and actions related to education, including allocating