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A THE RELATIONSHIP OF EDUCATION EXPENDITURE AND ITS REFLECTION IN THE MUNICIPAL DEVELOPMENT INDEX IN THE EDUCATION DIMENSION, IN THE CITIES OF ZONA DA MATA, MINAS GERAIS[1]

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ABSTRACT

The article sought to shed light on the importance of education in the development of society. However, social indicators indicated unfavorable situations, with the Human Development Index, which is divided into three dimensions (longevity, income and education), its worse performance in education, a context aggravated by the socioeconomic differences perceived in the municipalities of the Zona da Mata. Secondary data on municipal collection and education expenditures were collected from the Minas Gerais Social Responsibility Index on the population at the Brazilian Institute of Geography and Statistics and on the municipal development indexes collected from the Atlas of Human Development of the municipalities, prepared in partnership with the United Nations Development Program, the Institute of Applied Economic Research and the João Pinheiro Foundation. The result was somewhat distressing, since the calculations indicated that there was no correlation between spending on education and elevation of the index. However, the outcome of the research corroborates other studies, which indicate that several factors need to be evaluated in order to obtain an outcome that accurately portrays this reality.

KEYWORDS: **Education, Local Development, Public Investment.**

A RELAÇÃO DAS DESPESAS COM EDUCAÇÃO E SEU REFLEXO NO ÍNDICE DE DESENVOLVIMENTO MUNICIPAL NA DIMENSÃO DA EDUCAÇÃO, NAS CIDADES DA MATA DE MINAS GERAIS

RESUMO

O artigo buscou lançar luz sobre a importância da educação no desenvolvimento da sociedade. Porém, os indicadores sociais apontaram situações desfavoráveis, com o Índice de Desenvolvimento Humano, que se divide em três dimensões (longevidade, renda e educação), seu pior desempenho na educação, contexto agravado pelas diferenças socioeconômicas percebidas nos municípios da Zona da Mata . Os dados secundários de arrecadação municipal e gastos com educação foram coletados do Índice Mineiro de Responsabilidade Social e da população no Instituto Brasileiro de Geografia e Estatística e os índices de desenvolvimento municipal coletados do Atlas de Desenvolvimento Humano dos Municípios, elaborado em parceria com o Programa das Nações Unidas para o Desenvolvimento, Instituto de Pesquisa Econômica Aplicada e Fundação João Pinheiro. O resultado foi um tanto angustiante, uma vez que os cálculos indicavam que não havia correlação entre os gastos com educação e a elevação do índice. No entanto, o resultado da pesquisa corrobora outros estudos, que indicam que diversos fatores precisam ser avaliados para se obter um resultado que retrate com precisão essa realidade.

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1 INTRODUCTION

The educational system is pointed out by many theorists as one of the most relevant means of change and responsible for alleviating deficiencies, facilitating professional qualification as an important instrument for achieving social welfare. Theoretical contributions have demonstrated the vital role played by education in explaining the rapid progress of many world economies in the last century.

In economic theory, long-term development is achieved through education. Hersey and Blanchard (2007) assert that the sustained development of an economy is due to the technological advancement resulting from study, research and development. Education is essential for the development of the human being and as an implication for the social and economic development of a nation (ZOGHBI et al., 2009).

It is important to highlight the direction of causality between education and economic growth. According to Bonilla Cárdenas (2013), some researchers argue that the growth of education can be explained based on the data of a country's growth. Thus, the greater the economic growth, the more the governmental system will invest in the education of its population. Although some researchers defend the causality of economic growth for education, this article sought to shed light on the hypothesis of education as a determinant of the growth of development indicators.

Langoni (1973) was one of the first economists to highlight the importance of education as a determinant of social inequality. In his book "Income Distribution and Economic Development in Brazil: A Reaffirmation", the author presented studies in which part of the increase of Brazilian inequality between 1960 and 1970, which happened due to the increase in demand for skilled labor, linked to industrialization. Barros, Henriques and Mendonça (2000) and Barros and Mendonça (2000), corroborating the work of Langoni (1973), pointed out that one of the primary social problems in Brazil occurred due to the low level and poor distribution of the education system in the Brazilian population. Some difficulties still persist, such as access to school, especially by members of economically disadvantaged families, in addition to school backwardness and the poor quality of teaching offered in some educational institutions.

Although the constant evolution of Brazilian schooling in recent years is noticeable, as Fígoli (2006) points out, it is possible to notice the decrease of the part of the society without any formal education and that the student's time in the school is increasing, reducing the evasion school. However, Brazil still has a long way to go until it reaches reach levels equivalent to those of developed countries.

In 1996, the Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério (FUNDEF) was implemented, implemented since January 1998. FUNDEF allocated 15% of the revenue from States and municipalities to the establishment of a fiscal fund, in each State, in which the resources were distributed between the State and its municipalities, according to the number of students enrolled in the local elementary school network. FUNDEF, moreover, proposed a minimum national amount of expenditure per student to be observed in each State.

When the State did not have resources to reach the minimum amount, a supplement was instituted by the federal sphere.

According to Abrucio (2010), the effects of municipalization of educational policies were quite unequal, since negative results were also generated. In the midst of this scenario, the lack of resources to meet the demands of the population and the low administrative capacity are highlighted, which causes difficulties in establishing and implementing governmental programs and inclement weather that undermine the democratization of municipalities, such as corruption, clientelism and "prefeiting", that is, the excess of power in the hands of the mayor and the little interest of society to participate in public management. Consequently, there is no charge for the social control of expenditures by overseeing the management of public resources, in an attempt to ascertain whether their constitutional rights are being fulfilled.

The idea that education is one of the foundations of a country's development is not new. For several decades, it has been the subject of debate by researchers in almost all areas of knowledge. The education system is a banner used by political actors around the world. However, it is important to contrast with the data to see how the real situation of this important sector is, which is one of the pillars of society.

Due to the fact that public education is an obligation of the municipality, it is indispensable to consider the relationship between expenses incurred in relation to Education. Thus, research that aggregates Public Finance into Education is important to better understand the performance of education systems.

This article aimed to examine the relationship between expenditures in municipal public education and its reflexes in HDI education, for a heterogeneous set of cities in the mesoregion of Zona da Mata Mineira, over a decade. This research was justified by the fact that per capita spending on education is not always reflected in quality in education and therefore in improving indicators.

2 RELATIONSHIP BETWEEN EXPENSES IN EDUCATION AND ITS REFLEXES IN THE HDI-EDUCATION

The HDI was divided into three dimensions: Education, Longevity and Income. The Education dimension is calculated by means of two indicators: the educational level of the adult population and the educational flow of the young population, the longevity being measured by means of life expectancy at birth and the income measured by per capita income. The indicator changes between 0 (no human development) and 1 (total human development). Municipalities with HDI up to 0,499 show low estimated human development; 0.500 and 0.799 are considered medium human development; and cities with HDI above 0.800 have high human development (PINTO, COSTA; MARQUES, 2013).

It is worth noting that considering the three dimensions of the index, only the cities of Sericita, Pedra Bonita, Fervedouro, Orizania, Araponga and Cipotânea are in the low human development range. However, 26 cities, representing just over 18% of the total cities in the Zona da Mata in

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Minas Gerais, were in high human development in 2010. Appendix1 presents the statistical data of the HDI-Education in the 142 cities of the Zona da Mata de Minas in the years 2000 and 2010.

The 10 cities with the highest growth in the Human Development Index in the HDI Education dimension are: Lima Duarte, Paula Cândido, Alto Rio Doce, Santa Cruz do Escalvado, Porto Firme, Faria Lemos, Reduto, Rosario de Limeira, Rio Espera and Aracitaba, with emphasis on the first four, with growth above 100% of the indicator.

However, the situation is still worrying when considering the Education dimension, since the teaching condition in the Zona da Mata, in general, inspires attention. As shown in Figure 01, only the city of Juiz de Fora is in the high educational development zone, among the 142 cities in the Zona da Mata, considering the last Census of 2010. According to Veloso (2011), in municipalities where the municipal education system has a large participation in primary education, the percentage of 25% of the revenue was insufficient to cover the costs of education. Similarly, spending per student in poorer cities was very low.

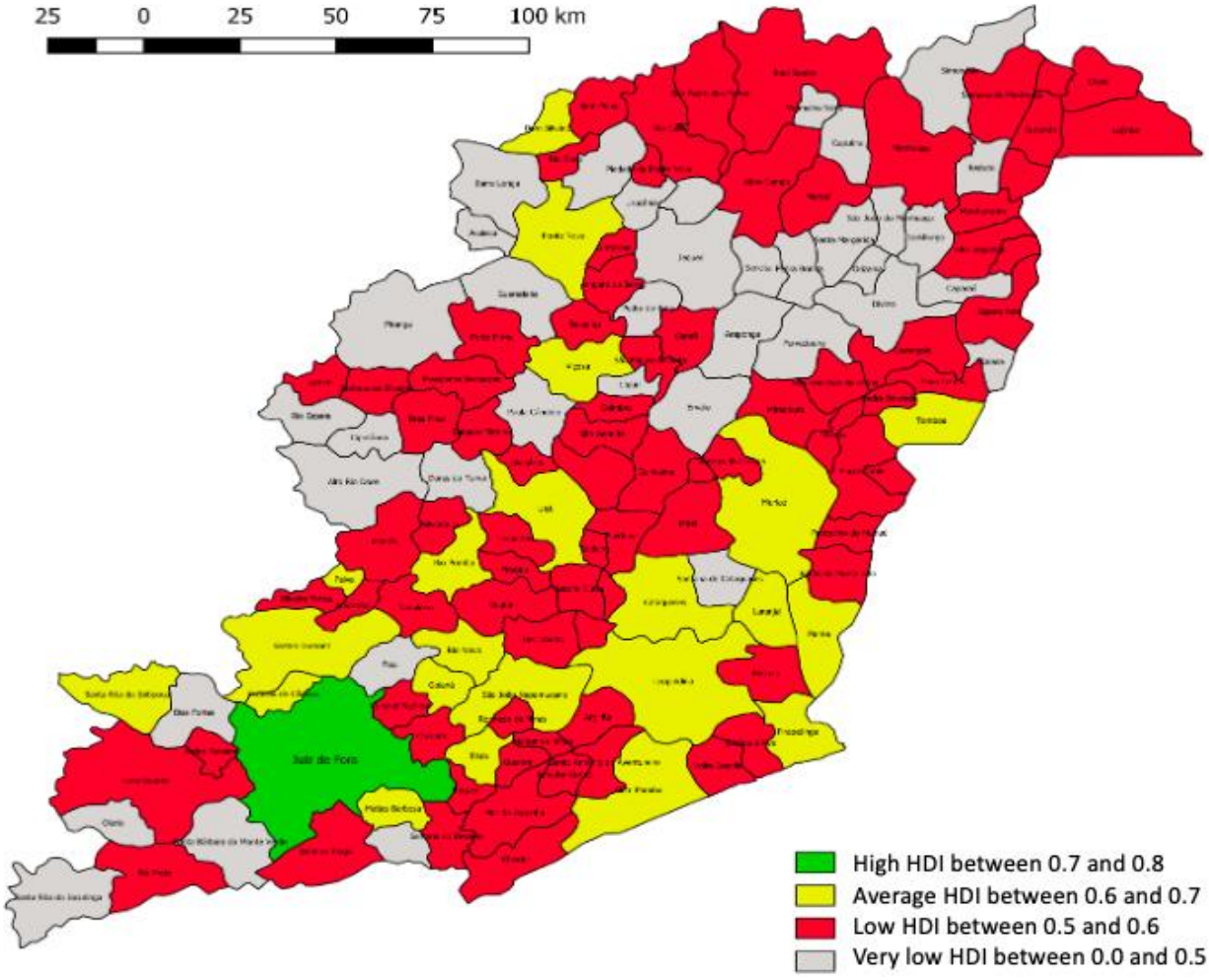

Figure 01: Map of the HDI education in the cities of Zona da Mata Mineira, 2010

To determine the expenditure associated with education in the cities surveyed, one must take into account the hypothesis that they comply with the legal definition in force in Article 212

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of the Federal Constitution, that is, that municipalities link education to 25% of tax revenues transferred to them. In this way, Figure 02 illustrates in the map of cities that comply with and disregard this constitutional norm.

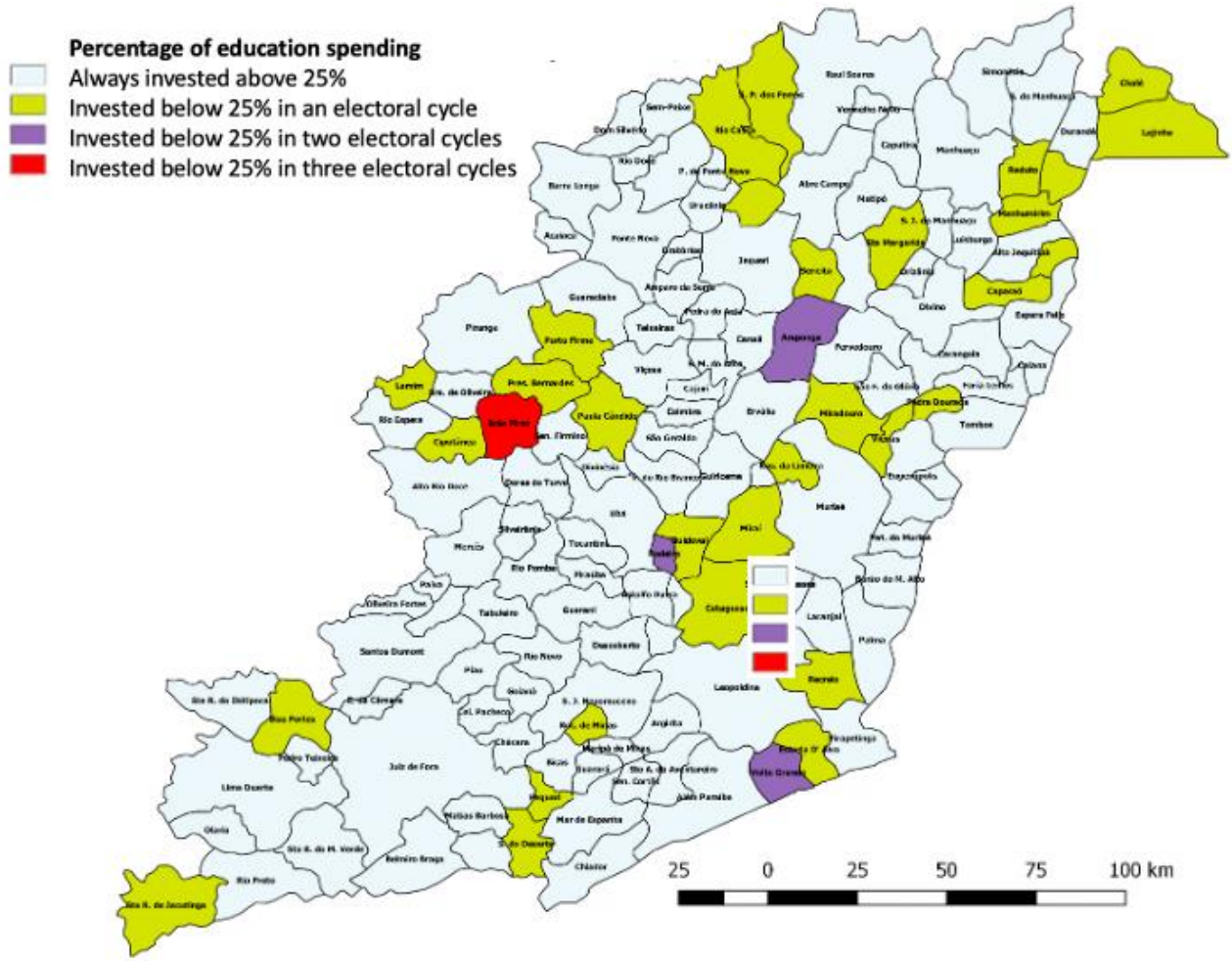

Figure 02: Map of the cities of the Zona da Mata of MG that meet the article nº 212 of the Federal Constitution of 1988.

The city of Brás Pires presents a negative result, since it invested less than 25% in education during three years. The cities of Araponga, Rodeiro and Volta Grande did not invest the 25% goal in two years, while another 31 municipalities (Figure 02) did not reach the goal of educational spending in a given year.

The city of Aracitaba had the highest average percentage of investment in education in the period from 2000 to 2010 (32.54%), resulting in growth in the HDI-EDUCATION of 87.29%, well above the municipal average, which was 49, 24%. The city that had the worst average investment in the

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analyzed period was Pirapetinga, with an average of 25.29%, and the growth in the HDI-EDUCATION was below average, with growth of 32.08%.

It was observed that the city of Aracitaba was the one that had the highest average budgetary percentage in education, and its average HDI-Education also had considerable growth. However, it is noted that there is no stability between the two indicators, since the 10 cities that allocated the highest average percentage to education during the decade did not always obtain good results from the HDI-Education. As a negative example, we highlight Silverânia, who had an average expenditure on education of around 30% of the budget and growth of the HDI-Education in the period of less than 20%.

According to Veloso (2011), in cities where the municipal education system has a large participation in elementary education, the percentage of 25% of revenue was insufficient to cover education costs. Similarly, spending per student in poorer cities was very low. To alleviate this situation, instruments for the redistribution of resources of basic education between municipal and state education system were instituted, aiming to reduce the inequality of spending per student and to increase the efficiency of the allocation of resources. For this purpose, the Fund for the Maintenance and Development of Primary Education and Valorization of Teaching (FUNDEF) was implemented in January of 1998.

Although FUNDEF has been an important instrument in the development of Elementary School, its methodology of resource distribution has generated problems for the other levels of education. In order to adjust this distortion, the Fund for Maintenance and Development of Basic Education and Valorization of Education Professionals (FUNDEB), which succeeded FUNDEF, came into force in 2007. FUNDEB focuses on a Fund for Basic Education in each State, in the manner of FUNDEF, but covering Early Childhood Education, Secondary Education and Youth and Adult Education (VELOSO, 2011).

It is worth noting that in 2001 the Federal School Grant was established, which determined the payment of R $ 15.00 per child between 6 and 15 years of age for families with monthly income per capita of up to R $ 90.00. On the other hand, children of school age would need to remain enrolled in school and attend classes at least 85%.
In 2004, the Family Grant was established, which linked Bolsa Escola to other income transfer programs. The counterpart of this program includes monitoring the health and nutritional status of families and the obligation to attend school for schoolchildren. In 2008, the Variable Benefit Linked to the adolescent was established, paid to all families with 16 and 17 year olds attending school (VELOSO, 2011).

One of the great difficulties in measuring the effects of expenditures on education comes from the fact that these not only influence the lives of those who are educated but also motivate a chain of effects on the well-being of the whole community. Despite this difficulty, the measurement is by means of some data that need to be explored, among which the average per capita investment for education is highlighted.

Perhaps the greatest challenge is to discover means that, with the limited capacity of resources and the difficulty of expanding spending on education, may result in an improvement in the quality of education and, consequently, increase social indicators, especially the HDI.
In addition, the results of investments in education are diverse. Because they have many dimensions, these resources can be realized via progress in the quality or quantity of education. Otherwise, investments in education can be diversified at the level at which they occur, and may be related to an improvement in Infant, Primary and Secondary Education (BARROS; MENDONÇA, 1997).

Data from the research by Menezes-Filho (2001) point out that economic returns linked to education have been decreasing over time, which is partly justified due to the process of educational expansion itself, which has increased the relative supply of people with Elementary Education is medium.

This expansion of relative supply, however, may also have caused a great increase in the unemployment and informality of these people, which may impact social indicators. "It is also possible that the resources that actually arrive in schools are smaller than official expenditures due to corruption or are allocated for uses other than those that were destined" (VELOSO, 2011, 220). To verify the investment reality of each city, we sought the average investment of the 142 municipalities in the years 2000 to 2010, reaching the average percentage of investment in the Zona da Mata of Minas Gerais of 27.5%, slightly above constitutional percentage. In order to visualize this coefficient broadly, we calculated the standard deviation to verify which cities invest above this deviation and which are spending below it.

The question that guides this article is whether there is a relationship between average investment in education and growth of the HDI in the education variable. One of the tools used to verify this phenomenon is the Pearson correlation coefficient (r), which measures the degree of linear correlation between two quantitative variables.

The Pearson correlation coefficient formula is expressed in:

(1)

$$r = \frac{142 * 17.853{,}96 - 36.555{,}37 * 69{,}91}{\sqrt{142(11.623.291{,}95) - (36.555{,}37)^2}\sqrt{142(41{,}48) - (69{,}91)^2}}$$

r = -0,0365

A correlation coefficient close to zero suggests that there is no relationship between the two variables and, the closer they approach 1 or -1, the stronger the relationship. Figure 3 shows that not always a high expenditure per capita per student is the guarantee of quality in education.

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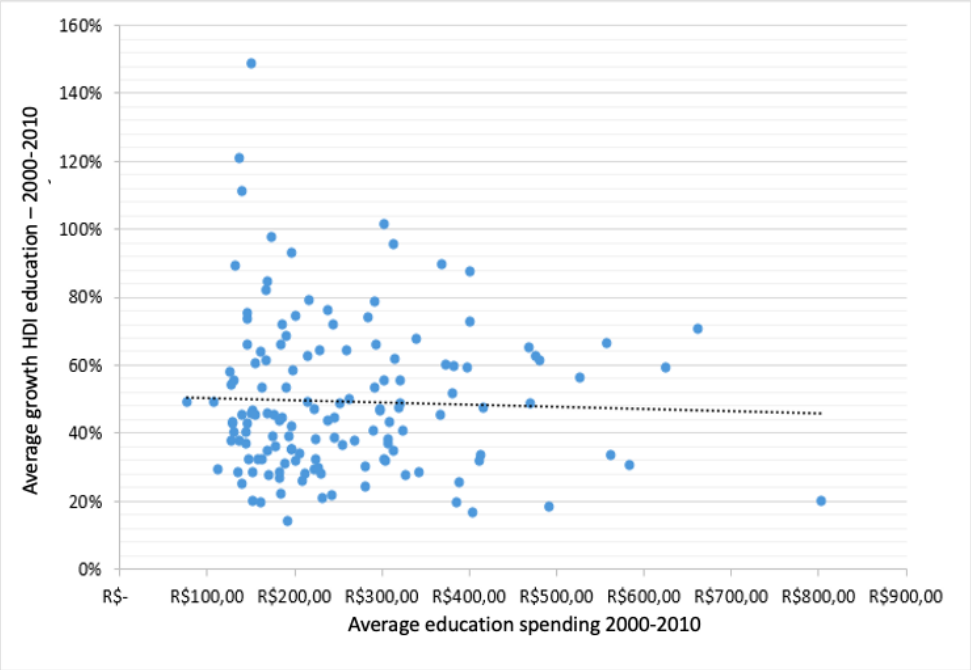

Figure 03: Dispersion of values between growth HDI education and educational expenditures between 2000-2010.

The average per capita investment per student in the cities with the highest growth in the period was R$ 232.00, demonstrating that the most important thing to invest in large numbers is to manage well the resources invested in education.

The results indicate that there is no correlation between the investment in municipal education and the elevation of the HDI in the cities of the Zona da Mata. However, this result seems to be contrary to what many consider, a fact that can be explained by the omission regarding the inspection and verification of the destination of these resources. Another factor that must be considered is the possibility of increasing expenses with long-term expenses, since the acquisition of equipment, works, vehicles, reforms, etc., in turn, does not provide immediate results.

However, in the context of academic research, the observations about the relationship between educational quality and financial resources for education are quite controversial. In general, the economic literature corroborates the results of this research, indicating that education expenditures have no direct association with school performance (HANUSHEK, 1997).
Even the data pointing out that there is no correlation between investment in education and elevation of the HDI-Education, Figure 04 shows that in the analyzed period there was a considerable growth of the indicator.

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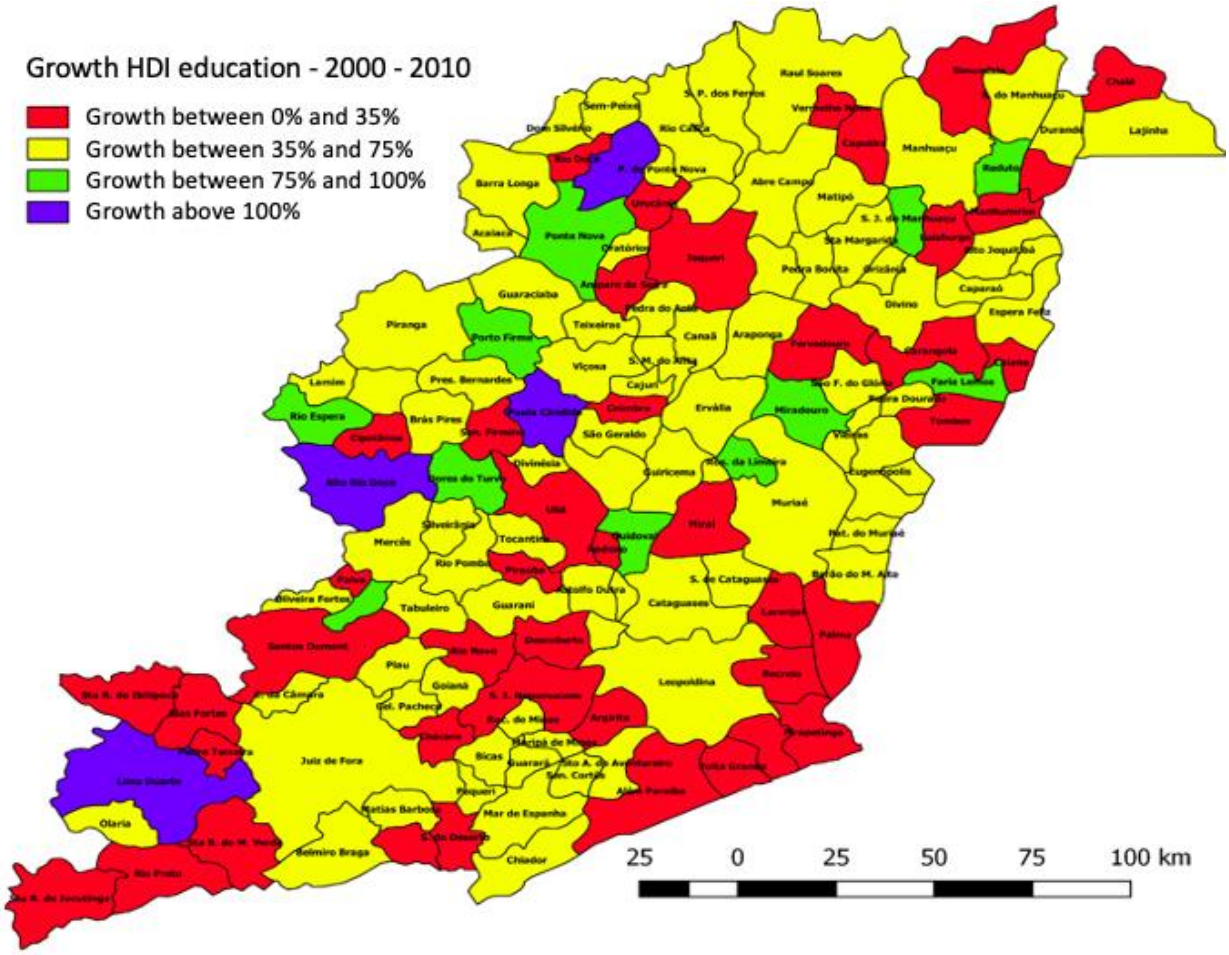

Figure 04: Map Growth of the HDI Education of the cities of Zona da Mata de MG - 2000/2010

Of the 142 cities analyzed, 42 presented growth below 35% in the 10-year period. This number is extremely worrying, considering that this amount represents approximately 30% of the municipalities of the mesoregion of Zona da Mata, Minas Gerais. However, four cities made great progress in the HDI, especially Lima Duarte, Paula Cândido, Alto Rio Doce and Santa Cruz do Escalvado, which grew by over 100% in the period analyzed. Manhumirim, Argirita, Santa Bárbara do Monte Verde, Silveirânia, Além Paraíba, Jequeri and Pedro Teixeira presented the smallest trends in education data, with growth below 20% in the analyzed period.

According to Soares and Marota (2009), there are indications that expenditures on education do not basically produce unbiased results, because the results of quality investments happen in a selective manner. The analogies found indicate that advances in educational quality through more inputs can benefit, in a privileged way, certain cities or schools. One likely explanation for this may be the unequal distribution of quality and equity attributes in our educational system.

Bonilla Cárdenas (2013) states that empirically it is not possible to conclusively prove whether education is decisive in explaining the growth of certain communities. According to this author, there is no alignment in the findings of research on the subject, arguing whether this may be

related to the sample used, the quality of the data used and the need to include complementary variables, in the sense that education alone can not produce results.

The Zona da Mata mining is an important region of the State of Minas Gerais, and the result found in the municipalities surveyed, more specifically in the educational sector, is worrisome. This is because the data indicate a large volume invested, but with low returns, which reveals once again the sad reality that most Brazilian municipalities live with, with little public interest in offering quality education.

3 CONCLUSION

The changes that occurred in educational policy since the 1988 Constitution, when education became a social right, were diverse, ensuring the increase of the HDI-Education in the period studied, which has shown considerable growth, however it is still the most deficient variable of the HDI. With the decentralization of education, the Public Administration had to adapt to new management mechanisms, mainly in the determination of new technical criteria in the allocation of resources and financial actions.

However, at the same time that some progress had been made, it was necessary to create new mechanisms for evaluating education systems, especially in the way cities apply the financial resources. This is why this research corroborates several others, which came to show that there is no correlation between expenditure per capita in education and evolution of education indicators, in Brazil.

From the personal point of view, education can be an instrument for improving the quality of life. However, it is believed that the benefits motivated by education can outweigh its particular effects. The breadth of external effects of education is, however, little known and complex to estimate. Levin and Kelley (1994) have evaluated the assumptions of many public policy makers, where education represents a way out of problems of inequality, productivity, and economic growth. Researchers point out, based on findings from previous research, that advances in education can only stimulate economic growth if there are opportunities to employ this more skilled workforce.

According to Heidemann (2014), the more public power is concerned with the production of mere services and consumer goods for a society stratified into organized interest groups in political subsystems, the same dimension diminishes the ability of the public manager to pay attention to issues more urgent, such as education. Therefore, social and political transformations have moved certain segments of society, pressing the government to reformulate public policies and the administrative method used. In order to serve the population with quality, it is necessary to demand from the State more active positioning and with more effective educational actions, establishing a true commitment with the society.

Understanding education as a continuous training procedure, which demands cohesive and daring actions, guiding all conceived activities, in which the quality of teaching is objectified, it becomes indispensable to care for and renew the structure of relations in the political and educational fields. In this context, there is a need for public policies, especially in the municipal sphere, in what

concerns educational actions, be structured in continuity from one administration to another, always seeking commitment to human development (HDI) and trusting that education is a an indispensable premise for change in society.

In addition to promoting cultural development, education provides important mechanisms of democratization, which represent the values of solidarity and harmony and new forms of production and consumption. Faced with this reality, education, as a theoretical model, offers many options. At the beginning of a new millennium, education presents itself as a great challenge, while the performance of the school system does not show basic quality results. However, new theoretical matrices and technologies emerge, and municipalities do not yet have the necessary consistency to indicate truly safe paths in a time of deep and rapid transformations.

Education is the great capital of society. It is not just the transnational capital that needs it for technological innovation. It is basic to the survival of all, and therefore should not be marketed, but rather offered to the entire population. This is the function of public power, and it is hoped that the education of the future will be more democratic and less exclusionary. That should be our goal and our challenge. Unfortunately, given the lack of public policies in the sector, society faces the knowledge industries, depreciating a probable humanist vision, which makes it a tool for profit and economic power.

In general, education must foster society so that it can develop the competence to govern and control economic development and the market. The school needs to set the example, to dare to build the future. Innovation is more important than reproducing with quality what exists. The raw material of education is your vision of the future.

It can be concluded that the government guarantees education, but its effectiveness is linked to the availability of other resources that operate as integrators for this variable. For a more precise view and to be able to sustain what are the variables that prevented the existence of the correlation between educational expenses and elevation of the HDI in the Education dimension, a more detailed examination of the local reality of each municipality studied is necessary, In specific cases such as the one found in the city of Silverania and Aracitaba, they deserve further study which can be an indicator for future research.

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Appendix

Appendix1 - Growth of the HDIH Education and statistical data of the cities of Zona da Mata de MG 2000-2010

Municipality	Average Spending Education 2000/2010	Lower Spending Education 2000/2010	Higher Spending Education 2000/2010	HDI Education 2000	HDI Education 2010	Increase HDI Education
Abre Campo	R$ 170,06	R$ 103,01	R$ 251,78	0,36	0,525	45,83%
Acaiaca	R$ 299,20	R$ 130,14	R$ 494,69	0,341	0,499	46,33%
Além Paraíba	R$ 163,33	R$ 99,49	R$ 290,37	0,524	0,626	19,47%
Alto Caparaó	R$ 264,97	R$ 143,09	R$ 419,78	0,343	0,514	49,85%
Alto Jequitibá	R$ 148,06	R$ 81,68	R$ 239,66	0,291	0,483	65,98%
Alto Rio Doce	R$ 141,66	R$ 44,43	R$ 251,31	0,25	0,528	111,20%
Amparo da Serra	R$ 281,01	R$ 142,90	R$ 770,71	0,46	0,572	24,35%
Antônio P. de Minas	R$ 403,15	R$ 207,37	R$ 878,25	0,334	0,577	72,75%
Aracitaba	R$ 402,19	R$ 254,92	R$ 1.205,81	0,181	0,339	87,29%
Araponga	R$ 176,15	R$ 108,59	R$ 345,96	0,364	0,505	38,74%
Argirita	R$ 403,97	R$ 223,35	R$ 826,36	0,488	0,567	16,19%
Astolfo Dutra	R$ 146,39	R$ 97,10	R$ 198,94	0,304	0,533	75,33%
Barão do M. Alto	R$ 478,14	R$ 136,60	R$ 2.290,61	0,296	0,482	62,84%
Barra Longa	R$ 191,18	R$ 84,21	R$ 343,99	0,315	0,531	68,57%
Belmiro Braga	R$ 290,89	R$ 167,42	R$ 461,15	0,353	0,495	40,23%
Bias Fortes	R$ 242,89	R$ 127,39	R$ 457,59	0,548	0,667	21,72%
Bicas	R$ 186,16	R$ 50,54	R$ 312,78	0,315	0,523	66,03%
Brás Pires	R$ 240,18	R$ 113,93	R$ 376,61	0,336	0,483	43,75%
Caiana	R$ 301,98	R$ 187,71	R$ 448,62	0,369	0,487	31,98%
Cajuri	R$ 298,68	R$ 158,59	R$ 495,30	0,362	0,532	46,96%
Canaã	R$ 229,48	R$ 130,09	R$ 461,69	0,288	0,473	64,24%
Caparaó	R$ 256,53	R$ 112,66	R$ 446,63	0,345	0,471	36,52%
Caputira	R$ 185,50	R$ 95,31	R$ 408,70	0,47	0,573	21,91%
Carangola	R$ 135,66	R$ 77,67	R$ 241,95	0,533	0,685	28,52%
Cataguases	R$ 128,36	R$ 17,77	R$ 200,03	0,373	0,512	37,27%
Chácara	R$ 388,77	R$ 224,54	R$ 566,36	0,449	0,561	24,94%
Chalé	R$ 164,18	R$ 88,08	R$ 348,18	0,424	0,559	31,84%
Chiador	R$ 469,56	R$ 249,64	R$ 958,94	0,265	0,437	64,91%
Cipotânea	R$ 169,35	R$ 114,05	R$ 221,55	0,414	0,558	34,78%
Coimbra	R$ 224,43	R$ 143,82	R$ 335,48	0,439	0,565	28,70%
Coronel Pacheco	R$ 383,80	R$ 203,80	R$ 562,32	0,375	0,599	59,73%
Descoberto	R$ 231,77	R$ 152,49	R$ 331,56	0,438	0,559	27,63%
Divinésia	R$ 325,59	R$ 203,37	R$ 512,06	0,3	0,421	40,33%
Divino	R$ 145,29	R$ 47,53	R$ 253,84	0,455	0,636	39,78%

Dom Silvério	R$ 225,28	R$ 151,18	R$ 337,95	0,433	0,598	38,11%
Dona Euzébia	R$ 216,07	R$ 136,09	R$ 320,63	0,301	0,49	62,79%
Dores do Turvo	R$ 292,36	R$ 144,70	R$ 610,69	0,285	0,508	78,25%
Durandé	R$ 152,04	R$ 88,83	R$ 235,91	0,315	0,46	46,03%
Ervália	R$ 140,97	R$ 75,68	R$ 252,14	0,358	0,52	45,25%
Espera Feliz	R$ 147,66	R$ 80,47	R$ 281,08	0,403	0,574	42,43%
Estrela D' Alva	R$ 414,36	R$ 196,34	R$ 872,60	0,414	0,551	33,09%
Eugenópolis	R$ 186,70	R$ 104,23	R$ 278,21	0,417	0,601	44,12%
Ewbank da Câmara	R$ 294,34	R$ 177,02	R$ 414,71	0,361	0,598	65,65%
Faria Lemos	R$ 313,35	R$ 197,93	R$ 489,98	0,215	0,42	95,35%
Fervedouro	R$ 159,26	R$ 100,03	R$ 310,46	0,488	0,644	31,97%
Goianá	R$ 285,34	R$ 176,12	R$ 622,92	0,284	0,493	73,59%
Guaraciaba	R$ 151,85	R$ 88,68	R$ 251,78	0,366	0,533	45,63%
Guarani	R$ 196,73	R$ 115,30	R$ 319,28	0,376	0,532	41,49%
Guarará	R$ 321,67	R$ 209,11	R$ 470,17	0,366	0,569	55,46%
Guidoval	R$ 218,81	R$ 104,58	R$ 766,60	0,322	0,576	78,88%
Guiricema	R$ 131,15	R$ 76,63	R$ 260,31	0,409	0,572	39,85%
Itamarati de Minas	R$ 399,52	R$ 214,78	R$ 712,60	0,284	0,451	58,80%
Jequeri	R$ 152,51	R$ 74,78	R$ 246,54	0,594	0,711	19,70%
Juiz de Fora	R$ 167,77	R$ 9,53	R$ 264,73	0,336	0,541	61,01%
Lajinha	R$ 188,25	R$ 86,33	R$ 386,37	0,318	0,546	71,70%
Lamim	R$ 270,00	R$ 163,87	R$ 498,09	0,446	0,613	37,44%
Laranjal	R$ 206,06	R$ 115,19	R$ 390,09	0,475	0,635	33,68%
Leopoldina	R$ 137,14	R$ 15,21	R$ 240,03	0,429	0,59	37,53%
Lima Duarte	R$ 151,06	R$ 52,53	R$ 269,65	0,183	0,455	148,63%
Luisburgo	R$ 196,20	R$ 109,66	R$ 317,70	0,416	0,563	35,34%
Manhuaçu	R$ 108,13	R$ 39,64	R$ 187,02	0,396	0,589	48,74%
Manhumirim	R$ 192,39	R$ 112,50	R$ 294,62	0,488	0,558	14,34%
Mar de Espanha	R$ 164,61	R$ -	R$ 415,06	0,362	0,555	53,31%
Maripá de Minas	R$ 417,87	R$ 241,95	R$ 651,26	0,347	0,512	47,55%
Martins Soares	R$ 227,88	R$ 126,97	R$ 360,06	0,476	0,616	29,41%
Matias Barbosa	R$ 245,28	R$ 61,94	R$ 420,57	0,298	0,511	71,48%
Matipó	R$ 131,67	R$ 57,97	R$ 209,24	0,332	0,515	55,12%
Mercês	R$ 162,18	R$ 112,56	R$ 267,30	0,334	0,546	63,47%
Miradouro	R$ 239,69	R$ 134,71	R$ 394,16	0,322	0,567	76,09%
Miraí	R$ 183,79	R$ 127,73	R$ 277,43	0,493	0,634	28,60%
Muriaé	R$ 128,33	R$ 9,34	R$ 226,69	0,318	0,49	54,09%
Olaria	R$ 471,95	R$ 302,78	R$ 779,12	0,353	0,523	48,16%
Oliveira Fortes	R$ 526,98	R$ 240,13	R$ 1.784,80	0,32	0,5	56,25%
Oratórios	R$ 374,56	R$ 167,99	R$ 594,83	0,259	0,414	59,85%
Orizânia	R$ 308,08	R$ 145,54	R$ 518,60	0,491	0,672	36,86%
Paiva	R$ 563,51	R$ 375,34	R$ 725,69	0,468	0,623	33,12%
Palma	R$ 172,20	R$ 102,29	R$ 284,48	0,453	0,576	27,15%
Pat. do Muriaé	R$ 292,42	R$ 111,94	R$ 1.459,99	0,324	0,497	53,40%

Paula Cândido	R$ 137,94	R$ 60,82	R$ 193,79	0,207	0,457	120,77%
Pedra Bonita	R$ 309,67	R$ 173,26	R$ 506,71	0,326	0,466	42,94%
Pedra do Anta	R$ 247,50	R$ 133,01	R$ 445,79	0,389	0,539	38,56%
Pedra Dourada	R$ 624,63	R$ 373,57	R$ 1.134,51	0,349	0,555	59,03%
Pedro Teixeira	R$ 803,27	R$ 315,74	R$ 4.177,37	0,465	0,557	19,78%
Pequeri	R$ 367,23	R$ 243,05	R$ 621,40	0,321	0,467	45,48%
Piau	R$ 260,22	R$ 200,44	R$ 409,06	0,321	0,528	64,49%
Piedade de P. Nova	R$ 340,62	R$ 210,60	R$ 565,92	0,275	0,461	67,64%
Piranga	R$ 130,75	R$ 52,15	R$ 237,80	0,436	0,624	43,12%
Pirapetinga	R$ 225,90	R$ 107,53	R$ 399,56	0,427	0,564	32,08%
Piraúba	R$ 209,76	R$ 99,74	R$ 545,75	0,484	0,608	25,62%
Ponte Nova	R$ 170,00	R$ 70,71	R$ 260,97	0,28	0,516	84,29%
Porto Firme	R$ 174,77	R$ 72,79	R$ 608,62	0,264	0,521	97,35%
Presidente Bernardes	R$ 194,25	R$ 119,88	R$ 337,10	0,399	0,554	38,85%
Raul Soares	R$ 155,89	R$ 81,96	R$ 252,99	0,358	0,52	45,25%
Recreio	R$ 196,63	R$ 101,92	R$ 361,07	0,435	0,589	35,40%
Reduto	R$ 196,75	R$ 106,96	R$ 357,02	0,249	0,48	92,77%
Rio Casca	R$ 253,63	R$ 137,08	R$ 419,33	0,35	0,519	48,29%
Rio Doce	R$ 412,86	R$ 241,98	R$ 619,22	0,431	0,567	31,55%
Rio Espera	R$ 132,88	R$ 78,65	R$ 200,52	0,251	0,474	88,84%
Rio Novo	R$ 212,76	R$ 113,49	R$ 323,14	0,494	0,631	27,73%
Rio Pomba	R$ 144,87	R$ 83,04	R$ 395,67	0,445	0,609	36,85%
Rio Preto	R$ 303,68	R$ 193,97	R$ 436,96	0,423	0,557	31,68%
Rochedo de Minas	R$ 481,47	R$ 322,72	R$ 667,33	0,353	0,569	61,19%
Rodeiro	R$ 184,44	R$ 127,03	R$ 297,84	0,42	0,532	26,67%
Rosário da Limeira	R$ 370,37	R$ 176,82	R$ 602,63	0,289	0,548	89,62%
Sta. B. do M. Verde	R$ 493,22	R$ 325,30	R$ 790,44	0,371	0,438	18,06%
Sta. C. do Escalvado	R$ 302,61	R$ 176,48	R$ 497,35	0,241	0,485	101,24%
Santa Margarida	R$ 146,86	R$ 79,19	R$ 268,31	0,263	0,455	73,00%
Sta. R. de Jacutinga	R$ 314,88	R$ 184,75	R$ 467,99	0,486	0,655	34,77%
Sta. R. do Ibitipoca	R$ 280,96	R$ 169,66	R$ 544,37	0,379	0,493	30,08%
Sant. de Cataguases	R$ 320,61	R$ 192,34	R$ 470,74	0,322	0,475	47,52%
Santana do Deserto	R$ 342,94	R$ 229,68	R$ 539,56	0,441	0,567	28,57%
Sant. do Manhuaçu	R$ 156,42	R$ 104,54	R$ 261,08	0,315	0,505	60,32%
Sto. A. do Aventureiro	R$ 307,53	R$ 201,68	R$ 552,72	0,396	0,545	37,63%
Sto. A. do Grama	R$ 302,14	R$ 176,09	R$ 530,32	0,317	0,493	55,52%
Santos Dumont	R$ 148,40	R$ 78,87	R$ 266,66	0,527	0,697	32,26%
São F. do Glória	R$ 223,01	R$ 103,85	R$ 409,09	0,369	0,541	46,61%
São Geraldo	R$ 77,35	R$ 45,82	R$ 110,52	0,34	0,507	49,12%
São J. do Manhuaçu	R$ 168,42	R$ 97,45	R$ 298,65	0,274	0,498	81,75%

São J. Nepomuceno	R$ 153,83	R$ 92,29	R$ 281,41	0,468	0,6	28,21%
São José do Mantimento	R$ 321,45	R$ 153,28	R$ 524,93	0,379	0,562	48,28%
São Miguel do Anta	R$ 191,43	R$ 130,23	R$ 349,21	0,342	0,523	52,92%
São P. dos Ferros	R$ 177,22	R$ 105,85	R$ 262,93	0,397	0,576	45,09%
São S. da Vargem Alegre	R$ 664,14	R$ 346,10	R$ 1.437,46	0,324	0,552	70,37%
Sem-Peixe	R$ 316,23	R$ 158,87	R$ 586,13	0,336	0,543	61,61%
Senador Cortês	R$ 558,26	R$ 329,85	R$ 1.349,59	0,321	0,534	66,36%
Senador Firmino	R$ 234,04	R$ 123,88	R$ 390,96	0,419	0,505	20,53%
Senhora de Oliveira	R$ 203,25	R$ 106,10	R$ 497,38	0,299	0,521	74,25%
Sericita	R$ 198,93	R$ 93,99	R$ 324,08	0,237	0,375	58,23%
Silveirânia	R$ 386,77	R$ 268,96	R$ 540,92	0,428	0,511	19,39%
Simão Pereira	R$ 585,28	R$ 337,84	R$ 896,48	0,366	0,478	30,60%
Simonésia	R$ 126,55	R$ 74,82	R$ 212,76	0,312	0,493	58,01%
Tabuleiro	R$ 216,44	R$ 124,88	R$ 378,32	0,388	0,578	48,97%
Teixeiras	R$ 182,88	R$ 114,44	R$ 318,11	0,388	0,558	43,81%
Tocantins	R$ 129,34	R$ 78,02	R$ 255,91	0,419	0,597	42,48%
Tombos	R$ 189,87	R$ 91,92	R$ 437,11	0,463	0,607	31,10%
Ubá	R$ 113,15	R$ 66,01	R$ 204,43	0,482	0,62	28,63%
Urucânia	R$ 203,62	R$ 129,13	R$ 290,14	0,379	0,498	31,40%
Vermelho Novo	R$ 246,63	R$ 146,33	R$ 372,84	0,329	0,475	44,38%
Viçosa	R$ 142,37	R$ 82,07	R$ 212,32	0,559	0,696	24,51%
Vieiras	R$ 381,23	R$ 224,40	R$ 636,03	0,39	0,592	51,79%
Visc. do Rio Branco	R$ 180,02	R$ 118,75	R$ 278,03	0,436	0,591	35,55%
Volta Grande	R$ 327,91	R$ 166,44	R$ 531,01	0,417	0,531	27,34%

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