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**The Decision-Making an Approach Oriented on Financing
the System of Pre-university Education**

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Abstract

Like all other public sectors, the financial investment in education must be well accounted for. Within the OECD countries, decentralizing education financing is becoming very common. As part of the decentralized system, the central government mandates sub-central governments and local schools to run an autonomous system that gives them the power to decide how to expend their budgetary allocation. This study looked at accountability for education financing in decentralized systems in the OECD and compared the results to what takes place in Romania by investigating the allocative efficiency of local authorities at the primary and secondary school levels. In order to determine the impact of this fiscal decentralization system, the researcher collected data from secondary sources to look at the effect of the practice on several educational outcomes, including policy effectiveness, efficiency, equity, and academic performance. Results are consistent with the fact that local authorities have shown competence in allocative efficiency in both the OECD countries and Romania, where fiscal decentralization is practiced, resulting in improved educational outcomes. The improved educational outcomes are similar in countries that focus the decentralized system on sub-central governments and those that focus on local schools.

Keywords: decentralized system, fiscal decentralization, education financing, sub-central government, allocative efficiency.

JEL Classification: H52, P44, P43, H61, I22, M48, H75.

1. Introduction

The International Institute for Educational Planning under UNESCO and the International Commission on Financing Global Education Opportunity, also known as the Education Commission, are both committed to finding the most effective and efficient modalities of education financing that result in desirable outcomes,

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including improved student performance and equity in education access (Guerra, Lastra-Anadón, 2019). Among the modalities that these two bodies recommend is fiscal decentralization at the pre-tertiary levels. The fiscal decentralization system simply refers to education financing where the central government gives autonomy to sub-central governments (local authorities) and local schools to spend their education budgets (Purwanto, Pramusinto, 2018). It also includes mandates given to local authorities and schools to raise their funds.

The fiscal decentralization system is now globally acclaimed and has become a common practice among the Organization for Economic Cooperation and Development (OECD) countries. The fiscal decentralization system is also prevalent in the European Union, of which Romania is a member. With the continuing popularity of the system, it is essential to understand its holistic impact on educational outcomes. The need for such assessment is further highlighted by (Cordeiro Guerra, Lastra-Anadón, 2019), who expressed the view that there are several points of authority in every decentralized system. The different authority points make it difficult to ensure accountability in decentralized systems compared to centralized systems. This situation justifies why the researcher conducted this study to find evidence of the effects of fiscal decentralization on educational outcomes.

2. Problem Statement

In 2005, the Local Government and Public Service Reform Initiative (LGI) organized a forum in South-Eastern European on education financing as part of its Fiscal Decentralization Initiative (FDI) (Bischoff, 2009). The forum aimed to encourage member countries to adopt fiscal decentralization systems for education. Bischoff (2009) notes, however, that each country has decided its path of interest in terms of the "extent and how to decentralize management and financing of public education" (p. 2). As far as Romania is concerned (Camelia et al., 2014), admit that the country's educational policies point to decentralization. However, some feel that the nature of fiscal decentralization of pre-tertiary schools in Romania only constitutes a legacy of incomplete reforms (Bischoff, 2009; Camelia et al., 2014). One of the most effective ways to determine the validity of such a notion is to conduct comparative research that uses educational outcomes among the OECD countries practicing decentralized systems as a benchmark for outcomes of Romania.

3. Aim of the Research

The research aims to assess educational outcomes in countries that practice the fiscal decentralization system for primary and secondary schools. In doing this, the following research questions will be answered:

- 1. What are the main decentralization options for funding preuniversity education?*
- 2. What data do we have about the effects of decentralizing education financing on overall education spending in the preuniversity education?*

3. *What data do we have about the effects of decentralizing education financing on student learning outcomes? Is there a link between different types of financial decentralization in education and different educational outcomes?*
4. *What data is there on the implications of decentralized education financing on educational equity? What mechanisms exist to address inequality on a subnational level? What are the terms and conditions of the transfers?*
5. *What evidence do we have about the effects of decentralization of education financing on the technical efficiency of education spending?*
6. *What evidence is there of the consequences of education finance decentralization on the efficient distribution of resources at the subnational level? What subnational procedures are in place to boost budget allocation to education?*

4. Literature Review

Some existing studies relate to the phenomenon of study, which is education financing in decentralized systems. This section has reviewed some of the existing literature relating to research questions 2 to 6. These include literature on the effects of decentralizing education financing on educational outcomes such as expenditure, students' learning outcomes, policy effectiveness, equity, and efficiency. The literature review is based on the allocative efficiency theory.

4.1 Effects of Education Financing Decentralization on Education Expenditure

There are two leading schools of thought regarding the effect of education financing decentralization on the education expenditure of primary and secondary schools. The first school of thought holds that decentralization increases the expenditure on education financing (Purwanto, Pramusinto, 2018). (Arends, 2020) noted that, as much as decentralization might have its benefits, the core system of having different heads of schools managing their budgets means allocating more funds to schools within the same jurisdiction. This situation tends to increase the overall expenditure. (Cahyaningsih, Fitriady, 2019) found that in a centralized system, many expenses, including administrative costs, are not repetitive, as is the case with a decentralized system. This is because educational financiers, most of whom are the government, require a higher financial resource to implement the decentralized system effectively. Based on this assertion, more evidence will be collected to determine whether decentralization in education financing is less successful in lower-income economies.

The second school of thought argues that education financing decentralization forces the educational managers towards a path of efficiency, which automatically positively impacts expenditure planning (Androniceanu, Ristea, 2014). For example, quite (year) asserted that increasing efficiency is a core requirement in improving the decentralization outcomes. Meanwhile, the system's efficiency is not only limited to material resources but also to financial resources. Based on this, education managers are forced to be more efficient with their expenditure, especially when they

know there is competition for national budgetary allocation from other sectors. (Grigoli, 2014) used the case of lower-income economies to make a case for the positive impact of decentralization of education financing on expenditure efficiency. In his study, he found evidence of efficient spending in secondary schools in those lower-income economies, resulting in 36% in the overall enrollment of students.

4.2 Effects of Education Financing Decentralization on Students' Learning Outcomes

The allocative efficiency theory is commonly used to analyze the impact of education financing decentralization on primary and secondary schools. According to the theory, resources should be distributed by taking into account the preferences and needs of consumers (Vidoli, Fusco, 2018). Based on the allocative efficiency theory, most researchers have argued that education financing decentralization improves students' learning outcomes, since it becomes a modality for allocating resources to the most critical areas of academic needs (Letelier, Ormeño 2018). Already, it has been established that the decentralized system could mean education managers having to increase their efficiency in order to be able to maximize the use of their allocated funds. In doing so (Todea et al., 2011) indicated that they became mandated to focus on areas of the local population's needs representing the preferred outcomes of educational learning.

(Salinas, Solé-Ollé, 2018) also supported the claim that decentralization of education financing positively impacts students' learning outcomes. On the other hand, (Heredia-Ortiz, 2007) cautioned that decentralization of financing is not an automatic guarantee for improved outcomes. To maximize the concept of allocative efficiency for its profits, primary and secondary school heads should have the ability to predict cultural and learning needs based on changing trends. When the allocation is done only concerning the current learning needs of students, it will not be possible to make competition for the future (Letelier, Ormeño, 2018). The justification of this claim is that if the future learning needs of students are not met today, it will take more resources than could be available to do so in the future since the complexity of learning increases by the day.

4.3 Impact of Education Financing Decentralization on Policy Effectiveness

Based on the allocative efficiency theory, there are two leading positions in the literature on the impact of education financing decentralization on policy effectiveness. The first school of thought is the most dominant in the literature and argues for a positive effect on policy effectiveness. According to (Salinas, Solé-Ollé, 2018), fiscal decentralization means that educational managers always have fewer mandates under their authority. Based on this, they can give their authoritative allocation as much attention and focus as will ensure quality outcomes with educational policies. Meanwhile, (Dincă et al., 2021) elucidated that the core measure of policy effectiveness is the quality of its outcomes. Diaz-Serrano and

Rogriguez-Pose (2014) noted that decentralization gives citizens and local communities more excellent representation and voice to contribute meaningfully to decision-making and ask for accountability. By inference, fiscal decentralization positively impacts policy effectiveness through more substantial stakeholder involvement in policy implementation.

However, the second school of thought holds that adverse outcomes could be related to policy effectiveness. (Simão et al., n.d.) worried that education financing decentralization could mean different local authorities would have different curricular and quality standards. This situation can result in inconsistent educational outcomes and thus negatively impact the quality of outcomes. On their part, (Arends, 2020) cautioned that the tendency of local authorities not complying with national policy initiatives and standards is very high when they are financed locally. Given that the national policy initiatives are developed based on years of expert research, one would agree that non-compliance can have a negative impact on policy outcomes. Diaz-Serrano and Rogriguez-Pose (2014) also saw that it is common to experience elite capture, where better-developed parts of the countries will have better policy effectiveness than lesser-developed parts.

4.4 Impact of Decentralized Pre-tertiary Education Financing on Equity

There is strong evidence supporting the notion that education financing decentralization positively impacts equity. As used in this context, equity refers to allocating resources based on an area's unique circumstances and conditions (Felix, Trinidad, 2020). In this regard, the call for fiscal decentralization in education does not necessarily mean advocating the same amount of resources for every area. It instead means giving an area what is due based on its ability to harness those results. The idea of education can thus be seen to relate very closely to the allocative efficiency theory (Dincă et al., 2021). (Felix, Trinidad, 2020) held that the idea of fiscal decentralization is an automatic requirement for equity. The basis for this is that financial managers plan to allocate resources based on availability for each area. This way, allocation ensures that places that need fewer funds do not get more than they can efficiently use.

Based on evidence from Mexico, a member of the OECD, (Simão et al., n.d.) found that fiscal decentralization resulted in inequity in educational opportunities, especially for students from less developed communities. (Cahyaningsih, Fitriady, 2019) asserted that it is common for less developed communities to be marginally neglected in funding education in a centralized system. This is due to the problem of elite capture. However, this decentralized system based on allocative efficiency theory defeats this tendency. It promotes scenarios where less developed communities can get higher financial allocation based on their unique educational needs. By inference, decentralization of education financing can promote equity by bridging the gap between developed and less developed areas, as already developed communities will not continue to receive more funding than they require.

4.5 Impact of Education Financing Decentralization on Efficiency

Regarding education financing, efficiency is discussed in terms of using fewer resources to achieve more significant outcomes (Kovalainen, 2021). In this sense, the impact of decentralization on efficiency is widely divided in the literature. (Todea et al., 2011) believed that decentralization leads to efficiency based on the core principle of allocating just how much an area needs. By inference, there is a closer link between efficiency and equity. That is, the fact that resources are allocated based on the unique needs of an area means that there is an assurance that they will be used to achieve those needs efficiently. This particular line of argument is justified by noting that some local governments have had more financial resources than needed in some centralized systems, leading to waste (Păunică et al., 2021).

(Simão et al., n.d.), on the other hand, asserted that education financing decentralization could harm efficiency by reducing the economies of scale. That is, decentralization means more individual or isolated units of localities to fund. Under such circumstances, achieving economies of scale by producing more units of service on a larger scale with fewer inputs becomes a defeat. This is because individual units would mean the possibility of producing on a larger scale will become nonexistent (Kovalainen, 2021). (Bîtcă et al., 2020) supported this claim by emphasizing that educational management involves much outsourcing of materials, most of which save the central government much money for the mere fact that they will be purchased on a larger scale. This situation cannot be effectively achieved in a decentralized system.

5. Research Methods

The study was conducted as a comparative analysis that used both quantitative and qualitative methods to compare the effect and impact of fiscal decentralization of pre-tertiary education on educational outcomes. The study was set in the OECD countries and Romania. This means that all data collected were from those countries. However, it must be emphasized that the researcher used a secondary data collection method. The researcher did not collect first-hand data from respondents as primary data. The need to use secondary data was justified by the amount of data required from the OECD countries and Romania. Conducting primary research would have involved participants from all those countries, which would have been difficult to achieve. The secondary data ensured that the researcher could use credible sources from different geographic locations without the need to be physically present in those places (Vaismoradi et al., 2016).

(Braun, Clarke, 2014) cautioned that secondary research could have limitations with the quality of results if the sources used are not credible, reliable, and current. Since the credibility of the sources used in the study was necessary, the researcher conducted a search strategy that helped in selecting the best available sources for the study. To achieve this, the researcher used the national educational databases of the selected countries. Most of the databases were available online and presented in the

form of Education Acts. The national constitutions of the countries were also considered appropriate.

The researcher searched online from the Education Resources Information Center (ERIC) database for academic articles with sufficient information to answer the research questions. It is essential to mention that it was not all OECD countries that the researcher found robust data on education financing at the pre-tertiary level. For this reason, the results of the study are limited only to countries with enough data to ensure a comparison. The results of the selected sources were extracted using the content analysis method. These results have been presented and analyzed as findings of the study.

6. Findings

6.1 Quantitative Results on Modalities of Decentralization in Financing Pre-tertiary Schools

The variable of modalities of decentralization in financing pre-tertiary schools simply focuses on the approaches that individual countries use in fiscal decentralization implementation. Available quantitative results on the modalities for the OECD and Romania can be categorized into the distribution of authoritative competencies (actors making decisions on expenditure) and financial sources. The table below shows four levels of government and four competencies and responsibilities to describe the distribution of authoritative competencies in the selected countries.

Table 1. Distribution of authoritative competences

Level of government	Setting quality standards	Building of schools	Purchasing school equipment	School facility inspection
Central government	15	0	0	10
Sub-central government	4	16	11	8
Schools	0	2	8	0
Shared responsibility	3	6	5	5
Missing information	2	0	0	1

Source: Simão, Millenaar and Iñigo (2019) and authors.

In Table 1, the shaded parts show where Romania belongs. From the table, it would be noted that the modality for decentralization in most countries is to have the sub-central government take responsibility for spending. However, the responsibility of setting quality standards is done by the central government in most countries. This shows that the modality of decentralization is that the central government is the initiator, while the sub-central governments are the implementers.

In terms of funding sources, the focus of the data analysis was on the distribution of expenditures at the primary and secondary school levels by the central government, sub-central, and schools. Table 2 contains data on the percentage of expenditure financed by various levels of government.

Table 2. Percentages of expenditure financing

Country	Central government	School resources	Transfer to sub-central
Chile	57%	38%	5%
Columbia	85%	0%	15%
Norway	8%	1%	91%
Mexico	29%	50%	22%
Spain	14%	0%	85%
Belgium	24%	-1%	77%
Brazil	10%	7%	82%
Denmark	12%	-7%	94%
Japan	2%	15%	84%
Switzerland	NA	3%	96%
United States	1%	11%	89%
Poland	4%	1%	95%
Finland	11%	31%	59%
France	70%	0%	30%
Hungary	30%	34%	36%
Ireland	84%	15%	1%
Italy	82%	1%	18%
Luxemburg	84%	5%	11%
Austria	40%	37%	23%
Romania	35%	5%	60%

Source: <https://stats.oecd.org/>.

Table 2 shows that even though decentralization is widespread in selected countries, the central government still plays a significant role in financing the expenditure of primary and secondary schools. This notwithstanding, half of the countries, including Romania, have sub-central governments funding more significant parts of school expenditure.

6.2 Qualitative Results on the Impact of Fiscal Decentralization on Policy Effectiveness

Data was selected from the OECD countries (only those with fiscal decentralization) and Romania relating to specific measures of policy effectiveness. Based on the study by (Simão et al., n.d.), the measures of policy effectiveness are students' performance and teacher management. In terms of students' performance, the measure for policy effectiveness is the program for international student assessment (PISA). The results from (Simão et al., n.d.) "show a positive association with PISA country average results significant at 0.6%" (p. 130). This result implies that the use of a decentralized financing system helps schools effectively implement

educational policies to improve student performance (Letelier, Ormeño, 2018). Regarding teacher management, the measures used were autonomy to recruit teachers, selection of textbooks, and in-service teacher training programs.

Teacher management results showed a "positive association obtained for decentralization of teacher management" (Simão et al., n.d., 2019, p. 134). Among the three measures of teacher management, it was found that the highest level of effectiveness was on the design of in-service training for teachers, while the least was in terms of the selection of textbooks. This result confirms that decentralization gives local authorities the opportunity to prioritize teacher development to align with their unique needs (Leider et al., 2021). Specific to Romania, (Androniceanu, Ristea, 2014) found that decentralization of financing for primary and secondary schools accounts for high teacher motivation, which translates into their output of work as measured by students' performance. By inference, the results for the OECD in terms of the impact of decentralization on educational policy effectiveness are consistent with what exists in Romania.

6.3 Impact of Different Patterns of Fiscal Decentralization on Educational Outcomes

Earlier, results had been gathered on the modalities of decentralization used in the selected countries. This resulted in different patterns of fiscal decentralization among the selected countries. As far as countries with decentralized systems are concerned, the two patterns identified are those whose financing is dominated by sub-central government and those dominated by the schools. (Simão et al., n.d, 2019) developed a decentralization index for educational outcomes whereby a score of 0 meant no decentralization and 3.6 meant maximum decentralization.

Data from the studied articles shows that the mean score for decentralization dominated by the sub-government and those dominated by the schools are the same. This infers that the average outcomes for different educational attainments are identical as some form of decentralization is practiced. However, there are some differences in terms of the minimum scores. Those whose decentralization practices are dominated by schools have lower minimum scores than those dominated by sub-government. This could suggest that, as much as overall educational outcomes could be the same, those dominated by schools may have lower scores in specific assessment areas. This claim is supported by results from (Păunică et al., 2021), who found that schools that use their resources in financing primary and secondary education have infrastructural challenges in Romania. These infrastructural challenges sometimes have a negative impact on schools in terms of maximizing enrollment and attracting experienced teachers.

6.4 Qualitative Results on the Impact of Education Financing Decentralization on Efficiency

The final section of the chapter was used to analyze the impact of education financing decentralization on efficiency. The literature review found that the

allocative efficiency theory was the main principle, justifying decentralization's positive impact on efficiency. Based on this, (Simão et al., n.d.) (2019) measured how local education managers can make superior allocative decisions and exercise allocative autonomy within the OECD countries. These results have been used to interpret the measure of decentralization on efficiency based on the theoretical relationship between allocative decisions and efficiency. Two main patterns of results were obtained. The first confirms that countries with higher scores on allocative decisions and allocative autonomy had higher efficiency with budgetary allocation.

The second line of the result was that in "both models that look at the allocative autonomy of sub-central governments and that of schools, the inclusion of the allocative autonomy variable alone (does not affect the results of regressions considerably without them" (p. 137). This infers that, while decentralization is an essential determinant of efficiency, the type of decentralization that is practiced does not influence outcomes with efficiency. Based on this result (Simão et al., n.d.) (2019) found that "some decisions in different spheres tend to be decentralized together, possibly as a strategy to promote more efficient workflows" (p. 135). These results from the OECD are not different from what (Bîtcă et al., 2020) found in Romania. It was evident that all schools in which decentralization exhibited competence with resource allocation to meet the needs of individual localities efficiently.

7. Conclusions

The research aimed to assess educational outcomes from countries that practice the fiscal decentralization system for primary and secondary schools. OECD countries and Romania were used as settings for the study, whereby secondary sources from those countries were analyzed. The study was guided by six major research questions that focused on various dimensions of quality education policies. Both the literature reviews and secondary sources addressed the six research questions. Based on results relating to the research questions, it can generally be concluded that fiscal decentralization at the pre-tertiary level positively impacts educational outcomes. In different countries, different modalities of education financing decentralization systems are used. The two commons are decentralized systems dominated by sub-central governments and those dominated by local schools. The conclusion is supportive for all these types of modalities, as no significant difference was found in terms of the outcomes of educational effectiveness and efficiency. Romania has openly adopted the decentralized system of financing its primary and secondary schools as a country. The results obtained for the OECD countries are closely related to those of Romania. Based on this, it would be concluded that decentralized financing of pre-tertiary education in Romania does not fit the description of a legacy of incomplete reform. While the system may have shortcomings, it has earned good outcomes that make it fit into a description of successful reform.

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